

Drainage Reports

Abbreviated Water and Sewer Needs

Water Study

Wastewater Study

Stormwater Waiver Application

PUBLIC AND PRIVATE UTILITY
FOR
SCOTTSDALE NATIONWIDE OFFICE BUILDING-PHASE 1
SCOTTSDALE, AZ.

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 24, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA

SCOTTSDALE GENERAL NOTES

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTIONS HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHTS-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTIONS SERVICES 24 HOURS PRIOR TO THE BEGINNING CONSTRUCTION BY CALLING 480-312-5750.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 602-263-1100, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

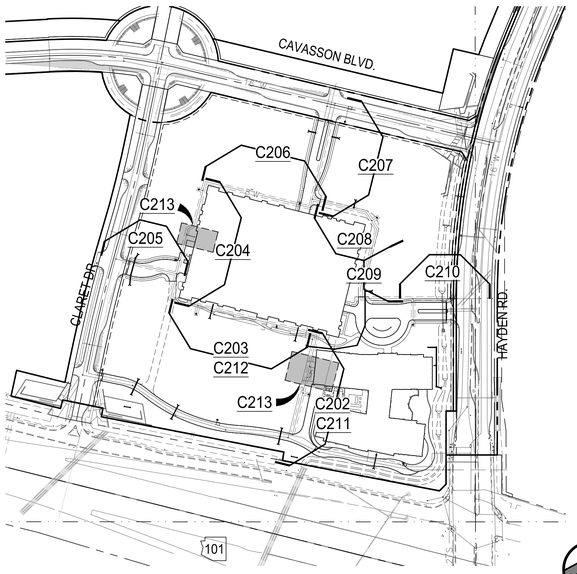
HUBBARD ENGINEERING GENERAL NOTES

1. THE PLANS PREPARED FOR THIS PROJECT PRESENT A DESCRIPTION OF THE WORK TO BE ACCOMPLISHED. THE CONTRACTOR SHALL VISIT THE PROJECT SITE AND DETERMINE, FROM HIS OWN INSPECTION, THE CONDITIONS UNDER WHICH IT IS TO BE PERFORMED. THE CONTRACTOR, BY MAKING HIS BID, REPRESENTS THAT HE HAS VISITED THE SITE AND FAMILIARIZED HIMSELF WITH LOCAL CONDITIONS, THE TYPE OF WORK TO BE PERFORMED, EVALUATED THE DIFFICULTY OF PERFORMING THE REQUIRED TASKS, AND THE LABOR, EQUIPMENT AND MATERIAL THAT ARE REQUIRED TO PROVIDE A COMPLETE PROJECT.
2. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF SAID UTILITIES IN ADVANCE OF TRENCHING. THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDER-GROUND UTILITIES SHOWN ON THESE PLANS.
3. MYLAR PLAN SHEETS FOR AS-BUILTS MAY BE PURCHASED FROM HUBBARD ENGINEERING. THE COST OF THIS ITEM SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
4. ALL HANDICAP ACCESS RAMPS, PARKING STALLS, AND DELINEATED WALKWAYS SHALL BE CONSTRUCTED AND MARKED IN ACCORDANCE WITH CURRENT FEDERAL AND/OR LOCAL A.D.A. STANDARDS AND REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL AUTHORITIES PRIOR TO CONSTRUCTING AND/OR STRIPING TO CONFIRM CURRENT REQUIREMENTS. SLOPES WITHIN THE LIMITS OF HANDICAPPED PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.
5. ALL SLOPES HIGHER THAN ONE (1) FOOT AND STEEPER THAN 20:1, UNLESS LINED WITH TURF, SHALL BE COMPACTED AND TESTED PER MAG SPECIFICATION 215. WE RECOMMEND RE-COMPACTION PER MAG SPECIFICATION 215 AFTER INSTALLATION OF IRRIGATION LINES, AND WE RECOMMEND STABILIZATION OF DECOMPOSED GRANITE.
6. UNLESS SPECIALLY NOTED OTHERWISE, THESE PLANS SHOULD BE USED FOR HORIZONTAL AND VERTICAL LAYOUT OF CIVIL ELEMENTS ONLY. (TYPICALLY WATER, FIRE, SEWER AND STORM DRAIN LINES, VALVES, FIRE HYDRANTS, MANHOLES, CATCH BASINS, HEADWALLS, DRYWELLS, ETC.). FOR ALL OTHER HORIZONTAL LAYOUT (BUILDINGS, CURBS, WALKS, ETC.) SEE ARCHITECT'S PLAN.

LEGEND

PROPOSED	DESCRIPTION	EXISTING
	EASEMENT LINE	
	LOT LINE	
UGT	UNDERGROUND TELEPHONE LINE	UGT
OHE	OVERHEAD ELECTRIC LINE	OHE
UGE	UNDERGROUND ELECTRIC LINE	UGE
F	FIRE LINE	F
GAS	NATURAL GAS LINE	GAS
S	SEWER LINE (FLOW DIR SHOWN)	S
	SEWER SERVICE LINE	
	STORM DRAIN	
W	WATER MAIN	W
	WATER SERVICE LINE	
	CONC. CURB (AND GUTTER)	
	ASPHALT PAVEMENT	
	CONCRETE PAVEMENT	
	CONCRETE SIDEWALK	
S	SANITARY MANHOLE	S
D	STORM DRAIN MANHOLE	D
	CATCH BASIN	
	FIRE HYDRANT	
	WATER VALVE	
WM	WATER METER	WV
TC=84.35 G=83.55	SPOT ELEVATION	TC=84.72 G=84.07

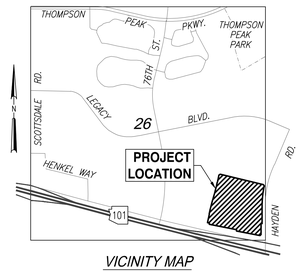
TC=TOP OF CURB
G=GUTTER
P=PAVEMENT
SW=SIDEWALK
C=CONCRETE
TW=TOP OF WALL
GFW=GRADE AT FACE OF WALL
TRW=TOP OF RETAINING WALL



KEY MAP



200 0 200 400
scale feet



VICINITY MAP
NTS

REQUIRED AS-BUILT CERTIFICATION

AS-BUILT CONSTRUCTION PLANS FOR POTABLE WATER, SANITARY SEWER AND RECLAIMED WATER (IF APPLICABLE), THE ENGINEERS CERTIFICATION OF COUNTY ENVIRONMENTAL SERVICES DEPARTMENT HAVE BEEN COMPLETED.

REGISTERED CIVIL ENGINEER DATE

WATER APPROVAL:

MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT. DATE

SEWER APPROVAL:

MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT. DATE

ENGINEER'S STATEMENT

THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

REGISTERED CIVIL ENGINEER DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER DATE

REGISTRATION NUMBER

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REP.	PHONE NUMBER	DATE SENT
ELECTRIC	SALT RIVER PROJECT (POWER)	MAIN ADMINISTRATIVE DESK	602-236-8026	12/02/2016
TELEPHONE	COX COMMUNICATIONS	TMC	623-328-4073	12/02/2016
NATURAL GAS	SOUTHWEST GAS	MARCUS WATANABE	480-730-3855	12/02/2016
CABLE TV	CENTURY LINK	ELM LOCATING	623-780-3350	12/02/2016

ENGINEER'S CERTIFICATION

I _____, AS THE ENGINEER OF RECORD FOR THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL UTILITY COMPANIES LISTED ABOVE HAVE BEEN PROVIDED FINAL IMPROVEMENT PLANS FOR REVIEW, AND THAT ALL CONFLICTS IDENTIFIED BY THE UTILITIES HAVE BEEN RESOLVED. IN ADDITION, "NO CONFLICT" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL.

SIGNATURE DATE

OWNER

NWGH, LLC
7377 E. DOUBLETREE RANCH ROAD #100
SCOTTSDALE, AZ. 85258
(614) PHONE: 857-2332
(614) FAX: 857-2346
CONTACT: DONALD MONTGOMERY
EMAIL: MONTGOD6@NATIONWIDE.COM

ARCHITECT

THE COLUMBUS ARCHITECTURAL STUDIO
405 N. FRONT STREET
COLUMBUS, OH. 43215
PHONE: (614) 541-2801
CONTACT:
EMAIL:

CIVIL ENGINEER

HUBBARD ENGINEERING
1201 S. ALMA SCHOOL RD. SUITE #12000
MESA, AZ 85210
PHONE: (480) 892-3313
CONTACT:

SURVEY

HUBBARD ENGINEERING
1201 S. ALMA SCHOOL RD. SUITE #12000
MESA, AZ 85210
PHONE: (480) 892-3313
FAX: (480) 892-7051
CONTACT: ADRIAN BURCHAM, PLS

BENCHMARK

THE EAST QUARTER CORNER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING A GLO BRASS CAP, ELEVATION = 1652.20' (NAVD88), PER THE HAYDEN ROAD SEGMENT 2 PLANS, PROJECT # 50202.

BASIS OF BEARING

THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA
MEASURED BEARING IS SOUTH 89° 58' 34" EAST

SHEET INDEX

1	C201	COVER SHEET
2-10	C202-C210	PUBLIC WATERLINE PLAN & PROFILE SHEETS
11-12	C211-C212	PRIVATE SEWER LINE PLAN AND PROFILE SHEETS
13	C213	PRIVATE WATERLINE PLAN SHEET

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL NUMBER (PANEL DATE)	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1320	L	OCT 16, 2013	AE	1'

ZONE "AE" IS DEFINED AS "BASE FLOOD ELEVATIONS DETERMINED, THE FLOODWAY IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS."

CITY OF SCOTTSDALE APPROVAL

DELTA 1 REVISIONS ~ 01/27/2015

PAVING	TRAFFIC
G & D	PLANNING
W & S	FIRE
RET. WALLS	

ENGINEERING COORDINATION MGR. (OR DESIGNEE) DATE

Call before you dig.
1.800.STAKE.IT
602.263.1100

Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 01 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C201

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Prepared For
Nationwide Realty Investors

Contract No: 17-005

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Bluestone Engineering
Technology Engineer
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Professional Seals



No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	02/04/2019

NOT FOR CONSTRUCTION

Date of First Issue:

Project No: 17-005

Sheet Title

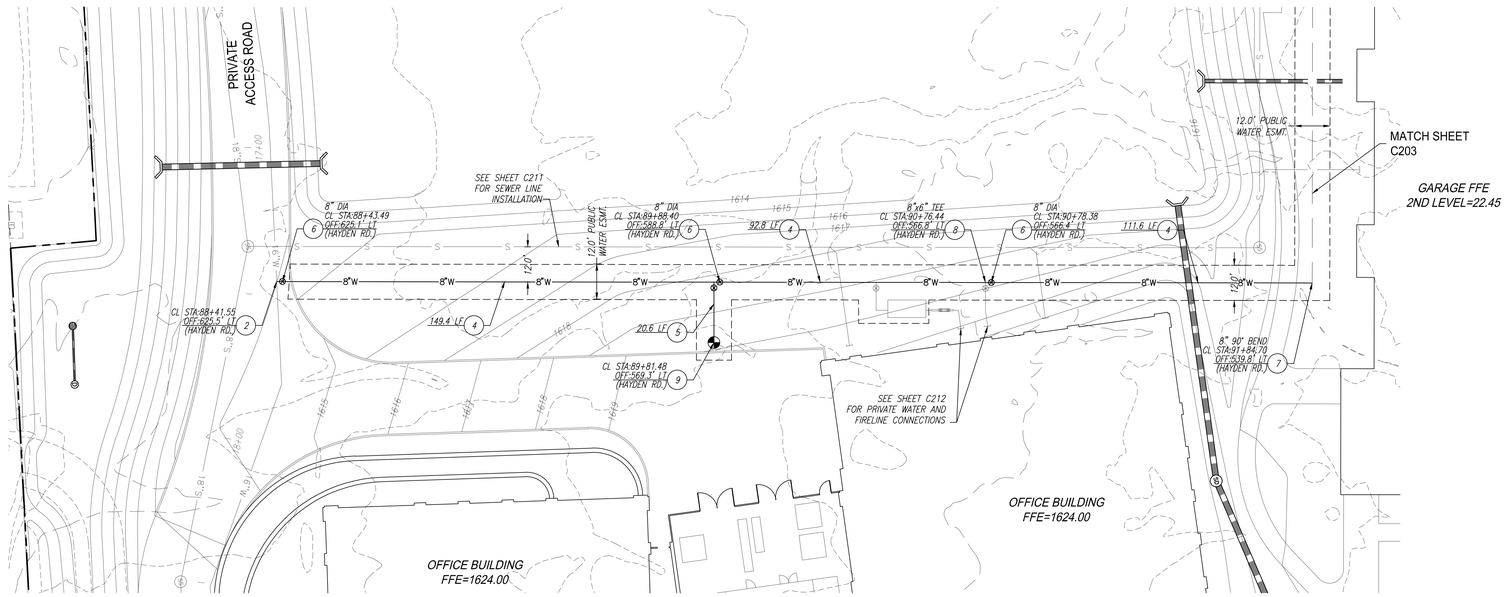
COVER SHEET

Original drawing is 44 x 34. Do not scale contents of this drawing.

Sheet Number

C201

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PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
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9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.

20 0 20 40
scale feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 02 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C202

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No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	02/04/2019

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Date of First Issue:

Project No: 17-005

Sheet Title

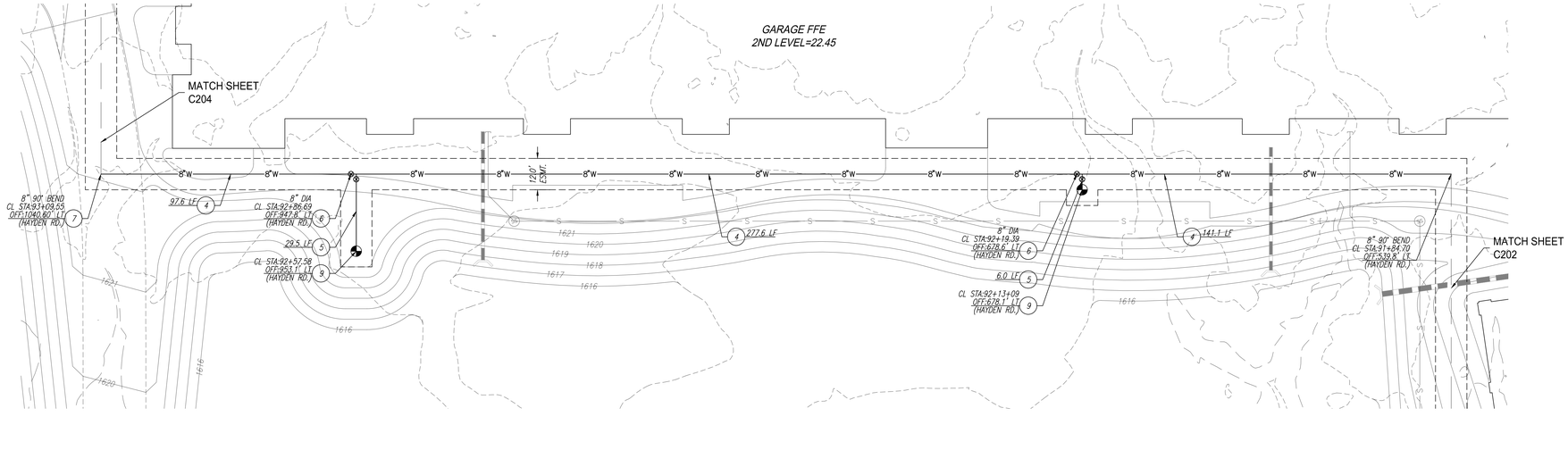
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C202

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PUBLIC UTILITY NOTES:

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20 0 20 40
scale feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 03 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C203

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Date of First Issue:

Project No: 17-005

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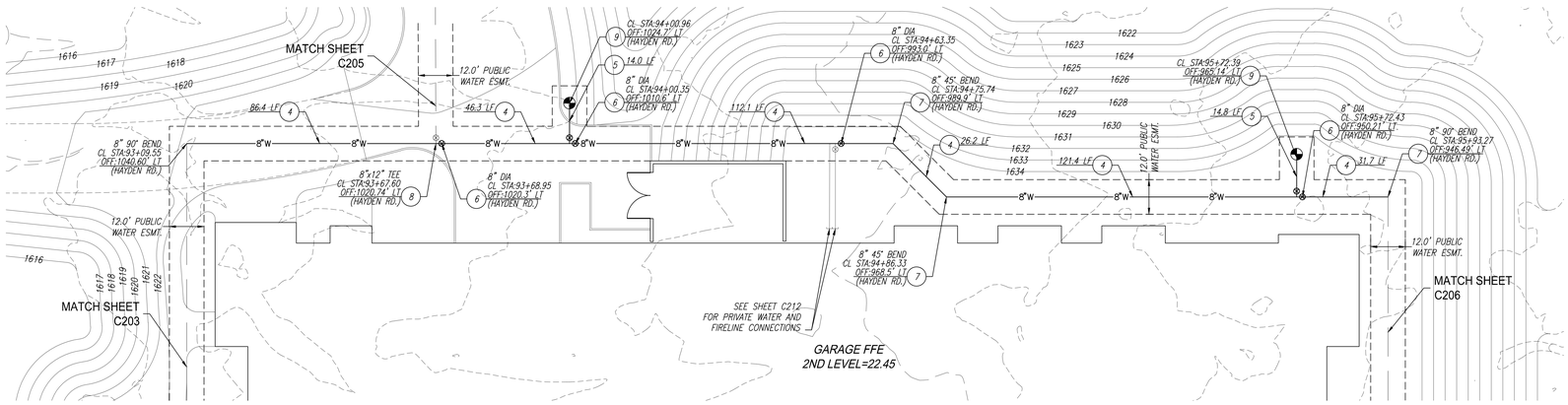
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C203

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N

20 0 20 40
scale feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 04 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C204

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Contract No: 17-005

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No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	02/04/2019

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Date of First Issue:

Project No: 17-005

Sheet Title

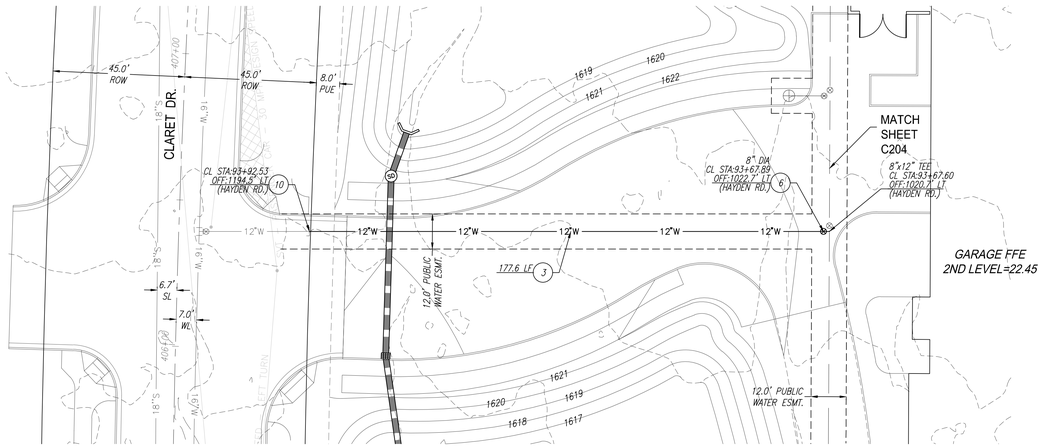
PUBLIC AND
PRIVATE UTILITY

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Sheet Number

C204

P:\2018\18114\Dwg\18114-203_DRB\Pub_Pvt Utility\18114-203-04-C204.dwg Feb 04, 2019 - 12:53pm Tawsif



PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
2. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X8" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
3. INSTALL 12"ø D.I.P. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT JOINTS PER M.A.G. STD. DTL. 303-1, 303-2 WITH MIN. 3' COVER. LENGTH AS NOTED.
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7. INSTALL WATERLINE BEND, D.I.P. CLASS 350 POLY-WRAPPED WITH MEGALUG SERIES 1100 MECHANICAL RESTRAINT JOINT OR APPROVED EQUAL. (SIZE AND ANGLE PER PLAN)
8. INSTALL TEE, CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2. (SIZE PER PLAN)
9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.

20 0 20 40
scale feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 05 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C205

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No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	02/04/2019

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Date of First Issue:

Project No: 17-005

Sheet Title

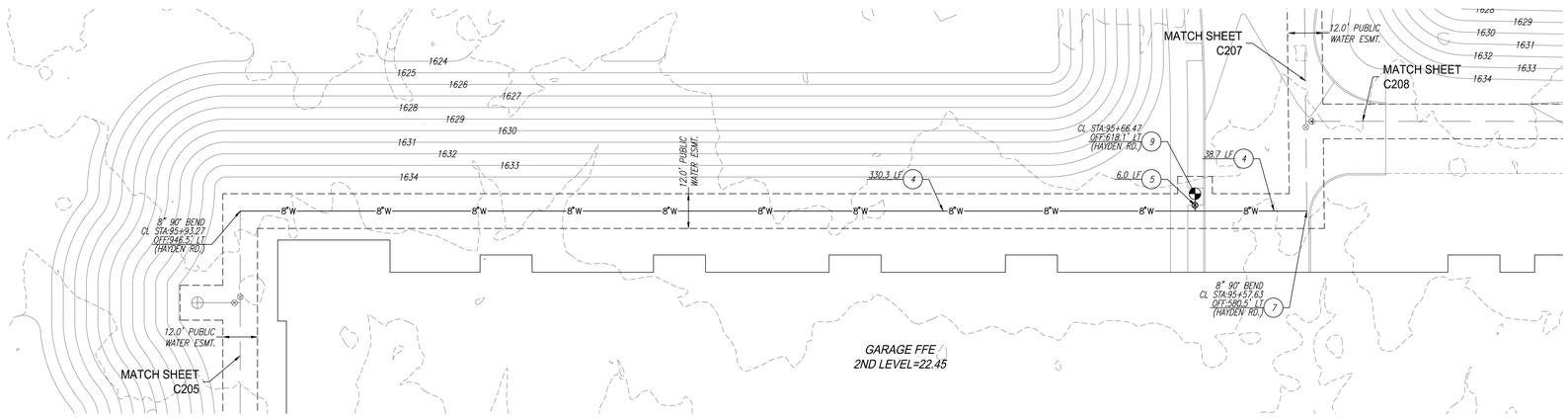
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C205

P:\2018\18114\dwg\18114-203_DRB\Pub_Pvt Utility\18114-203-05-C205.dwg Feb 04, 2019 - 12:13pm Tswolf



PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
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9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.

20 0 20 40
scale feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 06 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C206

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No.	Description	Date
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Date of First Issue:

Project No: 17-005

Sheet Title

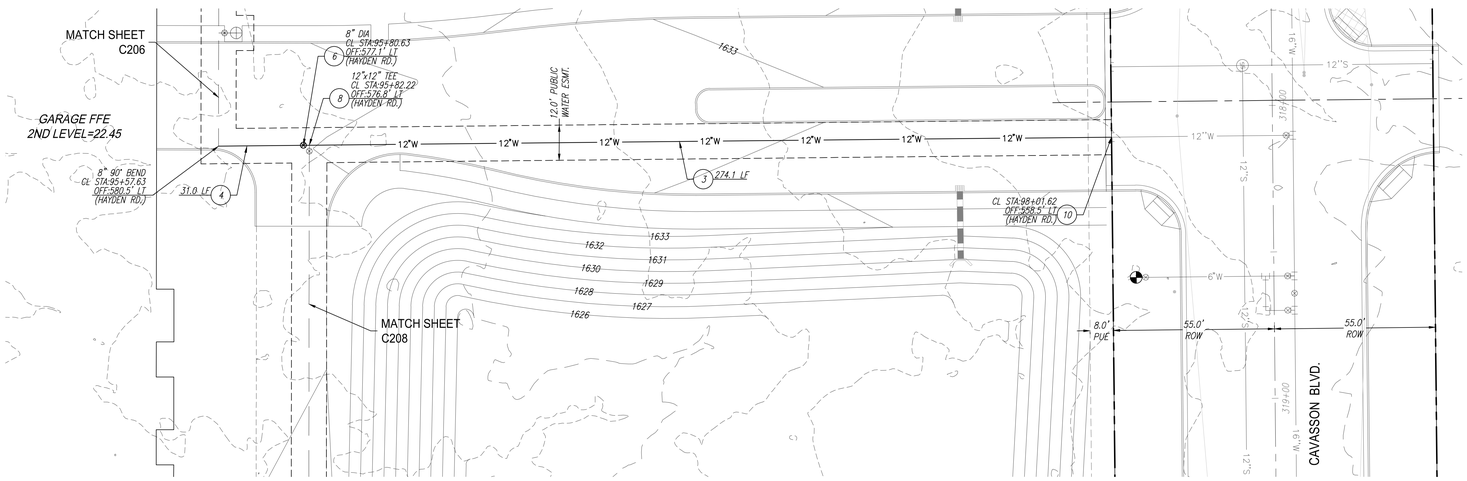
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C206

P:\2018\18114\dwg\18114-203_DRB\Pub_Pvt Utility\18114-203-06-C206.dwg Feb 04, 2019 - 12:13pm Tswolf



PUBLIC UTILITY NOTES:

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9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.

scale 20 0 20 40 feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 07 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C207

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No.	Description	Date
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Date of First Issue:

Project No: 17-005

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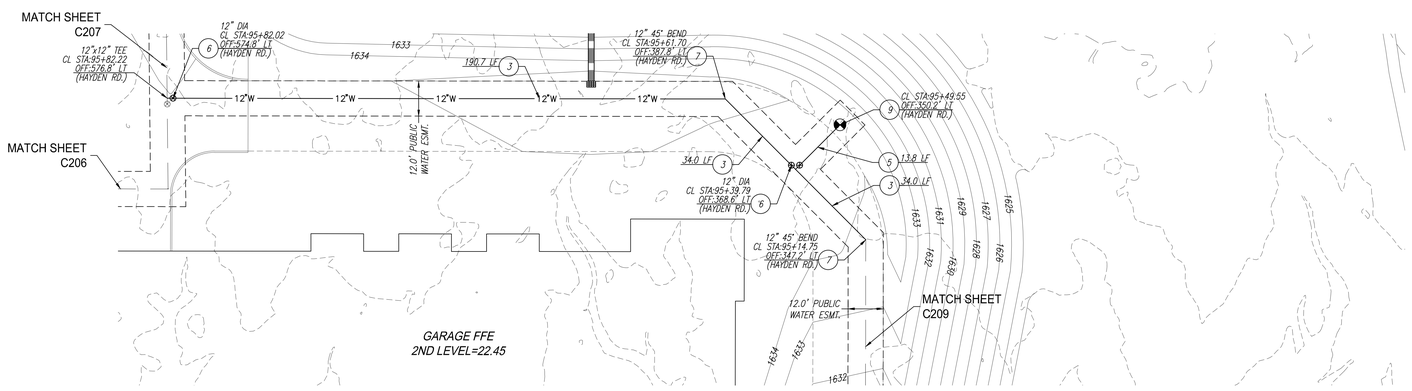
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C207

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PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
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9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.

scale 20 0 20 40 feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 08 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C208

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	SCOTTSDALE DRB SUBMITTAL	02/04/2019

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Date of First Issue:

Project No: 17-005

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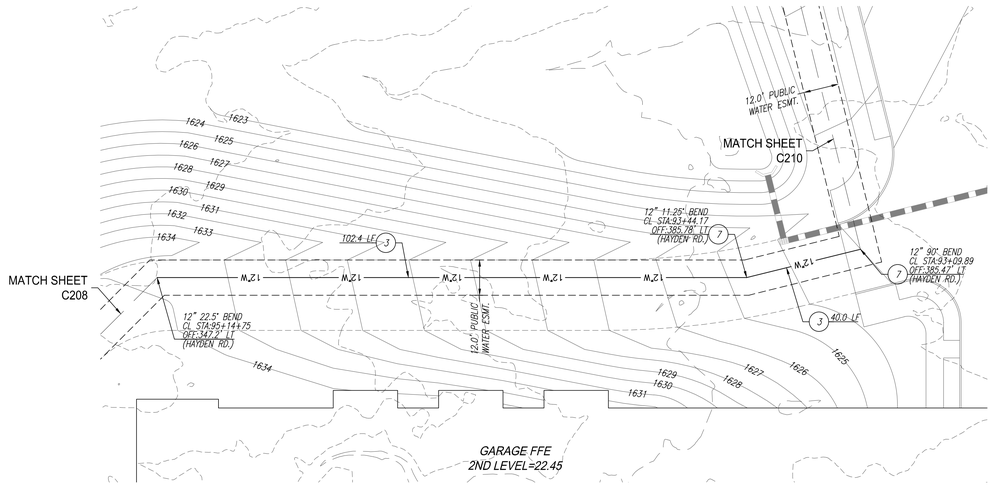
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C208

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PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
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scale 20 0 20 40 feet

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Project No.	Date	Sheet No.
18114-203	02/04/2019	SHT: 09 OF 13
Project Manager: B.R.S.	Project Engineer: B.R.S.	C209

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No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	02/04/2019

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Date of First Issue:

Project No: 17-005

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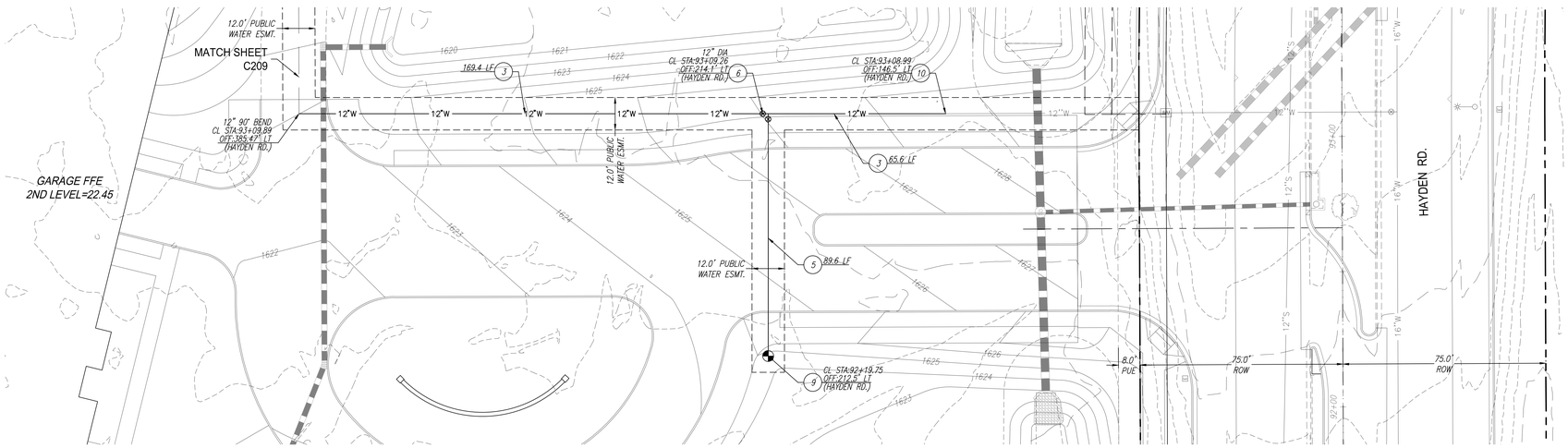
PUBLIC AND PRIVATE UTILITY

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Sheet Number

C209

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PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
2. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X8" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
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4. INSTALL 8"ø D.I.P. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT JOINTS PER M.A.G. STD. DTL. 303-1, 303-2 WITH MIN. 3' COVER. LENGTH AS NOTED.
5. INSTALL 6"ø D.I.P. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT JOINTS PER M.A.G. STD. DTL. 303-1, 303-2 WITH MIN. 3' COVER. LENGTH AS NOTED.
6. INSTALL VALVE, BOX, & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. (SIZE PER PLAN)
7. INSTALL WATERLINE BEND, D.I.P. CLASS 350 POLY-WRAPPED WITH MEGALUG SERIES 1100 MECHANICAL RESTRAINT JOINT OR APPROVED EQUAL. (SIZE AND ANGLE PER PLAN)
8. INSTALL TEE, CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2. (SIZE PER PLAN)
9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.

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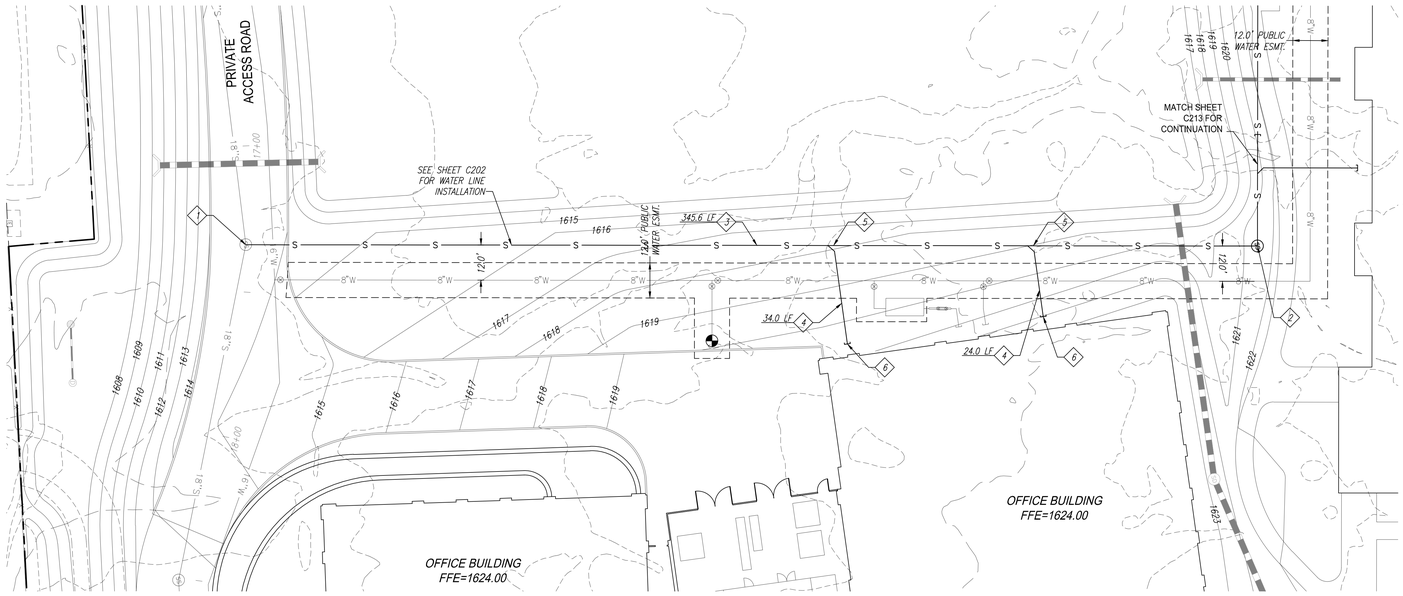
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1. CONNECT TO EXISTING SEWER MANHOLE (INVERT AS NOTED)
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4. INSTALL 6"ø SDR 35 SANITARY SEWER PIPE PER M.A.G. STD. SPEC. 615 AND 743. LENGTH AND SLOPE AS NOTED.
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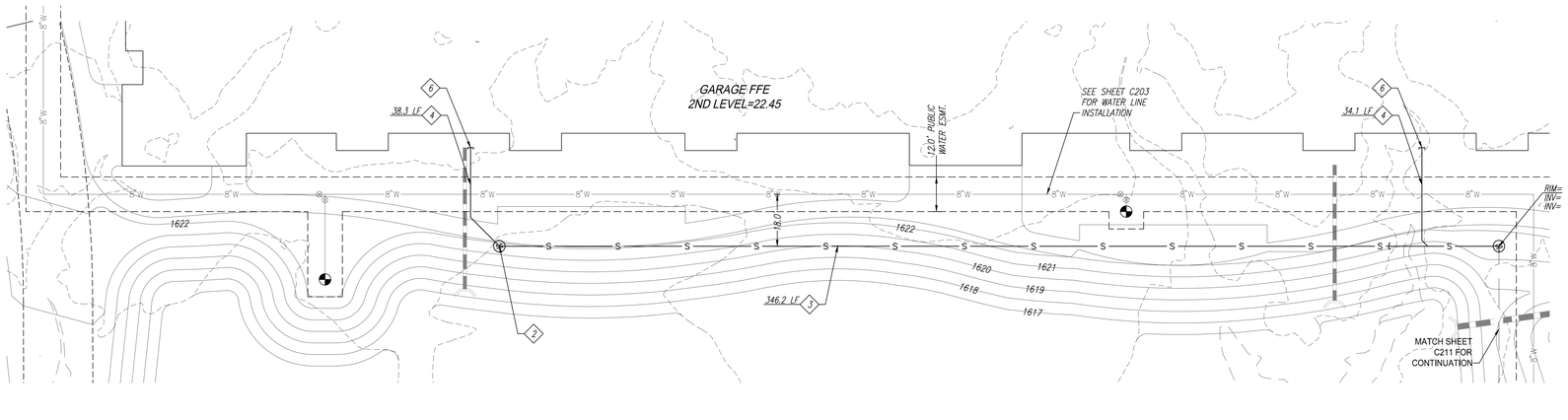
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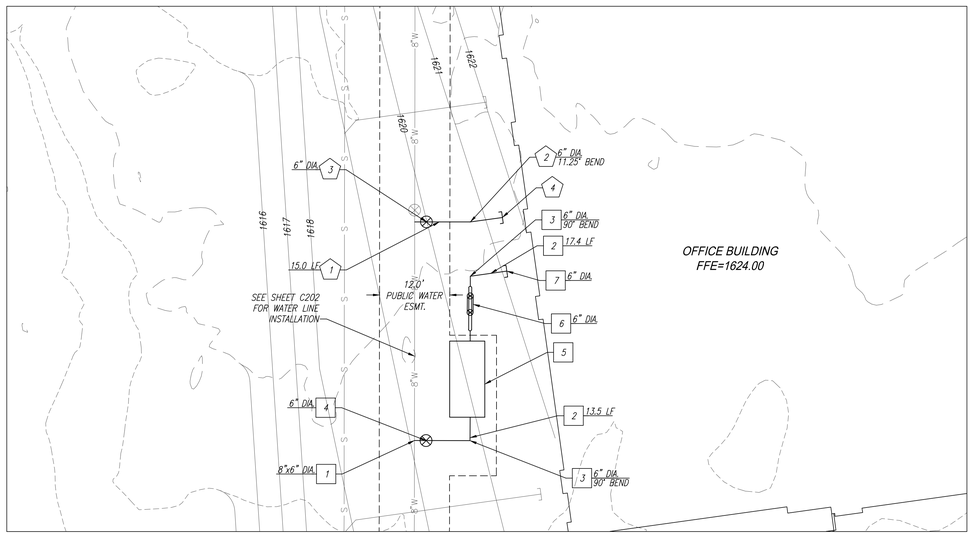
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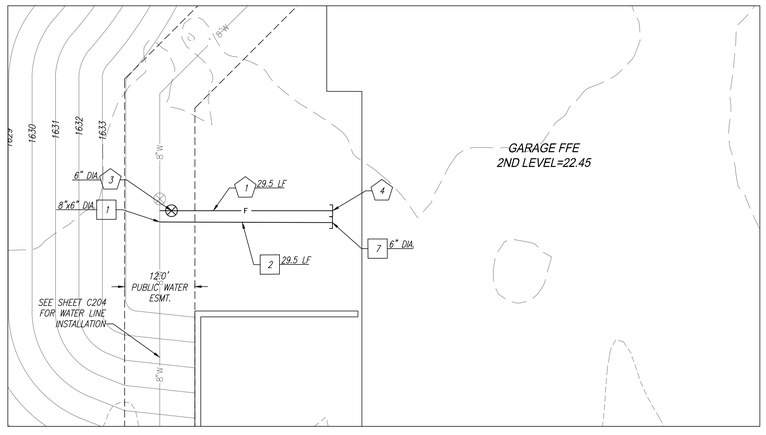
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OFFICE BUILDING WATER CONNECTION

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PARKING GARAGE WATER CONNECTION

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2. INSTALL WATERLINE BEND, D.I.P. CLASS 350 POLY-WRAPPED WITH MEGALUG SERIES 1100 MECHANICAL RESTRAINT JOINT OR APPROVED EQUAL. SIZE AND ANGLE AS NOTED.
3. INSTALL VALVE, BOX, & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C" D.I.P. CLASS 350 POLY-WRAPPED. (SIZE PER PLAN)
4. STUB AND PLUG FOR BUILDING CONNECTION. (INVERT AS NOTED)

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4. INSTALL VALVE, BOX, & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C" D.I.P. CLASS 350 POLY-WRAPPED. (SIZE PER PLAN)
5. INSTALL 6" DIA. WATER METER PER C.O.S. STD. DTL. 2345-1
6. INSTALL 6" BACKFLOW PREVENTION ASSEMBLY PER C.O.S. STD. DLT. 2352.
7. STUB AND PLUG FOR BUILDING CONNECTION. (INVERT AS NOTED)

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Cavasson

Traffic Impact Mitigation Anlaysis

Southwest Corner of Hayden Road
and Legacy Boulevard
in Scottsdale, Arizona

January 2019
Project No. 17-0310

Prepared For:

Nationwide Realty Investors
375 North Front Street, Suite 200
Columbus, Ohio 43215-2220

For Submittal to:
City of Scottsdale

Prepared By:

CivTech

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CAVASSON SCOTTSDALE
TRAFFIC IMPACT MITIGATION ANALYSIS

Southwest Corner of Hayden Road and Legacy Boulevard in Scottsdale, Arizona

Prepared for:

Nationwide Realty Investors
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Columbus, Ohio 43215-2220

For submittal to:

The City of Scottsdale

Prepared By:

CivTech

10605 North Hayden Road
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January 2019
CivTech Project # 17-310

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EXECUTIVE SUMMARY

The Cavasson development is a ±134-acre project located on the southwest corner of Hayden Road and Legacy Boulevard in Scottsdale, Arizona. This development is separated into two (2) phases. Phase 1 consists of a 135-key hotel, 350 multi-family residential dwelling units, 11,000 square feet of retail with 6,000 square feet of restaurant attached, and 740,000 square feet of office space. Full build of Cavasson consists of multiple hotels totaling 265 key hotels, 1,250 multi-family dwelling units, 183,000 square feet of retail with 6,000 square feet of restaurant attached, and 1,060,000 square feet of office space. The vicinity of the site is provided in **Figure 1**.

CivTech, Inc. has been retained by Nationwide Realty Investors to perform the traffic impact study for the proposed development. The purpose of this assessment is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections. The following conclusions have been documented in this study:

General

- Phase I of the Cavasson Development is anticipated to generate 12,516 daily trips to the external roadway system, with 918 occurring during the AM peak hour and 1,073 occurring during the PM peak hour, by opening year 2020. It is anticipated the Miller Road underpass will not be constructed by opening year 2020.
- Phase I project specific improvements such half street improvements and all Phase I site driveways are anticipated to be fully constructed by the developer upon opening year 2020.
- Cavasson Boulevard and Claret Drive internal to the site are also anticipated to be full constructed by opening year 2020.
- Full buildout of the Cavasson Development is anticipated to generate a total of 37,328 daily trips to the external roadway system, with 2,641 occurring during the AM peak hour and 3,283 occurring during the PM peak hour.
- For study purposes it is anticipated the Miller Road underpass will be constructed and provide connection to the south of the Loop 101 by study horizon year 2030.
- Both Thompson Peak Parkway and Legacy Boulevard are also planned to provide connectivity to the west ultimately offering additional roadway connections between 56th Street/Scottsdale Road by horizon year 2030.
- Legacy Boulevard is also anticipated to connect through to the east from Hayden Road to Pima Road by horizon year 2030.
- The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of*

Scottsdale Design Standards and Policies Manual and tables have been included in **Appendix K**.

Existing

- The results of the existing conditions analysis indicate that all existing study intersections operate with an overall acceptable level of service (LOS D or better) during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:

- The intersection of **Hayden Road and Loop 101 Westbound Ramps** operate with unacceptable delays under existing conditions during the PM peak hour. These delays are primarily due to the heavy northbound left-turn volume onto the freeway and the right-turn volume egressing from the westbound Loop 101 off ramp. It is recommended these delays be mitigated by increasing the northbound left-turn phase and additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay is expected to decrease from 124-seconds to 81-seconds for the PM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation is expected to increase the delay at the signalized eastbound ramp from 43-seconds to 46-seconds in the PM peak hour. This 3-second increase is considered very minor considering the 43-second decrease in delay at the signalized westbound ramp.

- The intersection of **Hayden Road and Loop 101 Eastbound Ramps** operate with heavy delays under existing conditions during the AM peak hour. These delays are primarily due to the southbound left-turn volume onto the freeway and the right-turn volume egressing from the eastbound Loop 101 off ramp during the AM peak hour. It is recommended the eastbound phase be extended an additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay would decrease from 72-seconds to 65-seconds in the AM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation would also decrease the delay at the signalized westbound ramp from 25-seconds to 23-seconds in the AM peak hour.

- The intersection of **Scottsdale Road and Mayo Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the northbound/southbound through volume on Scottsdale road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 19-seconds to 28-seconds and the southbound left phase be extended from 11-seconds to 23-seconds. Also, adding overlaps for the northbound and southbound right turns will decrease the delay on those approaches. By applying these changes to the existing intersections, the delay is expected to decrease from 76-seconds to 55-seconds.

- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the westbound left-turn volume on Frank Lloyd Wright Boulevard

and the conflicting northbound left-turn volume on Scottsdale Road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 9-seconds to 25-seconds, the southbound left turn phase be extended from 23-seconds to 26-seconds, and the northbound through phase be extended from 35-seconds to 41-seconds. With these changes made to the existing intersection, the delay is expected to decrease from 160-seconds to 85-seconds.

- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the PM peak northbound/southbound left-turn volume as well as the conflicting northbound/southbound right-turn volumes for those phases. It is recommended that the northbound left turn phase be extended from 10-seconds to 16-seconds, the southbound left turn phase be extended from 15-seconds to 19-seconds and the eastbound left turn phase be extended from 20-seconds to 22-seconds. With these changes made to the existing intersection, the overall delay is expected to decrease from 60-seconds to 55-seconds.

Opening Year 2020

- The results of the Synchro analysis summarized in **Table 9** indicate that all 2020 study intersections operate with an overall acceptable level of service during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:

- It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.

- The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2020 with or without the proposed Cavasson Phase I development during both study peak hours. Under the No-Build 2020 scenario this intersection experiences increased delay in both study peak hours. Overall the PM peak hour at both ramps signals experiences the heaviest delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2020 scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended the northbound green phase be extended from 34-seconds to 45-seconds in the AM peak hour and the northbound left phase be extended from 24-seconds to 55-seconds in the PM peak hour. With these mitigation improvements, the overall intersection delay is expected to be 48-seconds in the AM peak hour and 45-seconds in the PM peak hour with the Cavasson development.

    - *It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

- The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience increased delays during the PM peak hour in the northbound approach with or without the addition of proposed Cavasson Phase I development by opening year 2020. It is recommended the green time to the northbound through phase be extended from 54-seconds to 64-seconds. The recommended signal mitigation is expected to decrease the overall intersection delay from 73-seconds to 66-seconds during the PM peak hour.
- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased delay by opening year 2020 with or without the proposed CAVASSON Phase I development during the PM peak hour. Under the No-Build 2020 scenario, this intersection experiences increased delay in the PM peak hour only. Although the signalized interchange experiences increased delay in the No-Build 2030, scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended the cycle length for both signalized ramps be optimized from 120-seconds to 100-seconds to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 36-seconds for the westbound ramps and 38-seconds for the eastbound ramps in the PM peak hour with the proposed Phase I development.
    - *It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*
- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed CAVASSON Phase I development during the PM peak hour only. Overall the projected intersection delay is expected to be 82-seconds in the PM peak hour under the total 2020 build condition. It is therefore recommended the southbound through phase be extended from 42-seconds to 51-seconds by opening year 2020. With this improvement made, the overall delay at the intersection is projected to decrease from 82-seconds to 56-seconds in the PM peak hour with the proposed Phase I development.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Phase I development. Under the No-Build 2020 scenario, this intersection experiences increased delay during the PM peak hour only. Overall, the projected intersection delay is expected to be 180-seconds in the PM peak hour with the proposed Cavasson Phase I development. It is recommended the northbound through phase be extended from 35-seconds to 51-seconds and the northbound left-turn phase be extended from 9-seconds to 18-seconds. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 180-seconds to 72-seconds with the proposed Phase I development during the PM peak hour.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Cavasson Phase I development. Under the No-Build 2020, scenario this

intersection experiences increased delay during the PM peak hour only. Overall, the projected 2020 Build, intersection delay is expected to be 74-seconds during the PM peak hour which includes the proposed Cavasson Phase I development. It is recommended the northbound left-turn phase be extended from 10-seconds to 13-seconds and the southbound left-turn phase is extended from 15-seconds to 18-seconds. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 74-seconds to 51-seconds with the proposed Phase I development during the PM peak hour.

Horizon Year 2030

- The results of the Synchro analysis summarized in **Table 10** indicate that all 2030 study intersections operate with an overall acceptable level of service (LOS D or better) during the AM and PM peak hours under the proposed 2020 lane configurations and stop controls with the exception of the following locations:

- The intersection of **Hayden Road and Grayhawk Drive** is projected to experience increased delays during the PM peak hour only with the addition of CAVASSON development. The delay on the northbound approach is due to the heavy volume of northbound through movements on Hayden Road during this peak hour. With the addition of the proposed Cavasson development, the overall intersection delay is expected to be 56-seconds, which is just over the 55.0-second threshold of an LOS E. Mitigation at this intersection is not recommended for the 2030 opening year, however it is recommended this intersection but be monitored for future signal timing optimization as other surrounding developments begin to build.

- The intersection of **Hayden Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the projected 2030 Build intersection delay is projected to be 64-seconds in the AM peak hour and 101-seconds in the PM peak hour. Due to the heavy westbound left-turn volumes at this intersection, it is recommended dual left-turn lanes be provided at this approach to help mitigate future intersection delay. With the addition of dual westbound left-turn lanes, the overall intersection delay is expected to decrease from 64-seconds to 38-seconds in the AM peak hour, and from 101-seconds to 42-seconds during the PM peak hour.

- The intersection of **Hayden Road and Legacy Boulevard** is projected to experience delay during both AM and PM peak hours with or without the addition of Cavasson development by horizon year 2030. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the east of Hayden Road and connect to Pima Road by horizon year 2030. With the addition of the Cavasson development, the projected intersection delay is expected to be 156-seconds in the AM peak hour and 180-seconds in the PM peak hour. Due to the projected heavy traffic volumes on Hayden Road by horizon year 2030 three (3) through lanes northbound and three (3) through lanes southbound are recommended as well as dual northbound left-turn lanes. To remain consistent with the four (4) lane cross section on Legacy Boulevard two (2) through lanes are recommended to be constructed in the

eastbound and westbound approaches. All left-turn phases are recommended to be protected/permissive with the exception of the dual northbound left-turn lanes which will be required to be protected. With the recommended signal modifications, the intersection delay is expected to decrease from 156-seconds to 33-seconds in the AM peak hour, and decrease from 180-seconds to 30-seconds during the PM peak hour.

- It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.
- The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be extended from 120-seconds to 140-seconds to achieve optimal levels of service for the intersection by horizon year 2030. Overall the projected intersection delay is expected to be around 70-seconds for the westbound ramps and 116-seconds for the eastbound ramps during the PM peak hour with the proposed Cavasson development.
    - *It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*
- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be extended from 120-seconds to 140-seconds to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 115-seconds for the westbound ramps and 78-seconds for the eastbound ramps in the PM peak hour with the Cavasson development.
    - *It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

- The intersection of **Hayden Road and Bell Road** is projected to experience delay during the PM peak hour by horizon year 2030 with the addition of the Cavasson development. During the PM peak hour, the intersection is projected to experience a delay of 63-seconds. By optimizing the southbound left-turn phase from permitted to protected and extending the southbound through phase from 54-seconds to 64-seconds, the intersection is projected to experience a decrease in delay to an acceptable overall delay of 38-seonds by horizon year 2030.
- The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection with the assumption that Thompson Peak Parkway will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. Under the No-Build 2030 scenario, this intersection experiences heavy delay in both study peak hours. Overall, the intersection delay is projected to be 41-seconds in the AM peak hour and 172-seconds in the PM peak hour under the 2030 No-Build scenario. With the addition of the Cavasson development, the intersection is expected to experience delays of 74-seconds in the AM peak hour, and 198-seconds in the PM peak hour. To help mitigate this intersection, it is recommended the northbound left-turn phase be optimized to a permissive-protected while also extending the eastbound left-turn phase from 9.5-seconds to 23-seconds and the southbound left-turn phase from 11-seconds to 21-seconds. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay is expected to decrease from 74-seconds to 56-seconds in the AM peak hour, and from 198-seconds to 57-seconds during the PM peak hour.
- The intersection of **Scottsdale Road and Legacy Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. This intersection experiences increased delay under the 2030 No-Build condition for both study peak hours. Overall, the intersection delay under the 2030 No-Build condition is projected to be 90-seconds in the AM peak hour and 107-seconds in the PM peak hour. With the addition of the proposed Cavasson development, the intersection delay is expected to increase to 153-seonds in the AM peak hour, and 161-seconds in the PM peak hour. It is, recommended to optimize the cycle length to 150-seconds and extend the eastbound left-turn phase from 9.5-seconds to 31.4-seconds. With the recommended mitigation the intersection delay is expected to decrease from 153-seconds to 104-seconds in the AM peak hour, and from 161-seconds to 105-seconds in the PM peak hour.
- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall the 2030 No-Build condition for this intersection is projected to experience 93-seconds of delay in the

AM peak hour and 260-seconds of delay in the PM peak hour. It should be noted by study horizon year 2030 it is expected the Crossroads East development and all planned roadway improvements in and around the study area by the City of Scottsdale will be constructed. With the future planned surrounding developments and roadway improvements there are expected increases in regional traffic at this intersection. It is recommended by horizon year 2030 the westbound approach at this intersection provide dual left-turn lanes, two (2) through lanes and a dedicated right-turn lane. It is also recommended the cycle length be optimized upon buildout of the intersection to a cycle length of 150-seconds for optimum levels of service. With the westbound lane improvements and suggested 150-second cycle length the intersection delay is anticipated to decrease from 103-seconds to 71-seconds in the AM peak hour and 280-seconds to 137-seconds in the PM peak hour under the 2030 Build condition.

- The intersection of **Scottsdale Road and Princess Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during the PM peak hour. This intersection experiences an increased delay of 82-seconds in PM peak hour under the 2030 No-Build condition and 107-second delay with the proposed Cavasson development. It is recommended green time be extended from 59-seconds to 61-seconds in the northbound through phase. With this shift in green time, the overall intersection delay is expected to decrease from 107-seconds to 81-seconds in the PM peak hour with the proposed Cavasson development.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario this intersection experiences increased delay in both study peak hours. Overall, the projected intersection delay is expected to be 261-seconds in the AM peak hour and 250-seconds in the PM peak hour with the proposed Cavasson development. Should the cycle length be optimized to 145-seconds, the overall intersection delay is expected to decrease from 261-seconds to 113-seconds in the AM peak hour and from 250-seconds to 209-seconds in the PM peak hour.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario this intersection experiences increased delay in both study peak hours. Overall the projected intersection delay is expected to be 113-seconds in the AM peak hour and 131-seconds in the PM peak hour with the Cavasson development. It is recommended all left-turn phases be extending starting with the westbound left-turn phase from 22-seconds to 30-seconds, the eastbound left-turn phase from 22-seconds to 31-seconds, the northbound left-turn phase from 11-seconds to 20-seconds, and the southbound left-turn phase from 16-seconds to 22-seconds. With the recommended changes, the overall intersection delay is expected to decrease from 113-seconds to 69-seconds in the AM peak hour and from 131-seconds to 74-seconds in the PM peak hour.
- The intersection of **Pima Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed

Cavasson development. This intersection experiences an increased delay of 68-seconds in PM peak hour overall under the 2030 No-Build conditions and 82-seconds delay with the proposed Cavasson development. To help mitigate the increased level of service in the PM peak hour, it is recommended the northbound through green time be extended from 47-seconds to 49-seconds, as well as extending the green time in the westbound left-turn phase from 16-seconds to 25-seconds. With the recommend signal mitigation the overall intersection delay is expected to decrease from 82-seconds to 67-seconds in the PM peak hour with the proposed Cavasson development.

- The intersection of **Miller Road and Legacy Boulevard** is projected to be signalized by study horizon year 2020. With future traffic anticipated by the Miller Road connection to the south and with additional traffic anticipated by currently unknown surrounding developments, it is recommended that dual northbound left-turn lanes be provided as well as a dedicated northbound right-turn lane by horizon year 2020.
- The proposed signalized intersection of **Hayden Road and Cavasson Boulevard** is projected to ultimately provide dual northbound left-turn lanes into the site as well as dual eastbound left-turn lanes and dual eastbound right-turn lanes by horizon year 2020. The additional of turn lanes will facilitate through traffic to and from the central garage being constructed with phase I.
- The proposed internal site intersection of **Claret Drive and Cavasson Boulevard** is anticipated to be a signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes should be provided in all approaches. Signal warrants will be evaluated with future phases of the Cavasson development.
- The proposed intersection of **Miller Road and Cavasson Boulevard** is anticipated to be signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes in all approaches are recommended. With the possible future connectivity to the west, it is recommended that additional right of way is provided for future through lanes eastbound and westbound. Signal warrants will be evaluated with future phases of the Cavasson development.

Queue Storage

- As shown in **Table 11**, the existing storage lengths at the existing intersections are not anticipated to accommodate the additional traffic generated in 2030. Additional storage length calculations should be completed prior to traffic signal installation, a change in intersection stop control or installation of raised medians.
- It is recommended all proposed full movement site access driveways along Legacy Boulevard provide a minimum 100-foot westbound left-turn lane as well as dedicated 100-foot right-turn lanes.
- Proposed ¾ site **Access G** located just north of site Access M and south of Legacy Boulevard along Hayden Road is recommended to provide a minimum 150-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane.
- Proposed ¾ site **Access H** located just north of the Hayden Road/Loop 101 interchange along Hayden Road is recommended to provide a minimum 100-foot

northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane.

- Proposed main site **Access M** is planned as a signalized intersection at the opening of the proposed Cavasson Phase I development. Access M is located between Legacy Boulevard and north of Access H along Hayden Road and is planned to provide 350-feet of queue for dual northbound left-turn lanes as well as 225-feet for a dedicated southbound right-turn lane. Internally, the development should provide a minimum of 200-feet of storage for the eastbound dual left-turn and dual right-turn lanes at proposed site Access M (Hayden Road/Cavasson Boulevard).
- **Access K** (Cavasson Boulevard/Claret Drive) is an internal signalized intersection with permitted phasing in all approaches. The provision of 150-foot southbound and eastbound left-turn lanes, a 300-foot westbound left-turn lane and a 200-foot northbound left-turn lane are recommended. It is also recommended that a 200-foot northbound right-turn lane, 180-foot westbound right-turn lane and 150-foot eastbound and southbound right-turn lane be provided by full build of the Cavasson development.
- **Access B** (Miller Road/Cavasson Boulevard) is a planned signalized intersection with permitted/protected phasing. A 300-foot eastbound left-turn and right-turn lane, as well as a southbound 225-foot southbound left-turn lane. As the area is buildout with connectivity to the south along Miller Road, it is recommended that future queue lengths for the westbound and northbound left-turn lanes and northbound right-turn lane be constructed to provide a minimum storage of 150-feet.
- **Access A** and **Access C** both are recommended to provide 100-foot southbound left-turn lanes and well as 100-foot northbound dedicated right-turn lanes.
- The intersection of **Miller Road and Legacy Boulevard** is planned to be signalized upon buildout of the Cavasson development ultimately providing dual 350-foot northbound left-turn lanes as well as a dedicated northbound right-turn lane. Although the reported volumes documented within this report do not show a need for dual northbound left-turn lanes it is CivTech's understanding the planned area analyzed within this report does not include some portions of future development within the study area. As such, longer queues and dual lanes are recommended.

Sight Distance

- The developer should ensure that adequate sight distance is provided at all proposed site access points to allow safe left and right turning movements in and out of the Cavasson development. It is recommended that sight triangles be designed at all site access driveways per the requirements shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix K**.

INTRODUCTION

The Cavasson – Scottsdale development is approximately 135 acres located on the west side of Hayden Road between the Pima Freeway (Loop 101) and Legacy Boulevard in Scottsdale, Arizona. The proposed site is a mixed-use development with land uses consisting of hotels, multi-family residential, retail, restaurants and general office buildings. There are multiple full movement access points on the surrounding roadways, and Miller Road will be extended south along the west border of the site to provide additional access. The vicinity of the site is provided in **Figure 1**.

Study Requirements

This study analyzes the traffic impact due to the proposed development on the surrounding street network. The study will be prepared in conformance with the City of Scottsdale *Design Standards and Policies Manual*, Chapter 5, Transportation Impact Studies, 2018. The specific objectives of the study are:

- To determine whether the planned street system in the vicinity of the site is adequate to accommodate the increased traffic that results from the proposed development.
- To recommend additional street improvements or traffic control devices, where necessary, to mitigate the additional site-generated traffic; and,
- Evaluate the internal site circulation and provide recommendations if necessary.

Study Area

The study area has been defined as including the following intersections:

- Scottsdale Rd. & Thompson Peak Pkwy.
- Scottsdale Rd. & Legacy Blvd.
- Scottsdale Rd. & Loop 101 WB/EB Ramps
- Scottsdale Rd. & Grayhawk Dr.
- Scottsdale Rd. & Deer Valley Rd.
- Scottsdale Rd. & Mayo Blvd.
- Scottsdale Rd. & Princess Dr.
- Scottsdale Rd. & Frank Lloyd Wright Blvd.
- Scottsdale Rd. & 17050 North
- Scottsdale Rd. & Chauncey Ln.
- Hayden Rd. & Thompson Peak Pkwy.
- Hayden Rd. & Legacy Blvd.
- Hayden Rd. & Loop 101 WB/EB Ramps
- Hayden Rd. & Princess Dr.
- Hayden Rd. & Bell Rd.
- Hayden Rd. & Mayo Blvd.
- Hayden Rd. & Grayhawk Dr.
- Hayden Rd. & Deer Valley Rd.
- Hayden Rd. & Frank Lloyd Wright Blvd.
- Pima Rd. & Thompson Peak Pkwy.

Horizon Years

This study has been conducted to conform to the *Design Standards and Policies Manual*, *Chapter 5,* Transportation Impact Studies, prepared by the City of Scottsdale in 2018. This development is planned to be built in two phases. Phase 1 is predicated to be constructed by the year 2020, and phase 2, the remainder of the site, is predicted to be completed by 2030. Therefore, the two horizon years being analyzed in this study will be 2020 and 2030.

The study intersections, site accesses, and internal collector roadway intersections will be analyzed for AM and PM peak hours to determine the recommended intersection lane configuration, intersection stop control, turn lane storage requirements, and roadway typical sections for the development.

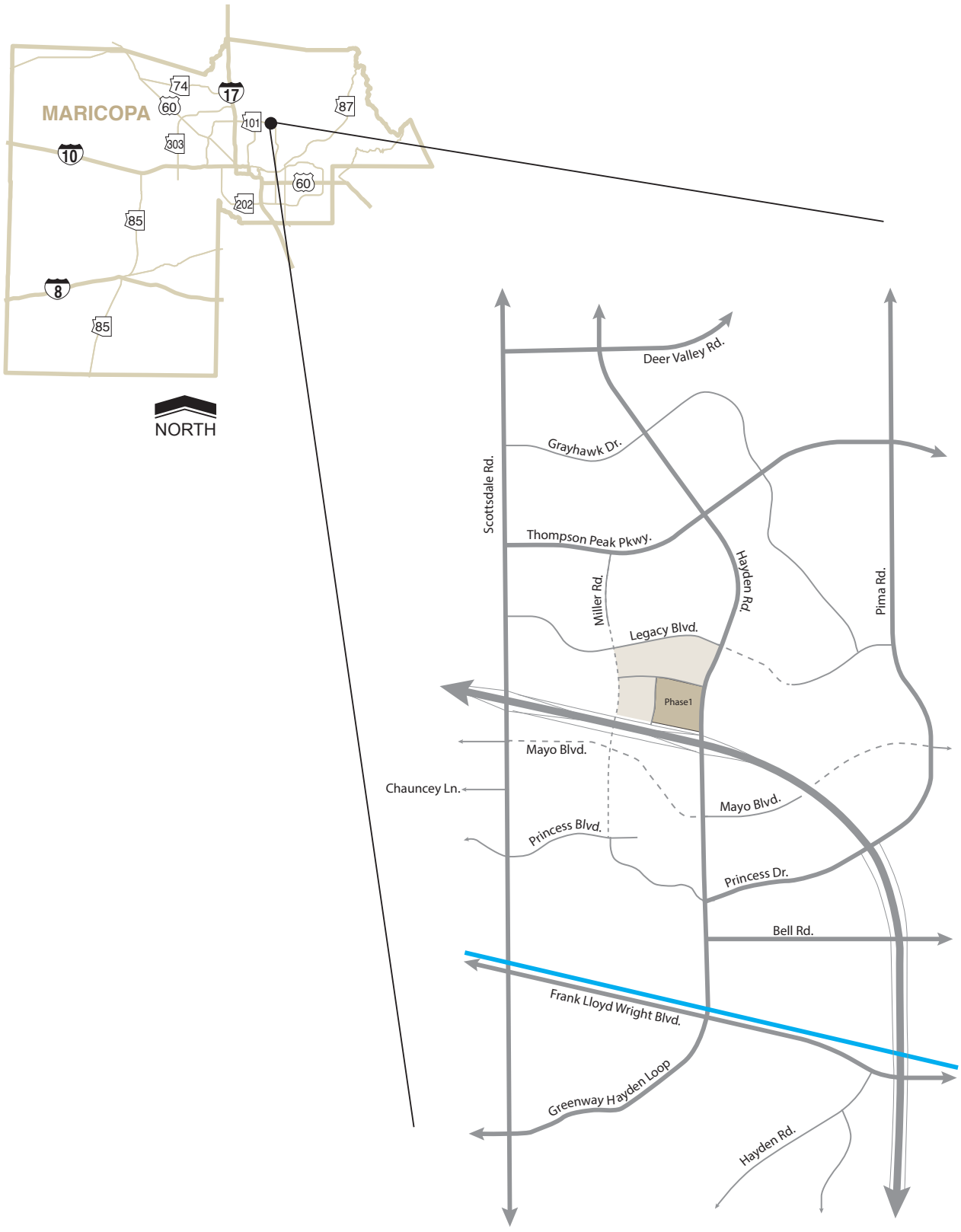


Figure 1: Vicinity Map

EXISTING CONDITIONS

Surrounding land use

The Cavasson property is currently undeveloped land, located north of the Loop 101, south of Legacy Boulevard, east of Scottsdale Road and west of Hayden Road. The land surrounding the proposed site is part of another proposed development called Crossroads East. The Crossroads East development is proposed for much of the surrounding undeveloped land and the Cavasson development is just one part of the larger project.

Bordering Cavasson and Crossroads East to the north is the Grayhawk residential subdivision and some general office and retail space. To the east of the site is an industrial park and a single-family residential community called Cliffs at Ironwood Village. South of the proposed site is TPC Scottsdale, retail and single-family/multi-family dwelling units. Southwest of the site is a large retail development and automobile sales. Directly west of the site is undeveloped land that will be a part of the Crossroads East development.

EXISTING ROADWAY NETWORK

The existing roadway network within the study area includes the following:

Scottsdale Road is a north-south, five (5) lane major arterial within the vicinity of the proposed site. Beginning to the north of Carefree Highway (SR 74) as Tom Darlington Drive, Scottsdale Road continues southbound through the City of Scottsdale, extending past the Red Mountain Freeway (Loop 202) and transitioning into Rural Road within the City of Tempe. Scottsdale Road provides access to all major east-west arterials and direct access to the Pima Freeway (Loop 101) within the vicinity of the study area. South of the Loop 101 Scottsdale Road is designated as a six (6) lane major arterial and north of the Loop 101, a five (5) lane arterial providing four (4) through lanes with a center median/two-way left-turn lane. Scottsdale Road north of the Loop 101 is currently in the design and construction phase for widening to a six-lane major arterial within the vicinity of the site. The posted speed limit on Scottsdale Road north of Thompson Peak Parkway is 50 miles per hour (mph), decreasing to 45 mph south of Thompson Peak Parkway.

Scottsdale Road also serves as the boundary line dividing the City limits between the City of Phoenix and the City of Scottsdale. The entirety of Scottsdale Road, within the vicinity of the site, is under the City of Scottsdale's control through an Intergovernmental Agreement (IGA) between both municipalities.

Hayden Road is a north-south, four (4) lane major arterial with a center raised median within the vicinity of the proposed site, per the City of Scottsdale Transportation Master Plan. Hayden Road begins north of Pinnacle Peak Road and travels southbound transitioning into the Greenway Hayden Loop south of Frank Lloyd Wright Boulevard. Hayden Road provides direct access to the Pima Freeway (Loop 101) and all major east-west arterials within the vicinity of the proposed site. The posted speed limit is 45-mph within the vicinity of the proposed site.

Pima Road is a north-south, six (6) lane major arterial with a center raised median within the vicinity of the proposed site per the City of Scottsdale Transportation Master Plan. Pima Road begins just north of Cave Creek Road and travels southbound transitioning into Princess Drive just south/west of the Pima Freeway (Loop 101) in Scottsdale, Arizona. Pima Road provides direct access to the Pima Freeway (Loop 101) and all major east-west arterials north of the Loop 101. The posted speed limit is 45-mph within the vicinity of the proposed site.

Pima Freeway (Loop 101) is a six (6) lane freeway, providing three (3) lanes and an HOV lane in each direction of travel. The function/maintenance of the Pima Freeway along with each signalized traffic interchange is under the direction and control of the Arizona Department of Transportation (ADOT). The Loop 101 within the vicinity of the study area provides regional access to the Piestewa Freeway (SR 51) to the west, north Phoenix, the City of Scottsdale to the east and the Cities of Tempe, Mesa and Chandler to the south. The posted speed limit is currently 65-mph on the freeway. Design is on-going to provide a high-occupancy vehicle (HOV) lane in each direction within the existing freeway median.

Thompson Peak Parkway is an east-west, four (4) lane minor arterial with a center raised median within the vicinity of the proposed site. Beginning to the west at Scottsdale Road, Thompson Peak Parkway continues to the east through the DC Ranch Community in Scottsdale where it begins to curve north/south transitioning into 94th Street south of Frank Lloyd Wright Boulevard. Thompson Peak Parkway provides direct access to North Scottsdale and the DC Ranch community. The posted speed limit is 45-mph within the vicinity of the study area.

Legacy Boulevard is an east-west, four (4) lane minor arterial with a center raised median within the vicinity of the proposed site, connecting Hayden Road to Scottsdale Road north of the Pima Freeway. Legacy Boulevard construction was recently completed and the roadway is open and functional for public use between Hayden Road and Scottsdale Road. Currently, Legacy Boulevard begins at Scottsdale Road and terminates at Hayden Road. It should be noted that Legacy Boulevard will serve as the northerly bordering frontage road to the proposed Cavasson development.

Mayo Boulevard is an east-west six (6) lane arterial with a center raised median within the vicinity of the proposed site. May Boulevard begins west of Tatum Boulevard continuing eastbound terminating as a parking lot east of Scottsdale Road. Serving as the primary access to the Scottsdale 101 Shopping Area May Boulevard provides a six (6) lane cross section. West of the Scottsdale 101 Shopping Area Mayo Boulevard reduces to a two (2) lane roadway providing one (1) through lane in each direction of travel. The posted speed limit on Mayo Boulevard is 45-mph within the study area.

Princess Drive is an east-west four (4) lane minor arterial, per the City of Scottsdale Transportation Master Plan, with a center raised median. Princess Drive begins to the west at the Fairmont Scottsdale Princess Resort and travels eastbound transitioning into Pima Road east of the Pima Freeway (Loop 101). Princess Drive provides direct access to the Pima Freeway (Loop 101) and all major north-south arterials. Princess Drive between the Fairmont Scottsdale Princess Resort and Hayden Road is currently a private road for resort and residential use only. The posted speed limit on Princess Drive between Hayden Road and the Loop 101 is 35-mph, 25-mph between Hayden

Road and the Fairmont Scottsdale Princess Resort and 30-mph between the Resort and Scottsdale Road within the vicinity of the study area.

Bell Road is an east-west minor four (4) lane arterial with a center raised median per the City of Scottsdale Transportation Master Plan, within the vicinity of the proposed site. Bell Road begins to the west at as Sun Valley Parkway in Surprise, Arizona and travels eastbound transitioning into Frank Lloyd Write Boulevard east of Scottsdale Road, in Scottsdale, Arizona. Bell Road provides direct access to the Bob Stump Memorial Parkway (Loop 303), Phoenix-Wickenburg Highway (US-60), Agua Fria Freeway (West Loop 101), Black Mountain Freeway (I-17), Piestewa Freeway (SR-51), and the Pima Freeway (East Loop 101). The posted speed limit on Bell Road is 40 mph within the study area.

Frank Lloyd Wright Boulevard is an east-west six (6) lane major arterial with a center raised median per the City of Scottsdale Transportation Master Plan. Frank Lloyd Wright Boulevard begins as Bell Road west of Scottsdale Road and travels southeast terminating south of Shea Boulevard as 114th Street. The posted speed limit on Frank Lloyd Wright Boulevard is 45-mph within the study area.

Grayhawk Drive is an east-west three (3) lane arterial road with one travel lane in each direction and a continuous two-way-left-turn lane. The road begins at the intersection with Scottsdale Road and travels east until terminating at Hualapai Drive. The posted speed limit is 30-mph.

Chauncey Lane is an east-west five (5) lane roadway with two travel lanes in each direction and a continuous two-way-left-turn lane along the entire segment of road. The road begins at the intersection with 68th Street and continues eastbound terminating at the roundabout just east of Scottsdale Road. The posted speed limit is 30-mph.

17050 North is an east-west two (2) lane segment of road with one lane in each direction of travel. This road serves as a driveway to surrounding businesses and the multi-family housing in the same area. There is no posted speed limit.

Deer Valley Road is an east-west two (2) lane arterial road with one travel lane in each direction. There is a two-way-left-turn-lane along portions of the road within the vicinity of the site. The road begins at the intersection with Scottsdale Road and continues east until becoming 79th Street just east of Hayden Road. The posted speed limit is 30-mph.

EXISTING INTERSECTION CONFIGURATION

The intersection of ***Hayden Road and Deer Valley Road*** operates as a signalized, four-legged intersection with permitted phasing in all approaches. The northbound and southbound approaches consist of one (1) exclusive left-turn lane, two (2) through lanes, a bike lane and a dedicated right-turn lane. The westbound and eastbound approaches consist of one (1) exclusive left-turn lane and a shared through/right-turn lane.

The intersection of ***Hayden Road and Grayhawk Drive*** operates as a signalized, four-legged intersection with permitted phasing in all approaches. The northbound and southbound approaches consist of one (1) exclusive left-turn lane, two (2) through lanes, a bike lane, and a dedicated right-turn lane. The eastbound approach consists of one (1) exclusive left-turn lane, one (1) through lane and a dedicated right-turn lane. The westbound approach consists of one (1) exclusive left-turn lane and a shared through/right-turn lane.

The intersection of ***Hayden Road and Thompson Peak Parkway*** operates as a signalized, four-legged intersection with permitted/protected left-turn phasing in all approaches. All four approaches consist of one (1) left-turn lane, two (2) through lanes, a bike lane and a dedicated right-turn lane.

The intersection of ***Hayden Road and Legacy Boulevard*** is a signalized T-intersection with permitted phasing in the northbound, southbound and eastbound approaches. The northbound approach provides one (1) exclusive left-turn lane and two (2) through lanes. The southbound approach consists of two (2) through lanes, a bike lane and a dedicated right-turn lane. The eastbound approach consists of one (1) dedicated left-turn lane, a bike lane and a dedicated right-turn lane.

The intersections of ***Hayden Road and the Loop 101 Ramps*** operate as a signalized tight urban diamond traffic interchange (TUDI). The northbound approach consists of one (1) exclusive left-turn lane, two (2) through lanes and a dedicated right-turn lane. The southbound approach consists of dual (2) left-turn lanes, two (2) through lanes and one (1) dedicated right-turn lane. The eastbound off ramp approach consists of one (1) exclusive left-turn lane, one (1) shared left/right-turn lane and one (1) dedicated right-turn lane. The westbound off ramp approach consists of one (1) exclusive left-turn lane, one (1) shared left-turn/through lane, one (1) shared through/right-turn lane and one (1) dedicated right turn lane.

The intersection of ***Hayden Road and Mayo Boulevard*** is a three-legged stop-controlled intersection with a stop sign control on the westbound approach. The northbound approach consists of two (2) through lanes, a bicycle lane and one (1) exclusive right-turn lane. The westbound approach consists of one (1) shared left/right-turn lane. The southbound approach consists of one (1) exclusive left-turn lane, two (2) through lanes and a bicycle lane.

The intersection of ***Hayden Road and Princess Drive*** operates as a four-legged signalized intersection with protected phasing in the westbound approach and permitted/protected left turns in the eastbound approach. The northbound and southbound approach consist of permitted phasing only. Both the northbound and southbound approaches consist of one (1) dedicated left turn lane, two (2) through

lanes, a bicycle lane and one (1) dedicated right turn lane. The westbound approach consists of two (2) left turn lanes and one (1) dedicated right turn lane. The eastbound approach consists of one (1) shared left-turn/through lane and one (1) dedicated right turn lane.

The intersection of ***Hayden Road and Bell Road*** operates as a four-legged signalized intersection with permitted-protected phasing in the eastbound and westbound approaches and permitted left turns in the northbound and southbound approaches. The northbound approach consists of one (1) dedicated left turn lane, two (2) through lanes, a bicycle lane and one (1) dedicated right turn lane. The westbound approach consists of one (1) dedicated left turn lane, one (1) shared left-turn/through lane and one (1) dedicated right turn lane. The southbound approach consists of one (1) dedicated left turn lane, one (1) through lane, one (1) shared through/right-turn lane and one (1) bicycle lane. The eastbound approach consists of one (1) shared left-turn/through lane and one (1) shared through/right-turn lane.

The intersection of ***Scottsdale Road and Deer Valley Road*** operates as a three-legged signalized intersection with permitted southbound left turns. The northbound approach consists of two (2) through lanes and one (1) dedicated right turn lane. The northbound approach contains a striped-out area left of the through lanes that contains extra pavement at the intersection for future use when additional lanes are needed. The westbound approach consists of one (1) left turn lane and one (1) right turn lane. Between the turn lanes, the westbound approach contains a striped-out area with extra pavement at the intersection for future use when additional lanes are needed. The southbound approach consists of one (2) dedicated left turn lane and two (2) through lanes.

The intersection of ***Scottsdale Road and Grayhawk Drive*** operates as a three-legged signalized intersection with permitted southbound left turns. The northbound approach consists of two (2) through lanes and one (1) dedicated right turn lane. The westbound approach consists of one (1) left turn lane, a bicycle lane and one (1) right turn lane. The southbound approach consists of one (1) dedicated left turn lane and two (2) through lanes. All approaches contain striped out areas with extra pavement at the intersection for future use when additional lanes are needed.

The intersection of ***Scottsdale Road and Thompson Peak Parkway*** operates as a three-legged signalized intersection with protected southbound left turns. The northbound approach consists of two (2) through lanes and a dedicated right turn lane. The northbound approach contains a striped-out area left of the through lanes that contains extra pavement at the intersection for future use when additional lanes are needed. The westbound approach consists of two (2) left turn lanes and one (1) dedicated right turn lane. Between the turn lanes, the westbound approach contains a striped area with extra pavement at the intersection for future use when additional lanes are needed. The southbound approach consists of one (1) dedicated left turn lane and two (2) through lanes.

The intersection of ***Scottsdale Road and Legacy Boulevard*** operates as a three-legged signalized intersection with protected southbound left turns. The northbound approach consists of two (2) through lanes and a dedicated right turn lane. The westbound approach consists of two (2) left turn lanes, a bicycle lane and one (1) dedicated right turn lane. The southbound approach consists of one (1) dedicated left turn lane and two (2) through lanes.

The intersections of ***Scottsdale Road and the Loop 101 Ramps*** operate as a signalized tight urban diamond traffic interchange (TUDI). The northbound approach consists of two (2) dedicated left turn lanes, three (3) through lanes and one (1) dedicated right-turn lane. The westbound approach consists of two (2) dedicated left turn lanes, one (1) shared through/right-turn lane and one (1) dedicated right-turn lane. The southbound approach consists of two (2) left turn lanes, three (3) through lanes and one (1) dedicated right turn lane. The eastbound approach consists of two (2) dedicated left turn lanes, one (1) shared through/right-turn lane and one (1) dedicated right turn lane.

The intersection of ***Scottsdale Road and Mayo Boulevard*** operates as a four-legged signalized intersection with protected phasing in all directions. The northbound, southbound and eastbound approaches each consist of two (2) left turn lanes, three (3) through lanes and one (1) dedicated right turn lane. The westbound approach consists of two (2) left-turn lanes, one (1) through lane and one (1) shared through and right turn lane. The eastbound and northbound approaches each have a bicycle lane between the through lanes and dedicated right turn lane in the same travel direction.

The intersection of ***Scottsdale Road and Chauncey Lane*** operates as a four-legged signalized intersection with permissive-protected phasing. The northbound and southbound approaches each consist of two (2) left turn lanes, three (3) through lanes, a bicycle lane and one (1) dedicated right turn lane. The eastbound and westbound approaches consist of one (1) left turn lane, two (2) through lanes, a bicycle lane and one (1) dedicated right turn lane.

The intersection of ***Scottsdale Road and Princess Drive*** operates as a four-legged signalized intersection with permissive-protected phasing in all directions. The northbound and southbound approaches each consist of one (1) dedicated left turn lane, three (3) through lanes, a bicycle lane and one (1) dedicated right turn lane. The eastbound approach consists of one (1) dedicated left turn lane, one (1) through lane, one (1) shared through/right-turn lane and one (1) bicycle lane. The westbound approach consists of one (1) dedicated left turn lane, two (2) through lanes and one (1) dedicated right turn lane.

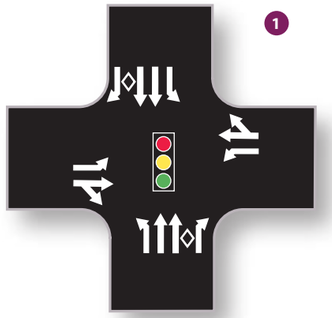
The intersection of ***Scottsdale Road and 17050 North*** operates as a four-legged signalized intersection with permissive left turns in the east and westbound approaches and permissive-protected phasing in the north and south directions. The northbound and southbound approaches each consist of one (1) dedicated left turn lane, three (3) through lanes, a bicycle lane and one (1) dedicated right turn lane. The eastbound and westbound approaches consist of one (1) shared left-turn/through/right-turn lane.

The intersection of ***Scottsdale Road and Frank Lloyd Wright Boulevard*** operates as a four-legged signalized intersection with protected phasing in all directions. The northbound approach consists of two (2) left turn lanes, three (3) through lanes and one (1) dedicated right-turn lane. The eastbound and westbound approaches consist of two (2) left turn lanes, three (3) through lanes and one (1) dedicated right turn lane. The southbound approach consists of two (2) left turn lanes, two (2) through lanes and one (1) shared through/right-turn lane.

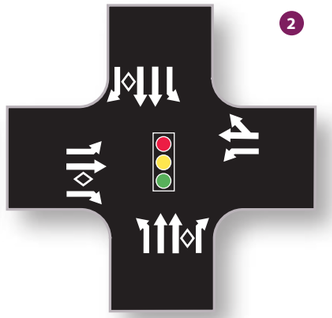
The intersection of ***Greenway Hayden Loop and Frank Lloyd Wright Boulevard*** operates as a four-legged signalized intersection with protected phasing in all directions. The northbound approach consists of one (1) dedicated left turn lane, two (2) through lanes and one (1) dedicated right-turn lane. The eastbound and westbound approaches consist of two (2) left turn lanes, three (3) through lanes and one (1) dedicated right turn lane. The southbound approach consists of two (2) left turn lanes, two (2) through lanes, a bicycle lane and one (1) dedicated right turn lane.

The intersection of ***Pima Road and Thompson Peak Parkway*** operates as a four-legged signalized intersection with protected phasing in all directions. The northbound approach consists of two (2) left turn lanes, three (3) through lanes and one (1) dedicated right-turn lane. To make northbound right turns at this intersection, there is a free flow right turn lane just south of the intersection which can be utilized to bypass the signalized intersection. Northbound right turns are permitted at the intersection. The eastbound and westbound approaches consist of two (2) left turn lanes, two (2) through lanes, a bicycle lane and one (1) dedicated right turn lane. The southbound approach consists of two (2) left turn lanes, three (3) through lanes, a bicycle lane and one (1) dedicated right turn lane.

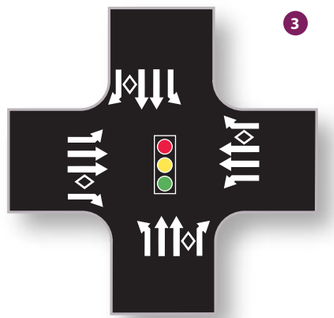
Figures 2A and **2B** depicts the existing stop controls and lane geometries within the project study area.



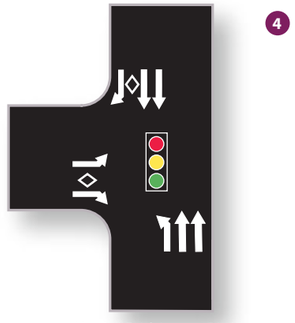
Hayden Rd & Deer Valley Rd



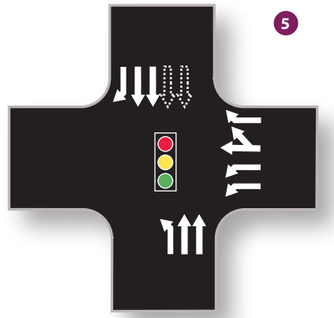
Hayden Rd & Grayhawk Dr



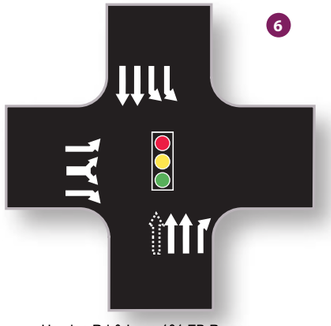
Hayden Rd & Thompson Peak Pkwy



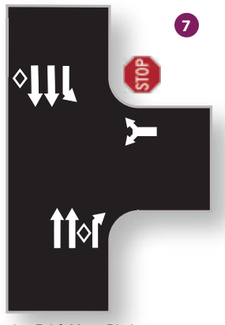
Hayden Rd & Legacy Blvd



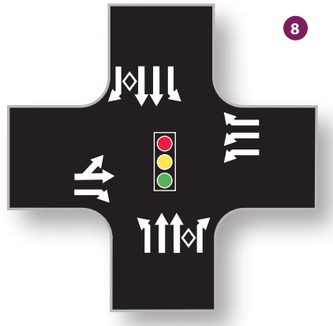
Hayden Rd & Loop 101 WB Ramps



Hayden Rd & Loop 101 EB Ramps



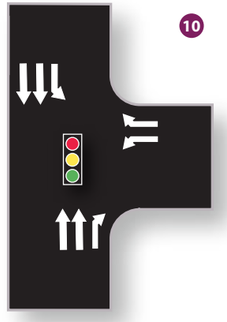
Hayden Rd & Mayo Blvd



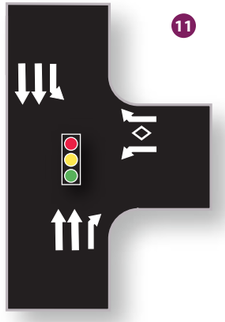
Hayden Rd & Princess Dr



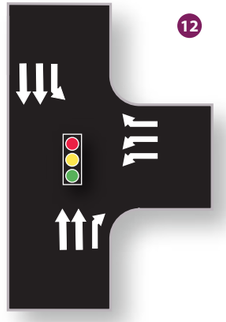
Hayden Rd & Bell Rd



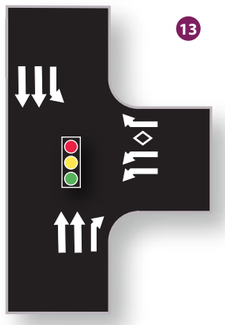
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd.

LEGEND

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Becomes Left-Turn Under Bridge
- Future Roadway Connections
- Traffic Signal
- Stop Sign
- Speed Limit



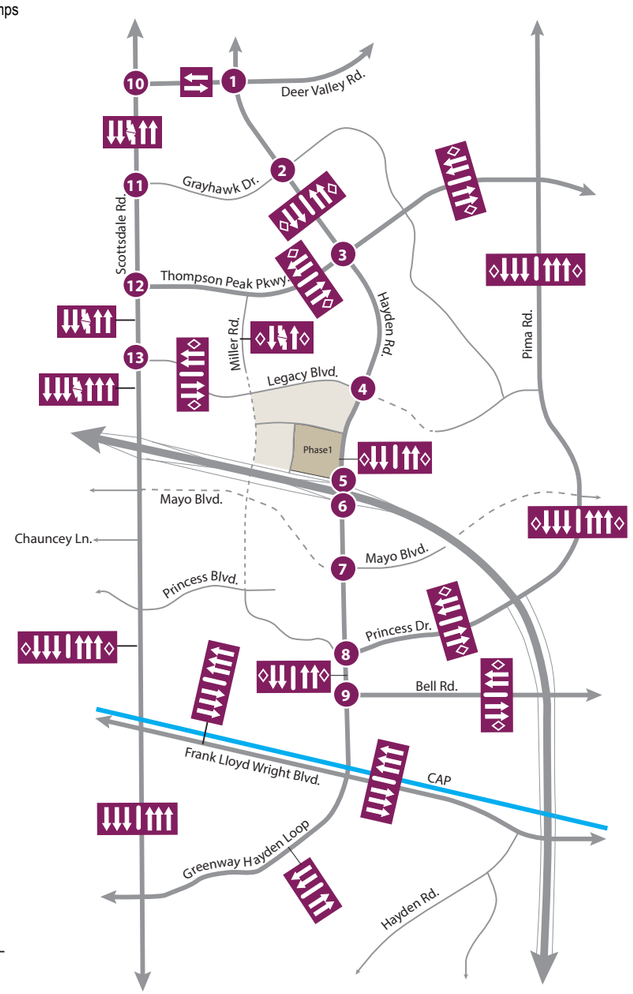
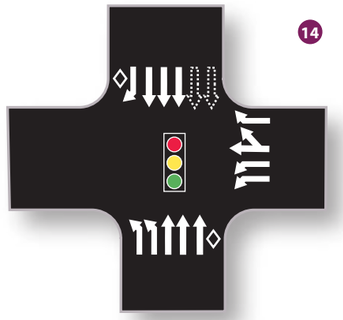
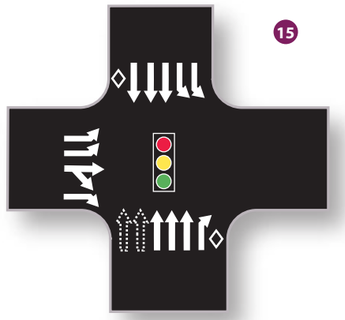


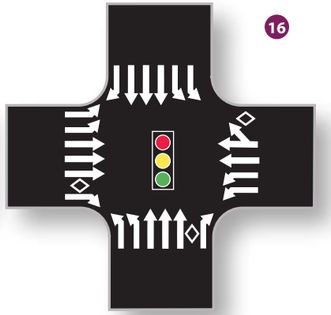
Figure 2A: Existing Lane Configurations and Traffic Controls



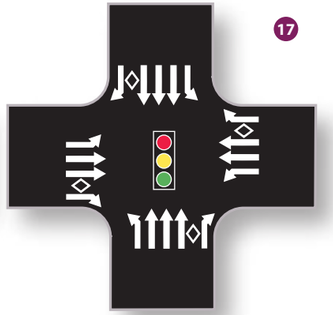
Scottsdale Rd & Loop 101 WB Ramps



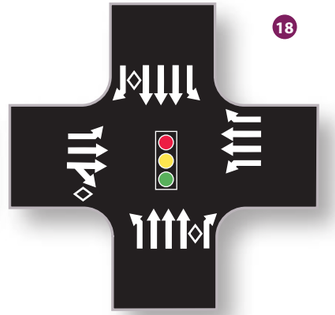
Scottsdale Rd & Loop 101 EB Ramps



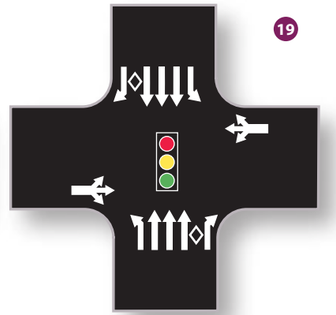
Scottsdale Rd & Mayo Blvd



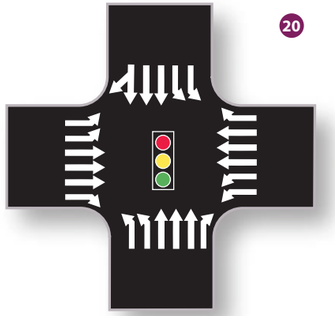
Scottsdale Rd & Chauncey Ln



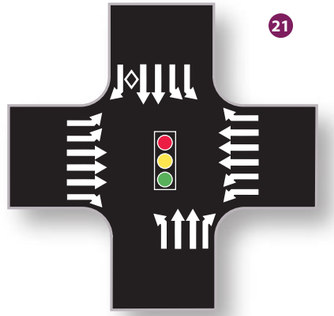
Scottsdale Rd & Princess Blvd



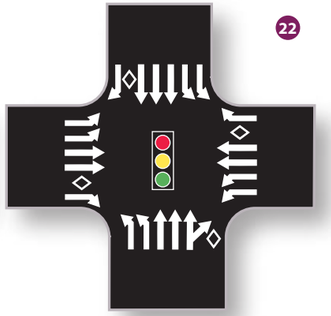
Scottsdale Rd & 17050 North



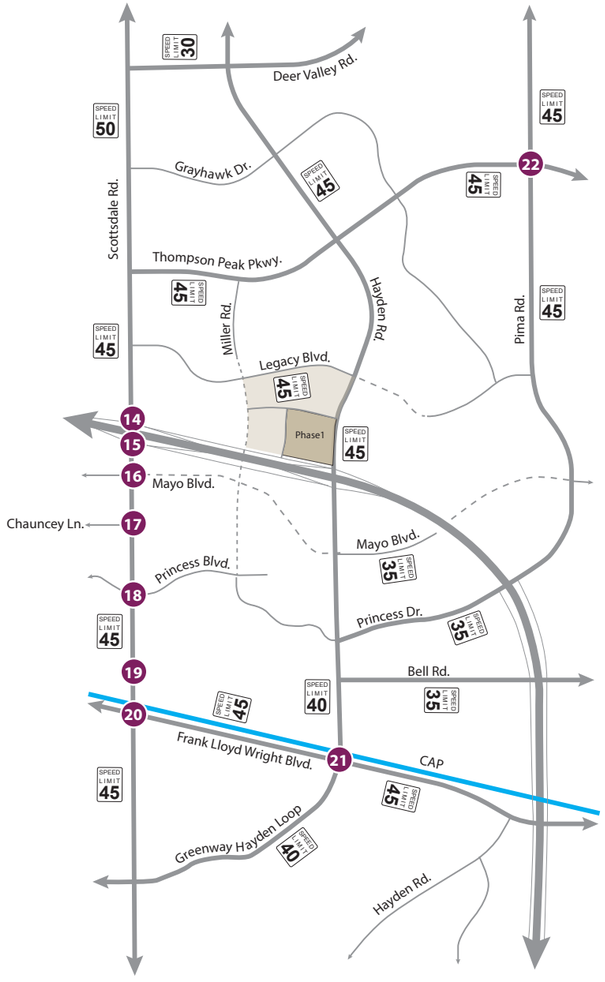
Scottsdale Rd & Frank Lloyd Wright Blvd



Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



LEGEND

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Becomes Left-Turn Under Bridge
- Future Roadway Connections
- Traffic Signal
- Stop Sign
- Speed Limit

NORTH

Figure 2B: Existing Lane Configurations and Traffic Controls

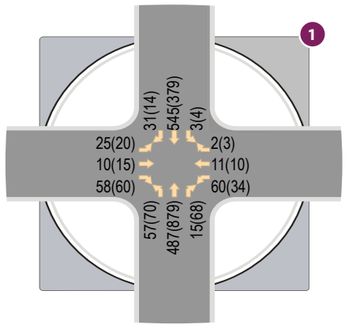
EXISTING TRAFFIC VOLUMES

CivTech contracted Field Data Services of Arizona (FDS) Inc. to conduct turning movement counts at the following intersections:

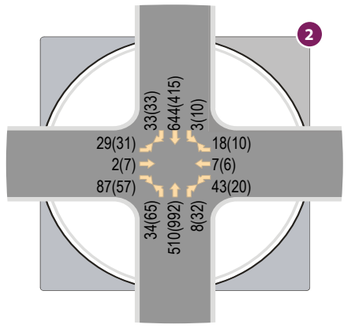
- Scottsdale Rd. & Thompson Peak Pkwy.
- Scottsdale Rd. & Legacy Blvd.
- Scottsdale Rd. & Loop 101 WB/EB Ramps
- Scottsdale Rd. & Grayhawk Dr.
- Scottsdale Rd. & Deer Valley Rd.
- Scottsdale Rd. & Mayo Blvd.
- Scottsdale Rd. & Princess Dr.
- Scottsdale Rd. & Frank Lloyd Wright Blvd.
- Scottsdale Rd. & 17050 North
- Scottsdale Rd. & Chauncey Ln.
- Hayden Rd. & Thompson Peak Pkwy.
- Hayden Rd. & Legacy Blvd.
- Hayden Rd. & Loop 101 WB/EB Ramps
- Hayden Rd. & Princess Dr.
- Hayden Rd. & Bell Rd.
- Hayden Rd. & Mayo Blvd.
- Hayden Rd. & Grayhawk Dr.
- Hayden Rd. & Deer Valley Rd.
- Greenway-Hayden Loop & Frank Lloyd Wright Blvd.
- Pima Rd. & Thompson Peak Pkwy.

These turning movement counts were conducted on Tuesday, June 19, 2018 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM.

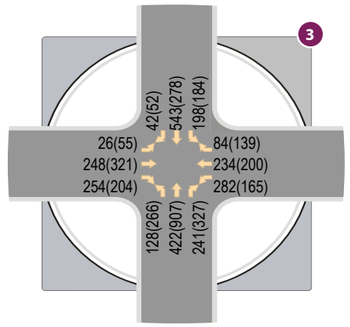
The existing traffic volume data for this study is presented in the **Appendix B** for the AM and PM peak hours. Per the City of Scottsdale requirements, a seasonal adjustment factor of 1.03 was applied to all existing intersection turning movement counts. The seasonal adjustment factor was developed by the Maricopa Association of Governments (MAG) for the region with the intent of addressing variations in peak seasonal volumes. **Figure 3A** and **3B** illustrates the existing AM and PM peak hour traffic volumes with the seasonal adjustment factor applied.



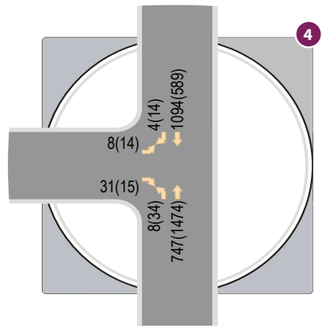
Hayden Rd & Deer Valley Rd



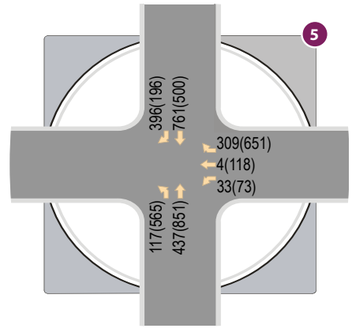
Hayden Rd & Grayhawk Dr



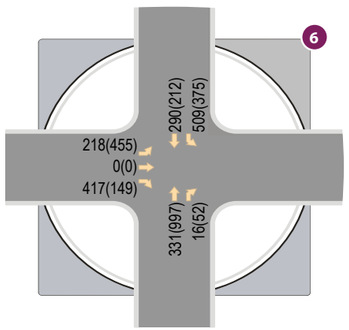
Hayden Rd & Thompson Peak Pkwy



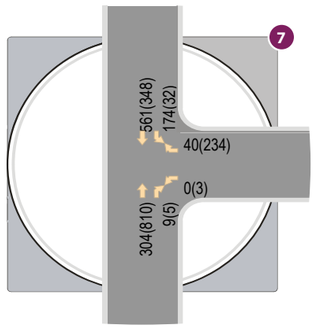
Hayden Rd & Legacy Blvd



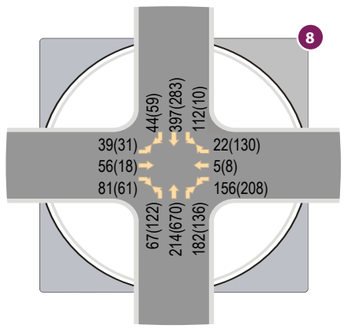
Hayden Rd & Loop 101 WB Ramps



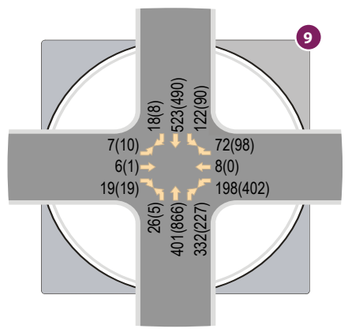
Hayden Rd & Loop 101 EB Ramps



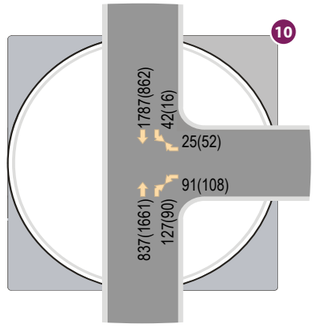
Hayden Rd & Mayo Blvd



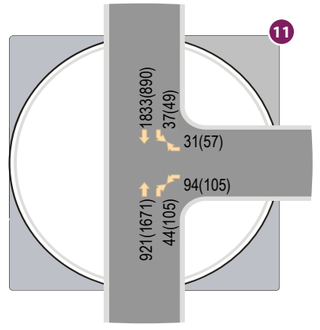
Hayden Rd & Princess Dr



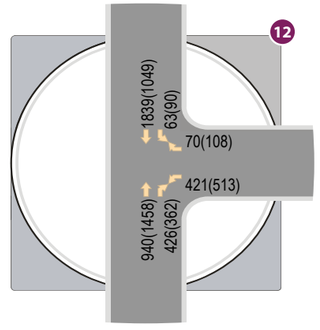
Hayden Rd & Bell Rd



Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy

LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

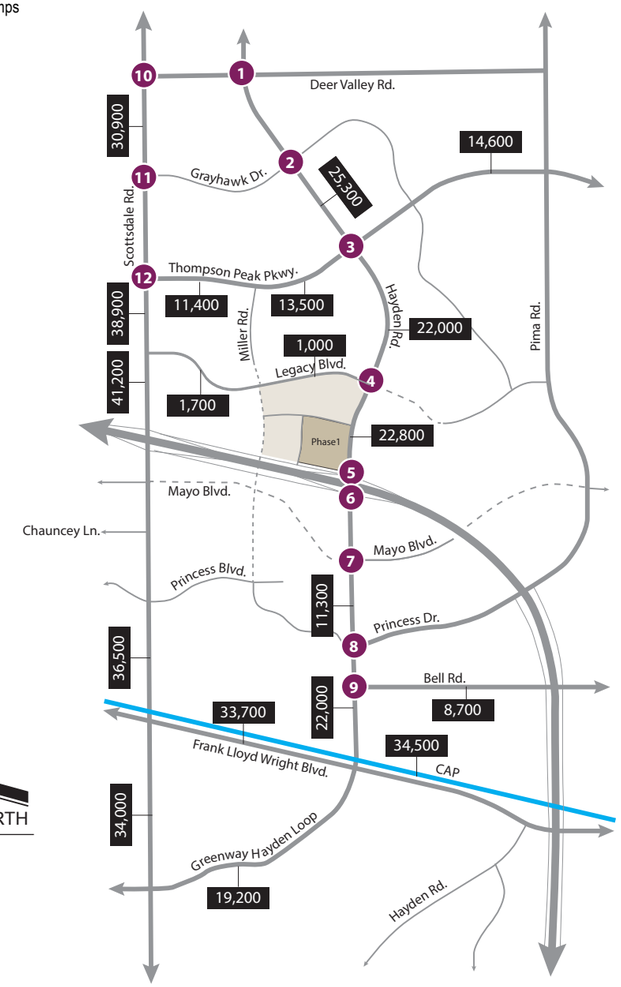
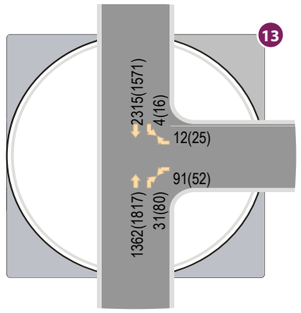
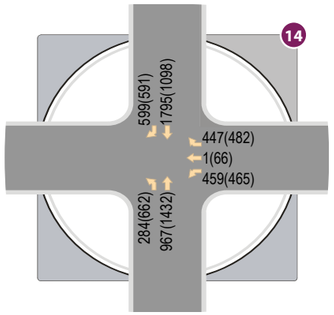


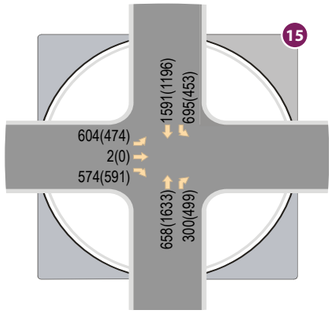
Figure 3A: Existing Traffic Volumes



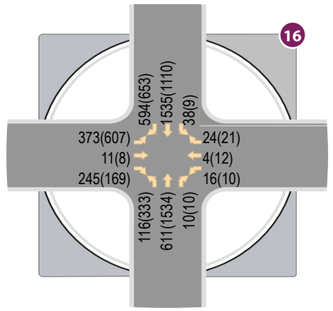
Scottsdale Rd & Legacy Blvd



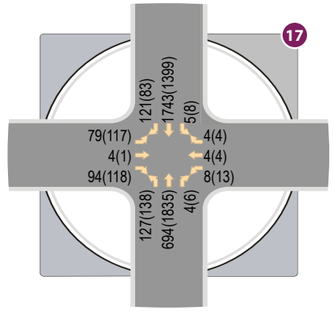
Scottsdale Rd & Loop 101 WB Ramps



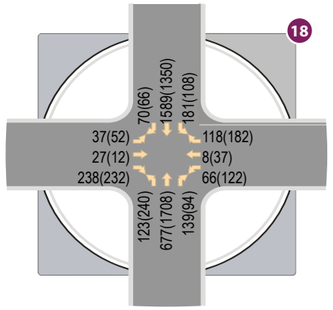
Scottsdale Rd & Loop 101 EB Ramps



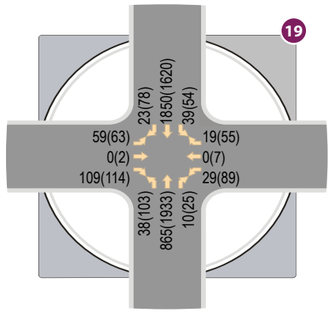
Scottsdale Rd & Mayo Blvd



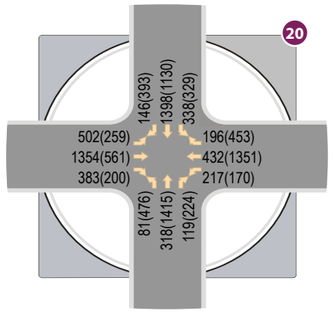
Scottsdale Rd & Chauncey Ln



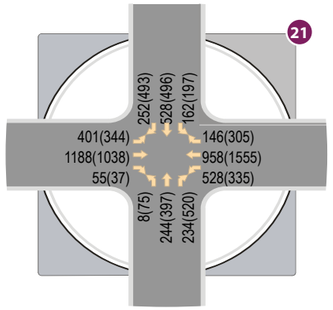
Scottsdale Rd & Peincess Blvd



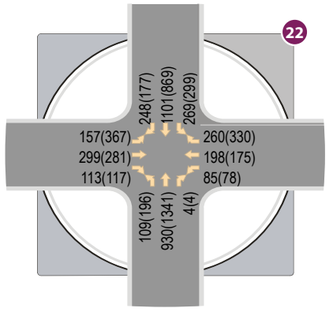
Scottsdale Rd & 17050 North



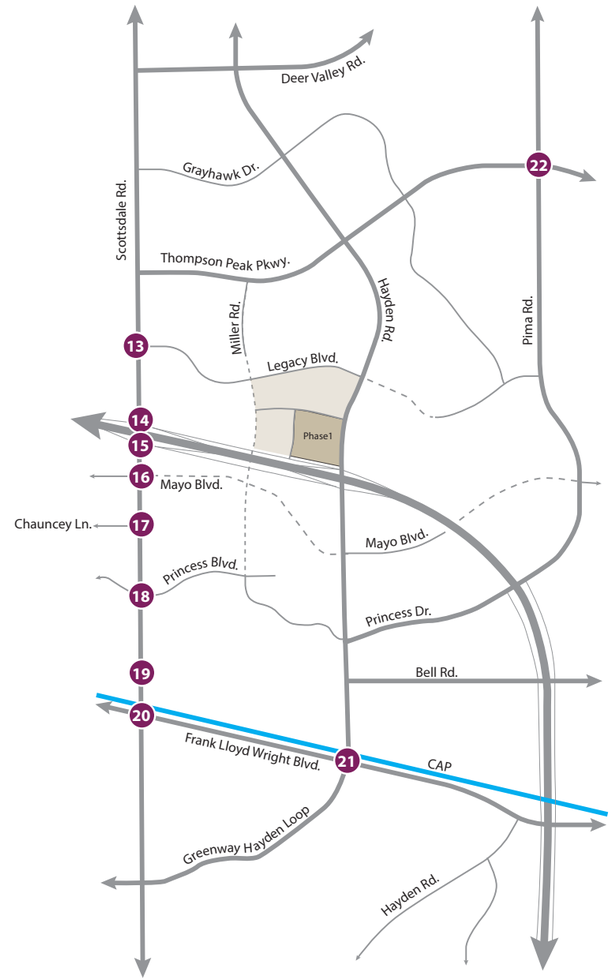
Scottsdale Rd & Frank Lloyd Wright Blvd



Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



LEGEND

NORTH

XX(XX) - AM(PM) Peak Hour Traffic Volumes

Figure 3B: Existing Traffic Volumes

EXISTING CAPACITY ANALYSIS

Peak hour capacity analyses have been conducted for the study intersections based on existing conditions and traffic volumes. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual (HCM), Special Report 209,* Updated 2000 and using Synchro version 6 under the HCM 2000 methodology. HCM 2000 methodology was used, as opposed to HCM 6th edition methodology, because of the signal timing provided by the City of Scottsdale. The timing provided by the City does not follow NEMA phasing, and therefore could not be analyzed using the newer HCM methodology. Signal timing sheets provided by the City of Scottsdale are presented in **Appendix C**.

The concept of level-of-service (LOS) uses qualitative measures that characterize operational conditions within the traffic stream. The individual levels-of-service are described by factors that include speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations A through F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions. **Table 1** lists the level of service criteria for signalized and unsignalized intersections, respectively.

Table 1 – Level-of-Service Criteria for Controlled Intersections

Level-of-Service	Unsignalized Control Delay (sec/veh)	Signalized Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

Source: Exhibit 16-2 and Exhibit 17-2, Highway Capacity Manual 2000

Results of the existing level-of-service analyses are shown in **Table 2** for both peak hours. The analysis worksheets for the existing conditions have been included in the **Appendix D**.

Table 2 – Existing Peak Hour Levels of Service

ID	Intersection	Stop Control	Existing Peak Hour LOS		
			Approach	AM	PM
1	Hayden Road & Deer Valley Road	Signal	NB	B	B
			SB	B	B
			EB	B	B
			WB	B	B
			Overall	**B**	**B**
2	Hayden Road & Grayhawk Drive	Signal	NB	C	C
			SB	C	C
			EB	B	B
			WB	B	B
			Overall	**C**	**C**
3	Hayden Rd. & Thompson Peak Pkwy.	Signal	NB	C	C
			SB	B	C
			EB	D	**E**
			WB	D	**E**
			Overall	**C**	**D**
4	Hayden Road & Legacy Boulevard	Signal	NB	A	A
			SB	A	A
			EB	D	D
			Overall	**A**	**A**
5	Hayden Road & Loop 101 WB	Signal	NB	C	**F**
			SB	C	C
			WB	D	D
			Overall	**C**	**F**
6	Hayden Road & Loop 101 EB	Signal	NB	D	D
			SB	B	C
			EB	F	**E**
			Overall	**E**	**D**
7	Hayden Rd & Mayo Blvd	1-way Stop (WB)	SB Left	A	B
			WB Shared	A	C
8	Hayden Road & Princess Drive	Signal	NB	C	B
			SB	A	C
			EB	**E**	**F**
			WB	D	D
			Overall	**C**	**C**
9	Hayden Road & Bell Road	Signal	NB	B	B
			SB	A	B
			EB	**E**	**E**
			WB	D	D
			Overall	**B**	**C**
10	Scottsdale Road & Deer Valley Road	Signal	NB	A	A
			SB	A	A
			WB	D	**E**
			Overall	**A**	**A**
11	Scottsdale Road & Grayhawk Drive	Signal	NB	A	B
			SB	A	A
			WB	D	D
			Overall	**A**	**B**

ID	Intersection	Stop Control	Existing Peak Hour LOS		
			Approach	AM	PM
12	Scottsdale Road & Thompson Peak Parkway	Signal	NB	D	**F**
			SB	B	B
			WB	D	D
			Overall	**C**	**D**
13	Scottsdale Road & Legacy Boulevard	Signal	NB	C	C
			SB	A	A
			WB	D	**E**
			Overall	**B**	**B**
14	Scottsdale Road & Loop 101 WB	Signal	NB	C	**E**
			SB	D	C
			WB	D	D
			Overall	**D**	**D**
15	Scottsdale Road & Loop 101 EB	Signal	NB	**F**	D
			SB	C	C
			EB	D	D
			Overall	**D**	**C**
16	Scottsdale Road & Mayo Boulevard	Signal	NB	D	**E**
			SB	D	**F**
			EB	D	D
			WB	D	D
			Overall	**D**	**E**
17	Scottsdale Road & Chauncey Lane	Signal	NB	B	C
			SB	B	B
			EB	D	D
			WB	**E**	D
			Overall	**B**	**C**
18	Scottsdale Road & Princess Boulevard	Signal	NB	B	C
			SB	B	B
			EB	D	D
			WB	**E**	**E**
			Overall	**C**	**C**
19	Scottsdale Road & 17050 North	Signal	NB	A	C
			SB	B	B
			EB	**E**	D
			WB	D	**E**
			Overall	**B**	**C**
20	Scottsdale Road & Frank Lloyd Wright Boulevard	Signal	NB	D	**F**
			SB	D	D
			EB	D	D
			WB	D	**E**
			Overall	**D**	**F**
21	Hayden Road & Frank Lloyd Wright Boulevard	Signal	NB	D	**F**
			SB	**E**	**F**
			EB	D	D
			WB	D	D
			Overall	**D**	**E**

ID	Intersection	Stop Control	Existing Peak Hour LOS		
			Approach	AM	PM
22	Pima Road & Thompson Peak Parkway	Signal	NB	C	D
			SB	C	C
			WB	**E**	**E**
			EB	D	D
			Overall	**D**	**D**

All existing study intersections operate with an overall acceptable level of service (LOS C or better) during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:

The intersection of **Hayden Road and Loop 101 Westbound Ramps** operate with unacceptable delays under existing conditions during the PM peak hour. These delays are primarily due to the heavy northbound left-turn volume onto the freeway and the right-turn volume egressing from the westbound Loop 101 off ramp. It is recommended these delays be mitigated by increasing the northbound left-turn phase and additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay is expected to decrease from 124-seconds to 81-seconds for the PM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation is expected to increase the delay at the signalized eastbound ramp from 43-seconds to 46-seconds in the PM peak hour. This 3-second increase is considered very minor considering the 43-second decrease in delay at the signalized westbound ramp.

The intersection of **Hayden Road and Loop 101 Eastbound Ramps** operate with heavy delays under existing conditions during the AM peak hour. These delays are primarily due to the southbound left-turn volume onto the freeway and the right-turn volume egressing from the eastbound Loop 101 off ramp during the AM peak hour. It is recommended the eastbound phase be extended an additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay would decrease from 72-seconds to 65-seconds in the AM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation would also decrease the delay at the signalized westbound ramp from 25-seconds to 23-seconds in the AM peak hour.

The intersection of **Scottsdale Road and Mayo Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the northbound/southbound through volume on Scottsdale road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 19-seconds to 28-seconds and the southbound left phase be extended from 11-seconds to 23-seconds. Also, adding overlaps for the northbound and southbound right turns will decrease the delay on those approaches. By applying these changes to the existing intersections, the delay is expected to decrease from 76-seconds to 55-seconds.

The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the westbound left-turn volume on Frank Lloyd Wright Boulevard and the conflicting northbound left-turn volume on Scottsdale Road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 9-seconds to 25-seconds, the southbound left turn phase be extended from 23-seconds to 26-seconds, and the northbound through phase be extended from 35-seconds to 41-seconds. With these changes made to the existing intersection, the delay is expected to decrease from 160-seconds to 85-seconds.

The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the PM peak northbound/southbound left-turn volume as well as the conflicting northbound/southbound right-turn volumes for those phases. It is recommended that the northbound left turn phase be extended from 10-seconds to 16-seconds, the southbound left turn phase be extended from 15-seconds to 19-seconds and the eastbound left turn phase be extended from 20-seconds to 22-seconds. With these changes made to the existing intersection, the overall delay is expected to decrease from 60-seconds to 55-seconds.

FUTURE ROADWAY IMPROVEMENTS

By phase 1 opening year 2020, Miller road will be expanded from the northern subdivision, south to Legacy Boulevard. This expansion will provide site access to the Cavasson development and the surrounding Crossroads East development.

By phase 2 opening year 2030, Miller Road will be constructed south as an underpass for the Loop 101 and will terminate at Princess Boulevard, creating a new four-legged intersection.

PROPOSED DEVELOPMENT

SITE LOCATION

The Cavasson development is located within the City of Scottsdale located in the southwest corner of Hayden Road and Legacy Boulevard. The site is bound by Legacy Boulevard to the north, Loop 101 to the south, Miller Road (alignment) to the west, and Hayden Road to the east.

SITE PHASEING AND TIMING

The proposed Cavasson site is planned in two (2) phases with opening year 2020 assumed to have all of Phase I development constructed. By study horizon year 2030 it is anticipated buildout of both phases will be constructed. The following is a detailed description of each proposed phase and location:

- *Phase I* – is located in the fourth (4) quadrant of the site in the direct northwest corner of Hayden Road and Loop101. By opening year Phase I is planned to provide a total of 135 hotel rooms, 350 dwelling units of multi-family, 11,000-square feet (SF) of commercial, 6,000-SF of fast food restaurant and 740,000-SF of general office space.
- *Phase II* – encompasses the full proposed Cavasson site. Phase II is planned to provide an additional 265 hotel rooms, 1,250 dwelling units of multi-family, 183,000-SF of commercial, 6,000-SF of fast food restaurant and 1,060,000-SF of general office space.

In total the site will provide 400 hotel rooms, 1,600 dwelling units of multi-family, 194,000-SF of commercial, 6,000-SF of fast food restaurant and 1.8 million square feet of general office space.

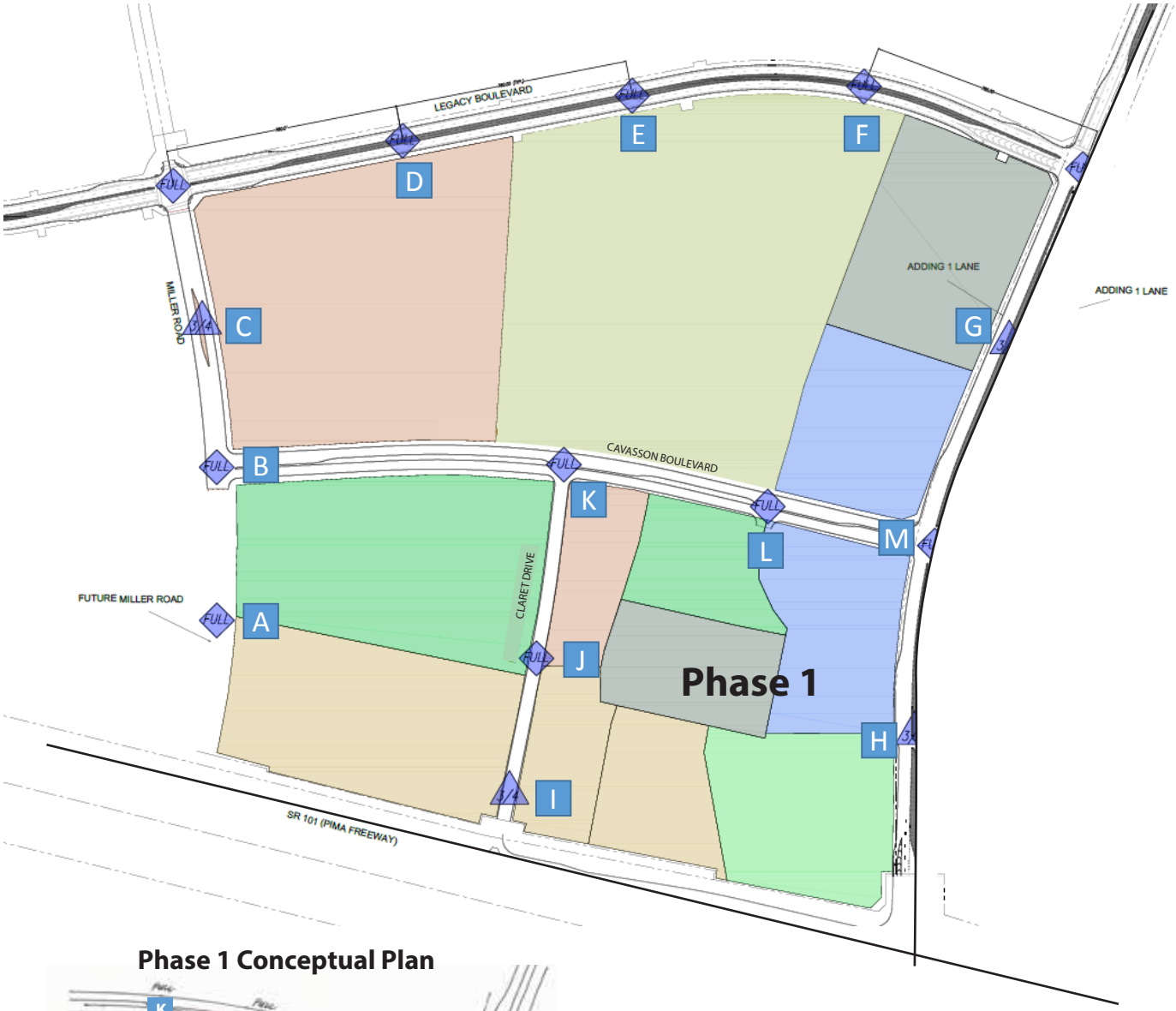
SITE ACCESS

The conceptual layout of the proposed Cavasson site is illustrated in **Figure 4**. The site can be accessed via Miller Road alignment, Hayden Road, Legacy Boulevard and Westbound SR-101 Frontage Road.

- *Cavasson Boulevard* – is an internal east/west roadway bifurcating proposed Phases I and II, located along the half way point between SR-101 and Legacy Boulevard. Cavasson Boulevard will provide internal connectivity to the Miller Road alignment south of Legacy Boulevard and Hayden Road. Construction for Cavasson Boulevard is planned as part of the Phase I development.

- *Claret Drive* - is an internal north/south roadway, located along the half way point between the Miller Road alignment and Hayden Road. Claret Drive is planned to provide connectivity to the SR-101 Frontage Road and Cavasson Boulevard. Construction for Claret Drive is planned as part of the Phase I development.
- Access ***A*** is a proposed restricted ¾ movement unsignalized access providing left-in/right-in/right-out movements only located north of the westbound SR-101 Frontage Road along the future Miller Road alignment. Access A is planned to directly service Phase II of the proposed Cavasson development.
- Access ***B*** is the proposed full movement signalized site access (Cavasson Boulevard and Miller Road intersection) which is located between the SR-101 Frontage Road and Legacy Boulevard. Access B is generally located north of Access A and south of Access C along the Miller Road Alignment. Access B is planned to be constructed as part of the Phase I development and will serve as one of the primary access points into the proposed Cavasson development.
- Access ***C*** is a proposed restricted ¾ unsignalized access providing left-in/right-in/right-out movements only. Access C is located south of Legacy Boulevard and north of Access B along the Miller Road Alignment. Access C is planned to be constructed as part of Phase II of the Cavasson development.
- Access ***D*** is a proposed full movement unsignalized access located east of Miller Road. Access D is planned to be constructed as part of the Phase II development.
- Access ***E*** is a proposed full movement unsignalized access located between Miller Road and Hayden Road, located generally east of Access D and west of Access F along Legacy Boulevard. Access E is planned to be constructed as part of the Phase II development.
- Access ***F*** is a proposed full movement unsignalized access located west of Hayden Road. Access F is planned to be constructed as part of the Phase II development.
- Access **G** is a proposed restricted ¾ unsignalized access providing left-in/right-in/right-out movements only. Access G is located south of Legacy Boulevard and north of Cavasson Boulevard along Hayden Road. Access G is planned to be constructed as part of the Phase II development proposed within the Cavasson development.
- Access ***H*** is a proposed restricted ¾ unsignalized access providing left-in/right-in/right-out movements only. Access H is located north of SR-101 westbound frontage road/ramps and south of Cavasson Boulevard along Hayden Road. Access H is planned to be constructed as part of the Phase I development.
- Access ***I*** is a proposed internal restricted ¾ unsignalized access providing left-in/right-in/right-out movements only to the Phase I development. Access I is located just north of SR-101 westbound Frontage Road along Claret Drive between the Miller Road alignment and Hayden Road. Access I is planned to be constructed as part of the Phase I development.

- Access ***J*** is a proposed internal full movement unsignalized access within the proposed Phase I development. Access J is located between the SR-101 Frontage Road and Cavasson Boulevard along the Claret Drive between Access I and Access K. Access J is planned to be constructed as part of the Phase I development.
- Access ***K*** is a proposed internal signalized intersection connecting both Cavasson Boulevard and Claret Drive. Access K is located directly between the Miller Road alignment and Hayden Road, generally located north of Access J along Cavasson Boulevard. Access K is planned to be constructed as part of the Phase I development.
- Access ***L*** is a proposed internal full movement unsignalized access within the proposed Phase I development. Access L is located between Claret Drive and Hayden Road along Cavasson Boulevard. Access L is planned to be constructed as part of the Phase I development proposed within the Cavasson development.
- Access **M** is a proposed signalized full movement site access (Cavasson Boulevard and Hayden Road intersection) which is located between proposed Access G and proposed Access H along the Hayden Road alignment. Access M is planned to be constructed as part of the Phase I development and will serve as one of the primary main driveways into the proposed Cavasson development.



Phase 1 Conceptual Plan

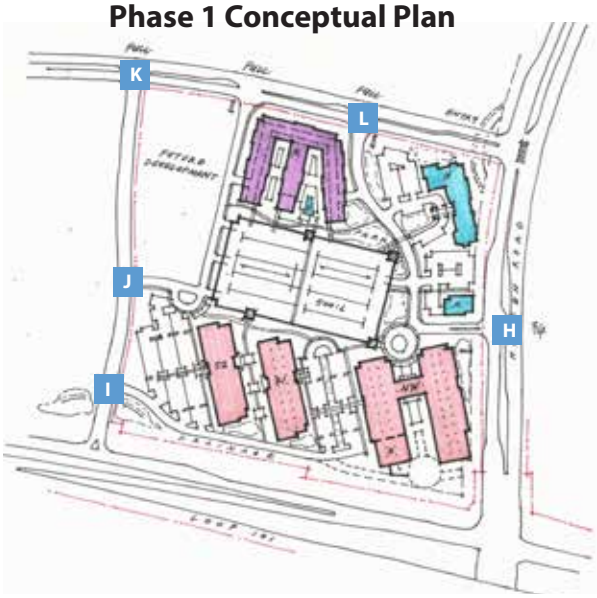


Figure 4: Site Plan and Access

TRIP GENERATION

Generated trips were estimated for the proposed Crossroads East development utilizing the data given in the *Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition* report and the methodology discussed in the *ITE Trip Generation Handbook, 3rd Edition.* The *ITE Trip Generation* report contains data collected by various transportation professionals for a wide range of different land uses. The data are summarized in the report and average rates, the minimum rate for all studied locations, the maximum rate for all studied locations and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized land use. It also provides information for daily and peak hour trips.

Internal Capture

According to data presented in the *ITE Trip Generation Handbook, 3rd Edition*, trips attracted to residential, office, or retail land uses are often shared. This means that a single trip (vehicle) to the proposed Cavasson development may visit several uses within the site during the same visit, an occurrence known as internal capture or internal interaction. This is especially true for large mixed-use developments like the Cavasson development. This has the effect of reducing the external trip generating potential of the proposed site.

CivTech calculated internal capture percentages using the ITE methodology which calculated a 7% daily internal capture, a 3% AM peak hour internal capture and 4% PM peak hour internal capture for the proposed Phase I land uses. At buildout, the internal capture was calculated to be 24% of the daily traffic, 10% for the AM peak hour and 18% in the PM peak hour. Internal capture worksheets are shown in **Appendix E**.

Pass-By and Diverted Link Trips

Based on the published ITE data, as found in *ITE Trip Generation Handbook, 3rd Edition,* it could be estimated that some portion of the traffic entering and exiting a commercial land use would come from traffic already on the external street system. The term ‘pass-by’ trips refers to traffic already traveling on a study roadway from an origin to a destination that stops into the commercial development on the way. The term ‘diverted link’ trips refers to traffic on major roadway corridors, such as Hayden Road, that are diverted into the development from their original destination.

Per the *ITE Trip Generation Handbook, 3rd Edition*, it could be estimated that 5% of the daily trips and 34% of the PM peak hour trips generated by the commercial developments could be from pass-by or diverted link trips. Thus, a daily reduction of 5% and a PM peak hour reduction of 34% could be applied to those trips generated by the commercial developments. For study purposes these reductions were not applied to the trips generated by the Cavasson development in order to provide a conservative analysis.

The methodology discussed was utilized to develop trip rates associated with each land use for the planned Cavasson Phase I densities and intensities. This was primarily conducted using fitted curve equation rates with exception of the fast food restaurant which required the use of land use average trip rates from the ITE manual were applied. **Table 3** depicts the trip generation rates applied for each land use type within the proposed Cavasson development.

Table 3 –Trip Rates and Directional Splits

Land Use	ITE Code	Size		Weekday Generated Trip Rates and Splits						
				Daily	AM Peak Hour			PM Peak Hour		
		Quantity	Units	Rate	*Enter*	*Exit*	Total	*Enter*	*Exit*	Total
Hotel	310	135	Keys	8.36	*59%*	*41%*	0.49	*51%*	*49%*	0.68
Apartment	220	350	DU	7.53	*23%*	*77%*	0.42	*63%*	*37%*	0.44
General Office	710	740,000	SF	9.73	*86%*	*14%*	0.95	*16%*	*84%*	0.99
Shopping Center	820	11,000	SF	48.16	*57%*	*43%*	1.26	*52%*	*48%*	4.54
Fast Food	930	6,000	SF	315.17	*67%*	*33%*	2.07	*55%*	*45%*	14.13

Opening Year 2020 - Phase I Trip Generation

By opening year 2020, it is anticipated that the Phase I development will be fully constructed. Utilizing the ITE guidelines for development of trip generation rates, the trips generated by the Cavasson Phase I development are summarized in **Table 4**. Detailed trip generation calculation worksheets for the Phase I Cavasson development are provided in **Appendix F**.

Table 4 – Phase I Trip Generation

Land Use	ITE Code	Size		Weekday Generated Trips						
				Daily	AM Peak Hour			PM Peak Hour		
		Quantity	Units	Total	Enter	Exit	Total	Enter	Exit	Total
Hotel	310	135	Keys	1,128	39	27	66	47	45	92
Apartment	220	350	DU	2,636	34	113	147	97	57	154
General Office	710	740,000	SF	7,200	605	98	703	117	616	733
Shopping Center	820	11,000	SF	530	8	6	14	26	24	50
Fast Food Restaurant	930	6,000	SF	1,892	8	4	12	47	38	85
Total				**13,386**	**694**	**248**	**942**	**334**	**780**	**1,114**
Internal Capture Reductions				*(936)*	*(20)*	*(7)*	*(27)*	*(14)*	*(30)*	*(44)*
Total External Trips				**12,450**	**674**	**241**	**915**	**320**	**750**	**1,070**

As shown in **Table 5**, Phase I of the Cavasson Development is anticipated to generate 12,4506 daily trips to the external roadway system, with 915 occurring during the AM peak hour and 1,070 occurring during the PM peak hour. These are the anticipated trips which will be assigned to the external street network surrounding the study area.

Horizon year 2030 - Phase II (Buildout) Trip Generation

By horizon year 2030, it is anticipated that Phase II of the Cavasson development will be fully built-out. Utilizing the trip generation equations for the proposed land uses and using ITE guidelines for development of trip generation rates, the trips generated by the Cavasson Phase II development are summarized in **Table 5**. Detailed trip generation calculation worksheets for the Cavasson development are provided in **Appendix F**.

Table 5 – Buildout Trip Generation

Land Use	ITE Code	Size		Weekday Generated Trips						
				Daily	AM Peak Hour			PM Peak Hour		
		Quantity	Units	Total	Enter	Exit	Total	Enter	Exit	Total
Hotel	310	400	Keys	3,344	116	80	196	139	133	272
Apartment	220	1,600	DU	12,048	155	517	672	444	260	704
General Office	710	1,800,000	SF	17,514	1,471	239	1,710	285	1,497	1,782
Shopping Center	820	194,000	SF	9,344	139	105	244	458	423	881
Fast Food Restaurant	930	12,000	SF	3,782	17	8	25	94	76	170
Total				**46,032**	**1,898**	**949**	**2,847**	**1,420**	**2,389**	**3,809**
Internal Capture Reductions				*(11,048)*	*(191)*	*(94)*	*(285)*	*(255)*	*(431)*	*(686)*
Total External Trips				**34,984**	**1,707**	**855**	**2,562**	**1,165**	**1,958**	**3,123**

As shown in **Table 5**, Phase II (full build) of the Cavasson Development is anticipated to generate 34,984 daily trips to the external roadway system, with 2,562 occurring during the AM peak hour and 3,123 occurring during the PM peak hour. These are the anticipated trips which will be assigned to the external street network surrounding the study area.

TRIP DISTRIBUTION

Daily trips were distributed to the roadway network based on the Maricopa Association of Governments (MAG) estimate of total employment and population within a 10-mile radius of the site. The radius selected is based on the average trip length to this land use as discussed in the Nationwide Public Transportation Survey Urban Travel Patterns report (December 1999). It was determined that the major travel pattern for the site-generated traffic is primarily to the south and west.

By horizon year 2030, it is assumed that a portion of study area will be constructed. As the surrounding Crossroads East development builds out, the internal collector roads and adjacent arterial roads will be constructed and will be utilized to disperse site generated traffic. This includes the following improvements and extensions:

- ***64th Street***, extension from Bell Road to Jomax Road.
- ***Legacy Boulevard***, extension from Scottsdale Road to 56th Street and from Hayden Road to Pima Road.
- ***Miller Road***, underpass built at Loop 101.
- ***Deer Valley Drive (Thompson Peak Parkway),*** extension from 56th Street to Scottsdale Road.
- ***Internal Collectors***, full construction of all internal collectors to the Crossroads East development.

Table 6 displays the overall trip distribution percentages in the four (4) cardinal directions. Detailed trip distribution calculations are provided in **Appendix G**.

Table 6 – Trip Distribution

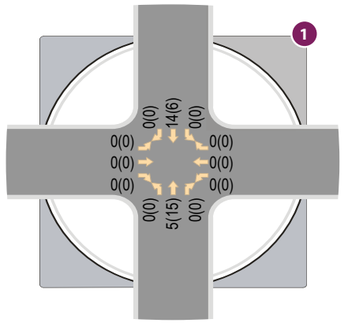
Direction (To/From)	Percentage
North	15%
South	30%
East	15%
West	40%
Total	**100%**

TRAFFIC ASSIGNMENT

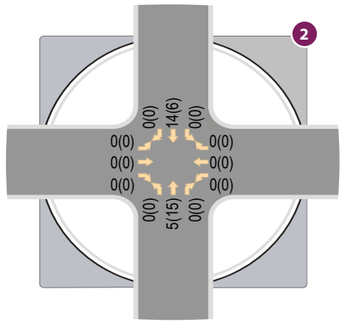
The percentages shown in **Figure 5** were applied to the trips generated to determine the AM and PM peak hour site traffic at the intersections within the study area for each study horizon year. **Figures 6A, 6B and 6C** illustrate the opening year 2020 Phase I site generated traffic volumes. **Figures 7A, 7B and 7C** illustrate the opening year 2020 Phase II site generated traffic volumes.



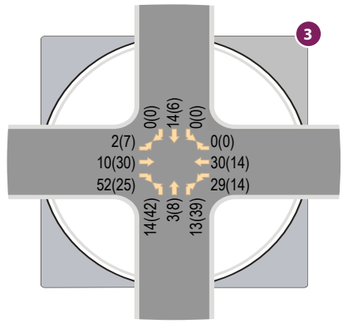
Figure 5: Trip Distribution



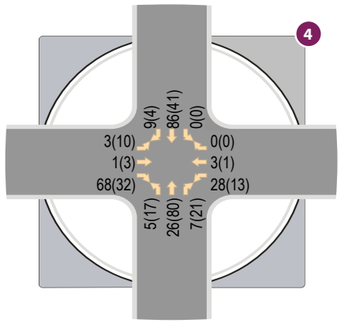
Hayden Rd & Deer Valley Rd



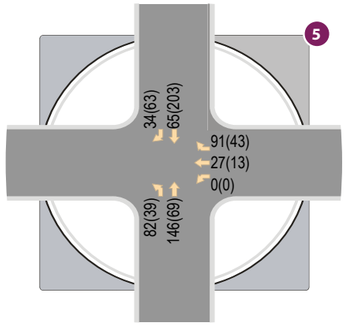
Hayden Rd & Grayhawk Dr



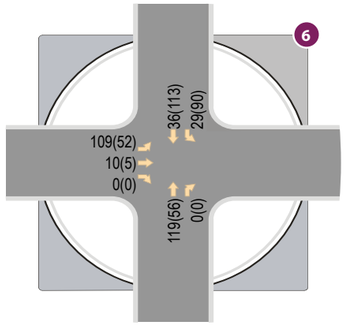
Hayden Rd & Thompson Peak Pkwy



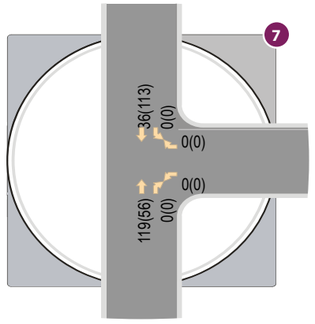
Hayden Rd & Legacy Blvd



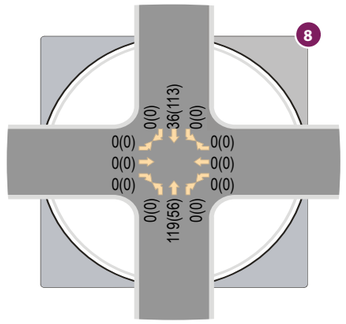
Hayden Rd & Loop 101 WB Ramps



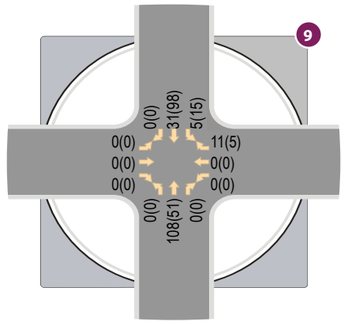
Hayden Rd & Loop 101 EB Ramps



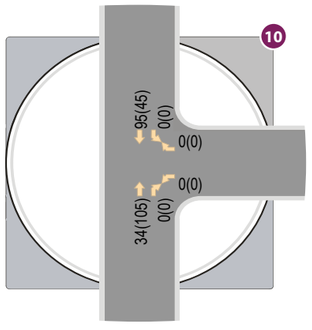
Hayden Rd & Mayo Blvd



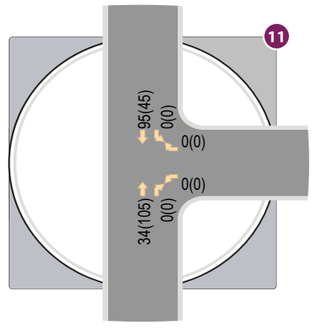
Hayden Rd & Princess Dr



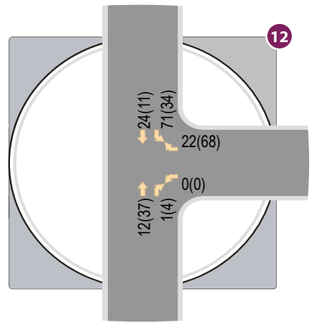
Hayden Rd & Bell Rd



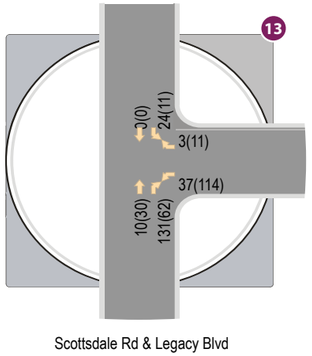
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd

LEGEND

NORTH

XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

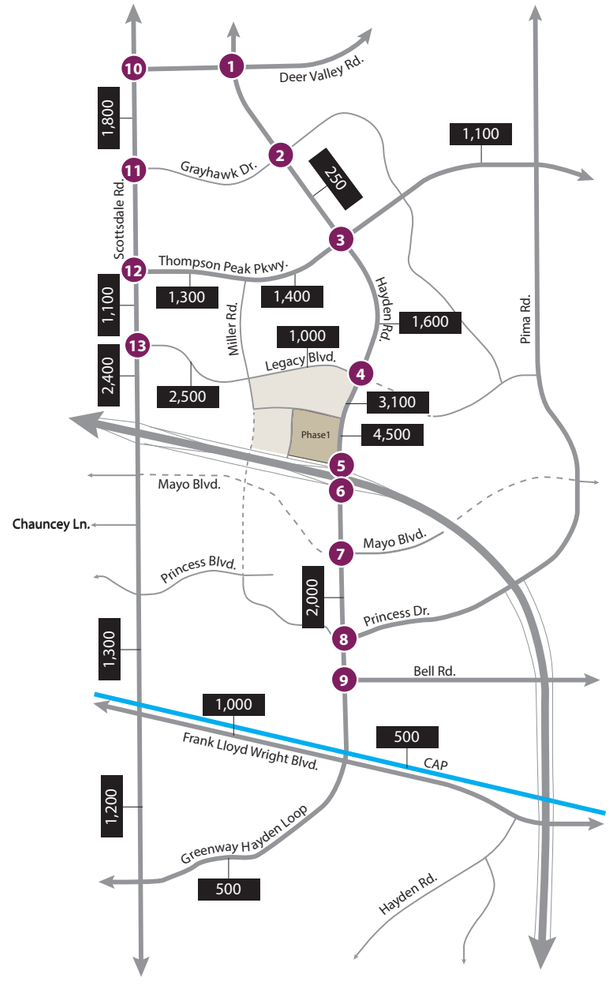
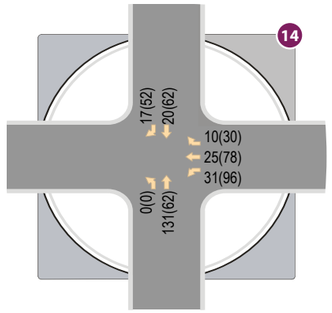
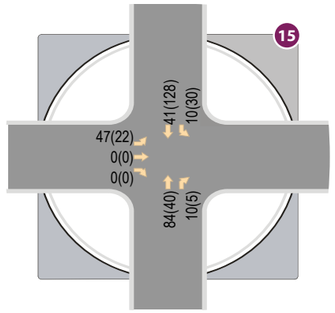


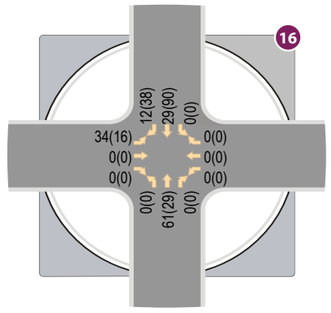
Figure 6A: 2020 Site Generated Traffic Volumes



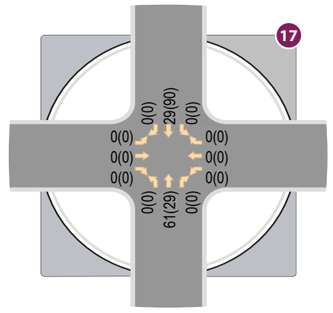
Scottsdale Rd & Loop 101 WB Ramps



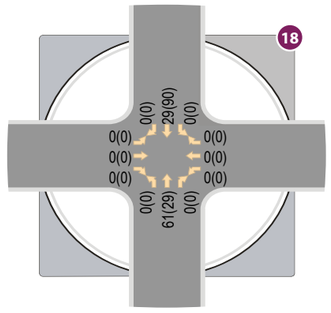
Scottsdale Rd & Loop 101 EB Ramps



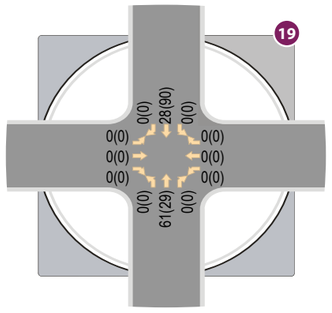
Scottsdale Rd & mayo Blvd



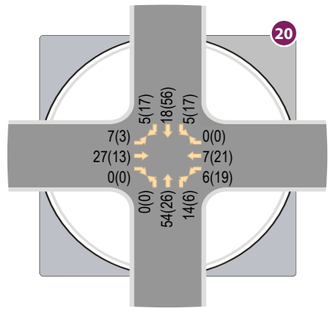
Scottsdale Rd & Chauncey Ln



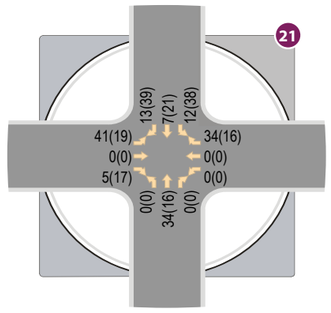
Scottsdale Rd & Peincess Blvd



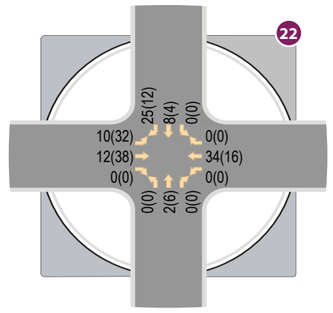
Scottsdale Rd & 17050 North



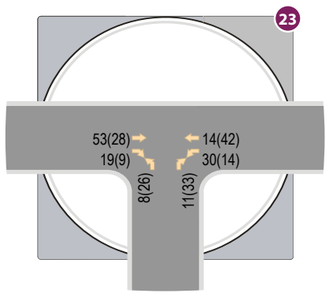
Scottsdale Rd & Frank Lloyd Wright Blvd



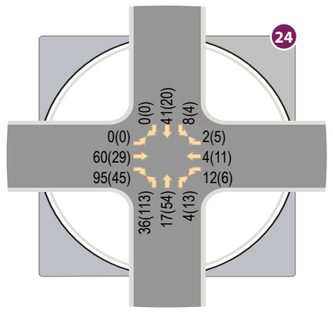
Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

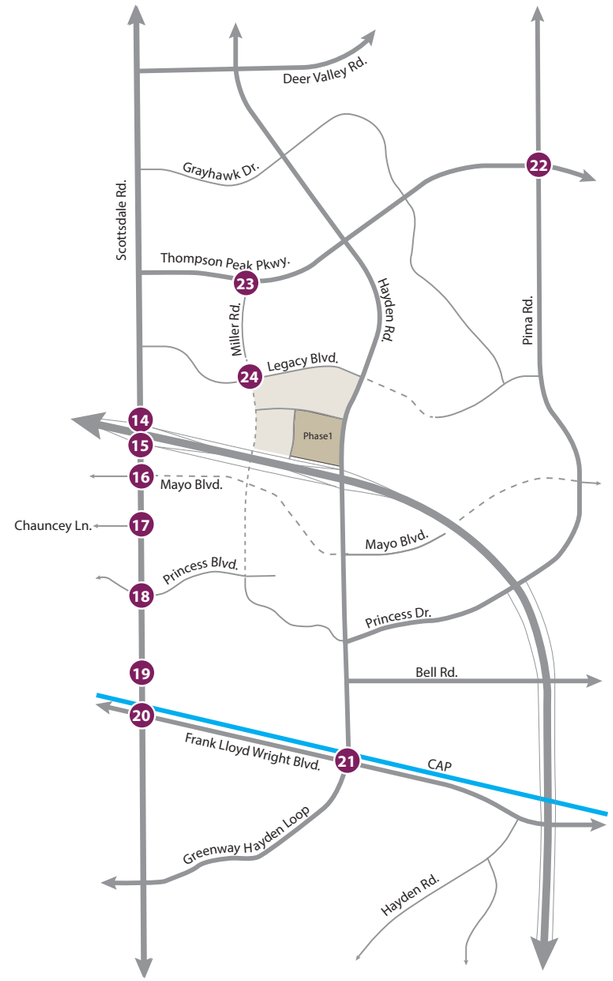
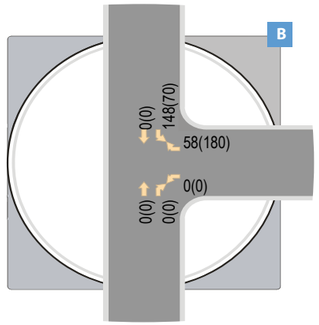
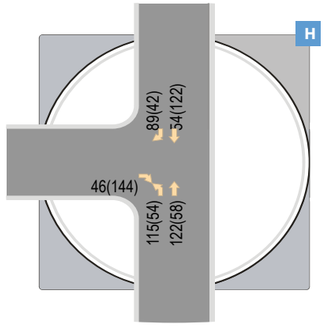


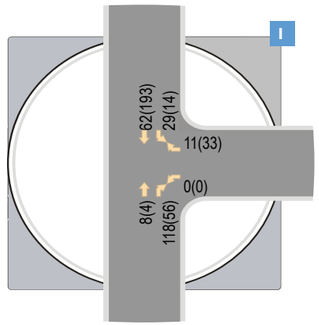
Figure 6B: 2020 Site Generated Traffic Volumes



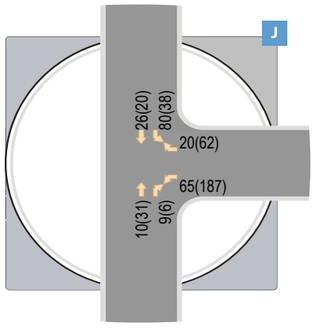
Miller Rd & Access B



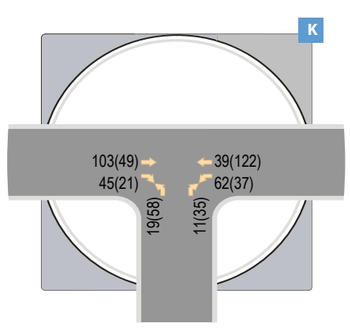
Hayden Rd & Access H



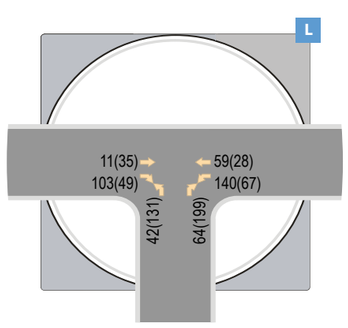
Claret Dr & Access I



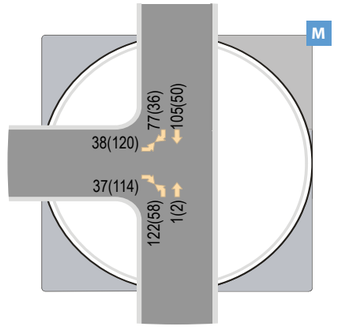
Claret Dr & Access J



Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd

LEGEND

NORTH

XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

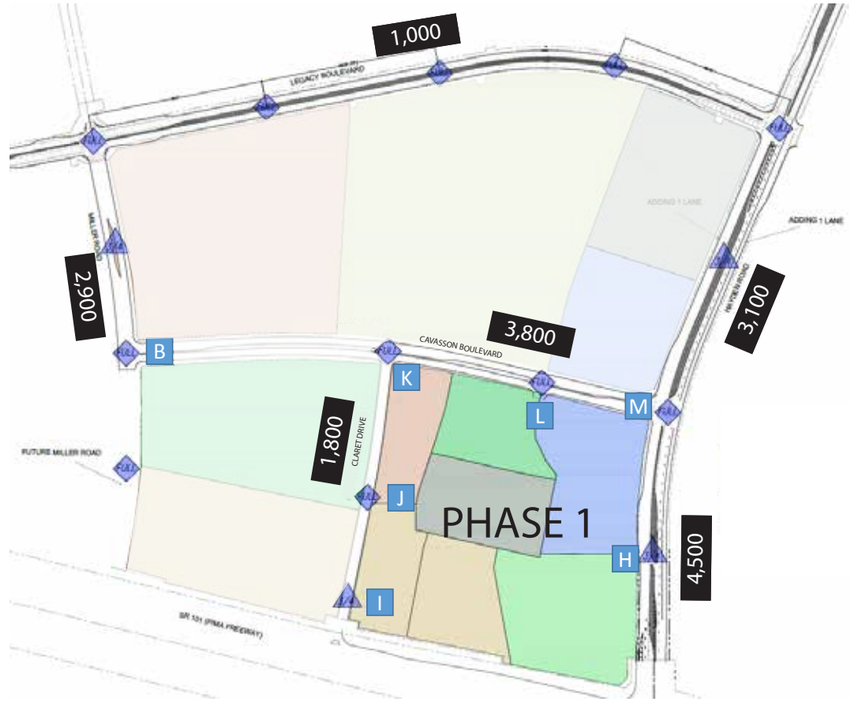
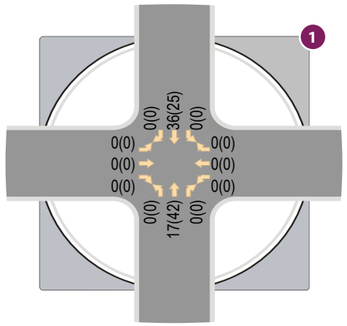
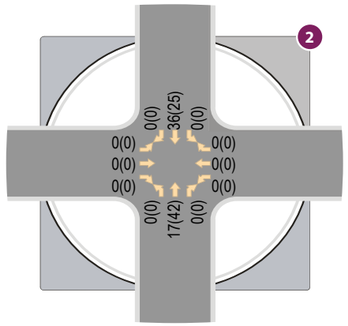


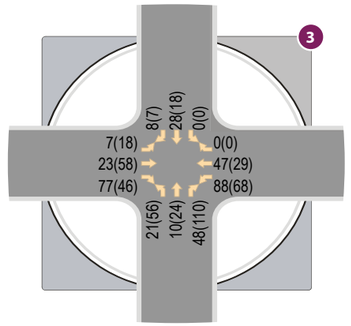
Figure 6C: 2020 Site Generated Traffic Volumes



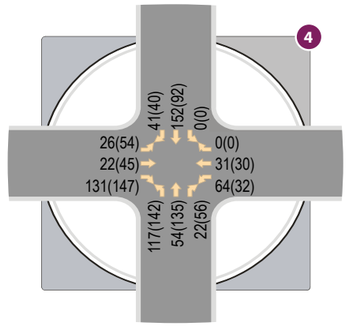
Hayden Rd & Deer Valley Rd



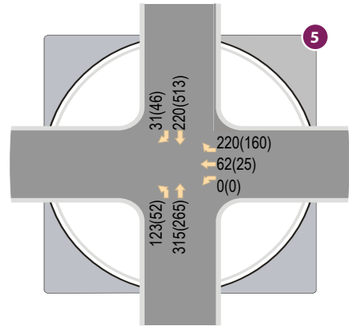
Hayden Rd & Grayhawk Dr



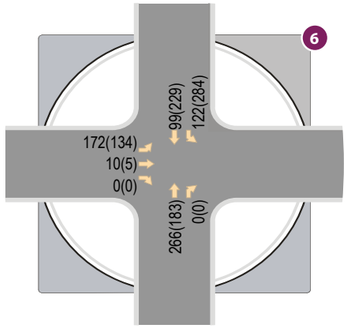
Hayden Rd & Thompson Peak Pkwy



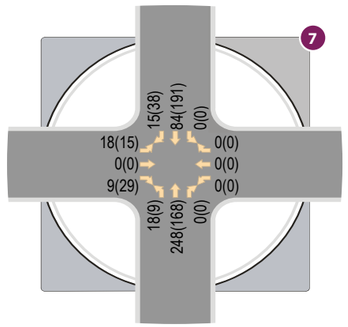
Hayden Rd & Legacy Blvd



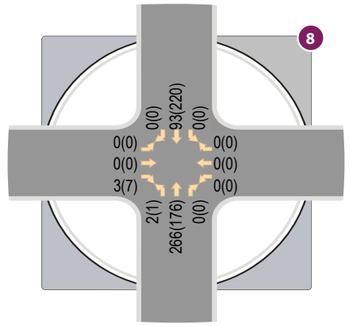
Hayden Rd & Loop 101 WB Ramps



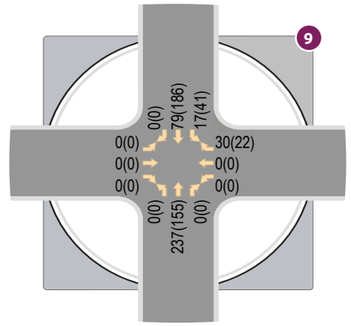
Hayden Rd & Loop 101 EB Ramps



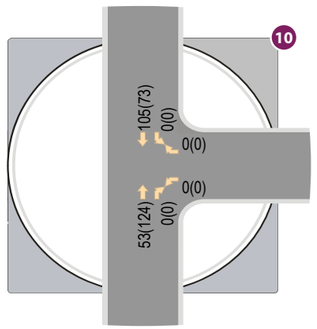
Hayden Rd & Mayo Blvd



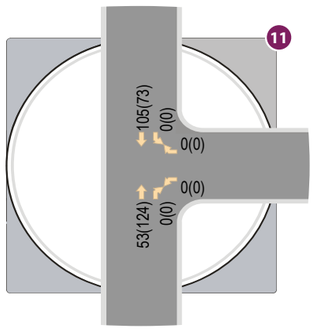
Hayden Rd & Princess Dr



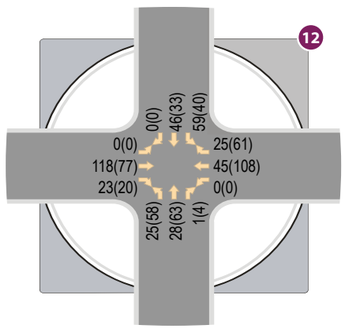
Hayden Rd & Bell Rd



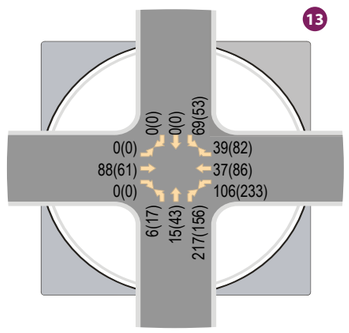
Scottsdale Rd & Deer Valley Rd



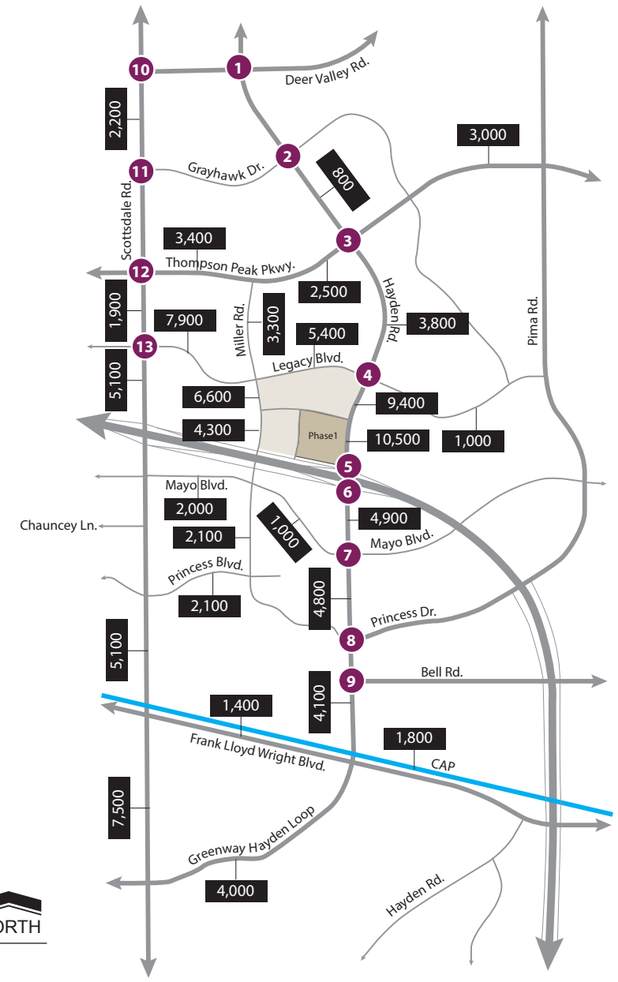
Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd

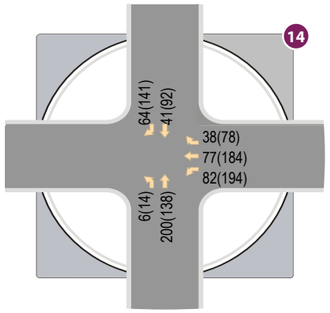


LEGEND

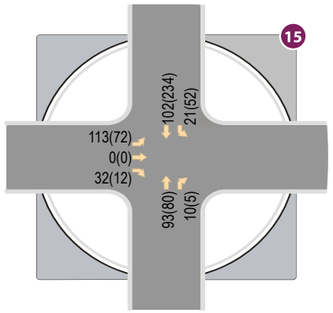
XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

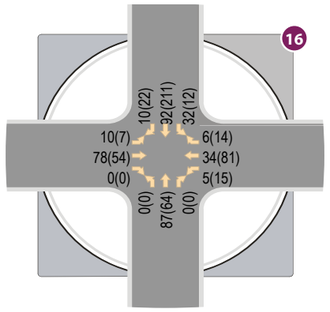
Figure 7A: 2030 Site Generated Traffic Volumes



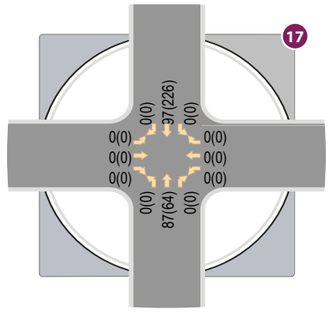
Scottsdale Rd & Loop 101 WB Ramps



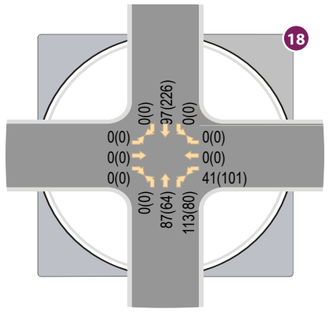
Scottsdale Rd & Loop 101 EB Ramps



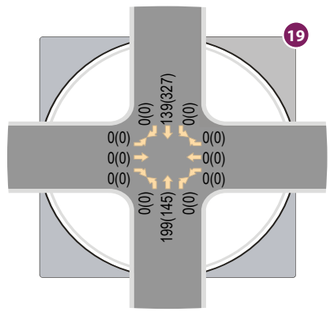
Scottsdale Rd & mayo Blvd



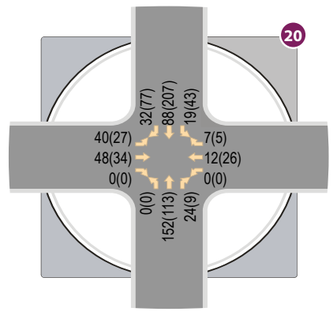
Scottsdale Rd & Chauncey Ln



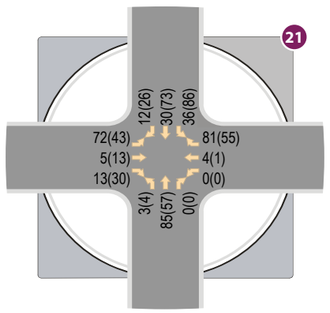
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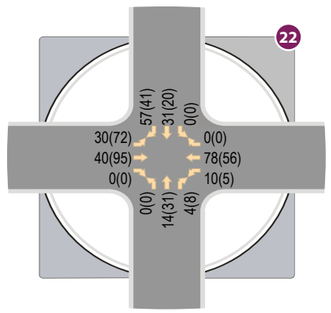
Scottsdale Rd & 17050 North



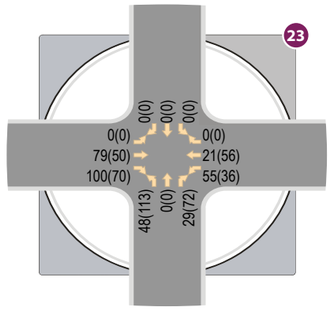
Scottsdale Rd & Frank Lloyd Wright Blvd



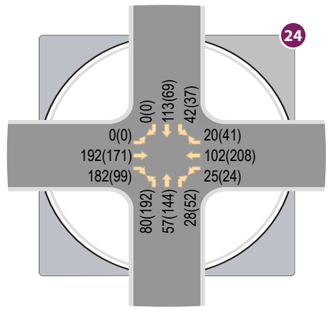
Greenway-Hayden & Frank Lloyd Wright Blvd



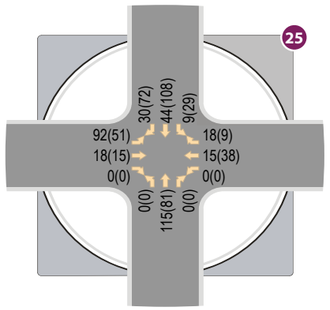
Pima Rd & Thompson Peak Pkwy



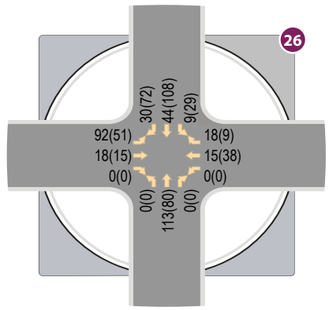
Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd



Miller Rd & Princess Dr

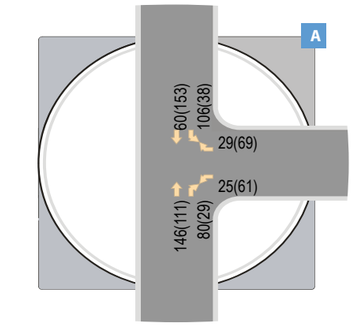
LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

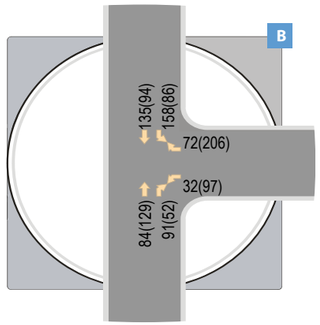
NORTH



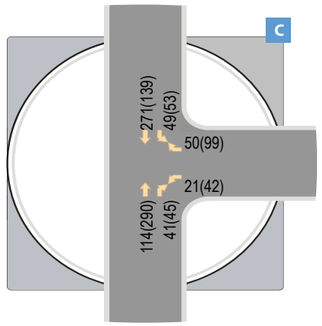
Figure 7B: 2030 Site Generated Traffic Volumes



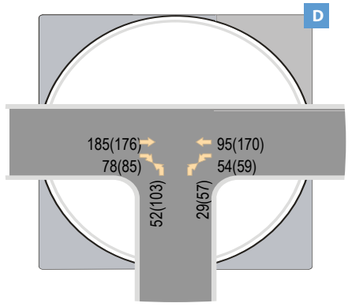
Miller Rd & Access A



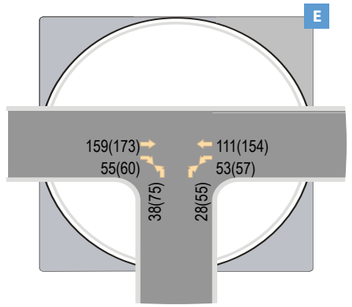
Miller Rd & Access B



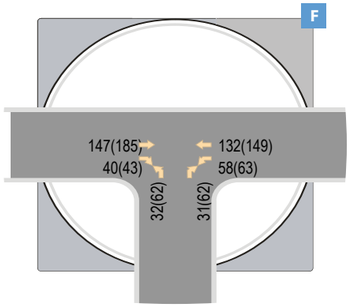
Miller Rd & Access C



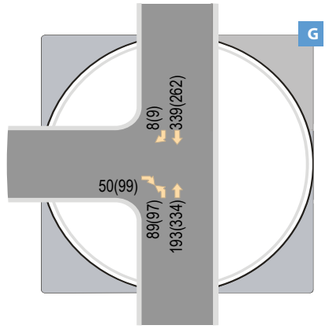
Access D & Legacy Blvd



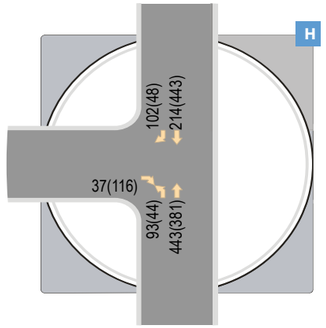
Access E & Legacy Blvd



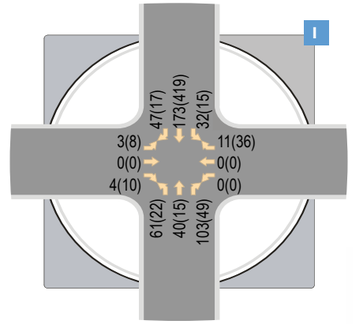
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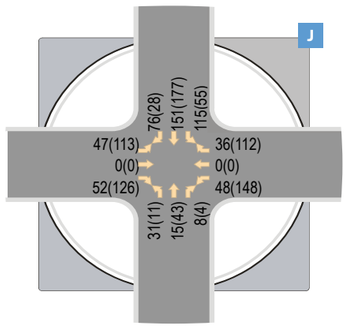
Hayden Rd & Access G



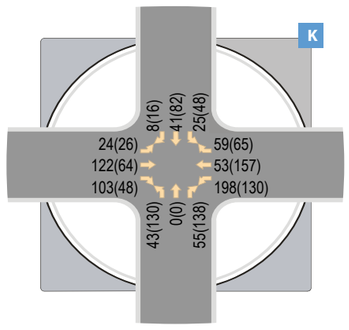
Hayden Rd & Access H



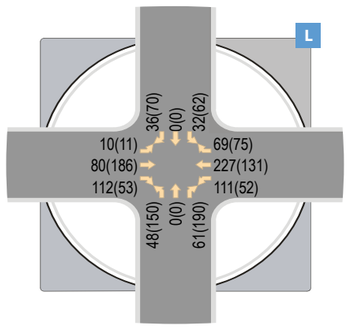
Claret Dr & Access I



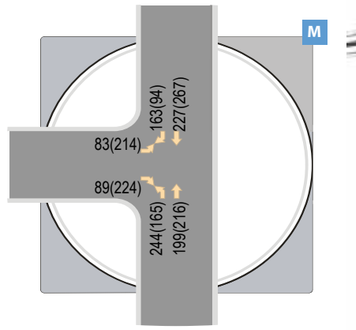
Claret Dr & Access J



Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



LEGEND

NORTH

XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

Figure 7C: 2030 Site Generated Traffic Volumes

FUTURE BACKGROUND TRAFFIC

CivTech applied a growth rate to the seasonally adjusted existing traffic counts conducted for this study to obtain the background traffic volumes along the adjacent roadway network. Historic traffic count data from the City of Scottsdale website were reviewed; the traffic counts in 2014 (11,900 ADT) and 2016 (12,400 ADT) on Thompson Peak Parkway between Scottsdale Road and Hayden Rod were compared. The comparison results in a calculated growth rate of 2% per year. Therefore, the calculated 2% per year growth rate was applied from existing traffic counts conducted in 2018 to project likely traffic in the future year 2025. A reduced 1% growth rate was applied from year 2025 to year 2030. **Table 7** below illustrates the calculated growth rate and estimated expansion factors for each study horizon year.

Table 7 – Calculated Growth Rates and Expansion Factors

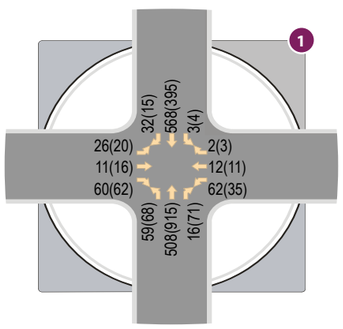
Year	Growth Rate	Expansion Factor
Seasonally Adjusted (2018)	3%	1.03
Adjusted 2018 to 2020	2%	1.042
Adjusted 2018 to 2030	2% (2018-2025) 1% (2026-2030)	1.216

To account for the likely development of the surrounding proposed Crossroads East parcels approximately 50% of the site traffic from the Crossroads East TIA was applied to the background volumes for study horizon year 2030. A copy of the Crossroads East site volumes and worksheets used to calculate the growth rate factors are included in **Appendix H**.

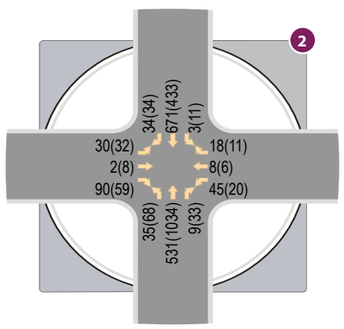
Opening year 2020 calculated background traffic volumes are presented in **Figures 8A**, **8B**, and **8C**. Horizon year 2030 calculated background traffic volumes are presented in **Figures 9A**, **9B**, and **9C**, respectively.

TOTAL TRAFFIC

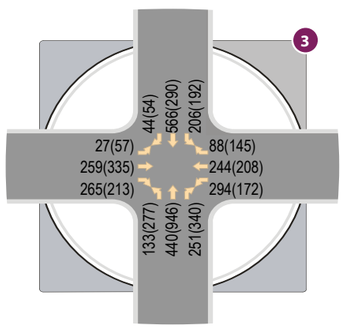
The total traffic volumes were determined for each horizon year by adding the site generated traffic volumes and the background traffic volumes. The total traffic volumes for the 2020 horizon year are illustrated in **Figures 10A**, **10B** and **10C**. The total traffic volumes for horizon year 2030 are illustrated in **Figure 11A**, **11B**, and **11C**.



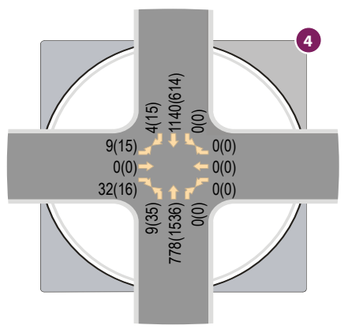
Hayden Rd & Deer Valley Rd



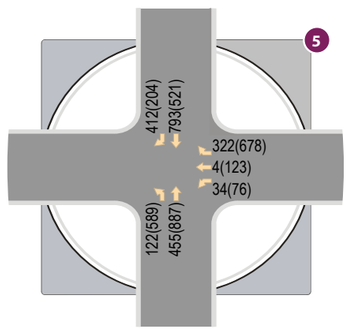
Hayden Rd & Grayhawk Dr



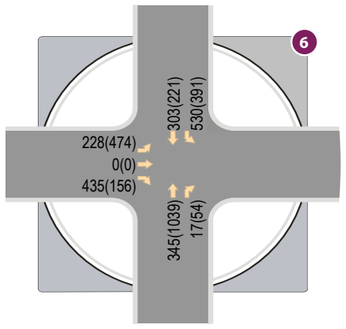
Hayden Rd & Thompson Peak Pkwy



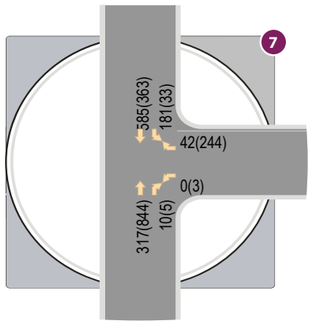
Hayden Rd & Legacy Blvd



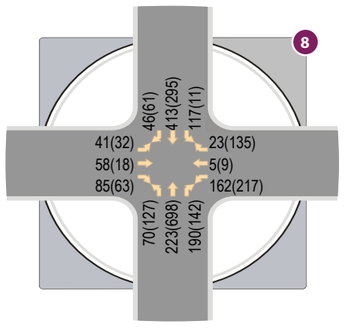
Hayden Rd & Loop 101 WB Ramps



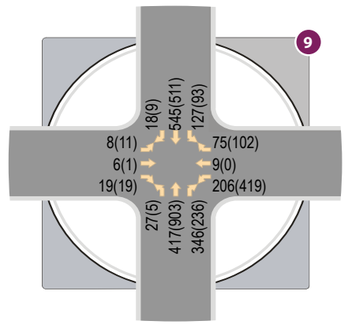
Hayden Rd & Loop 101 EB Ramps



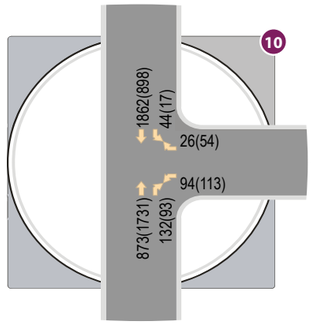
Hayden Rd & Mayo Blvd



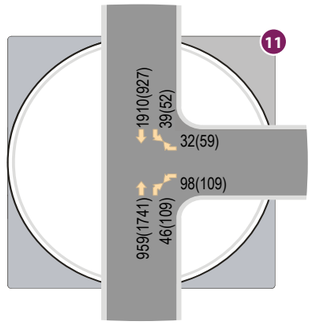
Hayden Rd & Princess Dr



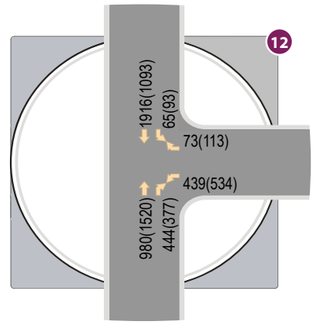
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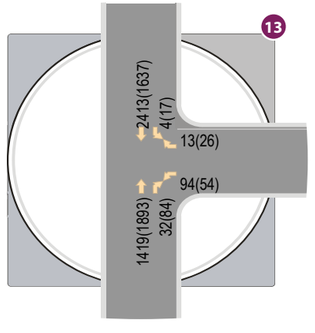
Scottsdale Rd & Deer Valley Rd



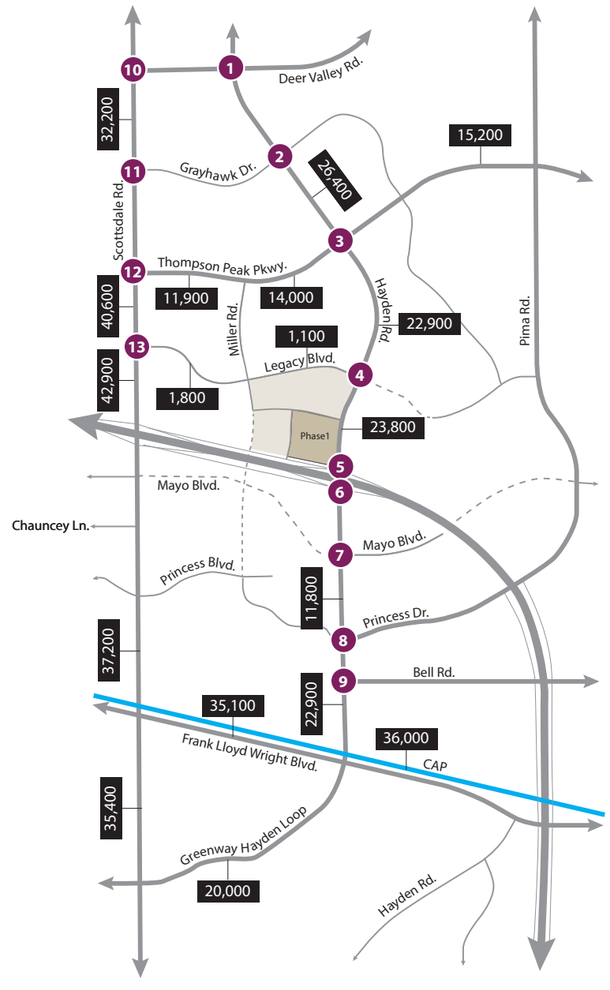
Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd



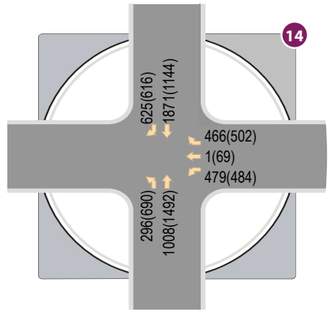
LEGEND

NORTH

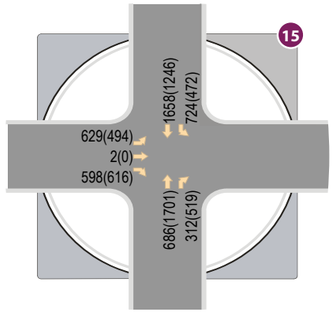
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

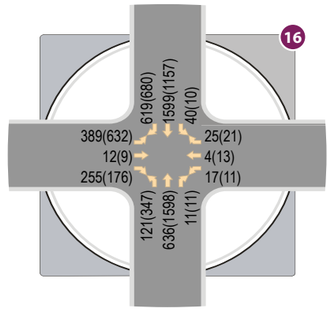
Figure 8A: 2020 Background Traffic Volumes



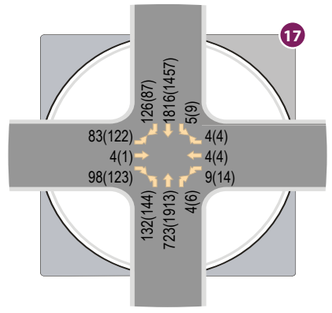
Scottsdale Rd & Loop 101 WB Ramps



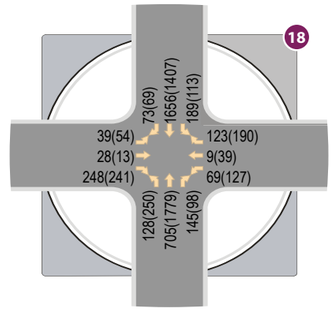
Scottsdale Rd & Loop 101 EB Ramps



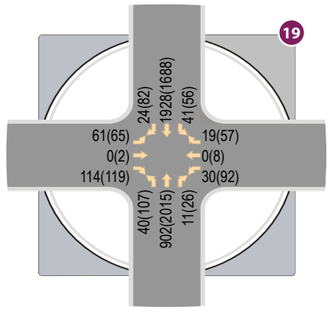
Scottsdale Rd & mayo Blvd



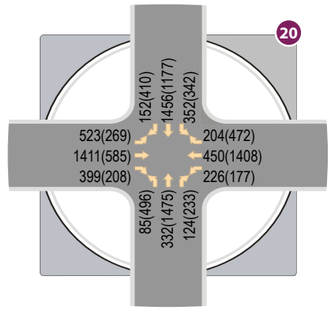
Scottsdale Rd & Chauncey Ln



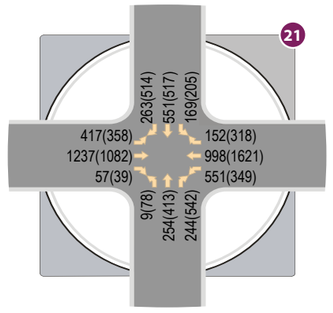
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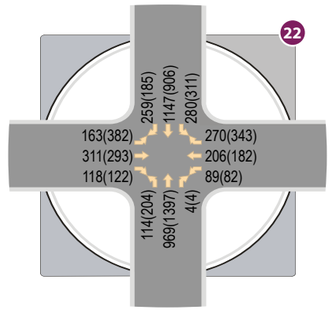
Scottsdale Rd & 17050 North



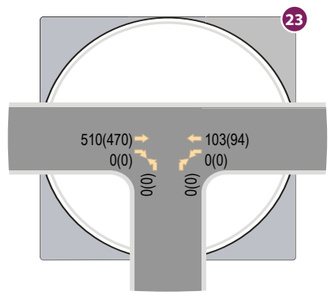
Scottsdale Rd & Frank Lloyd Wright Blvd



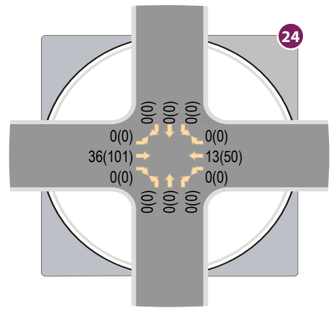
Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

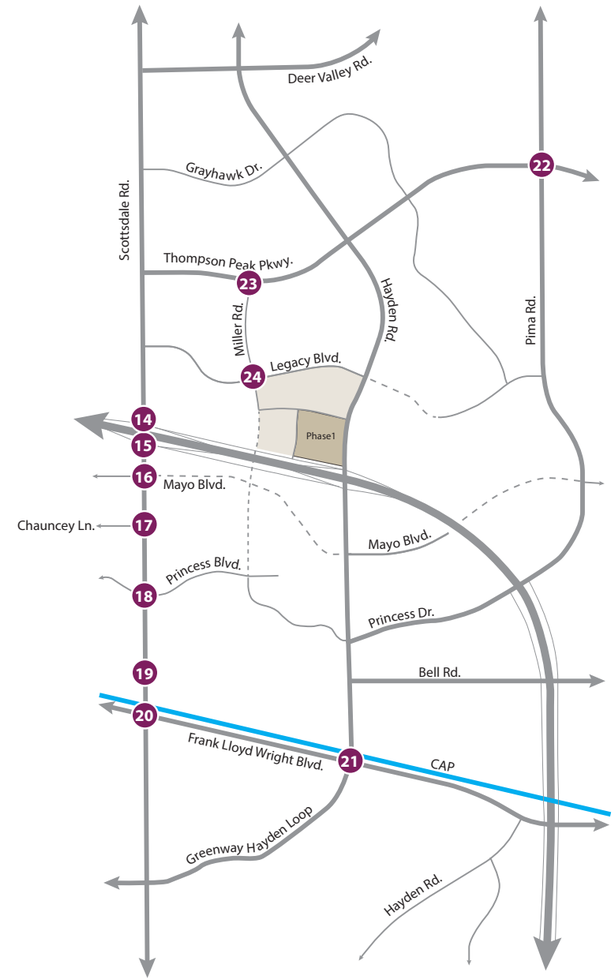
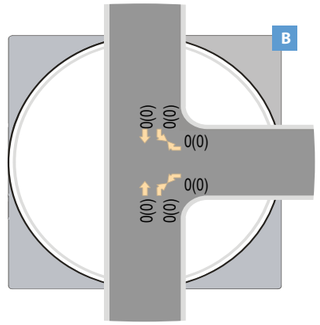
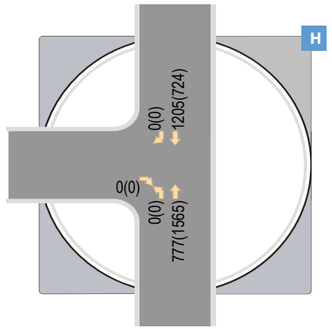


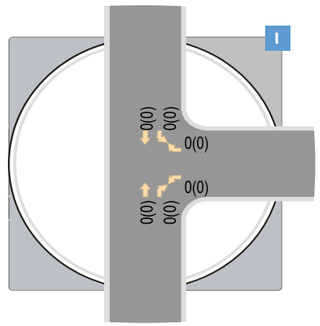
Figure 8B: 2020 Background Traffic Volumes



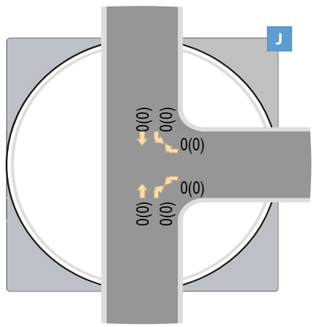
Miller Rd & Access B



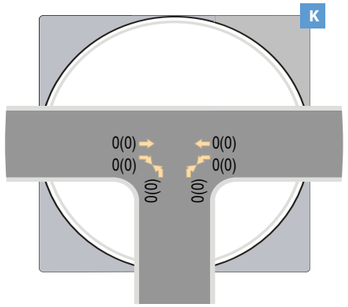
Hayden Rd & Access H



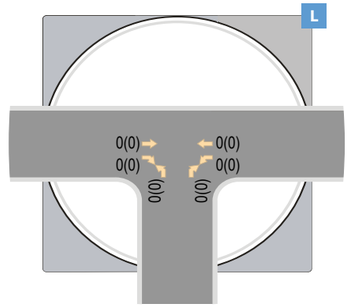
Claret Dr & Access I



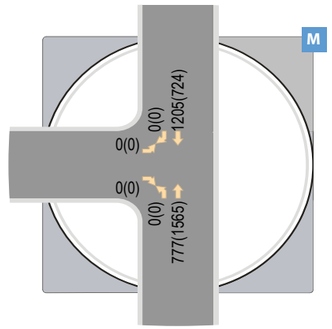
Claret Dr & Access J



Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd

LEGEND

NORTH

XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

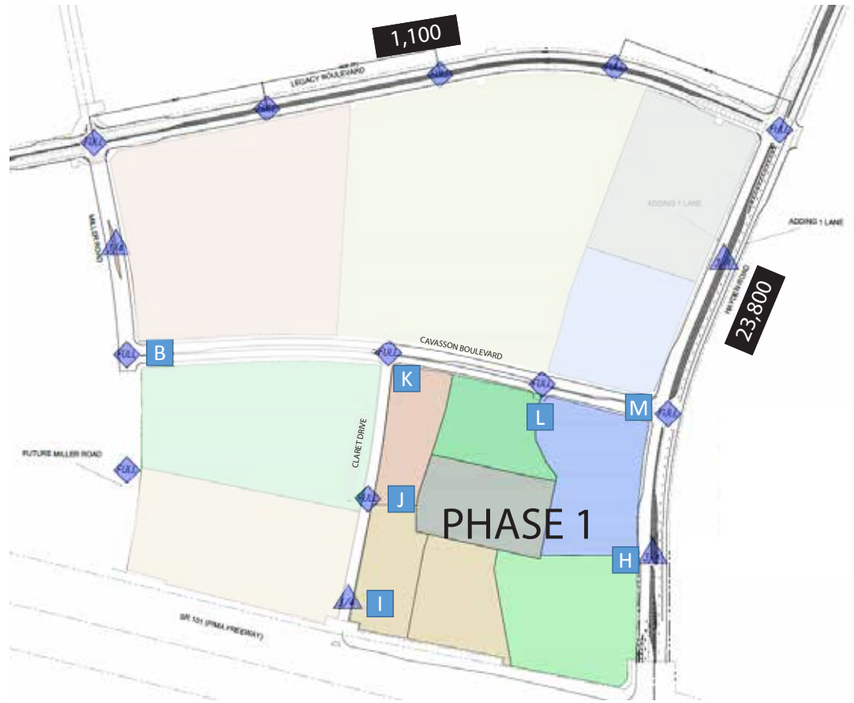
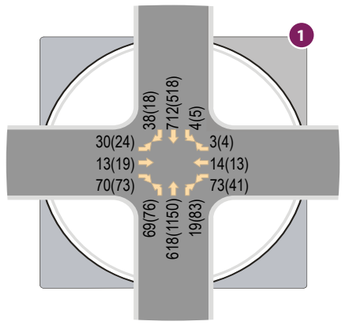
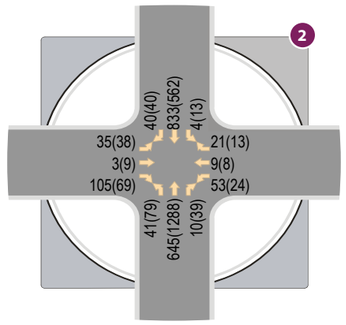


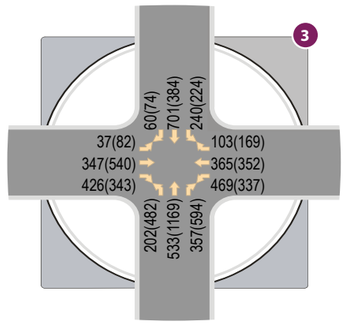
Figure 8C: 2020 Background Traffic Volumes



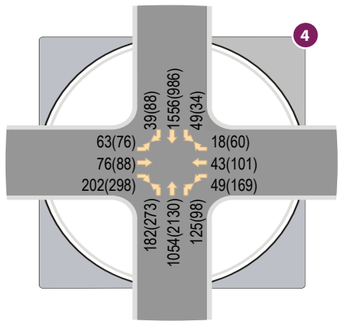
Hayden Rd & Deer Valley Rd



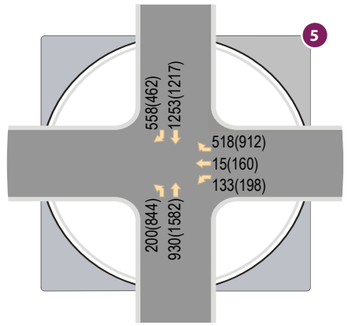
Hayden Rd & Grayhawk Dr



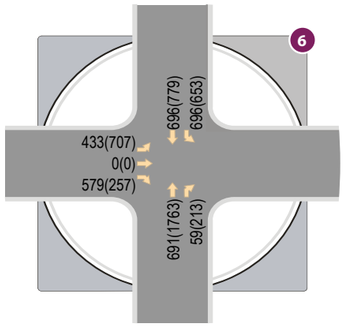
Hayden Rd & Thompson Peak Pkwy



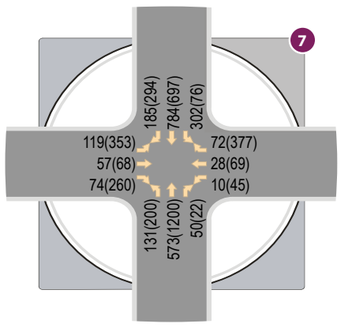
Hayden Rd & Legacy Blvd



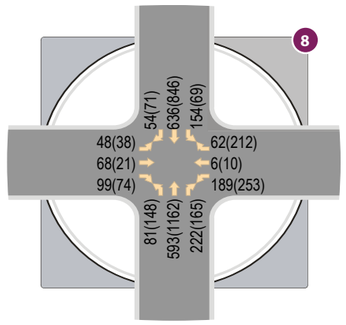
Hayden Rd & Loop 101 WB Ramps



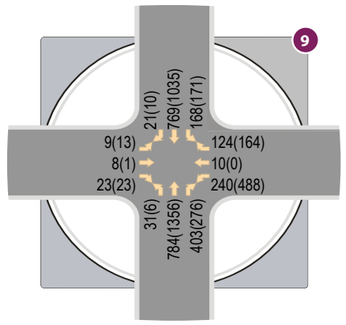
Hayden Rd & Loop 101 EB Ramps



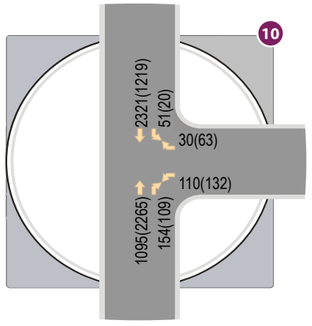
Hayden Rd & Mayo Blvd



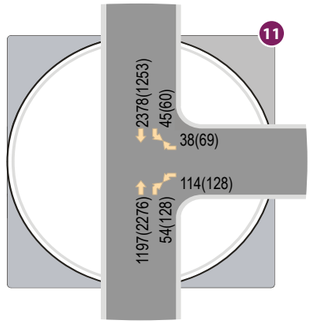
Hayden Rd & Princess Dr



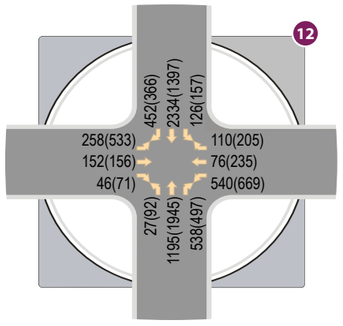
Hayden Rd & Bell Rd



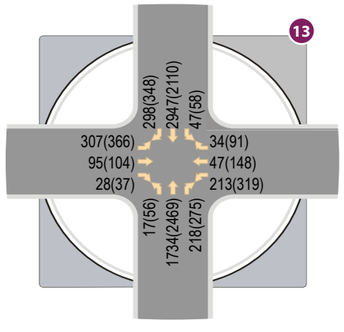
Scottsdale Rd & Deer Valley Rd



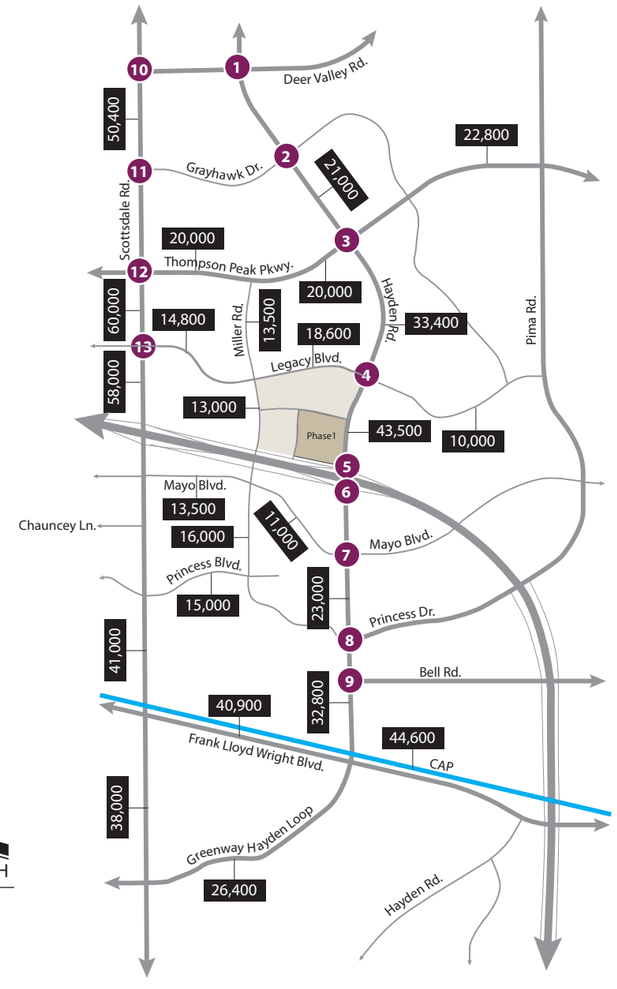
Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd



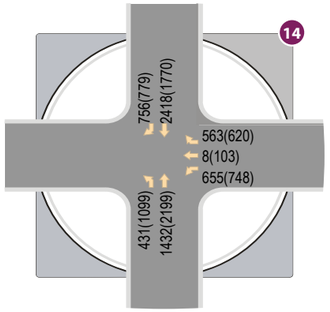
LEGEND

NORTH

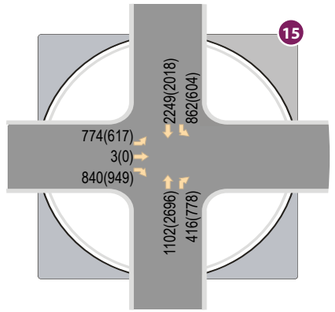
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

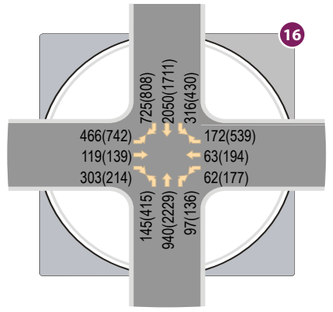
Figure 9A: 2030 Background Traffic Volumes



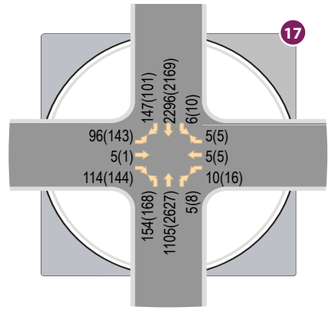
Scottsdale Rd & Loop 101 WB Ramps



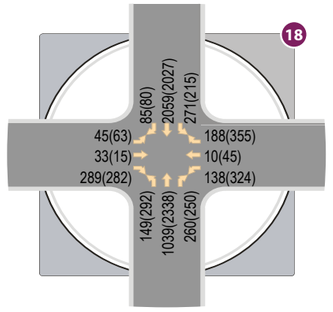
Scottsdale Rd & Loop 101 EB Ramps



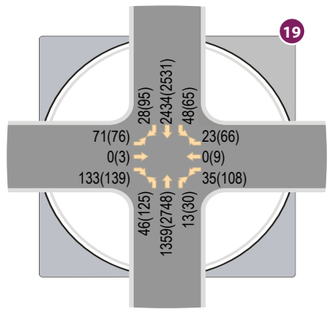
Scottsdale Rd & mayo Blvd



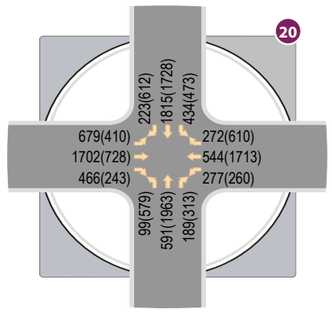
Scottsdale Rd & Chauncey Ln



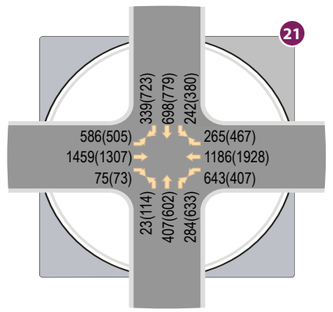
Scottsdale Rd & Peincess Blvd



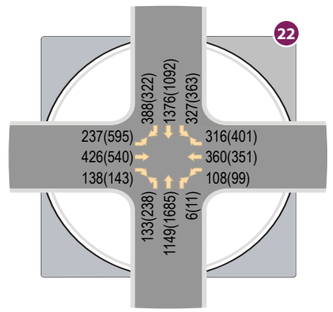
Scottsdale Rd & 17050 North



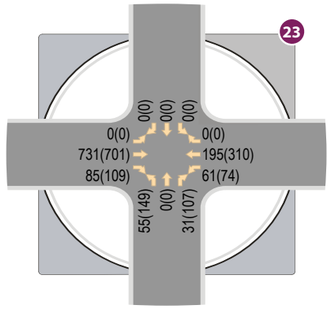
Scottsdale Rd & Frank Lloyd Wright Blvd



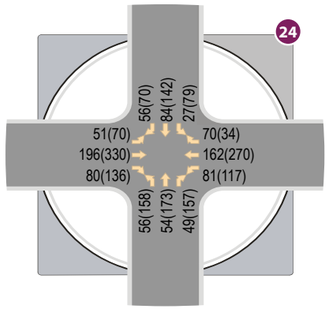
Greenway-Hayden & Frank Lloyd Wright Blvd



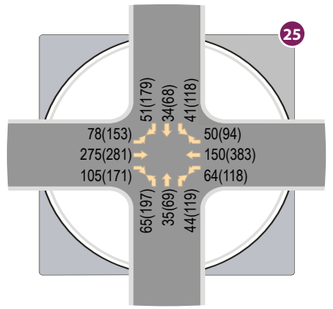
Pima Rd & Thompson Peak Pkwy



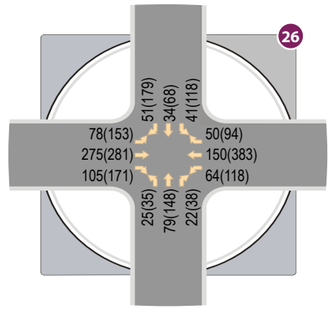
Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd



Miller Rd & Princess Dr

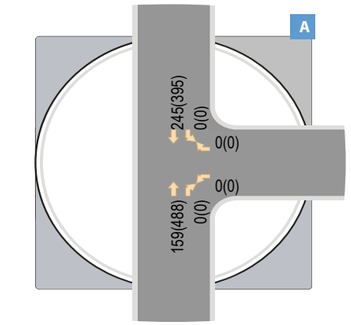
LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

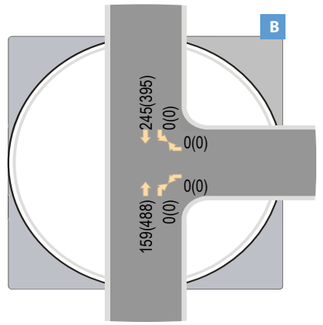
NORTH



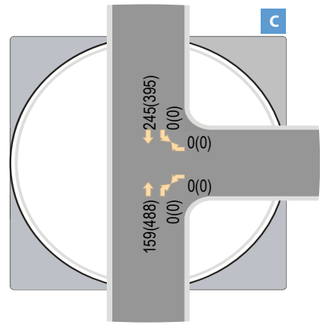
Figure 9B: 2030 Background Traffic Volumes



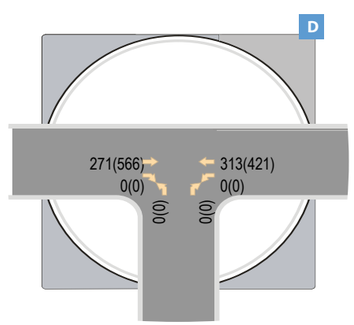
Miller Rd & Access A



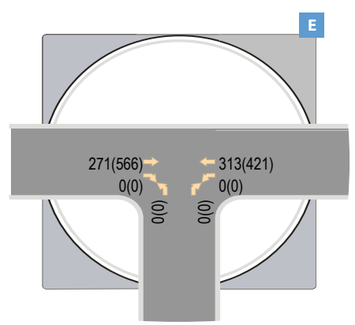
Miller Rd & Access B



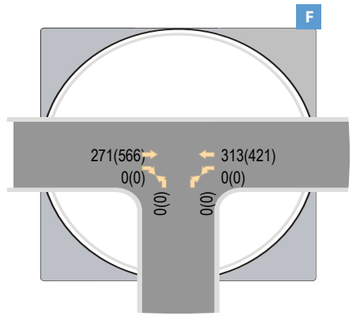
Miller Rd & Access C



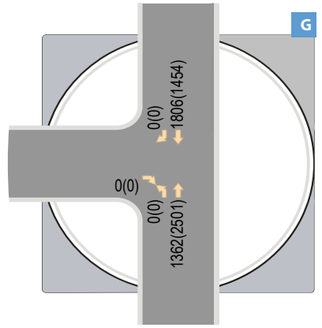
Access D & Legacy Blvd



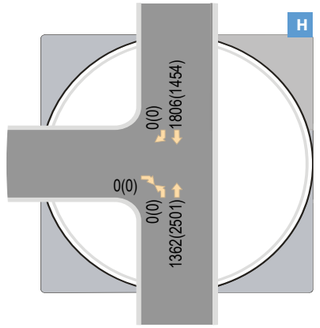
Access E & Legacy Blvd



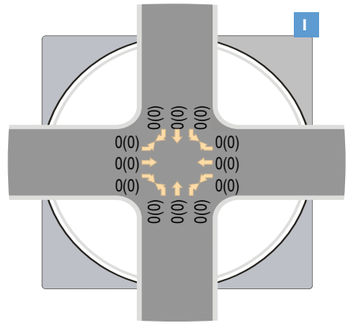
Access F & Legacy Blvd



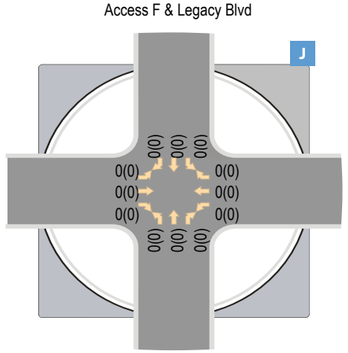
Hayden Rd & Access G



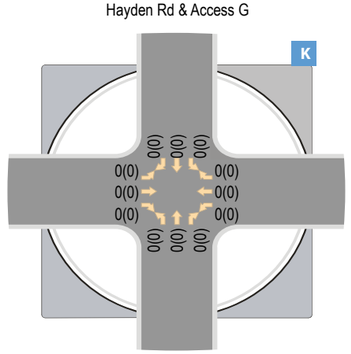
Hayden Rd & Access H



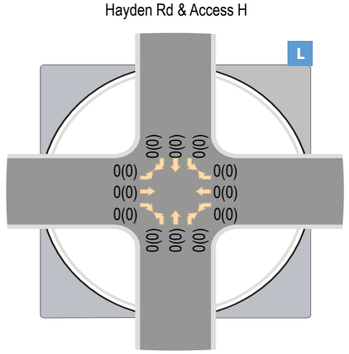
Claret Dr & Access I



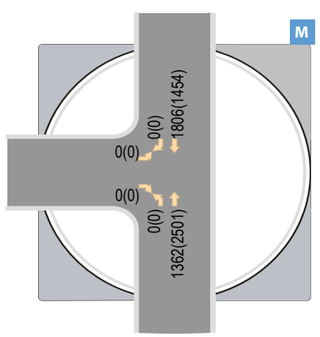
Claret Dr & Access J



Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



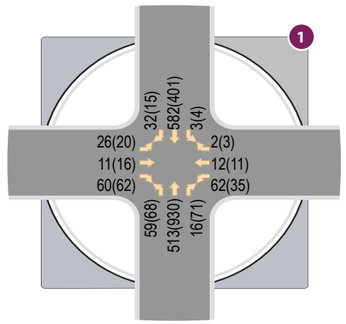
LEGEND

NORTH

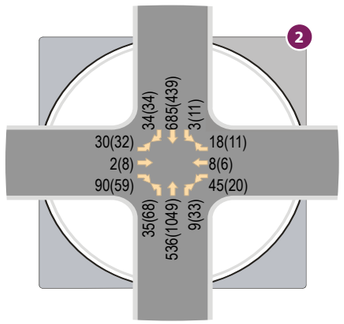
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

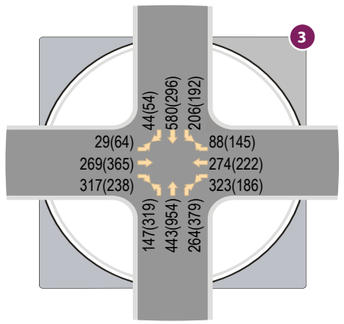
Figure 9C: 2030 Background Traffic Volumes



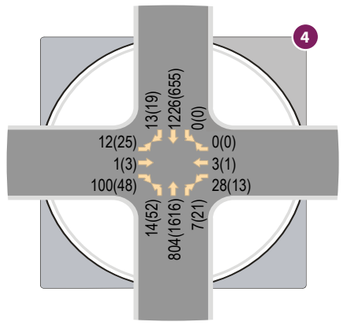
Hayden Rd & Deer Valley Rd



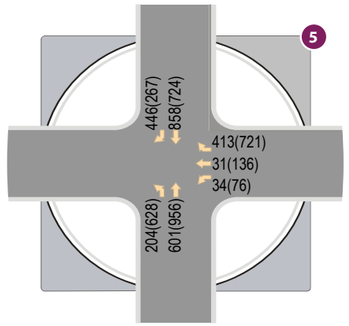
Hayden Rd & Grayhawk Dr



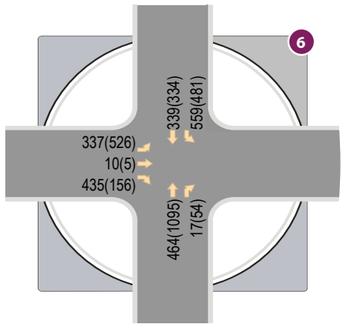
Hayden Rd & Thompson Peak Pkwy



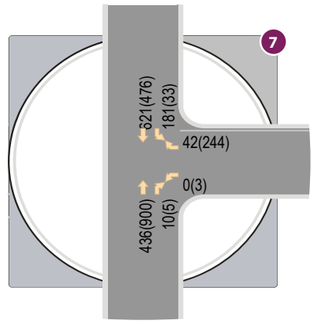
Hayden Rd & Legacy Blvd



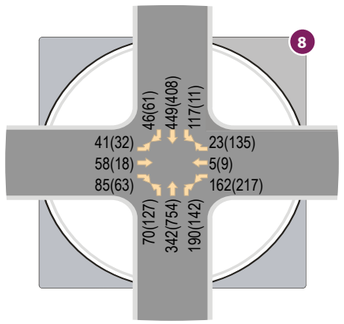
Hayden Rd & Loop 101 WB Ramps



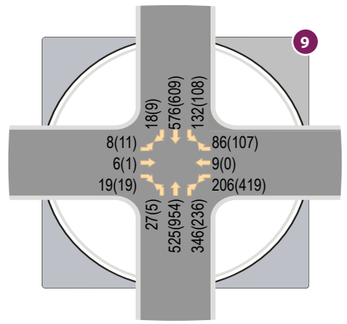
Hayden Rd & Loop 101 EB Ramps



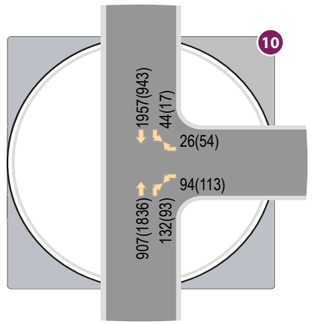
Hayden Rd & Mayo Blvd



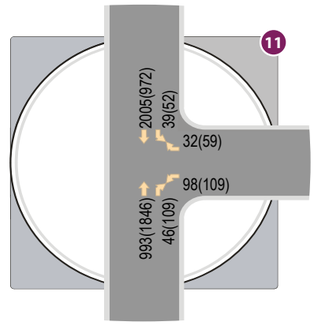
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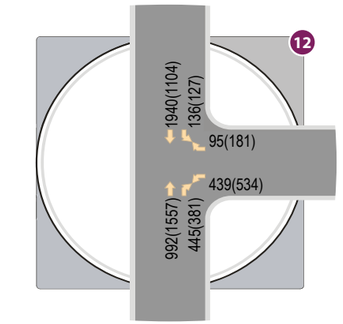
Hayden Rd & Bell Rd



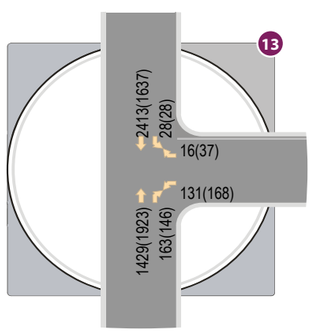
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd

LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

NORTH

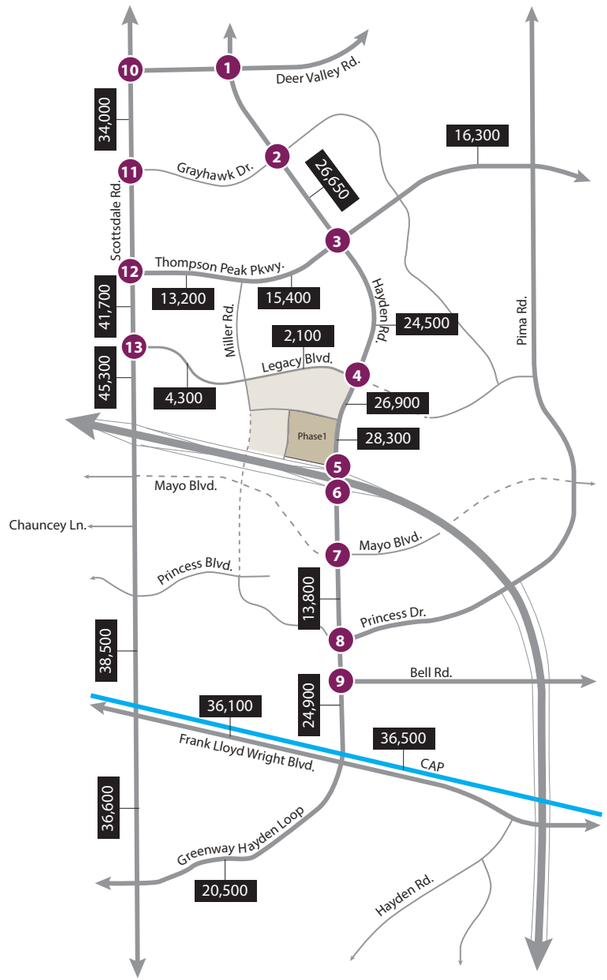
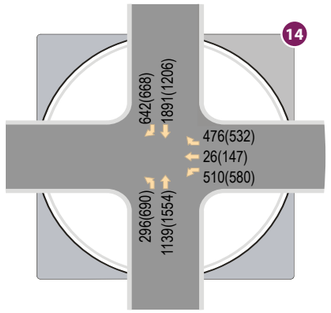
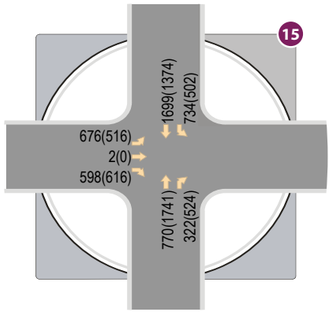


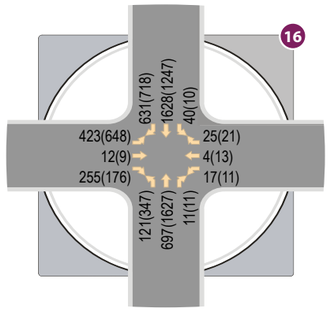
Figure 10A: 2020 Total Traffic Volumes



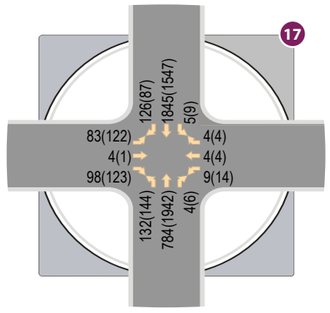
Scottsdale Rd & Loop 101 WB Ramps



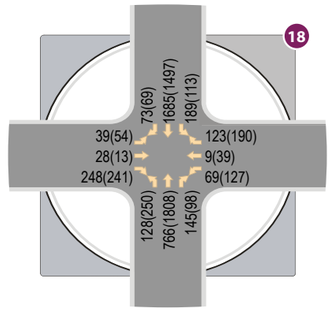
Scottsdale Rd & Loop 101 EB Ramps



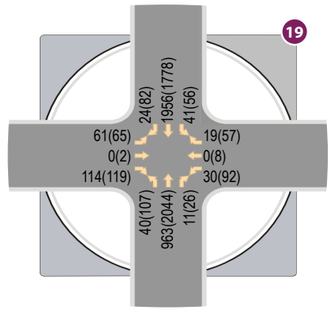
Scottsdale Rd & mayo Blvd



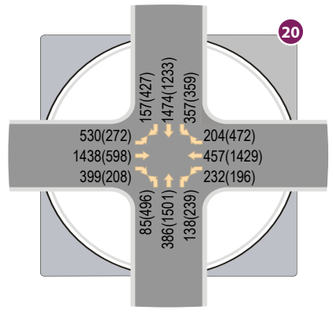
Scottsdale Rd & Chauncey Ln



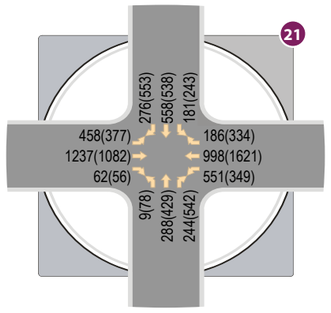
Scottsdale Rd & Peincess Blvd



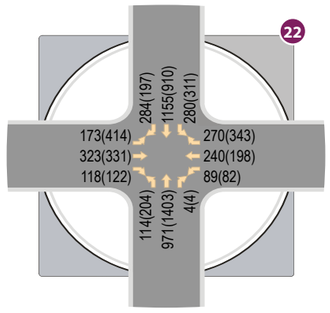
Scottsdale Rd & 17050 North



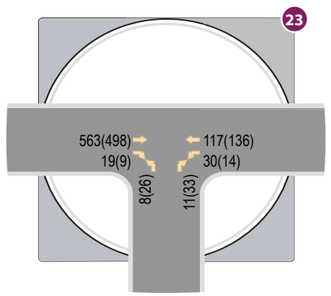
Scottsdale Rd & Frank Lloyd Wright Blvd



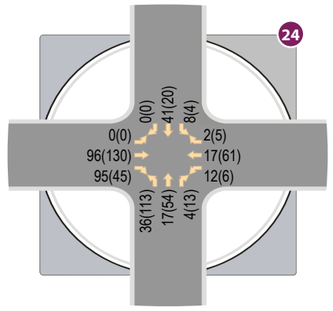
Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

LEGEND

XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

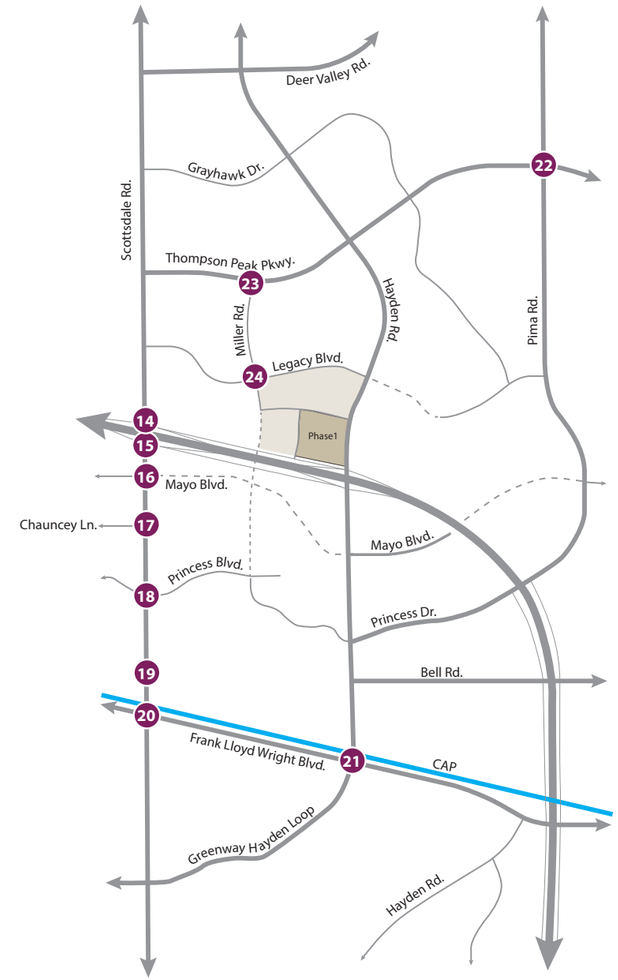
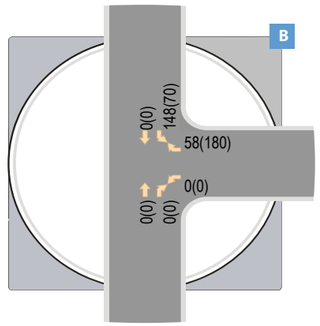
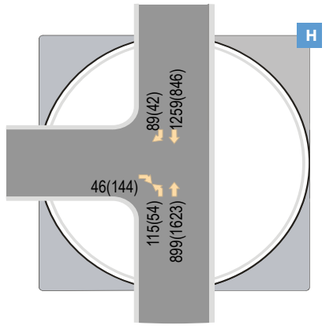


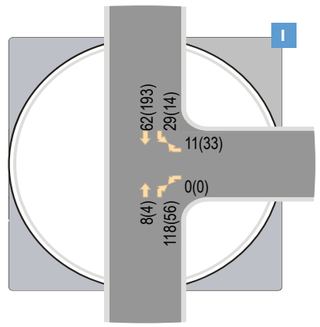
Figure 10B: 2020 Total Traffic Volumes



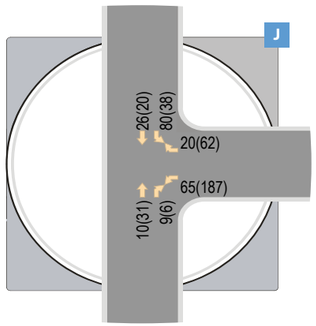
Miller Rd & Access B



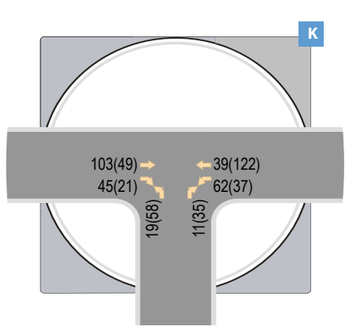
Hayden Rd & Access H



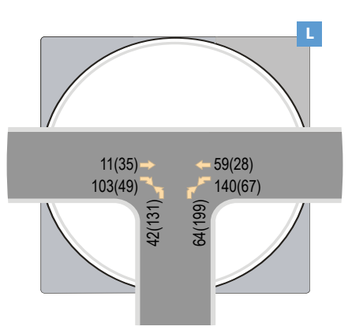
Claret Dr & Access I



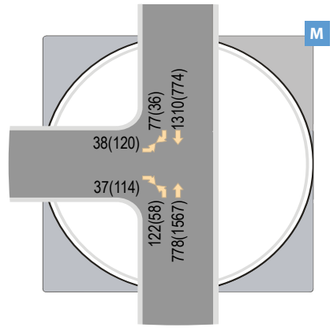
Claret Dr & Access J



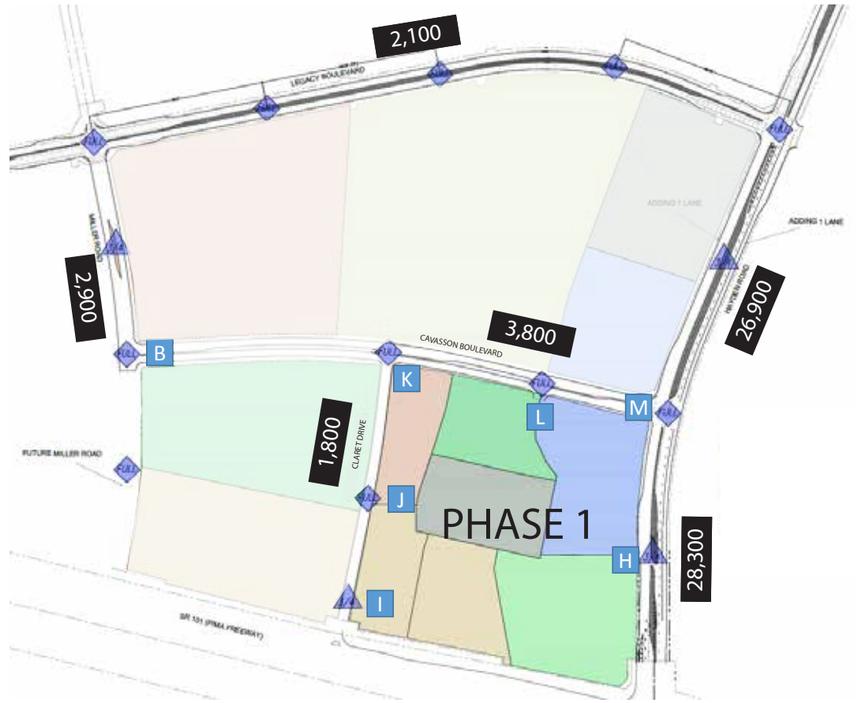
Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



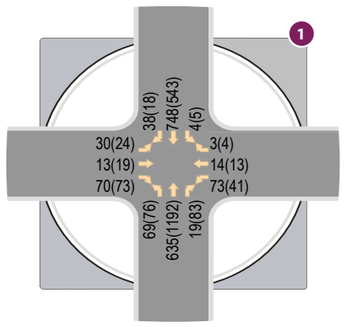
LEGEND

NORTH

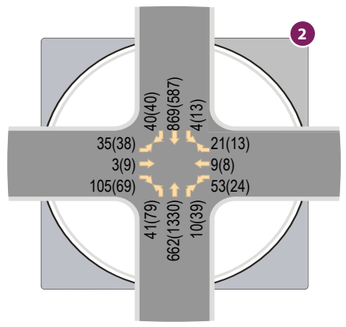
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

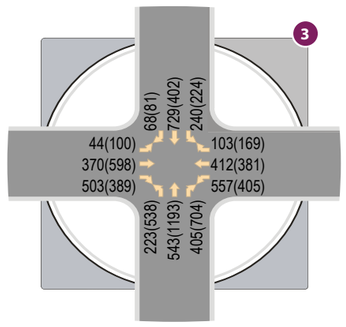
Figure 10C: 2020 Total Traffic Volumes



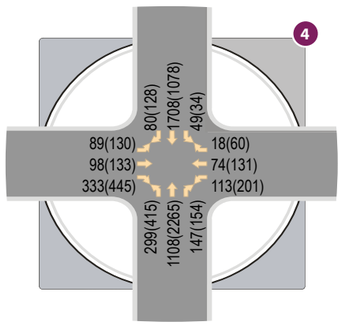
Hayden Rd & Deer Valley Rd



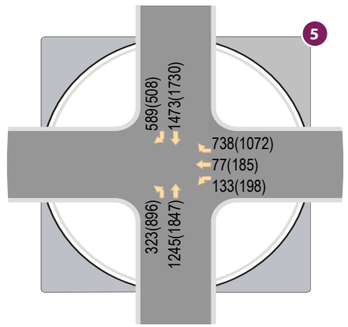
Hayden Rd & Grayhawk Dr



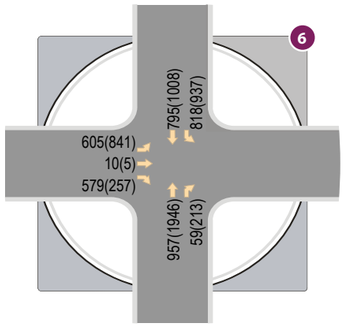
Hayden Rd & Thompson Peak Pkwy



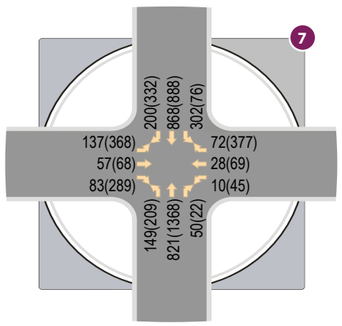
Hayden Rd & Legacy Blvd



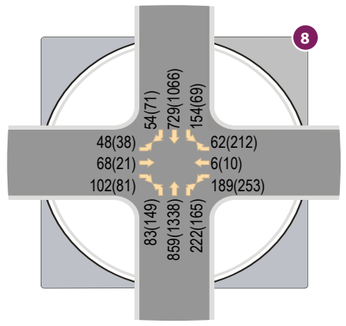
Hayden Rd & Loop 101 WB Ramps



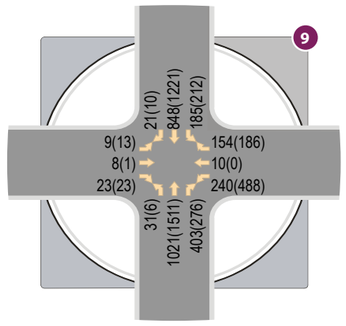
Hayden Rd & Loop 101 EB Ramps



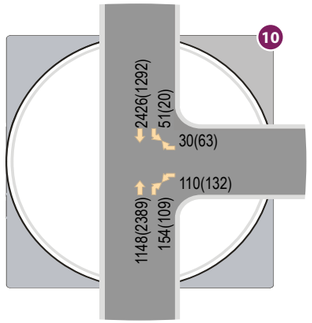
Hayden Rd & Mayo Blvd



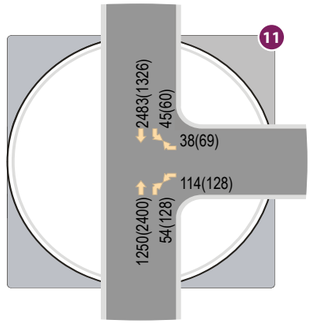
Hayden Rd & Princess Dr



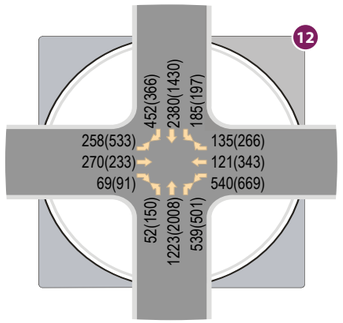
Hayden Rd & Bell Rd



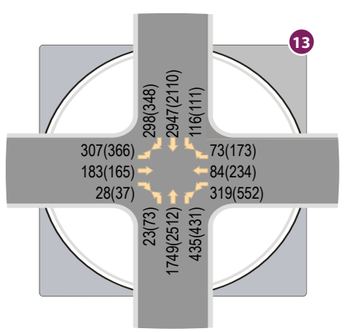
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd



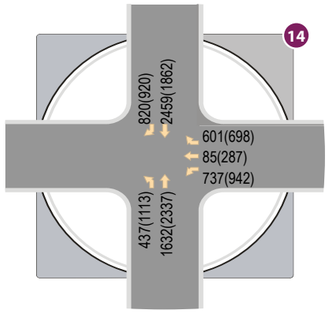
LEGEND

NORTH

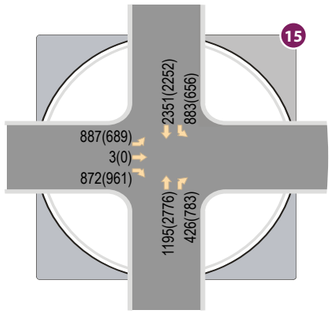
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

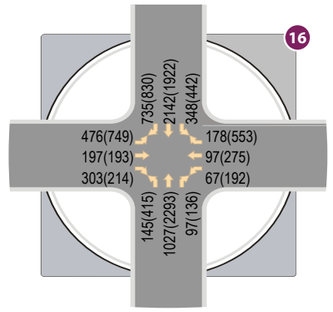
Figure 11A: 2030 Total Traffic Volumes



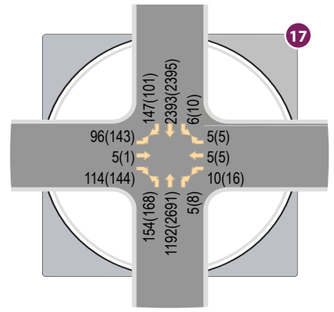
Scottsdale Rd & Loop 101 WB Ramps



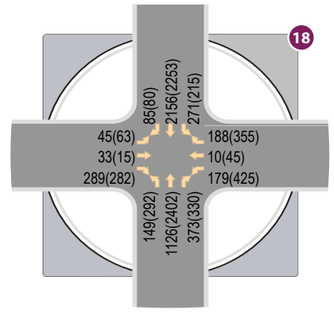
Scottsdale Rd & Loop 101 EB Ramps



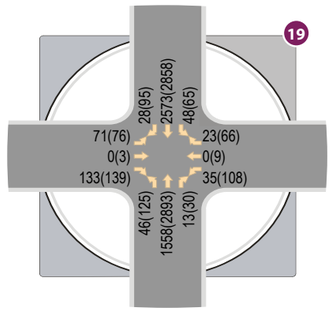
Scottsdale Rd & mayo Blvd



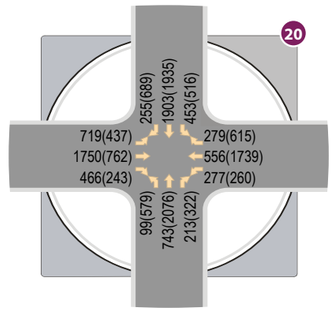
Scottsdale Rd & Chauncey Ln



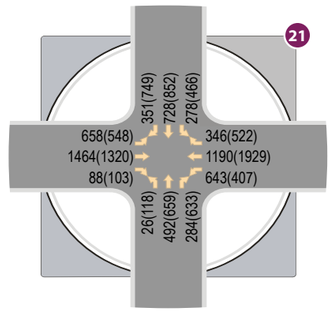
Scottsdale Rd & Peincess Blvd



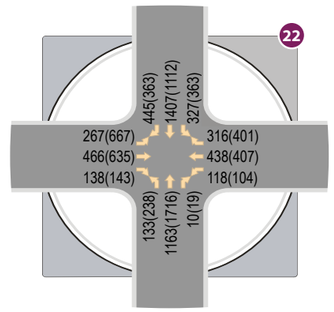
Scottsdale Rd & 17050 North



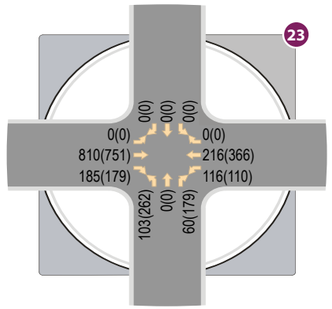
Scottsdale Rd & Frank Lloyd Wright Blvd



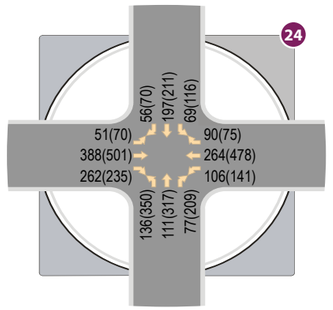
Greenway-Hayden & Frank Lloyd Wright Blvd



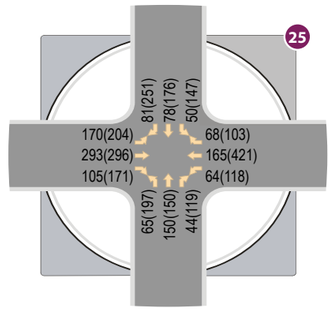
Pima Rd & Thompson Peak Pkwy



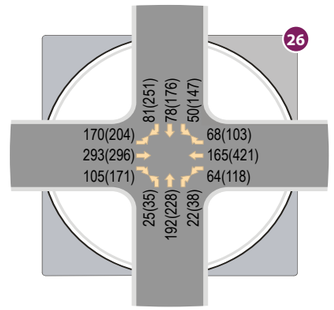
Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd



Miller Rd & Princess Dr

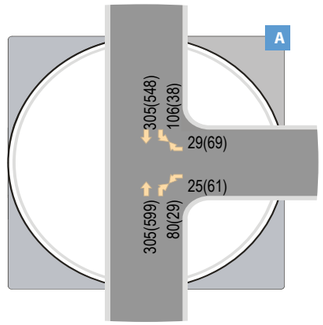
LEGEND

NORTH

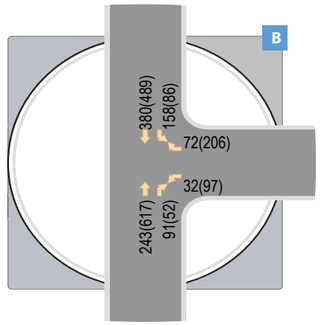
XX(XX) - AM(PM) Peak Hour Traffic Volumes



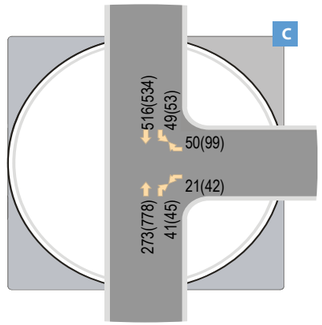
Figure 11B: 2030 Total Traffic Volumes



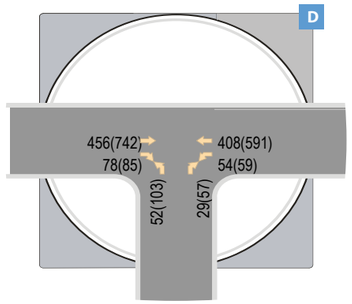
Miller Rd & Access A



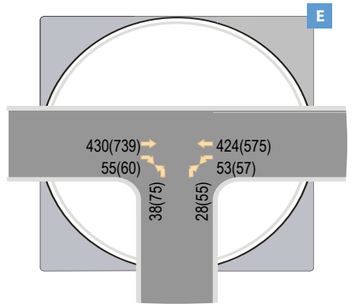
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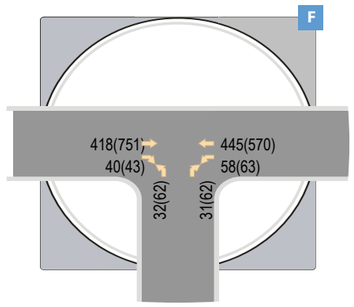
Miller Rd & Access C



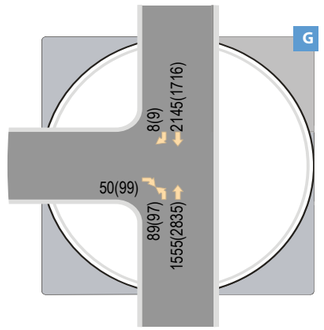
Access D & Legacy Blvd



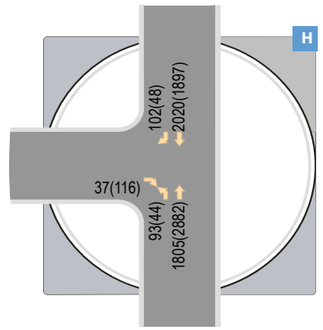
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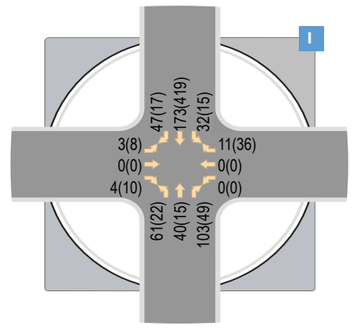
Access F & Legacy Blvd



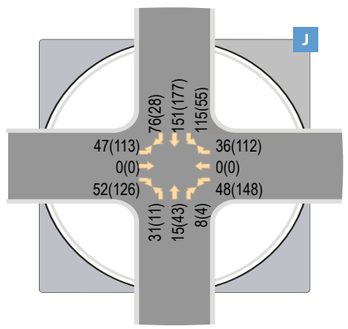
Hayden Rd & Access G



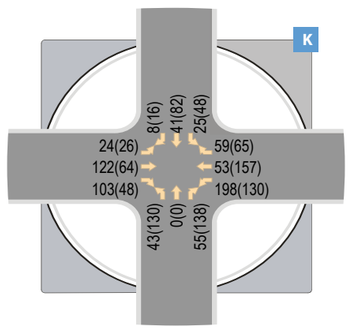
Hayden Rd & Access H



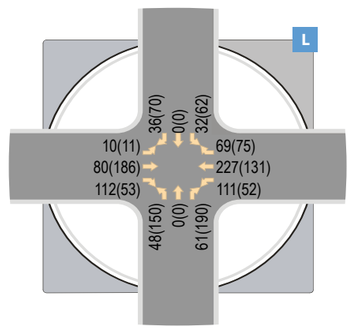
Claret Dr & Access I



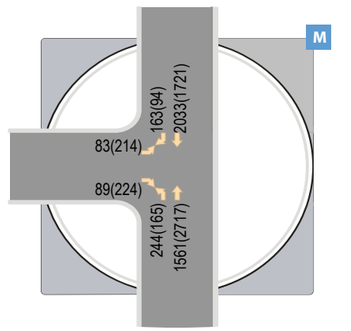
Claret Dr & Access J



Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd

LEGEND

NORTH

XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic



Figure 11C: 2030 Total Traffic Volumes

MILLER ROAD UNDERPASS

The Miller Road underpass of the Loop 101 is a necessary roadway connection providing additional north-south capacity to an over-saturated arterial network by horizon year 2030. The Miller Road underpass is included within the City of Scottsdale Capital Improvement Plan (CIP) to begin construction in 2020. As such, the Miller Road underpass has been analyzed to be utilized by site generated traffic from the Cavasson development and all other traffic not associated with the development by study horizon year 2030.

The total daily traffic volumes projected to use the Miller Road underpass are approximately 17,300 vehicles per day, as illustrated in **Figure 11A**. Of that traffic, CivTech estimates that approximately 13,000 vehicles per day (illustrated in **Figure 9A**), or approximately 75% are the result of background traffic. The remaining 4,300 vehicles per day (illustrated in **Figure 7A**), or 25%, are the result of the Cavasson development site generated traffic.

BIKE LANE AND MULTI-USE PATH CONSIDERATIONS

Cavasson will adhere to the City requirements for all bike lanes and multi-use paths that are depicted on the approved Scottsdale Trails System Master Plan (April 2004), Maricopa Association of Governments Regional Bike Map (2008), the Bicycle Element of the Transportation Master Plan (2018) and the Multi-Use Path Ordinance. It is also recommended that, as individual parcels come online for development, consideration be given for a multi-use path within the right-of-way along additional roadways in an effort to connect to the regional City of Scottsdale multi-use path network.

TRANSIT CONSIDERATIONS

Additional RPTA transit routes should be considered within the Cavasson development to provide access to employment areas and to assist with regional connectivity as an alternative to the automobile. It is recommended that bus stops be located along all arterial roadways within 660-feet of the major intersections. It is also recommended that bus stops be considered at all major employment and retail centers to encourage the future use of transit. Transit use could help alleviate future traffic volumes anticipated along Scottsdale Road.

INTERSECTION CAPACITY ANALYSIS

Future peak hour capacity analyses have been conducted for the study intersections. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual (HCM), Special Report 209,* Updated 2000 and using the latest version of Synchro 10 under the HCM 2000 methodology. Levels of service criteria for signalized and unsignalized intersections are as shown earlier in **Table 1**.

Opening Year 2020

Results of the peak hour level-of-service are summarized in **Table 8** for the 2020 opening year. Worksheets for both AM and PM peak hour analyses have been included within **Appendix I** for the 2020 opening year.

Table 8 – 2020 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2020 LOS AM (PM)		
				No-Build	Build	Mitigated
1	Hayden Rd. & Deer Valley Rd.	Signal	NB	B (C)	B (C)	- (-)
			SB	B (B)	B (B)	- (-)
			EB	B (B)	B (B)	- (-)
			WB	B (B)	B (B)	- (-)
			Overall	B (B)	B (B)	- (-)
2	Hayden Rd. & Grayhawk Rd.	Signal	NB	C (C)	C (D)	- (-)
			SB	C (C)	C (C)	- (-)
			EB	B (B)	B (B)	- (-)
			WB	B (B)	B (B)	- (-)
			Overall	C (C)	C (C)	- (-)
3	Hayden Rd. & Thompson Peak Pkwy	Signal	NB	C (C)	C (C)	- (-)
			SB	B (C)	C (C)	- (-)
			EB	D (**E**)	D (D)	- (-)
			WB	D (**E**)	D (**E**)	- (-)
			Overall	C (D)	C (D)	- (-)
4	Hayden Rd. & Legacy Blvd.	Signal	NB	A (A)	A (A)	- (-)
			SB	A (A)	A (A)	- (-)
			EB	D (D)	D (D)	- (-)
			WB	A (A)	D (D)	
			Overall	A (A)	A (A)	- (-)
5	Hayden Rd. & Loop 101 WB Ramps	Signal	NB	C (**F**)	C (**F**)	C (**F**)
			SB	C (C)	C (C)	C (C)
			WB	D (D)	D (D)	D (D)
			Overall	C **(F)**	C **(F)**	C (D)
6	Hayden Rd. & Loop 101 EB Ramps	Signal	NB	D (D)	D (D)	D (D)
			SB	B (C)	B (C)	B (C)
			EB	**F** (**E**)	**F** (**E**)	**F** (**E**)
			Overall	**E** (D)	**E** (D)	**E** (D)
7	Hayden Rd. & Mayo Blvd.	1-way stop (WB)	SB Left	A (B)	A (B)	- (-)
			WB Shared	A (C)	B (C)	- (-)

Table 8 – 2020 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2020 LOS AM (PM)		
				No-Build	Build	Mitigated
8	Hayden Rd. & Princess Dr.	Signal	NB	C (B)	B (B)	- (-)
			SB	C (C)	**E** (C)	- (-)
			EB	**E** (**F**)	**E** (**F**)	- (-)
			WB	D (D)	D (D)	- (-)
			Overall	C (C)	D (C)	- (-)
9	Hayden Rd. & Bell Rd.	Signal	NB	C (B)	C (B)	- (-)
			SB	A (B)	A (B)	- (-)
			EB	**E** (**E**)	**E** (**E**)	- (-)
			WB	D (D)	D (D)	- (-)
			Overall	C (C)	C (C)	- (-)
10	Scottsdale Rd. & Deer Valley Rd.	Signal	NB	A (A)	A (A)	- (-)
			SB	A (A)	A (A)	- (-)
			WB	**E** (**E**)	**E** (**E**)	- (-)
			Overall	A (A)	A (A)	- (-)
11	Scottsdale Rd. & Grayhawk Rd.	Signal	NB	A (B)	A (B)	- (-)
			EB	A (A)	A (A)	- (-)
			WB	D (D)	D (D)	- (-)
			Overall	A (B)	B (B)	- (-)
12	Scottsdale Rd. & Thompson Peak Pkwy.	Signal	NB	D (**F**)	D (**F**)	D (**F**)
			SB	C (B)	C (B)	C (B)
			WB	D (D)	D (D)	D (D)
			Overall	C (**E**)	D (**E**)	C (**E**)
13	Scottsdale Rd. & Legacy Blvd.	Signal	NB	C (C)	C (C)	- (-)
			SB	B (A)	B (A)	- (-)
			WB	D (**E**)	D (D)	- (-)
			Overall	B (B)	B (C)	- (-)
14	Scottsdale Rd. & Loop 101 WB Ramps	Signal	NB	C (**E**)	C (**F**)	C (**F**)
			SB	D (C)	D (C)	D (C)
			WB	D (D)	D (D)	D (D)
			Overall	D (**E**)	D (**E**)	D (**E**)
15	Scottsdale Rd. & Loop 101 EB Ramps	Signal	NB	**F** (D)	**F** (D)	**F** (D)
			SB	C (C)	C (C)	C (C)
			EB	D (D)	D (D)	D (D)
			Overall	D (C)	D (D)	D (D)
16	Scottsdale Rd. & Mayo Blvd.	Signal	NB	D (**E**)	D (**E**)	D (**E**)
			SB	D (**F**)	D (**F**)	D (**F**)
			EB	D (D)	D (D)	D (D)
			WB	D (**E**)	D (**E**)	D (**E**)
			Overall	D (**E**)	D (**F**)	D (**F**)
17	Scottsdale Rd. & Chauncey Ln.	Signal	NB	B (C)	B (C)	- (-)
			SB	B (B)	B (B)	- (-)
			EB	D (D)	D (D)	- (-)
			WB	**E** (D)	**E** (D)	- (-)
			Overall	B (C)	B (C)	- (-)

Table 8 – 2020 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2020 LOS AM (PM)		
				No-Build	Build	Mitigated
18	Scottsdale Rd. & Princess Blvd.	Signal	NB	C (C)	C (D)	- (-)
			SB	B (B)	B (B)	- (-)
			EB	D (D)	D (D)	- (-)
			WB	**E** (**E**)	**E** (**E**)	- (-)
			Overall	C (C)	C (C)	- (-)
19	Scottsdale Rd. & 17050 North	Signal	NB	B (C)	B (C)	- (-)
			SB	B (B)	B (B)	- (-)
			EB	**E** (D)	**E** (D)	- (-)
			WB	D (**E**)	D (**E**)	- (-)
			Overall	B (C)	B (C)	- (-)
20	Scottsdale Rd. & Frank Lloyd Wright Blvd.	Signal	NB	D (**F**)	D (**F**)	D (**F**)
			SB	D (D)	**E** (**E**)	E (**E**)
			EB	D (D)	**E** (D)	E (D)
			WB	**E** (**E**)	**E** (**F**)	**E** (**F**)
			Overall	D (**F**)	D (**F**)	D (**F**)
21	Greenway Hayden & Frank Lloyd Blvd.	Signal	NB	D (**F**)	D (**F**)	D (**F**)
			SB	D (**F**)	D (**F**)	D (**F**)
			EB	D (D)	D (D)	D (C)
			WB	**E** (D)	**E** (D)	**E** (D)
			Overall	D (**E**)	D (**E**)	D (**E**)
22	Pima Rd. & Thompson Peak Pkwy.	Signal	NB	C (D)	C (D)	- (-)
			SB	C (C)	C (C)	- (-)
			EB	**E** (D)	**E** (D)	- (-)
			WB	D (D)	D (D)	- (-)
			Overall	D (D)	D (D)	- (-)
23	Miller Rd. & Thompson Peak Pkwy.	Signal	NB left	- (-)	A (A)	- (-)
			SB left	- (-)	A (A)	- (-)
			EB Left	- (-)	B (A)	- (-)
			WB Left	- (-)	A (A)	- (-)
			Overall	- (-)	B (A)	
24	Miller Rd. & Legacy Blvd.	All-way stop	NB left	- (-)	A (A)	- (-)
			SB left	- (-)	A (A)	- (-)
			EB Left	- (-)	A (A)	- (-)
			WB Left	- (-)	A (A)	- (-)
25	Miller Rd. & Union Hills Dr.	All-way stop	NB	- (-)	- (-)	- (-)
			SB	- (-)	- (-)	- (-)
			EB	- (-)	- (-)	- (-)
			WB	- (-)	- (-)	- (-)
26	Miller Rd. & Princess Dr.	All-way stop	NB	- (-)	- (-)	- (-)
			SB	- (-)	- (-)	- (-)
			EB	- (-)	- (-)	- (-)
			WB	- (-)	- (-)	- (-)
A	Miller Rd. & Access A	1-way stop (WB)	SB Left	- (-)	- (-)	- (-)
			WB Left	- (-)	- (-)	- (-)
			WB Right	- (-)	- (-)	- (-)

Table 8 – 2020 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2020 LOS AM (PM)		
				No-Build	Build	Mitigated
B	Miller Rd. & Access B	1-way stop (WB)	SB Left WB Left WB Right	- (-) - (-) - (-)	A (A) B (B) A (A)	- (-) - (-) - (-)
C	Miller Rd. & Access C	1-way stop (WB)	NB SB EB WB	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)
D	Access D & Legacy Blvd.	1-way stop (NB)	NB SB EB WB	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)
E	Access E & Legacy Blvd.	1-way stop (NB)	NB SB EB WB	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)
F	Access F & Legacy Blvd.	1-way stop (NB)	NB SB EB WB	**- (-)** - (-) - (-) - (-)	**- (-)** - (-) - (-) - (-)	- (-) - (-) - (-) - (-)
G	Hayden Rd. & Access G	1-way stop (EB)	NB SB EB WB	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)	- (-) - (-) - (-) - (-)
H	Hayden Rd. & Access H	1-way stop (EB)	NB Left EB Right	- (-) - (-)	A (A) A (A)	- (-) - (-)
I	Claret Dr. & Access I	2-way stop (EB/WB)	SB EB WB	- (-) - (-) - (-)	A (A) A (A) A (B)	- (-) - (-) - (-)
J	Claret Dr. & Access J	2-way stop (EB/WB)	SB EB WB	- (-) - (-) - (-)	A (A) A (A) A (A)	- (-) - (-) - (-)
K	Access K & Cavasson Blvd.	2-way stop (NB/SB)	NB Left NB Right WB Left	- (-) - (-) - (-)	B (B) A (A) A (A)	- (-) - (-) - (-)
L	Access L & Cavasson Blvd.	2-way stop (NB/SB)	NB Left NB Right WB Left	- (-) - (-) - (-)	B (B) A (A) A (A)	- (-) - (-) - (-)
M	Hayden Rd. & Cavasson Blvd.	1-way stop (EB)	NB Left EB left EB Right	- (-) - (-)	A (A) B (B) A (A)	- (-) - (-) - (-)

All 2020 study intersections operate with an overall acceptable level of service (LOS D or better) during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:

It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized

intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.

The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2020 with or without the proposed Cavasson Phase I development during both study peak hours. Under the No-Build 2020 scenario this intersection experiences increased delay in both study peak hours. Overall the PM peak hour at both ramps signals experiences the heaviest delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2020 scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended the northbound green phase be extended from 34-seconds to 45-seconds in the AM peak hour and the northbound left phase be extended from 24-seconds to 55-seconds in the PM peak hour. With these mitigation improvements, the overall intersection delay is expected to be 48-seconds in the AM peak hour and 45-seconds in the PM peak hour with the Cavasson development.

*It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience increased delays during the PM peak hour in the northbound approach with or without the addition of proposed Cavasson Phase I development by opening year 2020. It is recommended the green time to the northbound through phase be extended from 54-seconds to 64-seconds. The recommended signal mitigation is expected to decrease the overall intersection delay from 73-seconds to 66-seconds during the PM peak hour.

The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased delay by opening year 2020 with or without the proposed Cavasson Phase I development during the PM peak hour. Under the No-Build 2020 scenario, this intersection experiences increased delay in the PM peak hour only. Although the signalized interchange experiences increased delay in the No-Build 2030, scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended the cycle length for both signalized ramps be optimized from 120-seconds to 100-seconds to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 36-seconds for the westbound ramps and 38-seconds for the eastbound ramps in the PM peak hour with the proposed Phase I development.

*It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Cavasson Phase I development during the PM peak hour only. Overall the projected intersection delay is expected to be 82-seconds in the PM peak hour under the total 2020 build condition. It

is therefore recommended the southbound through phase be extended from 42-seconds to 51-seconds by opening year 2020. With this improvement made, the overall delay at the intersection is projected to decrease from 82-seconds to 56-seconds in the PM peak hour with the proposed Phase I development.

The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Phase I development. Under the No-Build 2020 scenario, this intersection experiences increased delay during the PM peak hour only. Overall, the projected intersection delay is expected to be 180-seconds in the PM peak hour with the proposed Cavasson Phase I development. It is recommended the northbound through phase be extended from 35-seconds to 51-seconds and the northbound left-turn phase be extended from 9-seconds to 18-seconds. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 180-seconds to 72-seconds with the proposed Phase I development during the PM peak hour.

The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Cavasson Phase I development. Under the No-Build 2020, scenario this intersection experiences increased delay during the PM peak hour only. Overall, the projected 2020 Build, intersection delay is expected to be 74-seconds during the PM peak hour which includes the proposed Cavasson Phase I development. It is recommended the northbound left-turn phase be extended from 10-seconds to 13-seconds and the southbound left-turn phase is extended from 15-seconds to 18-seconds. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 74-seconds to 51-seconds with the proposed Phase I development during the PM peak hour.

Horizon Year 2030

Results of the peak hour level-of-service are summarized in **Table 9** for the 2030 horizon year. Worksheets for both AM and PM peak hour analyses have been included within **Appendix J** for the 2030 horizon year. Please note it was assumed Crossroads East would be approximately 50% built-out and all the surrounding developments within the area such as the Paradise Ridge Planning Area would be built-out as well.

Table 9 – 2030 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2030 LOS AM (PM)		
				No-Build	Build	Mitigated
1	Hayden Rd. & Deer Valley Rd.	Signal	NB	B (C)	B (C)	- (-)
			SB	B (B)	B (B)	- (-)
			EB	B (B)	B (B)	- (-)
			WB	B (B)	B (B)	- (-)
			Overall	B (C)	B (C)	- (-)
2	Hayden Rd. & Grayhawk Rd.	Signal	NB	C (**E**)	C (**E**)	C (**E**)
			SB	C (C)	C (C)	C (C)
			EB	B (B)	B (B)	B (B)
			WB	B (B)	B (B)	B (B)
			Overall	C (D)	C (**E**)	C (D)
3	Hayden Rd. & Thompson Peak Pkwy	Signal	NB	C (F)	D (**F**)	D (D)
			SB	C (D)	C (D)	D (D)
			EB	D (D)	D (D)	D (D)
			WB	**F** (**E**)	**F** (**F**)	C (D)
			Overall	D (**E**)	**E** (**F**)	D (D)
4	Hayden Rd. & Legacy Blvd.	Signal	NB	**E** (**F**)	**F** (**F**)	B (C)
			SB	B (B)	C (C)	D (C)
			EB	D (D)	D (D)	C (D)
			WB	D (C)	C (C)	D (D)
			Overall	D (**E**)	**F** (**F**)	C (C)
5	Hayden Rd. & Loop 101 WB Ramps	Signal	NB	C (**F**)	**F** (**F**)	**F** (**F**)
			SB	C (**D**)	D (**F**)	D (**E**)
			WB	C (**D**)	C (D)	C (D)
			Overall	C (**F**)	**E** (**F**)	**E** (**E**)
6	Hayden Rd. & Loop 101 EB Ramps	Signal	NB	C (**F**)	D (**F**)	D (D)
			SB	**E** (**E**)	**F** (**F**)	**F** (**F**)
			EB	**F** (**D**)	**F** (D)	**F** (**F**)
			Overall	**F** (**F**)	**F** (**F**)	**F** (**E**)
7	Hayden Rd. & Mayo Blvd.	Signal	NB	D (D)	D (D)	- (-)
			SB	C (D)	C (D)	- (-)
			EB	D (D)	D (D)	- (-)
			WB	C (D)	C (D)	- (-)
			Overall	C (D)	C (D)	- (-)
8	Hayden Rd. & Princess Dr.	Signal	NB	B (B)	B (B)	- (-)
			SB	B (B)	B (C)	- (-)
			EB	D (D)	D (D)	- (-)
			WB	D (D)	D (D)	- (-)
			Overall	C (C)	C (C)	- (-)

Table 9 – 2030 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2030 LOS AM (PM)		
				No-Build	Build	Mitigated
9	Hayden Rd. & Bell Rd.	Signal	NB	C (B)	C (B)	A (D)
			SB	A (D)	B (**F**)	B (C)
			EB	**E** (**E**)	**E** (**E**)	**E** (**E**)
			WB	D (D)	D (D)	D (D)
			Overall	C (C)	C (**E**)	B (D)
10	Scottsdale Rd. & Deer Valley Rd.	Signal	NB	A (B)	A (B)	- (-)
			SB	B (A)	C (A)	- (-)
			WB	**E** (**E**)	**E** (**E**)	- (-)
			Overall	B (B)	B (B)	- (-)
11	Scottsdale Rd. & Grayhawk Rd.	Signal	NB	A (B)	A (C)	- (-)
			EB	B (B)	C (B)	- (-)
			WB	D (**E**)	D (**E**)	- (-)
			Overall	B (B)	B (C)	- (-)
12	Scottsdale Rd. & Thompson Peak Pkwy.	Signal	NB	C (**E**)	D (**F**)	B (D)
			SB	D (D)	**E** (D)	**E** (D)
			EB	**E** (**F**)	**F** (**F**)	D (D)
			WB	D (D)	D (D)	**F** (**F**)
			Overall	D (**F**)	**E** (**F**)	**E** (**E**)
13	Scottsdale Rd. & Legacy Blvd.	Signal	NB	D (**E**)	D (**F**)	B (**E**)
			SB	**F** (D)	**F** (**F**)	**F** (C)
			EB	**F** (**F**)	**F** (**F**)	D (D)
			WB	D (D)	D (D)	D (**F**)
			Overall	**F** (**F**)	**F** (**F**)	**E** (**E**)
14	Scottsdale Rd. & Loop 101 WB Ramps	Signal	NB	C (**F**)	**E** (**F**)	D (**F**)
			SB	D (**E**)	**E** (**F**)	**E (F)**
			WB	D (**E**)	D (**F**)	**E (F)**
			Overall	D (**F**)	**E** (**F**)	**E** (**F**)
15	Scottsdale Rd. & Loop 101 EB Ramps	Signal	NB	**E** (**F**)	**E** (**F**)	**E** (**F**)
			SB	**F** (**F**)	**F** (**F**)	**F** (**F**)
			EB	D (D)	**E** (D)	**E** (D)
			Overall	**F** (**F**)	**F** (**F**)	**F** (**F**)
16	Scottsdale Rd. & Mayo Blvd.	Signal	NB	D (**F**)	**E** (**F**)	D (**F**)
			SB	**F** (**F**)	**F** (**F**)	**E** (**F**)
			EB	D (**F**)	D (**F**)	**E** (**F**)
			WB	D (**E**)	D (**F**)	D (**F**)
			Overall	**F** (**F**)	**F** (**F**)	**E** (**F**)
17	Scottsdale Rd. & Chauncey Ln.	Signal	NB	B (D)	C (D)	- (-)
			SB	B (C)	C (C)	- (-)
			EB	D (D)	D (D)	- (-)
			WB	D (D)	D (D)	- (-)
			Overall	C (D)	C (D)	- (-)
18	Scottsdale Rd. & Princess Blvd.	Signal	NB	D (**F**)	D (**F**)	D (**F**)
			SB	C (D)	C (**E**)	C (**E**)
			EB	D (D)	D (D)	D (D)
			WB	**E** (**F**)	**E** (**F**)	**E** (**E**)
			Overall	C (**F**)	D (**F**)	D (**F**)

Table 9 – 2030 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2030 LOS AM (PM)		
				No-Build	Build	Mitigated
19	Scottsdale Rd. & 17050 North	Signal	NB	B (C)	B (D)	- (-)
			SB	C (D)	C (D)	- (-)
			EB	**E** (D)	**E** (D)	- (-)
			WB	D (**E**)	D (**E**)	- (-)
			Overall	C (C)	C (D)	- (-)
20	Scottsdale Rd. & Frank Lloyd Wright Blvd.	Signal	NB	C (**F**)	C (**F**)	D (**F**)
			SB	**F** (**F**)	**F** (**F**)	**F** (**F**)
			EB	**F** (**F**)	**F** (**F**)	**F** (**F**)
			WB	**F** (**F**)	**F** (**F**)	**E** (**F**)
			Overall	**F** (**F**)	**F** (**F**)	**F** (**F**)
21	Greenway Hayden & Frank Lloyd Blvd.	Signal	NB	D (**F**)	D (**F**)	**E (E)**
			SB	**E** (**F**)	**F** (**F**)	**E (E)**
			EB	**F** (**E**)	**F** (**E**)	**E (E)**
			WB	**F** (**F**)	**F** (**F**)	**E (F)**
			Overall	**F** (**F**)	**F** (**F**)	**E (E)**
22	Pima Rd. & Thompson Peak Pkwy.	Signal	NB	C (**F**)	D (**F**)	D (**F**)
			SB	C (D)	C (D)	C (D)
			EB	**E** (**F**)	**E** (**F**)	**E** (**F**)
			WB	D (D)	D (D)	D (D)
			Overall	D (**E**)	D (**F**)	D (E)
23	Miller Rd. & Thompson Peak Pkwy.	Signal	NB left	A (A)	A (B)	- (-)
			SB left	A (A)	A (A)	- (-)
			EB Left	B (B)	B (B)	- (-)
			WB Left	B (B)	B (B)	- (-)
			Overall	B (B)	B (B)	- (-)
24	Miller Rd. & Legacy Blvd.	Signal	NB	- (-)	C (C)	- (-)
			SB	- (-)	D (D)	- (-)
			EB	- (-)	B (C)	- (-)
			WB	- (-)	C (C)	- (-)
			Overall	- (-)	C (C)	- (-)
26	Miller Rd. & Princess Dr.	All-way stop	NB Left	- (-)	A (A)	- (-)
			SB Left	- (-)	B (B)	- (-)
			WB Left	- (-)	A (A)	- (-)
A	Miller Rd. & Access A	1-way stop (WB)	SB Left	- (-)	A (A)	- (-)
			WB Left	- (-)	B (B)	- (-)
B	Miller Rd. & Access B	Signal	NB	- (-)	A (A)	- (-)
			SB	- (-)	A (B)	- (-)
			WB	- (-)	C (C)	- (-)
			Overall	- (-)	A (B)	- (-)
C	Miller Rd. & Access C	1-way stop (WB)	SB Left	- (-)	A (A)	- (-)
			WB Right	- (-)	A (B)	- (-)
D	Access D & Legacy Blvd.	1-way stop (NB)	NB Left	- (-)	B (B)	- (-)
			NB Right	- (-)	A (A)	- (-)
			WB Left	- (-)	A (A)	- (-)

Table 9 – 2030 Peak Hour Levels of Service

ID	Intersection	Stop Control	Approach	2030 LOS AM (PM)		
				No-Build	Build	Mitigated
E	Access E & Legacy Blvd.	1-way stop (NB)	NB Left	- (-)	B (B)	- (-)
			NB Right	- (-)	A (A)	- (-)
			WB Left	- (-)	A (A)	- (-)
F	Access F & Legacy Blvd.	1-way stop (NB)	NB Left	- (-)	B (B)	- (-)
			NB Right	- (-)	A (A)	- (-)
			WB Left	- (-)	A (A)	- (-)
G	Hayden Rd. & Access G	1-way stop (EB)	NB Left	- (-)	A (A)	- (-)
			EB Left	- (-)	A (A)	- (-)
H	Hayden Rd. & Access H	1-way stop (EB)	NB Left	- (-)	A (A)	- (-)
			EB Left	- (-)	A (B)	- (-)
I	Claret Dr. & Access I	2-way stop (EB/WB)	NB Left	- (-)	A (A)	- (-)
			SB Left	- (-)	A (A)	- (-)
			EB Left	- (-)	B (B)	- (-)
			EB Shared	- (-)	A (B)	- (-)
			WB Left	- (-)	B (C)	- (-)
			WB Shared	- (-)	A (A)	- (-)
J	Claret Dr. & Access J	2-way stop (EB/WB)	NB Left	- (-)	A (A)	- (-)
			SB Left	- (-)	A (A)	- (-)
			EB Left	- (-)	C (C)	- (-)
			EB Shared	- (-)	A (A)	- (-)
			WB Left	- (-)	B (B)	- (-)
			WB Shared	- (-)	A (A)	- (-)
K	Claret Dr./Access K & Cavasson Blvd.	Signal	NB	- (-)	B (B)	- (-)
			SB	- (-)	B (A)	- (-)
			EB	- (-)	A (B)	- (-)
			WB	- (-)	B (B)	- (-)
			Overall	- (-)	B (B)	- (-)
L	Access L & Cavasson Blvd.	2-way stop (NB/SB)	NB Left	- (-)	C (C)	- (-)
			NB Right	- (-)	A (B)	- (-)
			SB Left	- (-)	C (D)	- (-)
			SB Right	- (-)	B (A)	- (-)
			EB Left	- (-)	A (A)	- (-)
			WB Left	- (-)	A (A)	- (-)
M	Hayden Rd. & Cavasson Blvd.	Signal	NB	- (-)	A (A)	- (-)
			SB	- (-)	B (B)	- (-)
			EB	- (-)	D (D)	- (-)
			Overall	- (-)	B (B)	- (-)

All 2030 study intersections operate with an overall acceptable level of service (LOS C or better) during the AM and PM peak hours under the proposed lane configurations and stop controls with the exception of the following locations:

The intersection of **Hayden Road and Grayhawk Drive** is projected to experience increased delays during the PM peak hour only with the addition of Cavasson development. The delay on the northbound approach is due to the heavy volume of northbound through movements on Hayden Road during this peak hour. With the addition of the proposed Cavasson development, the overall intersection delay is

expected to be 56-seconds, which is just over the 55.0-second threshold of a LOS E. Mitigation at this intersection is not recommended for the 2030 opening year, however it is recommended this intersection but be monitored for future signal timing optimization as other surrounding developments begin to build.

The intersection of **Hayden Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the projected 2030 Build intersection delay is projected to be 64-seconds in the AM peak hour and 101-seconds in the PM peak hour. Due to the heavy westbound left-turn volumes at this intersection, it is recommended dual left-turn lanes be provided at this approach to help mitigate future intersection delay. With the addition of dual westbound left-turn lanes, the overall intersection delay is expected to decrease from 64-seconds to 38-seconds in the AM peak hour, and from 101-seconds to 42-seconds during the PM peak hour.

The intersection of **Hayden Road and Legacy Boulevard** is projected to experience delay during both AM and PM peak hours with or without the addition of Cavasson development by horizon year 2030. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the east of Hayden Road and connect to Pima Road by horizon year 2030. With the addition of the Cavasson development, the projected intersection delay is expected to be 156-seconds in the AM peak hour and 180-seconds in the PM peak hour. Due to the projected heavy traffic volumes on Hayden Road by horizon year 2030 three (3) through lanes northbound and three (3) through lanes southbound are recommended as well as dual northbound left-turn lanes. To remain consistent with the four (4) lane cross section on Legacy Boulevard two (2) through lanes are recommended to be constructed in the eastbound and westbound approaches. All left-turn phases are recommended to be protected/permissive with the exception of the dual northbound left-turn lanes which will be required to be protected. With the recommended signal modifications, the intersection delay is expected to decrease from 156-seconds to 33-seconds in the AM peak hour, and decrease from 180-seconds to 30-seconds during the PM peak hour.

It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.

The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be extended from 120-seconds to 140-seconds to achieve optimal levels of service for the intersection by horizon year 2030. Overall the

projected intersection delay is expected to be around 70-seconds for the westbound ramps and 116-seconds for the eastbound ramps during the PM peak hour with the proposed Cavasson development.

*It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be extended from 120-seconds to 140-seconds to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 115-seconds for the westbound ramps and 78-seconds for the eastbound ramps in the PM peak hour with the Cavasson development.

*It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

The intersection of **Hayden Road and Bell Road** is projected to experience delay during the PM peak hour by horizon year 2030 with the addition of the Cavasson development. During the PM peak hour, the intersection is projected to experience a delay of 63-seconds. By optimizing the southbound left-turn phase from permitted to protected and extending the southbound through phase from 54-seconds to 64-seconds, the intersection is projected to experience a decrease in delay to an acceptable overall delay of 38-seonds by horizon year 2030.

The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection with the assumption that Thompson Peak Parkway will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. Under the No-Build 2030 scenario, this intersection experiences heavy delay in both study peak hours. Overall, the intersection delay is projected to be 41-seconds in the AM peak hour and 172-seconds in the PM peak hour under the 2030 No-Build scenario. With the addition of the Cavasson development, the intersection is expected to experience delays of 74-seconds in the AM peak hour, and 198-seconds in the PM peak hour. To help mitigate this intersection, it is recommended the northbound left-turn phase be optimized to a permissive-protected while also extending the eastbound left-turn phase from 9.5-seconds to 23-seconds and the southbound left-turn phase from 11-seconds to 21-seconds. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay is expected to decrease from

74-seconds to 56-seconds in the AM peak hour, and from 198-seconds to 57-seconds during the PM peak hour.

The intersection of **Scottsdale Road and Legacy Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. This intersection experiences increased delay under the 2030 No-Build condition for both study peak hours. Overall, the intersection delay under the 2030 No-Build condition is projected to be 90-seconds in the AM peak hour and 107-seconds in the PM peak hour. With the addition of the proposed Cavasson development, the intersection delay is expected to increase to 153-seonds in the AM peak hour, and 161-seconds in the PM peak hour. It is, recommended to optimize the cycle length to 150-seconds and extend the eastbound left-turn phase from 9.5-seconds to 31.4-seconds. With the recommended mitigation the intersection delay is expected to decrease from 153-seconds to 104-seconds in the AM peak hour, and from 161-seconds to 105-seconds in the PM peak hour.

The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall the 2030 No-Build condition for this intersection is projected to experience 93-seconds of delay in the AM peak hour and 260-seconds of delay in the PM peak hour. It should be noted by study horizon year 2030 it is expected the Crossroads East development and all planned roadway improvements in and around the study area by the City of Scottsdale will be constructed. With the future planned surrounding developments and roadway improvements there are expected increases in regional traffic at this intersection. It is recommended by horizon year 2030 the westbound approach at this intersection provide dual left-turn lanes, two (2) through lanes and a dedicated right-turn lane. It is also recommended the cycle length be optimized upon buildout of the intersection to a cycle length of 150-seconds for optimum levels of service. With the westbound lane improvements and suggested 150-second cycle length the intersection delay is anticipated to decrease from 103-seconds to 71-seconds in the AM peak hour and 280-seconds to 137-seconds in the PM peak hour under the 2030 Build condition.

The intersection of **Scottsdale Road and Princess Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during the PM peak hour. This intersection experiences an increased delay of 82-seconds in PM peak hour under the 2030 No-Build condition and 107-second delay with the proposed Cavasson development. It is recommended green time be extended from 59-seconds to 61-seconds in the northbound through phase. With this shift in green time, the overall intersection delay is expected to decrease from 107-seconds to 81-seconds in the PM peak hour with the proposed Cavasson development.

The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario this intersection experiences increased delay in both study peak hours. Overall, the projected intersection delay is expected to be 261-seconds in the AM peak hour and 250-seconds in the PM peak hour with the proposed Cavasson development. Should the cycle length be optimized to 145-seconds, the overall intersection delay is expected to decrease from 261-seconds to 113-seconds in the AM peak hour and from 250-seconds to 209-seconds in the PM peak hour.

The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario this intersection experiences increased delay in both study peak hours. Overall the projected intersection delay is expected to be 113-seconds in the AM peak hour and 131-seconds in the PM peak hour with the Cavasson development. It is recommended all left-turn phases be extending starting with the westbound left-turn phase from 22-seconds to 30-seconds, the eastbound left-turn phase from 22-seconds to 31-seconds, the northbound left-turn phase from 11-seconds to 20-seconds, and the southbound left-turn phase from 16-seconds to 22-seconds. With the recommended changes, the overall intersection delay is expected to decrease from 113-seconds to 69-seconds in the AM peak hour and from 131-seconds to 74-seconds in the PM peak hour.

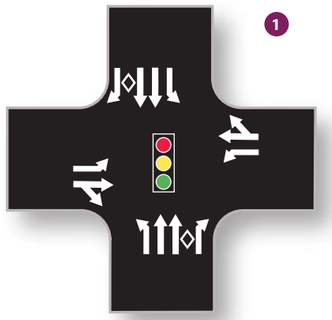
The intersection of **Pima Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. This intersection experiences an increased delay of 68-seconds in PM peak hour overall under the 2030 No-Build conditions and 82-seconds delay with the proposed Cavasson development. To help mitigate the increased level of service in the PM peak hour, it is recommended the northbound through green time be extended from 47-seconds to 49-seconds, as well as extending the green time in the westbound left-turn phase from 16-seconds to 25-seconds. With the recommend signal mitigation the overall intersection delay is expected to decrease from 82-seconds to 67-seconds in the PM peak hour with the proposed Cavasson development.

The intersection of **Miller Road and Legacy Boulevard** is projected to be signalized by study horizon year 2020. With future traffic anticipated by the Miller Road connection to the south and with additional traffic anticipated by currently unknown surrounding developments, it is recommended that dual northbound left-turn lanes be provided as well as a dedicated northbound right-turn lane by horizon year 2020.

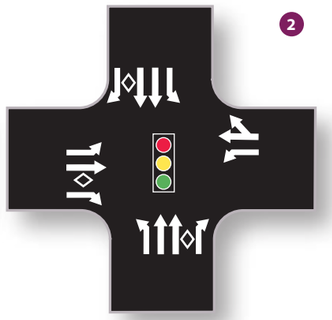
The proposed signalized intersection of **Hayden Road and Cavasson Boulevard** is projected to ultimately provide dual northbound left-turn lanes into the site as well as dual eastbound left-turn lanes and dual eastbound right-turn lanes by horizon year 2020. The additional of turn lanes will facilitate through traffic to and from the central garage being constructed with phase I.

The proposed internal site intersection of **Claret Drive and Cavasson Boulevard** is anticipated to be a signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes should be provided in all approaches. Signal warrants will be evaluated with future phases of the Cavasson development.

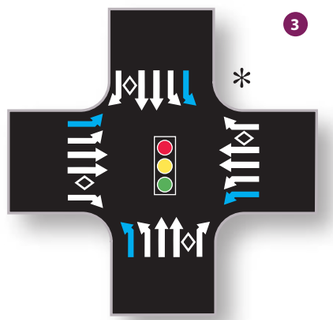
The proposed intersection of **Miller Road and Cavasson Boulevard** is anticipated to be signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes in all approaches are recommended. With the possible future connectivity to the west, it is recommended that additional right of way is provided for future through lanes eastbound and westbound. Signal warrants will be evaluated with future phases of the Cavasson development.



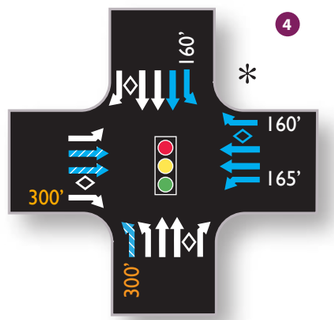
Hayden Rd & Deer Valley Rd



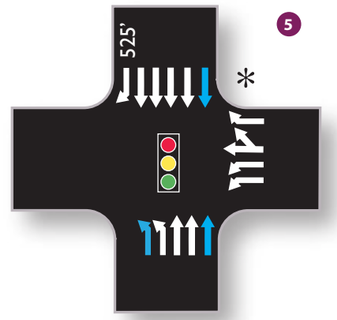
Hayden Rd & Grayhawk Dr



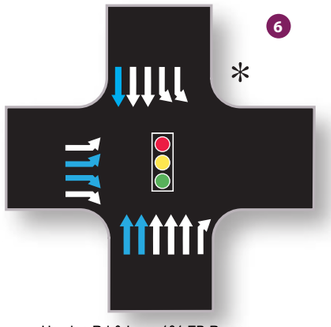
Hayden Rd & Thompson Peak Pkwy



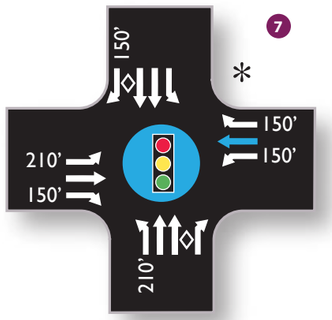
Hayden Rd & Legacy Blvd



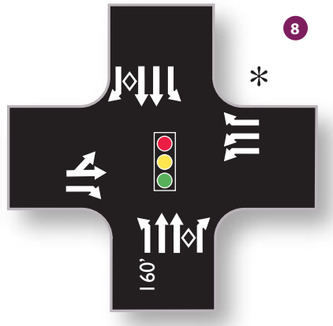
Hayden Rd & Loop 101 WB Ramps



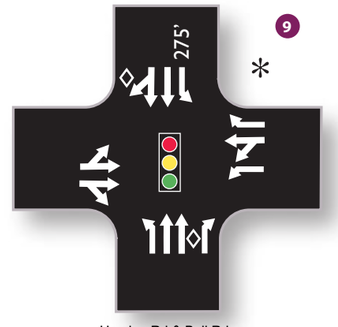
Hayden Rd & Loop 101 EB Ramps



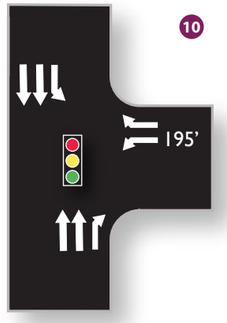
Hayden Rd & Mayo Blvd



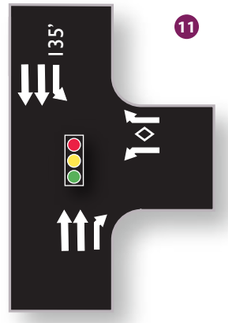
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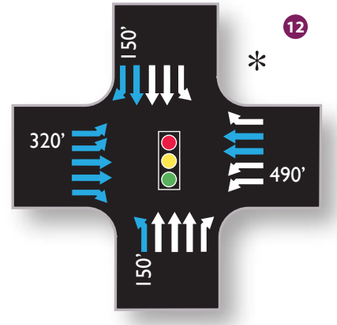
Hayden Rd & Bell Rd



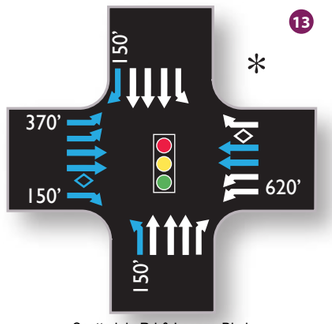
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd.

LEGEND

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- * 2030 Signal Timing Modification
- NORTH
- Improvements by 2020
- Improvements by 2030
- Developers Responsibility
- Signal Warrants will be Analyzed in Future Phases
- XXX Total Queue by Developer
- XXX Total Extended Queue by Others

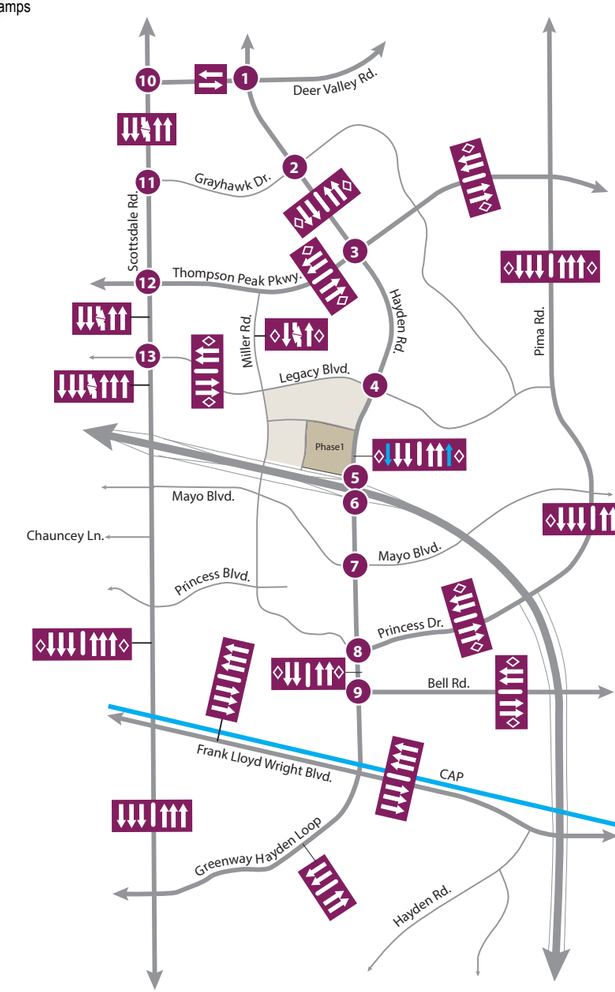
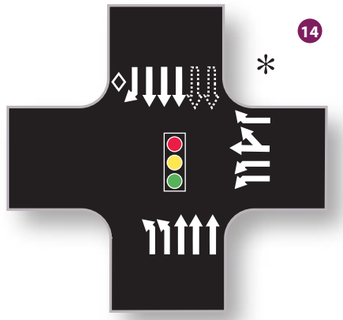
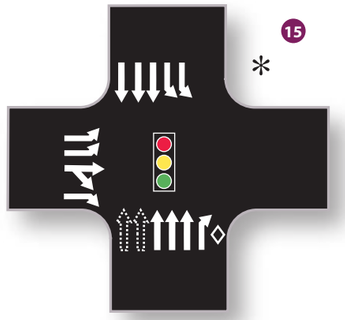


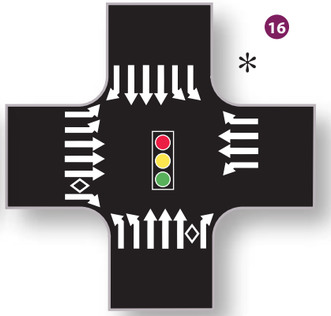
Figure 12A: Proposed Lane Configurations and Traffic Controls



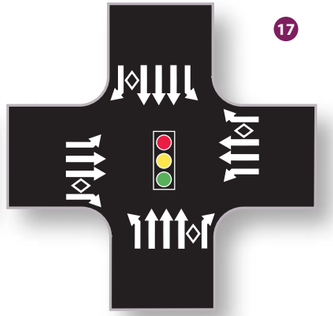
Scottsdale Rd & Loop 101 WB Ramps



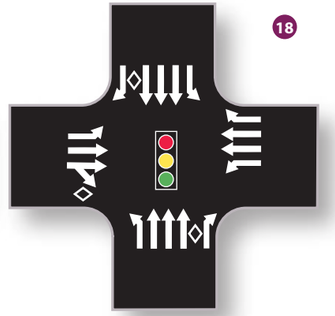
Scottsdale Rd & Loop 101 EB Ramps



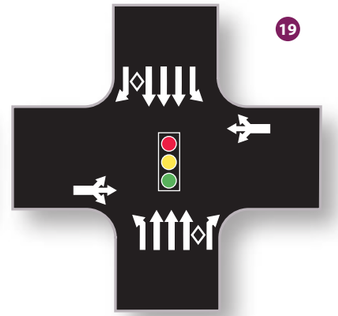
Scottsdale Rd & Mayo Blvd



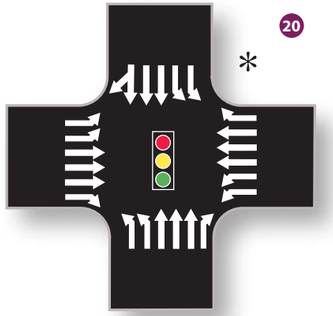
Scottsdale Rd & Chauncey Ln



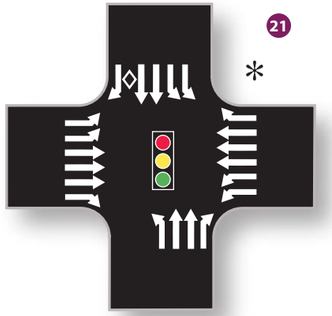
Scottsdale Rd & Princess Blvd



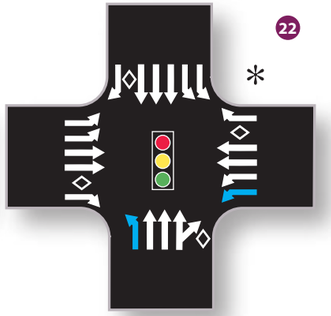
Scottsdale Rd & 17050 North



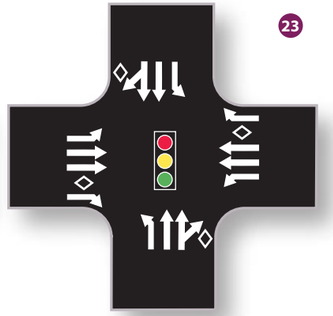
Scottsdale Rd & Frank Lloyd Wright Blvd



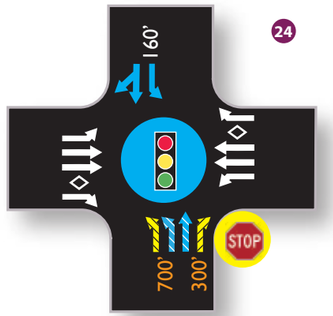
Greenway-Hayden & Frank Lloyd Wright Blvd



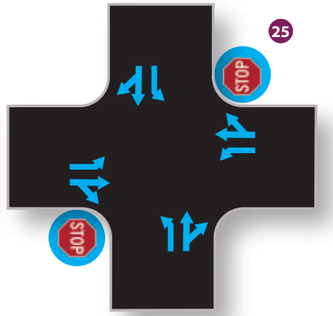
Pima Rd & Thompson Peak Pkwy



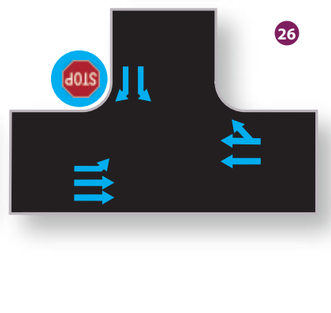
Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd.



Miller Rd & Princess Dr

LEGEND

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- * 2030 Signal Timing Modification
- Improvements by 2020
- Improvements by 2030
- Developers Responsibility
- Signal Warrants will be Analyzed in Future Phases
- XXX Total Queue by Developer
- XXX Total Extended Queue by Others

NORTH

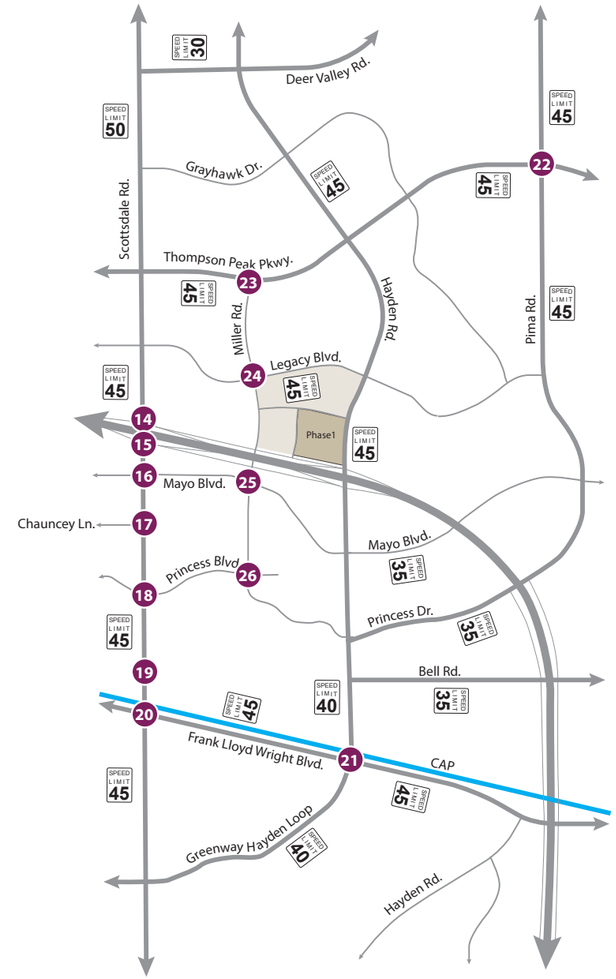
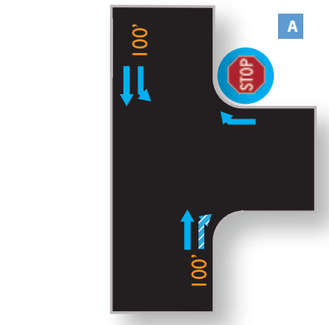
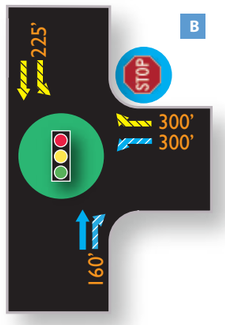


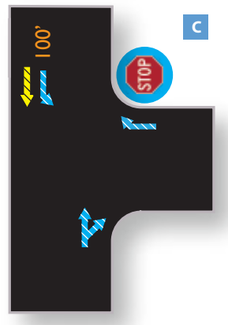
Figure 12B: Proposed Lane Configurations and Traffic Controls



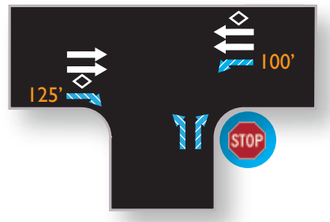
Miller Rd & Access A



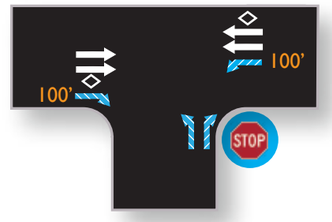
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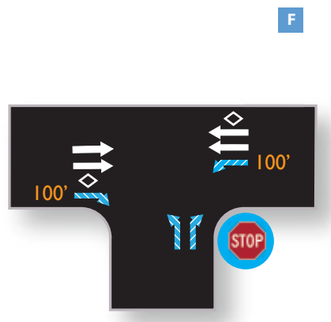
Miller Rd & Access C



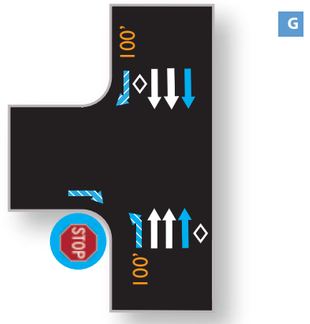
Access D & Legacy Blvd



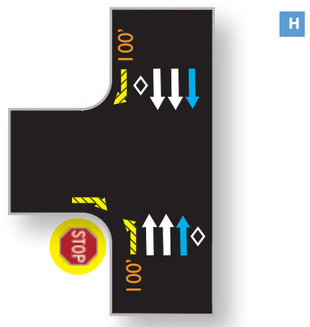
Access E & Legacy Blvd



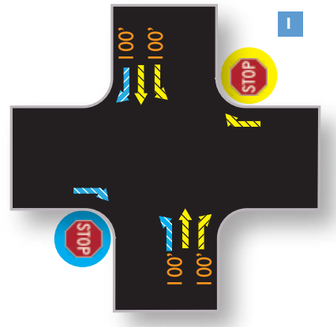
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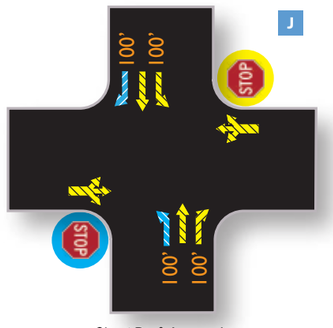
Hayden Rd & Access G



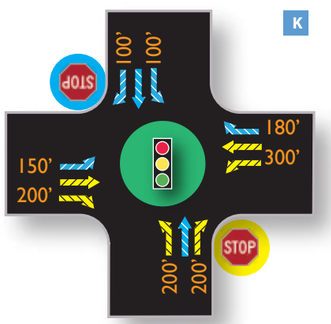
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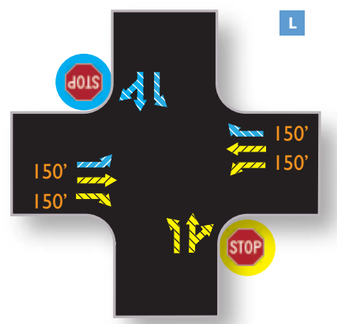
Claret Dr. & Access I



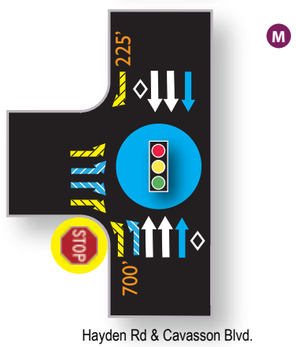
Claret Dr. & Access J



Claret Dr. & Cavasson Blvd.



Access L & Cavasson Blvd.



Hayden Rd & Cavasson Blvd.

LEGEND

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- * 2030 Signal Timing Modification
- NORTH
- Improvements by 2020
- Improvements by 2030
- Developers Responsibility
- Signal Warrants will be Analyzed in Future Phases
- XXX Total Queue by Developer
- XXX Total Extended Queue by Others



Figure 12C: Proposed Lane Configurations and Traffic Controls

QUEUING ANALYSIS

The site access points were analyzed to determine the storage needed to accommodate the expected traffic volumes for the horizon year 2030 at the left and right turn lanes.

LEFT TURN STORAGE ANALYSIS

Left-turn lanes are required at all street intersections on major collectors and arterials per the City of Scottsdale Design Standards and Policy Manual (DS&PM). Dual left turn lanes should be considered at intersections in which the peak hour turning volume exceeds 300 vehicles, the opposing volume exceeds 1,000 vehicles per hour or the delay of the left-turns exceeds 45 seconds.

A queuing analysis for left turns was performed for all intersection turn lanes under stop or signal control within the study area. The intersections were analyzed to determine the left turn storage needed to accommodate the expected traffic volumes for the horizon year 2030. The formulas used for the calculations are stated below. The resulting left turn lane storage requirements for the 2030 horizon year are summarized in **Table 10**.

Two (2) methods were utilized to calculate the likely queue storage needed at the intersections for the 2030 horizon year. Synchro analysis software provided values for the 50th and 95th percentile queue storage. The 95th percentile has been reported herein. AASHTO also provides the following guidance:

For signalized intersections, the storage length is determined by the following formula:

Storage Length = [2 x (veh/hr)/(cycles/hr)] x 25 feet

For unsignalized intersections, the storage length is determined by the following formula:

Storage Length = [(veh/hr)/(30 periods/hr)] x 25 feet

Typically intersections that are within ADOT right-of-way are required to perform the queue storage calculations in accordance with the methodology provided by ADOT's Policy, Guidelines and Procedures Manual. ADOT requires a turn lane gap to be included within the queue storage calculation based upon the design speed of the roadway. Therefore, the queue storage calculations performed at the interchange intersections were prepared per ADOT criteria.

Queue storage length recommendations at all study intersections herein are based on the 2030 projected traffic volumes.

RIGHT TURN AUXILIARY LANES

Right turn auxiliary lanes are required at all street intersections on major arterials per the City of Scottsdale DS&PM.

DECELERATION LANES

Per the City of Scottsdale standards, right turn deceleration lanes are generally deemed warranted at a driveway when the following three conditions are satisfied:

- *At least 5,000 vehicles per day are expected to use the adjacent street;*
- *The 85th percentile traffic speed on the adjacent street is 35 MPH or higher, or 45 MPH or higher for a one (1) lane per direction roadway;*
- *At least 30 vehicles will make right turns into a driveway during a peak hour.*

In general, the deceleration lanes are a minimum length of 100-feet with a standard length of 150-feet. Modifications of the design standard are allowed on a case-by-case analysis. Right turn deceleration lane queue lengths have been calculated and are shown in **Table 10** for the 2030 horizon year.

Table 10 – Build-Out Turn Lane Length

ID	Intersection	Control	Movement/ Approach	2030 Turn Lane Length (ft)				
				Existing	AASHTO/ ADOT	(4)Synchro	Minimum Rec. Q	Proposed Developer Q
1	Hayden Rd. & Deer Valley Rd.	Signal	NB Left	205’	100'	67’	(5) 205’	-‘
			SB Left	140’	25'	<25’	(5) 140’	-‘
			EB Left	25’	50'	31’	(5) 25’	-‘
			WB Left	100’	100'	62’	(5) 100’	-‘
			NB Right	100’	125'	42’	(5) 100’	-‘
			SB Right	180’	50'	16’	(5) 180’	-‘
2	Hayden Rd. & Grayhawk Dr.	Signal	NB Left	140’	100'	88’	(5) 140’	-‘
			SB Left	170’	25'	25’	(5) 170’	-‘
			EB Left	100’	50'	37’	(5) 100’	-‘
			WB Left	40’	75'	46’	(5) 40’	-‘
			NB Right	145’	50'	<25’	(5) 145’	-‘
			SB Right	115’	75'	<25’	(5) 115’	-‘
			EB Right	100’	150'	62’	(5) 100’	-‘
3	Hayden Rd. & Thompson Peak Pkwy.	Signal	NB Left	175’	(2) 350'	(2) 307’	(2), (5) 700’	-‘
			SB Left	210’	(2) 175'	(2) 176’	(2), (5) 420’	-‘
			EB Left	335’	(2) 75'	(2) 77’	(2), (5) 670’	-‘
			WB Left	225’	(2) 350'	(2) 344’	(2), (5) 450’	-‘
			NB Right	215’	900'	642’	350’	-‘
			SB Right	200’	125'	<25’	(5) 200’	-‘
			EB Right	300’	650'	534	350’	-‘
			WB Right	190’	225'	155’	(5) 225’	-‘
4	Hayden Rd. & Legacy Blvd.	Signal	NB Left	255’	(2) 275'	(2) 143’	(2), (5) 510’	(2),600’
			SB Left	-‘	75’	28’	160’	160’
			EB Left	360’	175’	58’	(5) 250’	(5) 250’
			WB Left	-‘	275’	163’	320’	165’
			NB Right	-’	200'	58’	160’	160’
			SB Right	160‘	175’	75’	(5) 160’	160’
			EB Right	260’	575’	220	(5) 260’	300’
			WB Right	-‘	75’	30’	160’	160’

Table 10 – Build-Out Turn Lane Length (Continued…..)

ID	Intersection	Control	Movement/ Approach	2030 Turn Lane Length (ft)				
				Existing	AASHTO/ ADOT	[4]Synchro	Minimum Rec Q	Proposed Developer Q
5	Hayden Rd. & Loop 101 WB Ramp	Signal	NB Left	[2] 275’	[2],[7]575’	[2] 421’	[2] 425’	-‘
			WB Left	[2] 495’	[2], [7] 125’	[2] 164’	[2], [5] 495’	-‘
			SB Right	235’	[7] 750’	522’	525’	-‘
			WB Right	[2] 495’	[2], [7] 675’	[2] 276’	[2], [5] 495’	-‘
6	Hayden Rd. & Loop 101 EB Ramp	Signal	SB Left	[2] 275’	[2], [7] 600’	[2] 558’	[2] 560’	-‘
			EB Left	[2] 430’	[2], [7] 550’	[2] 406’	[2], [5] 430’	-‘
			NB Right	260’	[7] 275’	50’	260’	-‘
			EB Right	[2] 430’	[2], [7] 375’	[2] 176’	[2], [5] 430’	-‘
7	Hayden Rd. & Mayo Blvd.	Signal	NB Left	-‘	275’	207’	210’	-‘
			SB Left	370’	400’	233’	[5] 370’	-‘
			EB Left	-‘	475’	210’	210’	-‘
			WB Left	-‘	75’	25’	150’	-‘
			NB Right	150’	75’	<25’	[5] 150’	-‘
			SB Right	-‘	425’	<25’	150’	-‘
			EB Right	-‘	375’	34’	150’	-‘
			WB Right	-‘	475’	31’	150’	-‘
8	Hayden Rd. & Princess Dr.	Signal	NB Left	150’	200'	156’	160’	-‘
			SB Left	250’	200'	106’	[5] 250’	-‘
			WB Left	150’	175'	147’	[5] 150’	-‘
			NB Right	235’	300'	42’	[5] 235’	-‘
			SB Right	255’	100'	<25’	[5] 255’	-‘
			EB Right	175’	150'	52’	[5] 175’	-‘
			WB Right	150’	275’	71’	[5] 150’	-‘
9	Hayden Rd. & Bell Rd.	Signal	NB Left	290’	50'	<25’	[5] 290’	-‘
			SB Left	140’	275'	386’	275’	-‘
			WB Left	[2] 140’	[2] 325'	[2] 276’	[2] 560’	-‘
			NB Right	300’	525'	46’	[5] 300’	-‘
			WB Right	140’	250’	63’	[5] 140’	-‘
10	Scottsdale Rd. & Deer Valley Rd.	Signal	SB Left	145’	75'	33’	[5] 145’	-‘
			WB Left	150’	175'	192’	195’	-‘
			NB Right	95’	200’	<25’	[5] 95’	-‘
			WB Right	155’	100’	90’	[5] 155’	-‘
11	Scottsdale Rd. & Grayhawk Dr.	Signal	SB Left	120’	100’	135’	135’	-‘
			WB Left	175’	175’	173’	[5] 175’	-‘
			NB Right	150’	175’	<25’	[5] 150’	-‘
			WB Right	175’	100’	96’	[5] 175’	-‘
12	Scottsdale Rd. & Thompson Peak Pkwy.	Signal	NB Left	-‘	200’	<25’	150’	-‘
			SB Left	200’	250’	115’	[5] 200’	-‘
			EB Left	-‘	[2] 350’	159’	[2] 320’	-‘
			WB Left	[2] 130’	[2] 425’	242’	[2], [5] 260’	-‘
			NB Right	520’	675’	425’	[5] 520’	-‘
			SB Right	-‘	575’	48’	150’	-‘
			EB Right	-‘	125’	-	150’	-‘
			WB Right	225’	350’	<25’	[5] 225’	-‘

Table 10 – Build-Out Turn Lane Length (Continued…..)

ID	Intersection	Control	Movement/ Approach	2030 Turn Lane Length (ft)				
				Existing	AASHTO/ ADOT	[4]Synchro	Minimum Rec Q	Proposed Developer Q
13	Scottsdale Rd. & Legacy Blvd.	Signal	NB Left	-‘	100’	<25’	150’	-‘
			SB Left	195’	150’	44’	[5] 195’	-‘
			EB Left	-‘	[2] 250’	181’	[2] 370’	-‘
			WB Left	[2] 310’	[2] 350’	215’	[2], [5] 620’	-‘
			NB Right	145’	550’	258’	260’	-‘
			SB Right	-‘	450’	39’	150’	-‘
			EB Right	-‘	50’	-	150’	-‘
			WB Right	130’	225’	-	[5] 130’	-‘
14	Scottsdale Rd. & Loop 101 WB Ramp	Signal	NB Left	[2]245’	[2], [7] 700’	[2] 573’	[2] 575’	-‘
			WB Left	[2]310’	[2], [7] 600’	[2] 534’	[2] 535’	-‘
			SB Right	400’	[7] 1,150’	1,164’	1,165’	-‘
			WB Right	[2]320’	[2], [7] 450’	[2] 182’	[2], [5] 320’	-‘
15	Scottsdale Rd. & Loop 101 EB Ramp	Signal	SB Left	[2]270’	[2], [7] 575’	[2] 595’	[2] 595’	-‘
			EB Left	[2]205’	[2], [7] 575’	[2] 544’	[2] 545’	-‘
			NB Right	135’	[7] 1,000’	327’	330’	-‘
			EB Right	[2]215’	[2], [7] 625’	[2] 390’	[2] 390’	-‘
16	Scottsdale Rd. & Mayo Blvd.	Signal	NB Left	[2] 240’	[2] 275’	106’	[2], [5] 440’	-‘
			SB Left	[2] 165’	[2] 300’	139’	[2], [5] 330’	-‘
			EB Left	[2] 325’	[2] 475’	354’	[2], [5] 650’	-‘
			WB Left	[2] 160’	[2] 125’	53’	[2], [5] 320’	-‘
			NB Right	155’	175’	96’	[5] 155’	-‘
			SB Right	240’	1050’	429’	[5] 240’	-‘
			EB Right	335’	400’	102’	[5] 335’	-‘
			WB Right	-‘	700’	106’	150‘	-‘
17	Scottsdale Rd. & Chauncey Ln.	Signal	NB Left	195’	225’	187’	[5] 195’	-‘
			SB Left	170’	25’	<25’	[5] 170’	-‘
			EB Left	160’	200’	142’	[5] 160’	-‘
			WB Left	160’	25’	26’	[5] 160’	-‘
			NB Right	125’	25’	<25’	[5] 125’	-‘
			SB Right	160’	200’	39’	[5] 160’	-‘
			EB Right	180’	200’	55’	[5] 180’	-‘
			WB Right	105’	25’	<25’	[5] 105’	-‘
18	Scottsdale Rd. & Princess Blvd.	Signal	NB Left	250’	375’	246’	[5] 250’	-‘
			SB Left	235’	350’	126’	[5] 235’	-‘
			EB Left	205’	100’	76’	[5] 205’	-‘
			WB Left	165’	550’	676’	350’	-‘
			NB Right	250’	475’	210’	[5] 250’	-‘
			SB Right	250’	125’	34’	[5] 250’	-‘
			WB Right	85’	450’	217’	220’	-‘
19	Scottsdale Rd. & 17050 North	Signal	NB Left	190’	175'	54’	[5] 190’	-‘
			SB Left	200’	100'	<25’	[5] 200’	-‘
			NB Right	135’	50'	<25’	[5] 135’	-‘
			SB Right	240’	125'	<25’	[5] 240’	-‘
20	Scottsdale Rd. & Frank Lloyd Wright Blvd.	Signal	NB Left	[2] 300’	[2] 375’	[2] 379’	[2], [5] 600’	-‘
			SB Left	[2] 565’	[2] 325’	[2] 720’	[2],[5] 1,130’	-‘
			EB Left	[2] 245’	[2] 450’	[2] 455’	[2], [5] 490’	-‘
			WB Left	[2] 270’	[2] 175’	[2] 143’	[2], [5] 540’	-‘
			NB Right	145’	425’	246’	[5] 145’	-‘
			EB Right	235’	600’	389’	[5] 235’	-‘
			WB Right	315’	775’	223’	[5] 315’	-‘

Table 10 – Build-Out Turn Lane Length (Continued…..)

ID	Intersection	Control	Movement/ Approach	2030 Turn Lane Length (ft)				
				Existing	AASHTO/ ADOT	[4]Synchro	Minimum Rec Q	Proposed Developer Q
21	Greenway Hayden & Frank Lloyd Wright Blvd	Signal	NB Left	190’	150'	112’	190’	-‘
			SB Left	[2] 180’	[2] 300'	[2] 248’	[2] 360’	-‘
			EB Left	[2] 190’	[2] 425'	[2] 298’	[2] 380’	-‘
			WB Left	[2] 275’	[2] 425'	[2] 381’	[2] 550’	-‘
			NB Right	100’	800'	772’	100’	-‘
			SB Right	175’	950'	937’	175’	-‘
			EB Right	155’	150'	<25’	155’	-‘
			WB Right	165’	675	424’	165’	-‘
22	Pima Rd. & Thompson Peak Pkwy.	Signal	NB Left	[2] 250’	[2] 150’	[2] 90’	[2], [5] 500’	-‘
			SB Left	[2] 230’	[2] 250’	[2] 223’	[2], [5] 460’	-‘
			EB Left	[2] 215’	[2] 425’	[2] 547’	[2], [5] 430’	-‘
			WB Left	[2] 260’	[2] 75’	[2] 82’	[2], [5] 520’	-‘
			SB Right	345’	575’	293’	345’	-‘
			EB Right	230’	200’	84’	230’	-‘
			WB Right	180’	525’	343’	180’	-‘
23	Miller Rd. & Thompson Peak Pkwy.	Signal	NB Left	135’	350’	301’	300’	-‘
			SB Left	120’	150’	-‘	[5] 120’	-‘
			EB Left	150’	-‘	-‘	[5] 150’	-‘
			WB Left	165’	-‘	105’	[5] 165’	-‘
			EB Right	120’	-‘	<25’	[5] 120’	-‘
			WB Right	100’	-‘	-‘	[5] 100’	-‘
24	Miller Rd. & Legacy Blvd.	Signal	NB Left	-	[2] 450’	[2] 138’	[2] 160’	[2] 700’
			SB Left	-	150’	68’	160’	160’
			EB Left	250’	100’	110’	160’	250’
			WB Left	260’	200’	70’	160’	250’
			NB Right	-	275’	78’	160’	300’
			SB Right	-	100’	45’	160’	160’
			EB Right	250’	350’	110’	160’	250’
			WB Right	260’	125’	48’	160’	250’
25	Miller Rd. & Union Hills Dr.	All way stop	NB Left	-‘	175’	-‘	175’	-‘
			SB Left	-‘	125’	-‘	125’	-‘
			EB Left	-‘	175’	-‘	175’	-‘
			WB Left	-‘	100’	-‘	100’	-‘
			SB Right	-‘	225’	-‘	225’	-‘
A	Miller Rd. & Access A	1-way stop (WB)	SB Left	-‘	100’	-‘	100’	-‘
			NB Right	-‘	75’	-‘	100’	-‘
B	Miller Rd. & Cavasson Blvd.	Signal	SB Left	-‘	150’	<25‘	160’	225’
			WB Left	-‘	100’	33‘	160’	300’
			NB Right	-‘	100’	<25‘	160’	160’
			WB Right	-‘	175’	80‘	175’	300’
C	Miller Rd. & Access C	1-way stop (WB)	SB Left	-‘	50’	-‘	100’	-‘
			WB Right	-‘	100’	-‘	100’	-‘
D	Access D & Legacy Blvd.	1-way stop (NB)	WB Left	-‘	50’	-‘	100’	100’-
			EB Right	-‘	75’	-‘	100’	125’-
E	Access E & Legacy Blvd.	1-way stop (NB)	WB Left	-‘	50’	-‘	100’	-‘
			EB Right	-‘	50’	-‘	100’	-‘
F	Access F & Legacy Blvd.	1-way stop (NB)	WB Left	-‘	75’	-‘	100’	-‘ -‘
G	Hayden Rd. & Access G	1-way stop (EB)	NB Left	-‘	100’	-‘	100’	-‘
			SB Right	-‘	50’	-‘	100’	-‘

Table 10 – Build-Out Turn Lane Length (Continued…..)

ID	Intersection	Control	Movement/ Approach	2030 Turn Lane Length (ft)				
				Existing	AASHTO/ ADOT	(4)Synchro	Minimum Rec Q	Proposed Developer Q
H	Hayden Rd. & Access H	1-way stop (EB)	NB Left	-‘	100’	-‘	100’	-‘
			SB Right	-‘	100’	-‘	100’	_-‘
I	Claret Dr. & Access J	2-way stop (EB/WB)	NB Left	-‘	75’	-‘	100’	-‘
			SB Left	-‘	50’	-‘	100’	-‘
J	Claret Dr. & Access J	2-way stop (EB/WB)	NB Left	-‘	100’	-‘	100’	-‘
			SB Left	-‘	100’	-‘	100’	-‘
			SB Right	-‘	75’	-‘	175’	-‘
K	Access K & Cavasson Blvd.	Signal	NB Left	-‘	125’	70‘	160’	200’
			SB Left	-‘	50’	<25‘	160’	160’
			EB Left	-‘	25’	<25’	160’	150’
			WB Left	-‘	175’	38‘	160’	300’
			NB Right	-‘		28’	160’	200’
			SB Right	-‘		<25’	160’	150’
			EB Right	-‘		48’	160’	150’
			WB Right	-‘		<25’	160’	180’
L	Access L & Cavasson Blvd.	2-way stop (NB/SB)	EB Left	-‘	25’	-‘	100’	150‘
			WB Left	-‘	100’	-‘	100’	175‘
			EB Right	-‘	100’	-‘	100’	150‘
			WB Right	-‘	75’	-‘	100’	150‘
M	Hayden Rd. & Cavasson Blvd.	Signal	NB Left	-‘	325’	83’	160’	(2) 700’
			EB Left	-‘	275’	90’	160’	(2) 400’
			SB Right	-‘	225’	55’	160’	225’
			EB Right	-‘	300’	105’	160’	(2) 400’

(1) A minimum of 160’ of storage is recommended at all signalized roadway intersections and 100’ at all unsignalized intersections.
(2) Dual Left turn lanes.
(3) Calculated per ADOT minimum/desired queue storage.
(4) Recommended Synchro 50th Percentile dual queue storage lengths.
(5) Existing queue storage recommended to remain.
(6) Recommended maximum length of 350’.
(7) ADOT calculated queue length. Reported value does not include breaking distance or 2/3 Gap/taper.

Storage lengths provided in **Table 10** are based on turn volumes for the 2030 study horizon year. Additional storage length calculations should be completed prior to a change in intersection stop control. Turn queue storage length calculations can be found in the **Appendix K**. It is recommended all proposed full movement site access driveways along Legacy Boulevard provide 100-foot westbound left-turn lanes as well as dedicated 100-foot right-turn lanes.

Proposed ¾ site Access G located just north of site Access M and south of Legacy Boulevard along Hayden Road is recommended to provide a minimum 100-foot northbound left-turn lane.

Proposed ¾ site Access H located just north of the Hayden Road/Loop 101 interchange along Hayden Road is recommended to provide a minimum 100-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane.

Proposed main site **Access M** is planned as a signalized intersection at the opening of the proposed Cavasson Phase I development. Access M is located between Legacy Boulevard and north of Access H along Hayden Road and is planned to provide 350-

feet of queue for dual northbound left-turn lanes as well as 225-feet for a dedicated southbound right-turn lane. Internally, the development should provide a minimum of 200-feet of storage for the eastbound dual left-turn and dual right-turn lanes at proposed site Access M (Hayden Road/Cavasson Boulevard).

Access K (Cavasson Boulevard/Claret Drive) is an internal signalized intersection with permitted phasing in all approaches. The provision of 150-foot southbound and eastbound left-turn lanes, a 300-foot westbound left-turn lane and a 200-foot northbound left-turn lane are recommended. It is also recommended that a 200-foot northbound right-turn lane, 180-foot westbound right-turn lane and 150-foot eastbound and southbound right-turn lane be provided by full build of the Cavasson development.

Access B (Miller Road/Cavasson Boulevard) is a planned signalized intersection with permitted/protected phasing. A 300-foot eastbound left-turn and right-turn lane, as well as a southbound 225-foot southbound left-turn lane. As the area is buildout with connectivity to the south along Miller Road, it is recommended that future queue lengths for the westbound and northbound left-turn lanes and northbound right-turn lane be constructed to provide a minimum storage of 150-feet.

Access A and **Access C** both are recommended to provide 100-foot southbound left-turn lanes and well as 100-foot northbound dedicated right-turn lanes.

The intersection of **Miller Road and Legacy Boulevard** is planned to be signalized upon buildout of the Cavasson development ultimately providing dual 350-foot northbound left-turn lanes as well as a dedicated northbound right-turn lane. Although the reported volumes documented within this report do not show a need for dual northbound left-turn lanes it is CivTech's understanding the planned area analyzed within this report does not include some portions of future development within the study area. As such, longer queues and dual lanes are recommended.

INTERNAL CIRCULATIONS AND ROADWAY CROSS SECTIONS

Cavasson will adhere to the City requirements for all bike lanes and multi-use paths that are depicted on the approved *Scottsdale Trails System Master Plan* and the Multi-use path ordinance. It is also recommended that, as individual parcels come online for the development, consideration should be given for a multi-use path within the right-of-way along additional roadways in an effort to connect to the regional City of Scottsdale multi-use path network. The proposed bike and pedestrian paths for the Cavasson development is illustrated in **Figure 13**.

The proposed roadway cross sections are presented in **Figure 14**.

SIGHT DISTANCE ANALYSIS

Adequate sight distance must be provided at the intersections to allow safe turning movements into and out of the development. A sight triangle is the area encompassed by the line of sight from a stopped vehicle on the minor roadway to the approaching vehicle on the major roadway: there must be sufficient unobstructed sight distance along both approaches of a street or driveway intersection and across their included corners to allow operators of vehicles to see each other in time to prevent a collision. There must also be sufficient sight distance along the major street to allow a driver intending to turn left into the site to see an oncoming vehicle in the opposing direction.

Sight distance is largely based on the design speed of the roadway. Per the *City of Scottsdale Design Standards and Policies Manual, dated 2018* intersection sight distance should adhere to *Appendix 5-3B. Sight Distance tables in Appendix 5-3B* presents the required sight distance for varying roadway widths and design speeds for passenger cars, single unit trucks and combination trucks. Typically, the posted speed limit is less than the design speed of a roadway. The current posted speed limit on Hayden Road and Legacy Boulevard is 45 miles per hour (mph). For design purposes a minimum design speed of 50 mph should be used.

The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. Fixed objects within the safety triangle cannot be taller than 2.5-feet measured from the adjacent roadway surface (edge of pavement); vegetation should be trimmed to 2.5-feet tall measured form the adjacent roadway surface. Trees placed within the sight triangle shall have canopies no lower than eight (8) feet. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix L**.

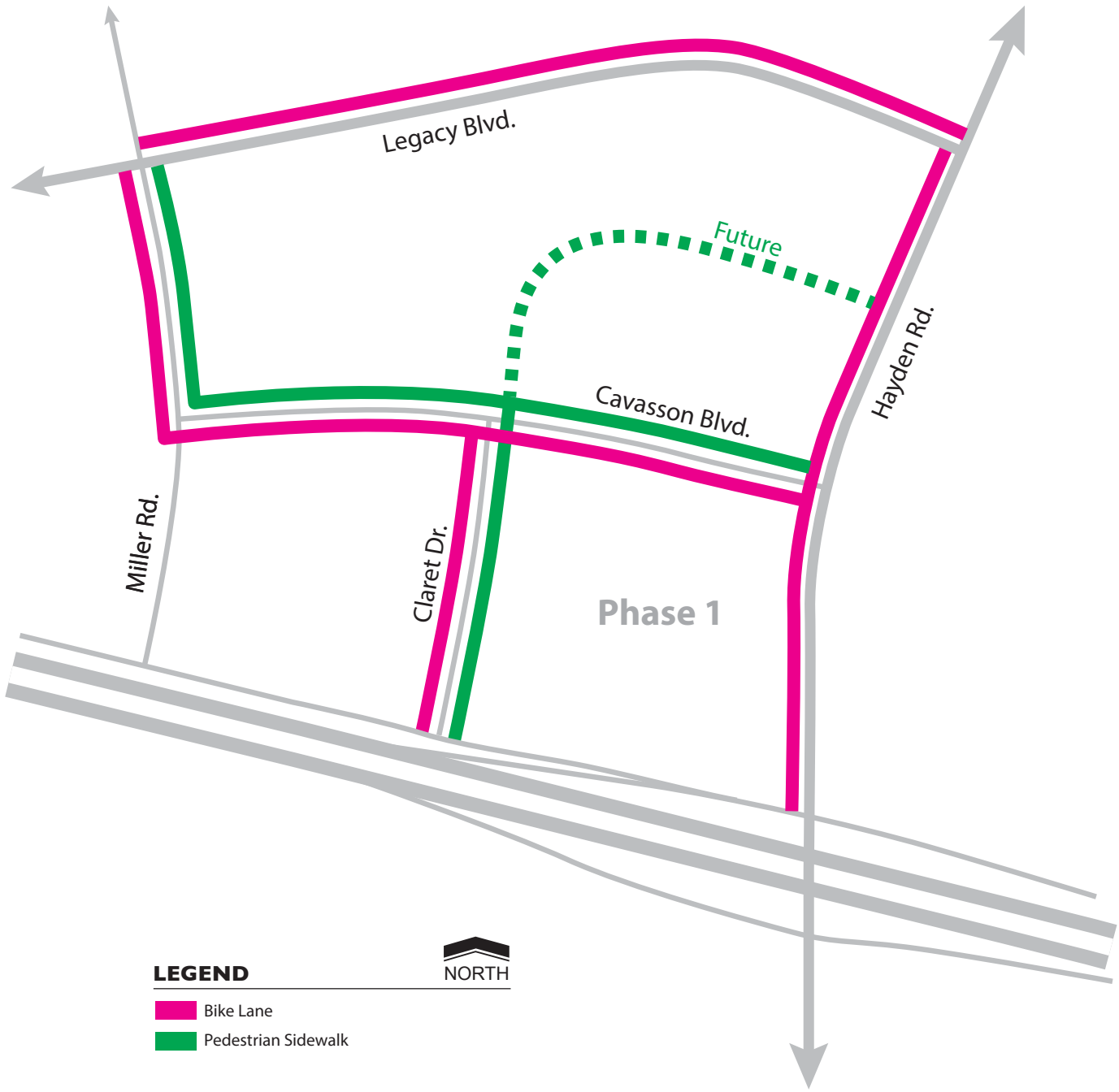
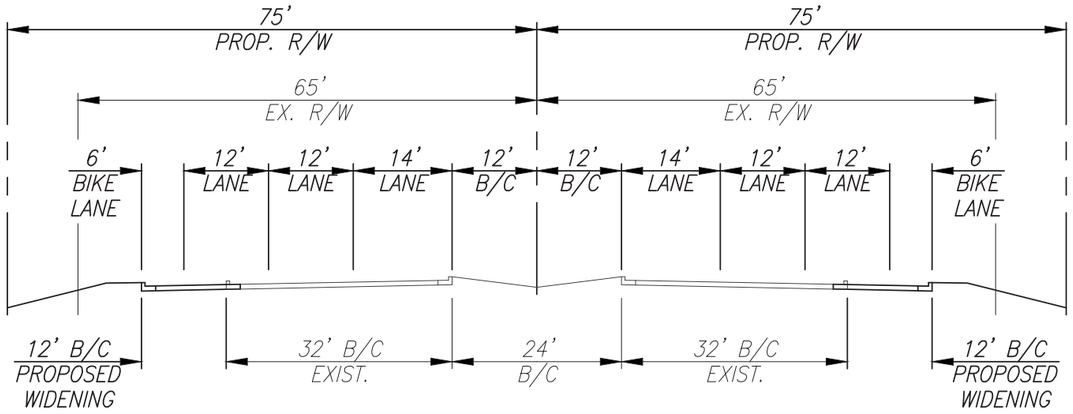
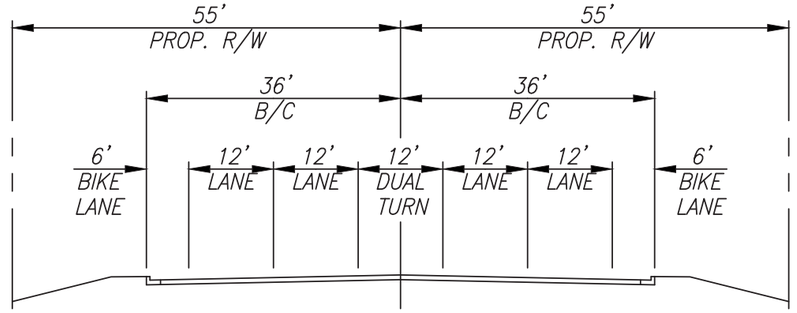


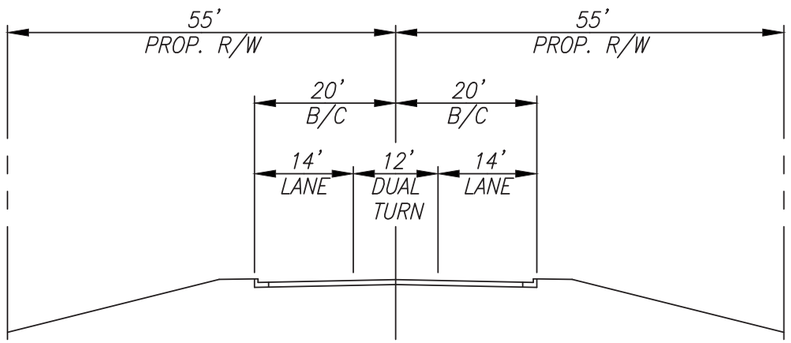
Figure 13: Pedestrian and Bike Routes



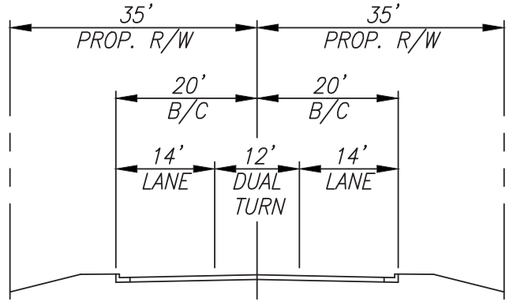
PROPOSED ROADWAY SECTION
HAYDEN ROAD



PROPOSED ROADWAY SECTION
MILLER ROAD



PROPOSED ROADWAY SECTION
CAVASSON BOULEVARD



PROPOSED ROADWAY SECTION
CLARET DRIVE

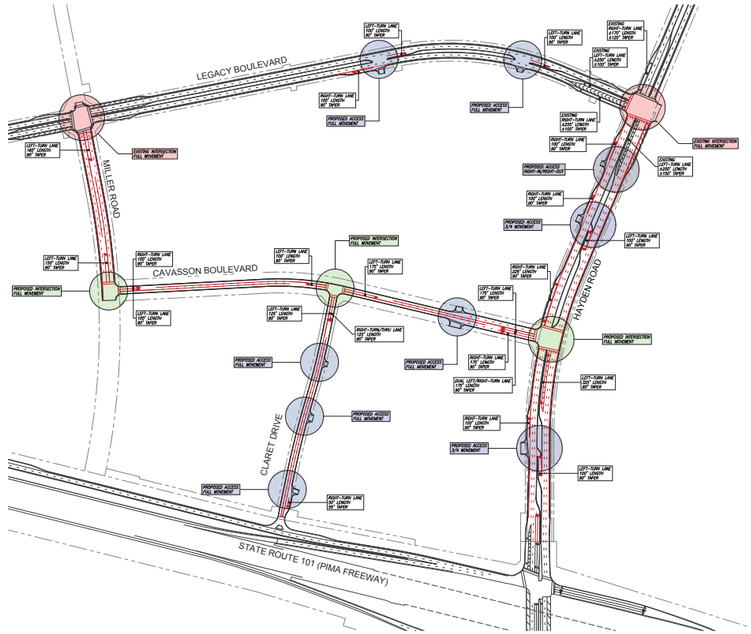


Figure 14: Typical Cross Sections

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions have been documented in this study:

General

- Phase I of the Cavasson Development is anticipated to generate 12,516 daily trips to the external roadway system, with 918 occurring during the AM peak hour and 1,073 occurring during the PM peak hour, by opening year 2020. It is anticipated the Miller Road underpass will not be constructed by opening year 2020.
- Phase I project specific improvements such half street improvements and all Phase I site driveways are anticipated to be fully constructed by the developer upon opening year 2020.
- Cavasson Boulevard and Claret Drive internal to the site are also anticipated to be full constructed by opening year 2020.
- Full buildout of the Cavasson Development is anticipated to generate a total of 37,328 daily trips to the external roadway system, with 2,641 occurring during the AM peak hour and 3,283 occurring during the PM peak hour.
- For study purposes it is anticipated the Miller Road underpass will be constructed and provide connection to the south of the Loop 101 by study horizon year 2030.
- Both Thompson Peak Parkway and Legacy Boulevard are also planned to provide connectivity to the west ultimately offering additional roadway connections between 56th Street/Scottsdale Road by horizon year 2030.
- Legacy Boulevard is also anticipated to connect through to the east from Hayden Road to Pima Road by horizon year 2030.
- The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix K**.

Existing

- The results of the existing conditions analysis indicate that all existing study intersections operate with an overall acceptable level of service (LOS D or better) during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:

➢ The intersection of **Hayden Road and Loop 101 Westbound Ramps** operate with unacceptable delays under existing conditions during the PM peak hour. These delays are primarily due to the heavy northbound left-turn volume onto the freeway and the right-turn volume egressing from the westbound Loop 101 off ramp. It is recommended these delays be mitigated by increasing the northbound left-turn phase and additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay is expected to decrease from 124-seconds to 81-

seconds for the PM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation is expected to increase the delay at the signalized eastbound ramp from 43-seconds to 46-seconds in the PM peak hour. This 3-second increase is considered very minor considering the 43-second decrease in delay at the signalized westbound ramp.

- The intersection of **Hayden Road and Loop 101 Eastbound Ramps** operate with heavy delays under existing conditions during the AM peak hour. These delays are primarily due to the southbound left-turn volume onto the freeway and the right-turn volume egressing from the eastbound Loop 101 off ramp during the AM peak hour. It is recommended the eastbound phase be extended an additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay would decrease from 72-seconds to 65-seconds in the AM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation would also decrease the delay at the signalized westbound ramp from 25-seconds to 23-seconds in the AM peak hour.
- The intersection of **Scottsdale Road and Mayo Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the northbound/southbound through volume on Scottsdale road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 19-seconds to 28-seconds and the southbound left phase be extended from 11-seconds to 23-seconds. Also, adding overlaps for the northbound and southbound right turns will decrease the delay on those approaches. By applying these changes to the existing intersections, the delay is expected to decrease from 76-seconds to 55-seconds.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the westbound left-turn volume on Frank Lloyd Wright Boulevard and the conflicting northbound left-turn volume on Scottsdale Road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 9-seconds to 25-seconds, the southbound left turn phase be extended from 23-seconds to 26-seconds, and the northbound through phase be extended from 35-seconds to 41-seconds. With these changes made to the existing intersection, the delay is expected to decrease from 160-seconds to 85-seconds.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the PM peak northbound/southbound left-turn volume as well as the conflicting northbound/southbound right-turn volumes for those phases. It is recommended that the northbound left turn phase be extended from 10-seconds to 16-seconds, the southbound left turn phase be extended from 15-seconds to 19-seconds and the eastbound left turn phase be extended from 20-seconds to 22-seconds. With these changes made to the existing intersection, the overall delay is expected to decrease from 60-seconds to 55-seconds.

Opening Year 2020

- The results of the Synchro analysis summarized in **Table 9** indicate that all 2020 study intersections operate with an overall acceptable level of service during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:
- It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.

- The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2020 with or without the proposed Cavasson Phase I development during both study peak hours. Under the No-Build 2020 scenario this intersection experiences increased delay in both study peak hours. Overall the PM peak hour at both ramps signals experiences the heaviest delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2020 scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended the northbound green phase be extended from 34-seconds to 45-seconds in the AM peak hour and the northbound left phase be extended from 24-seconds to 55-seconds in the PM peak hour. With these mitigation improvements, the overall intersection delay is expected to be 48-seconds in the AM peak hour and 45-seconds in the PM peak hour with the Cavasson development.
    - *It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*
- The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience increased delays during the PM peak hour in the northbound approach with or without the addition of proposed Cavasson Phase I development by opening year 2020. It is recommended the green time to the northbound through phase be extended from 54-seconds to 64-seconds. The recommended signal mitigation is expected to decrease the overall intersection delay from 73-seconds to 66-seconds during the PM peak hour.
- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased delay by opening year 2020 with or without the proposed CAVASSON Phase I development during the PM peak hour. Under the No-Build 2020 scenario, this intersection experiences increased delay in the PM peak hour only. Although the signalized interchange experiences increased delay in the No-Build 2030, scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended the cycle length for both signalized ramps be optimized from 120-seconds to 100-seconds to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 36-seconds for the

westbound ramps and 38-seconds for the eastbound ramps in the PM peak hour with the proposed Phase I development.

- ❖ *It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed CAVASSON Phase I development during the PM peak hour only. Overall the projected intersection delay is expected to be 82-seconds in the PM peak hour under the total 2020 build condition. It is therefore recommended the southbound through phase be extended from 42-seconds to 51-seconds by opening year 2020. With this improvement made, the overall delay at the intersection is projected to decrease from 82-seconds to 56-seconds in the PM peak hour with the proposed Phase I development.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Phase I development. Under the No-Build 2020 scenario, this intersection experiences increased delay during the PM peak hour only. Overall, the projected intersection delay is expected to be 180-seconds in the PM peak hour with the proposed Cavasson Phase I development. It is recommended the northbound through phase be extended from 35-seconds to 51-seconds and the northbound left-turn phase be extended from 9-seconds to 18-seconds. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 180-seconds to 72-seconds with the proposed Phase I development during the PM peak hour.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by opening year 2020 with or without the proposed Cavasson Phase I development. Under the No-Build 2020, scenario this intersection experiences increased delay during the PM peak hour only. Overall, the projected 2020 Build, intersection delay is expected to be 74-seconds during the PM peak hour which includes the proposed Cavasson Phase I development. It is recommended the northbound left-turn phase be extended from 10-seconds to 13-seconds and the southbound left-turn phase is extended from 15-seconds to 18-seconds. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 74-seconds to 51-seconds with the proposed Phase I development during the PM peak hour.

Horizon Year 2030

- ♦ The results of the Synchro analysis summarized in **Table 10** indicate that all 2030 study intersections operate with an overall acceptable level of service (LOS D or better) during the AM and PM peak hours under the proposed 2020 lane configurations and stop controls with the exception of the following locations:
- The intersection of **Hayden Road and Grayhawk Drive** is projected to experience increased delays during the PM peak hour only with the addition of CAVASSON development. The delay on the northbound approach is due to the heavy volume of

northbound through movements on Hayden Road during this peak hour. With the addition of the proposed Cavasson development, the overall intersection delay is expected to be 56-seconds, which is just over the 55.0-second threshold of an LOS E. Mitigation at this intersection is not recommended for the 2030 opening year, however it is recommended this intersection but be monitored for future signal timing optimization as other surrounding developments begin to build.

- The intersection of **Hayden Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the projected 2030 Build intersection delay is projected to be 64-seconds in the AM peak hour and 101-seconds in the PM peak hour. Due to the heavy westbound left-turn volumes at this intersection, it is recommended dual left-turn lanes be provided at this approach to help mitigate future intersection delay. With the addition of dual westbound left-turn lanes, the overall intersection delay is expected to decrease from 64-seconds to 38-seconds in the AM peak hour, and from 101-seconds to 42-seconds during the PM peak hour.
- The intersection of **Hayden Road and Legacy Boulevard** is projected to experience delay during both AM and PM peak hours with or without the addition of Cavasson development by horizon year 2030. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the east of Hayden Road and connect to Pima Road by horizon year 2030. With the addition of the Cavasson development, the projected intersection delay is expected to be 156-seconds in the AM peak hour and 180-seconds in the PM peak hour. Due to the projected heavy traffic volumes on Hayden Road by horizon year 2030 three (3) through lanes northbound and three (3) through lanes southbound are recommended as well as dual northbound left-turn lanes. To remain consistent with the four (4) lane cross section on Legacy Boulevard two (2) through lanes are recommended to be constructed in the eastbound and westbound approaches. All left-turn phases are recommended to be protected/permissive with the exception of the dual northbound left-turn lanes which will be required to be protected. With the recommended signal modifications, the intersection delay is expected to decrease from 156-seconds to 33-seconds in the AM peak hour, and decrease from 180-seconds to 30-seconds during the PM peak hour.
- It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.
- The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the

two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be extended from 120-seconds to 140-seconds to achieve optimal levels of service for the intersection by horizon year 2030. Overall the projected intersection delay is expected to be around 70-seconds for the westbound ramps and 116-seconds for the eastbound ramps during the PM peak hour with the proposed Cavasson development.

- ❖ *It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be extended from 120-seconds to 140-seconds to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 115-seconds for the westbound ramps and 78-seconds for the eastbound ramps in the PM peak hour with the Cavasson development.

  - ❖ *It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*

- The intersection of **Hayden Road and Bell Road** is projected to experience delay during the PM peak hour by horizon year 2030 with the addition of the Cavasson development. During the PM peak hour, the intersection is projected to experience a delay of 63-seconds. By optimizing the southbound left-turn phase from permitted to protected and extending the southbound through phase from 54-seconds to 64-seconds, the intersection is projected to experience a decrease in delay to an acceptable overall delay of 38-seonds by horizon year 2030.

- The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection with the assumption that Thompson Peak Parkway will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. Under the No-Build 2030 scenario, this intersection experiences heavy delay in both study peak hours. Overall, the intersection delay is projected to be 41-seconds in the AM peak hour and 172-seconds in the PM peak hour under the 2030 No-Build scenario. With the addition of the Cavasson development, the intersection is expected to experience delays of 74-seconds in the AM peak hour, and 198-seconds in the PM peak hour. To help

mitigate this intersection, it is recommended the northbound left-turn phase be optimized to a permissive-protected while also extending the eastbound left-turn phase from 9.5-seconds to 23-seconds and the southbound left-turn phase from 11-seconds to 21-seconds. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay is expected to decrease from 74-seconds to 56-seconds in the AM peak hour, and from 198-seconds to 57-seconds during the PM peak hour.

- The intersection of **Scottsdale Road and Legacy Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. This intersection experiences increased delay under the 2030 No-Build condition for both study peak hours. Overall, the intersection delay under the 2030 No-Build condition is projected to be 90-seconds in the AM peak hour and 107-seconds in the PM peak hour. With the addition of the proposed Cavasson development, the intersection delay is expected to increase to 153-seonds in the AM peak hour, and 161-seconds in the PM peak hour. It is, recommended to optimize the cycle length to 150-seconds and extend the eastbound left-turn phase from 9.5-seconds to 31.4-seconds. With the recommended mitigation the intersection delay is expected to decrease from 153-seconds to 104-seconds in the AM peak hour, and from 161-seconds to 105-seconds in the PM peak hour.
- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall the 2030 No-Build condition for this intersection is projected to experience 93-seconds of delay in the AM peak hour and 260-seconds of delay in the PM peak hour. It should be noted by study horizon year 2030 it is expected the Crossroads East development and all planned roadway improvements in and around the study area by the City of Scottsdale will be constructed. With the future planned surrounding developments and roadway improvements there are expected increases in regional traffic at this intersection. It is recommended by horizon year 2030 the westbound approach at this intersection provide dual left-turn lanes, two (2) through lanes and a dedicated right-turn lane. It is also recommended the cycle length be optimized upon buildout of the intersection to a cycle length of 150-seconds for optimum levels of service. With the westbound lane improvements and suggested 150-second cycle length the intersection delay is anticipated to decrease from 103-seconds to 71-seconds in the AM peak hour and 280-seconds to 137-seconds in the PM peak hour under the 2030 Build condition.
- The intersection of **Scottsdale Road and Princess Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during the PM peak hour. This intersection experiences an increased delay of 82-seconds in PM peak hour under the 2030 No-Build condition and 107-second delay with the proposed Cavasson development. It is

recommended green time be extended from 59-seconds to 61-seconds in the northbound through phase. With this shift in green time, the overall intersection delay is expected to decrease from 107-seconds to 81-seconds in the PM peak hour with the proposed Cavasson development.

- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario this intersection experiences increased delay in both study peak hours. Overall, the projected intersection delay is expected to be 261-seconds in the AM peak hour and 250-seconds in the PM peak hour with the proposed Cavasson development. Should the cycle length be optimized to 145-seconds, the overall intersection delay is expected to decrease from 261-seconds to 113-seconds in the AM peak hour and from 250-seconds to 209-seconds in the PM peak hour.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Under the No-Build 2030 scenario this intersection experiences increased delay in both study peak hours. Overall the projected intersection delay is expected to be 113-seconds in the AM peak hour and 131-seconds in the PM peak hour with the Cavasson development. It is recommended all left-turn phases be extending starting with the westbound left-turn phase from 22-seconds to 30-seconds, the eastbound left-turn phase from 22-seconds to 31-seconds, the northbound left-turn phase from 11-seconds to 20-seconds, and the southbound left-turn phase from 16-seconds to 22-seconds. With the recommended changes, the overall intersection delay is expected to decrease from 113-seconds to 69-seconds in the AM peak hour and from 131-seconds to 74-seconds in the PM peak hour.
- The intersection of **Pima Road and Thompson Peak Parkway** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. This intersection experiences an increased delay of 68-seconds in PM peak hour overall under the 2030 No-Build conditions and 82-seconds delay with the proposed Cavasson development. To help mitigate the increased level of service in the PM peak hour, it is recommended the northbound through green time be extended from 47-seconds to 49-seconds, as well as extending the green time in the westbound left-turn phase from 16-seconds to 25-seconds. With the recommend signal mitigation the overall intersection delay is expected to decrease from 82-seconds to 67-seconds in the PM peak hour with the proposed Cavasson development.
- The intersection of **Miller Road and Legacy Boulevard** is projected to be signalized by study horizon year 2020. With future traffic anticipated by the Miller Road connection to the south and with additional traffic anticipated by currently unknown surrounding developments, it is recommended that dual northbound left-turn lanes be provided as well as a dedicated northbound right-turn lane by horizon year 2020.
- The proposed signalized intersection of **Hayden Road and Cavasson Boulevard** is projected to ultimately provide dual northbound left-turn lanes into the site as well as dual eastbound left-turn lanes and dual eastbound right-turn lanes by horizon year

2020. The additional of turn lanes will facilitate through traffic to and from the central garage being constructed with phase I.

- The proposed internal site intersection of **Claret Drive and Cavasson Boulevard** is anticipated to be a signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes should be provided in all approaches. Signal warrants will be evaluated with future phases of the Cavasson development.
- The proposed intersection of **Miller Road and Cavasson Boulevard** is anticipated to be signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes in all approaches are recommended. With the possible future connectivity to the west, it is recommended that additional right of way is provided for future through lanes eastbound and westbound. Signal warrants will be evaluated with future phases of the Cavasson development.

Queue Storage

- As shown in **Table 11**, the existing storage lengths at the existing intersections are not anticipated to accommodate the additional traffic generated in 2030. Additional storage length calculations should be completed prior to traffic signal installation, a change in intersection stop control or installation of raised medians.
- It is recommended all proposed full movement site access driveways along Legacy Boulevard provide a minimum 100-foot westbound left-turn lane as well as dedicated 100-foot right-turn lanes.
- Proposed ¾ site **Access G** located just north of site Access M and south of Legacy Boulevard along Hayden Road is recommended to provide a minimum 150-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane.
- Proposed ¾ site **Access H** located just north of the Hayden Road/Loop 101 interchange along Hayden Road is recommended to provide a minimum 100-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane.
- Proposed main site **Access M** is planned as a signalized intersection at the opening of the proposed Cavasson Phase I development. Access M is located between Legacy Boulevard and north of Access H along Hayden Road and is planned to provide 350-feet of queue for dual northbound left-turn lanes as well as 225-feet for a dedicated southbound right-turn lane. Internally, the development should provide a minimum of 200-feet of storage for the eastbound dual left-turn and dual right-turn lanes at proposed site Access M (Hayden Road/Cavasson Boulevard).
- **Access K** (Cavasson Boulevard/Claret Drive) is an internal signalized intersection with permitted phasing in all approaches. The provision of 150-foot southbound and eastbound left-turn lanes, a 300-foot westbound left-turn lane and a 200-foot northbound left-turn lane are recommended. It is also recommended that a 200-foot northbound right-turn lane, 180-foot westbound right-turn lane and 150-foot eastbound and southbound right-turn lane be provided by full build of the Cavasson development.

- **Access B** (Miller Road/Cavasson Boulevard) is a planned signalized intersection with permitted/protected phasing. A 300-foot eastbound left-turn and right-turn lane, as well as a southbound 225-foot southbound left-turn lane. As the area is buildout with connectivity to the south along Miller Road, it is recommended that future queue lengths for the westbound and northbound left-turn lanes and northbound right-turn lane be constructed to provide a minimum storage of 150-feet.
- **Access A** and **Access C** both are recommended to provide 100-foot southbound left-turn lanes and well as 100-foot northbound dedicated right-turn lanes.
- The intersection of **Miller Road and Legacy Boulevard** is planned to be signalized upon buildout of the Cavasson development ultimately providing dual 350-foot northbound left-turn lanes as well as a dedicated northbound right-turn lane. Although the reported volumes documented within this report do not show a need for dual northbound left-turn lanes it is CivTech's understanding the planned area analyzed within this report does not include some portions of future development within the study area. As such, longer queues and dual lanes are recommended.

Sight Distance

The developer should ensure that adequate sight distance is provided at all proposed site access points to allow safe left and right turning movements in and out of the Cavasson development. It is recommended that sight triangles be designed at all site access driveways per the requirements shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix K**.

LIST OF REFERENCES

A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, Washington, D.C., 2004.

ADOT Traffic Engineering Policies, Guidelines, and Procedures, Arizona Department of Transportation, January 2000.

Highway Capacity Manual. Transportation Research Board, National Research Council, Washington, D.C., 2000.

Manual of Uniform Traffic Control Devices. U.S. Department of Transportation, Federal Highways Administration, Washington, D.C., 2016.

Roadway Design Manual, Maricopa County Department of Transportation, Phoenix, Arizona, April 2004.

Design Standards & Policies Manual, City of Scottsdale, Arizona, January 2018.

Trip Generation 10th Edition, Institute of Transportation Engineers, Washington, D.C., 2016.

Trip Generation Handbook, 3rd Edition, Institute of Transportation Engineers, Washington, D.C., 2012.

Crossroads East TIA, Civtech, Scottsdale, AZ, June 2011

TECHNICAL APPENDICES

APPENDIX A:	**REVIEW COMMENTS (RESERVED)**
APPENDIX B:	**EXISTING TRAFFIC COUNTS**
APPENDIX C:	**EXISTING SIGNAL TIMING SHEETS**
APPENDIX D:	**EXISTING PEAK HOUR ANALYSIS**
APPENDIX E:	**CAVASSON TRIP GENERATION**
APPENDIX F:	**INTERNAL CAPTURE**
APPENDIX G:	**TRIP DISTRIBUTION CALCULATIONS**
APPENDIX H:	**BACKGROUND TRAFFIC CALCULATIONS, EXCERPTS FROM CROSSROADS EAST**
APPENDIX I:	**2020 PEAK HOUR TRAFFIC ANALYSIS**
APPENDIX J:	**2030 PEAK HOUR TRAFFIC ANALYSIS**
APPENDIX K:	**QUEUE LENGTH ANALYSIS**
APPENDIX L:	**SIGHT DISTANCE ANALYSIS**

APPENDIX A

REVIEW COMMENTS (RESERVED)

Ruth Gutierrez

From: Dawn Cartier
Sent: Tuesday, November 27, 2018 4:28 PM
To: Ruth Gutierrez
Subject: FW: 314-SA-2018 Crossroads Planning Unit V (Nationwide) - Transportation Master Plan Review Comments

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks,
Dawn

Dawn Cartier, P.E., PTOE
President

CivTech

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From: Appleton, Emily J <EAppleton@Scottsdaleaz.gov>
Sent: Friday, November 16, 2018 5:17 PM
To: Bloemberg, Greg <GBLO@Scottsdaleaz.gov>
Cc: Dawn Cartier <dcartier@civtech.com>; Kercher, Phillip <pker@scottsdaleaz.gov>; Huo, Hong <HHuo@Scottsdaleaz.gov>
Subject: 314-SA-2018 Crossroads Planning Unit V (Nationwide) - Transportation Master Plan Review Comments

Hi Greg – I didn't see a tracking sheet in the permit database so I've summarized the Transportation Master Plan review comments, below. Please let me know if there are questions.

1. Page 7: In the paragraph addressing Scottsdale Road and Thompson Peak Parkway, third to last sentence reads "…overall intersection delay is expected to decrease from 74-seconds to 80-seconds." Please verify delay and/or edit discussion. Also occurs on Page 90. See related comment 6.
2. Figure 2A, intersection 6 (Hayden Rd & Loop 101): verify existing lane configuration for west leg.
3. Figure 2B, Intersections 14 & 15 (Scottsdale Rd & 101 Loop WB and EB ramps): confirm if there is an existing bike lane and update figure accordingly.
4. Page 36, Table 4: The internal capture reduction calculates quite a bit differently than the described percentages. Please verify and add a sentence to describe if this is simply a factor of rounding.

5. Page 37, Table 5: The internal capture reduction calculates quite a bit differently than the described percentages. Please verify and add a sentence to describe if this is simply a factor of rounding.
6. Figure 11A: spot check of volumes reveals intersections 12 & 13 (Scottsdale & Thompson Peak, Scottsdale & Legacy) volumes shown on figure do not match 2030 Peak Hour Capacity analysis sheets in Appendix J. Please verify and correct.
7. Page 67, Table 9: Please consider if there are other mitigation/improvement options at Scottsdale Road & Thompson Peak Pkwy as the mitigation currently proposed decreases the levels of service for 3 of 4 approaches. The desire to reduce the excessive delay for EB is understood, however, upon verification of EB volumes and assumptions there may be other opportunities (related to comment 1 & 6).
8. Provide a Circulation Plans for bicycles and pedestrians. Also include trails and transit plans.
9. Transportation Improvements Phasing Plan: Please provide figures for each recommended transportation improvement (including turn lane length modifications) or signal timing mitigations, showing the proposed improvement/mitigation, the schedule for when the improvement/mitigation becomes necessary and who is proposed to be responsible for implementation, also including right-of-way needs.
10. Provide a figure that summarizes right-of-way dedications proposed by the development.
11. Please note, as the project develops, an updated traffic report or a memo summarizing any minor changes will be requested if there are changes in the future that would impact the analyses or recommendations.

Emily Appleton
Senior Traffic Engineer
City of Scottsdale
Office 480.312.7613

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

Reviewer Name, Agency: **City of Scottsdale**

Item	Location	Code	Review Comment	(Code) & Response
1.	Page 7	1	In the paragraph addressing Scottsdale Road and Thompson Peak Parkway, third to last sentence reads "…overall intersection delay is expected to decrease from 74-seconds to 80-seconds." Please verify delay and/or edit discussion. Also occurs on Page 90. See related comment 6.	Text updated. To help mitigate this intersection, it is recommended the northbound left-turn phase be optimized to a permissive-protected, extend the eastbound left-turn phase from 9.5-seconds to 23-seconds and the southbound left-turn phase from 11-seconds to 21-seconds. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay is expected to decrease from 74-seconds to 56-seconds in the AM peak hour, and from 198-seconds to 57-seconds during the PM peak hour.
2.	Figure 2A	1	Intersection 6 (Hayden Rd & Loop 101): verify existing lane configuration for west leg.	Intersection 6 on Figure 2A has been updated.
3.	Figure 2B	1	Intersections 14 & 15 (Scottsdale Rd & 101 Loop WB and EB ramps): confirm if there is an existing bike lane and update figure accordingly.	There is an existing Bike lane in each direction of travel, Figure 2B has been updated accordingly. Bike lanes will be added at both directions at both intersections.
4.	Page 36	1	Table 4: The internal capture reduction calculates quite a bit differently than the described percentages. Please verify and add a sentence to describe if this is simply a factor of rounding.	Table 4 has been updated and internal capture volumes have been adjusted to reflect the reported percentages documented within the TIA.
5.	Page 37	1	Table 5: The internal capture reduction calculates quite a bit differently than the described percentages. Please verify and add a sentence to describe if this is simply a factor of rounding.	Table 5 has been updated and internal capture volumes have been adjusted to reflect the reported percentages documented within the TIA.
6.	Figure 11A	1	Spot check of volumes reveals intersections 12 & 13 (Scottsdale & Thompson Peak, Scottsdale & Legacy) volumes shown on figure do not match 2030 Peak Hour Capacity analysis sheets in Appendix J. Please verify and correct.	Figure 11A has been updated.

Reviewed Date: 11/16/2018
CivTech Received Date: 11/16/2018
CivTech Entered Date: 12/03/2018
CivTech Response Date: 12/17/2018

Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

Reviewer Name, Agency: **City of Scottsdale**

Item	Location	Code	Review Comment	(Code) & Response
7.	Page 67	1	Table 9: Please consider if there are other mitigation/improvement options at Scottsdale Road & Thompson Peak Pkwy as the mitigation currently proposed decreases the levels of service for 3 of 4 approaches. The desire to reduce the excessive delay for EB is understood, however, upon verification of EB volumes and assumptions there may be other opportunities (related to comment 1 & 6).	Synchro analysis and text updated. To help mitigate this intersection, it is recommended the northbound left-turn phase be optimized to a permissive-protected, extend the eastbound left-turn phase from 9.5-seconds to 23-seconds and the southbound left-turn phase from 11-seconds to 21-seconds. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay is expected to decrease from 74-seconds to 56-seconds in the AM peak hour, and from 198-seconds to 57-seconds during the PM peak hour.
8.	-	1	Provide a Circulation Plan for bicycles and pedestrians. Also include trails and transit plans.	Figure 13 has been added to included Circulation Plan for Bikes/Peds.
9.	-	1	Transportation Improvements Phasing Plan: Please provide figures for each recommended transportation improvement (including turn lane length modifications) or signal timing mitigations, showing the proposed improvement/mitigation, the schedule for when the improvement/mitigation becomes necessary and who is proposed to be responsible for implementation, also including right-of-way needs.	An additional legend hashed arrow symbol indicates construction responsibility. Changes to queue length are now noted on Figure 12. Dashed cutouts indicated developer responsibility. Solid arrows indicate City or shared responsibility. A plan depicting all roadway improvements proposed by the developer with phases of Cavasson is included in Appendix K.
10.	-	1	Provide a figure that summarizes right-of-way dedications proposed by the development.	Figure 14 has been updated to include proposed cross-sections and ROW.
11.	General	1	Please note, as the project develops, an updated traffic report or a memo summarizing any minor changes will be requested if there are changes in the future that would impact the analyses or recommendations.	Noted in recommendations.

Reviewed Date: 11/16/2018
CivTech Received Date: 11/16/2018
CivTech Entered Date: 12/03/2018
CivTech Response Date: 12/17/2018

APPENDIX B

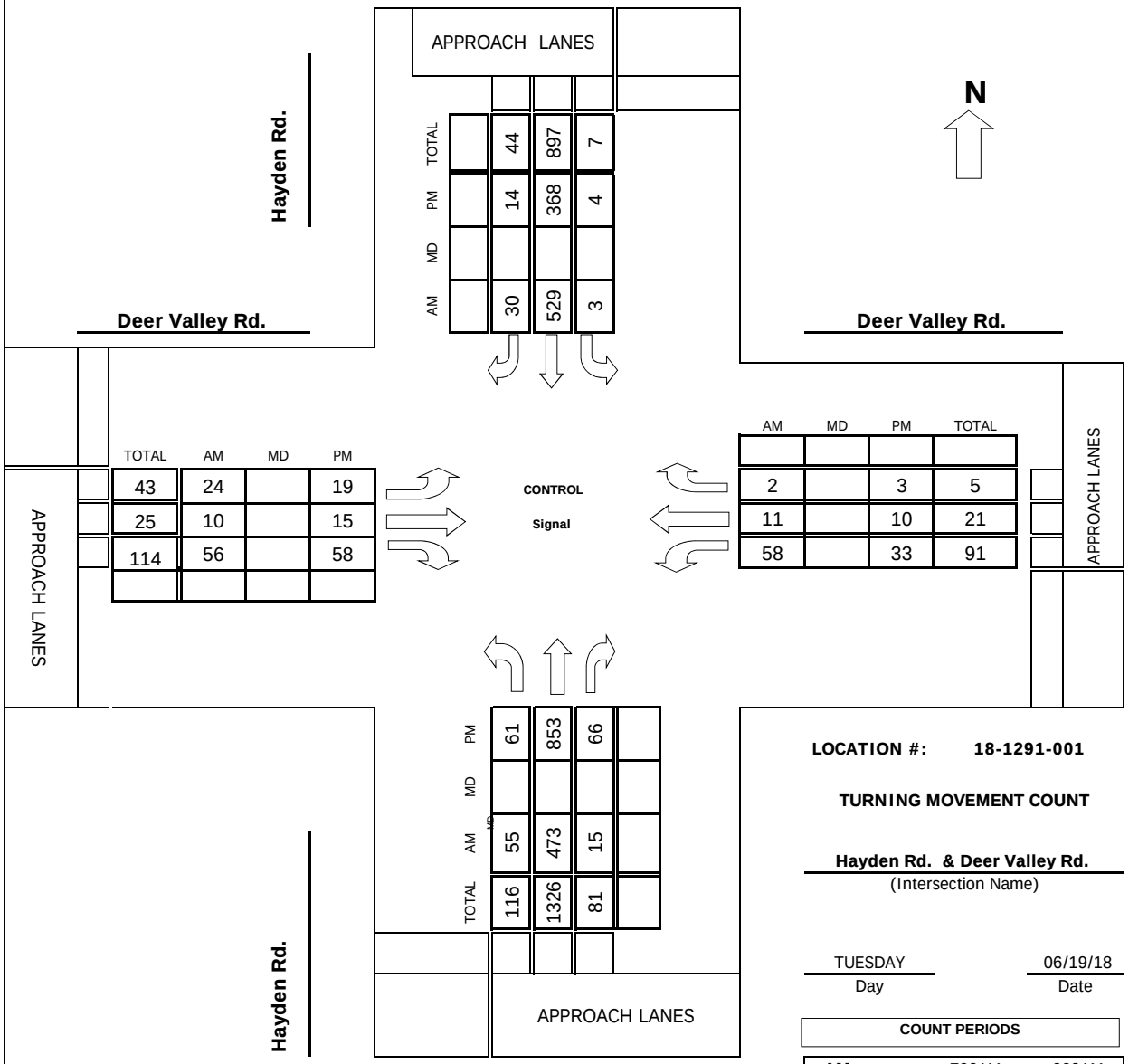
EXISTING TRAFFIC COUNTS

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-001

TMC SUMMARY OF Hayden Rd. & Deer Valley Rd.



LOCATION #: 18-1291-001

TURNING MOVEMENT COUNT

Hayden Rd. & Deer Valley Rd.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

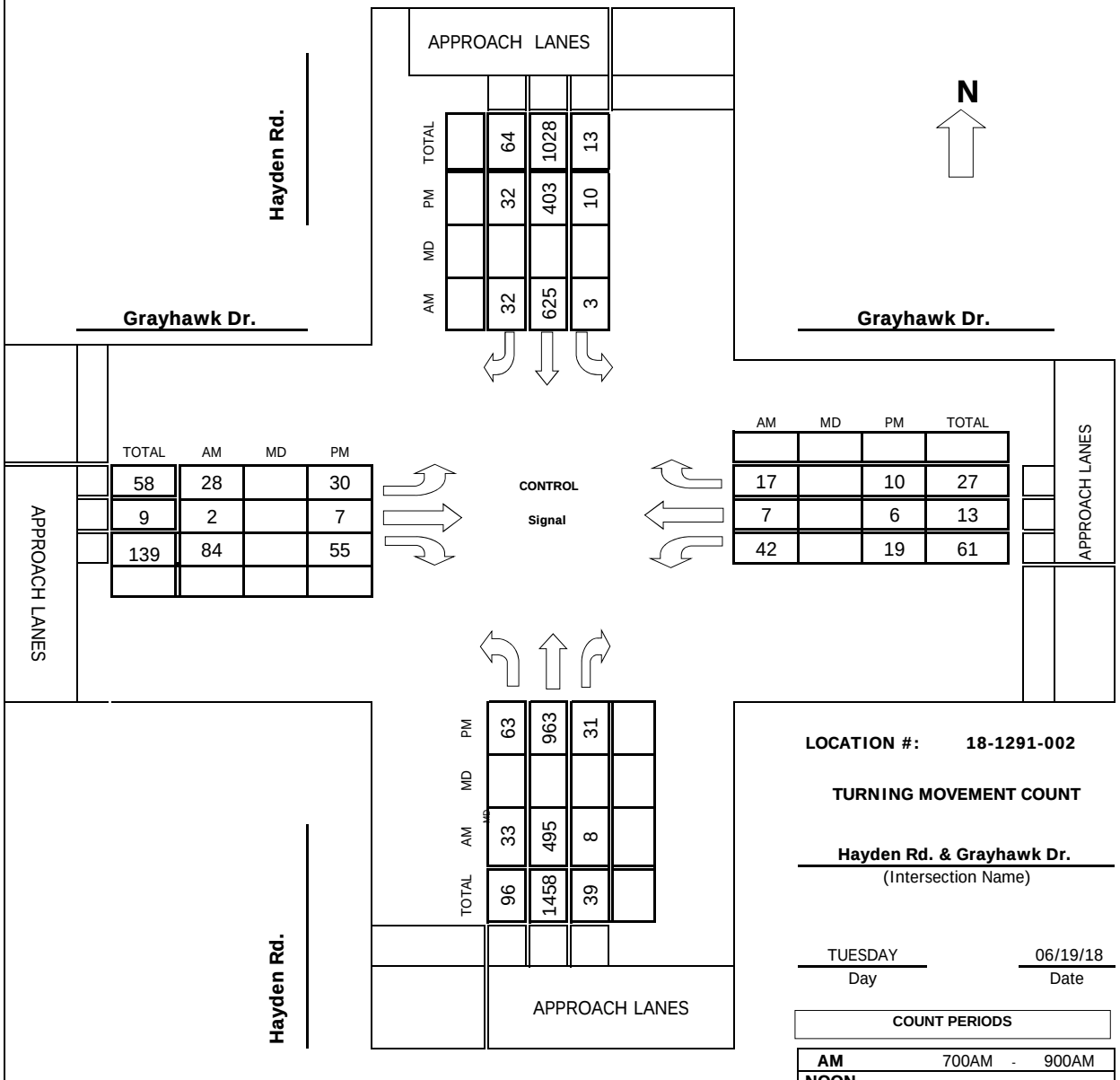
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-002

TMC SUMMARY OF Hayden Rd. & Grayhawk Dr.



LOCATION #: 18-1291-002

TURNING MOVEMENT COUNT

Hayden Rd. & Grayhawk Dr.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

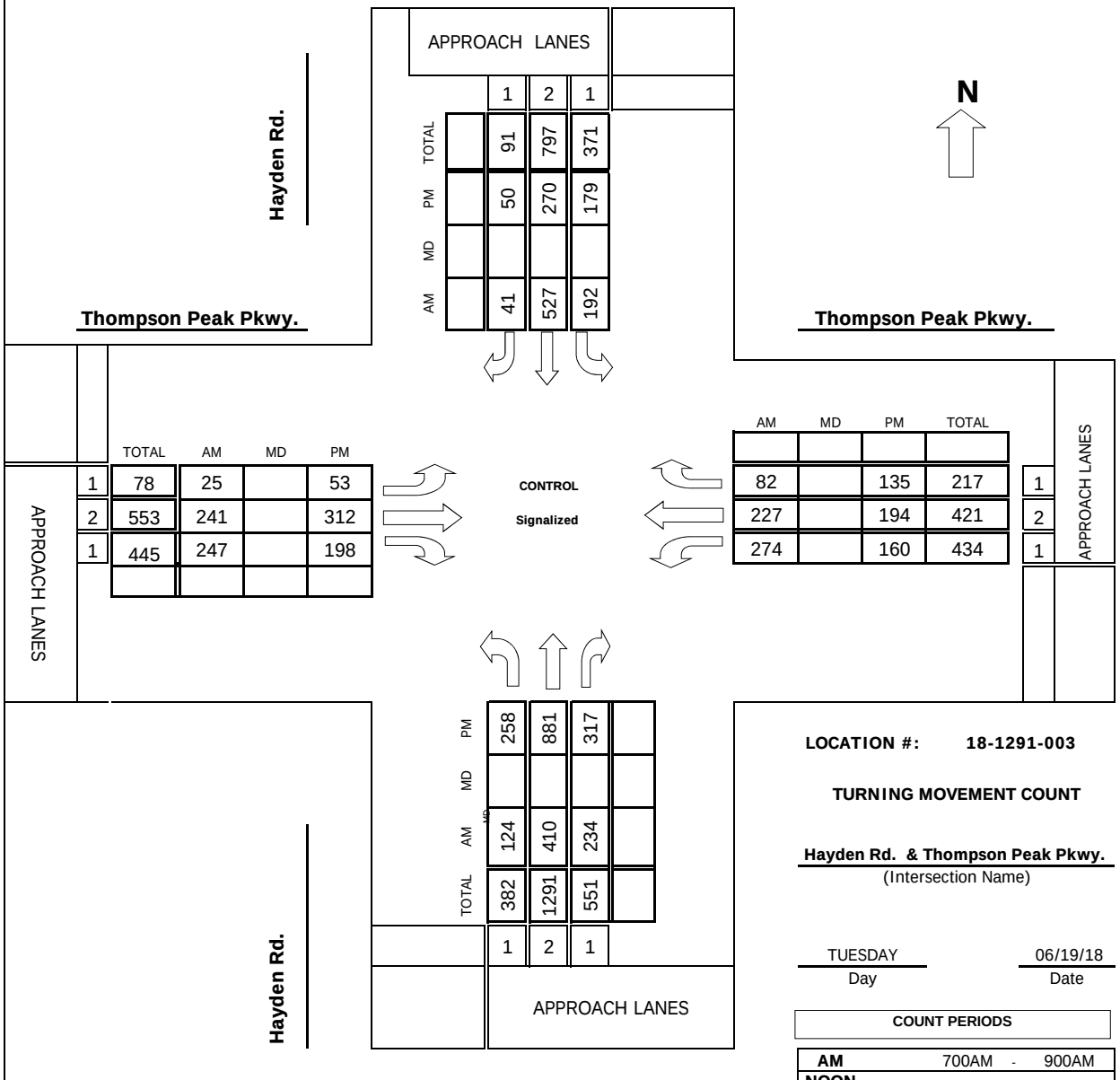
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-003

TMC SUMMARY OF Hayden Rd. & Thompson Peak Pkwy.



LOCATION #: 18-1291-003

TURNING MOVEMENT COUNT

Hayden Rd. & Thompson Peak Pkwy.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

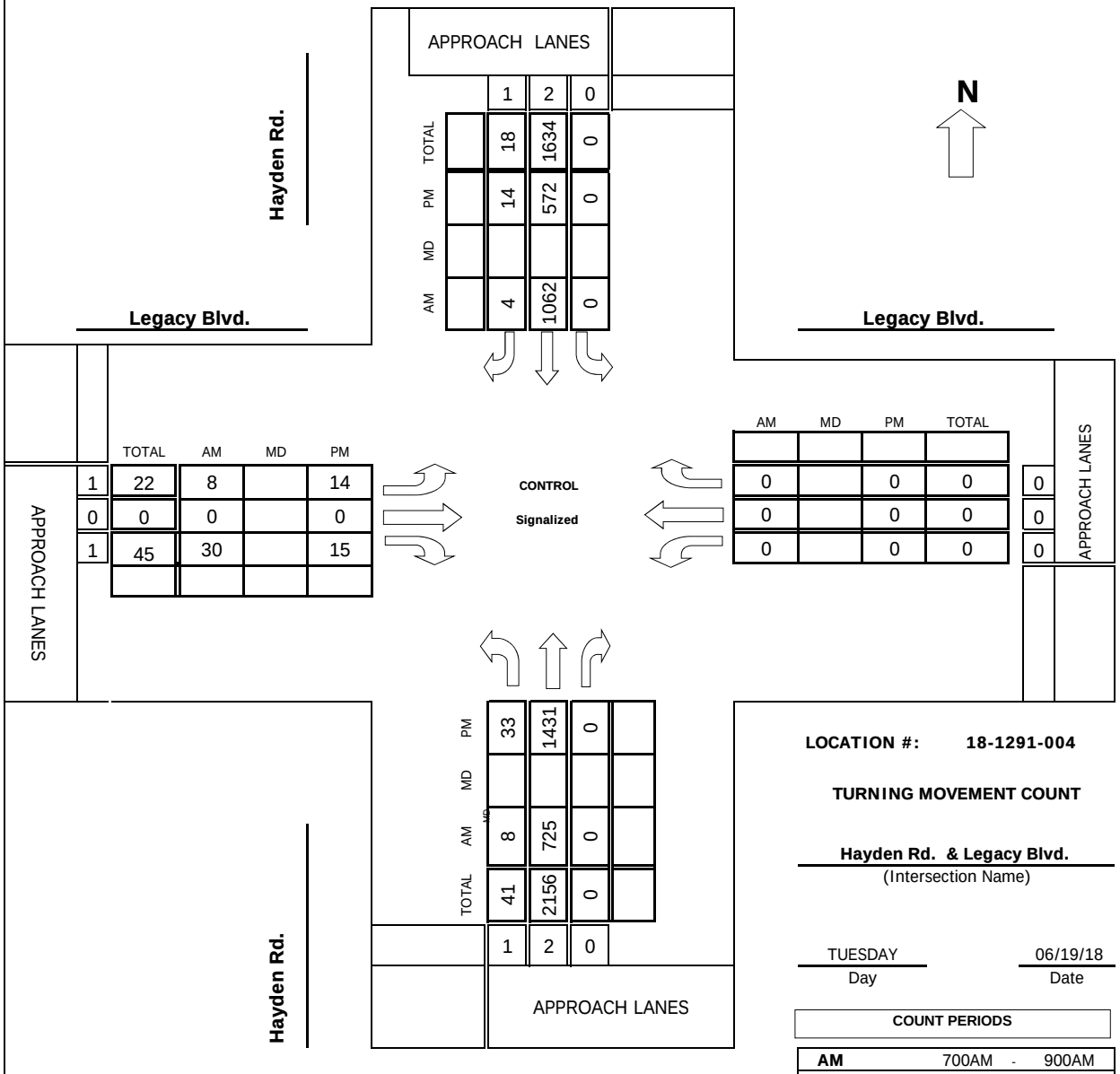
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-004

TMC SUMMARY OF Hayden Rd. & Legacy Blvd.



LOCATION #: 18-1291-004

TURNING MOVEMENT COUNT

Hayden Rd. & Legacy Blvd.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

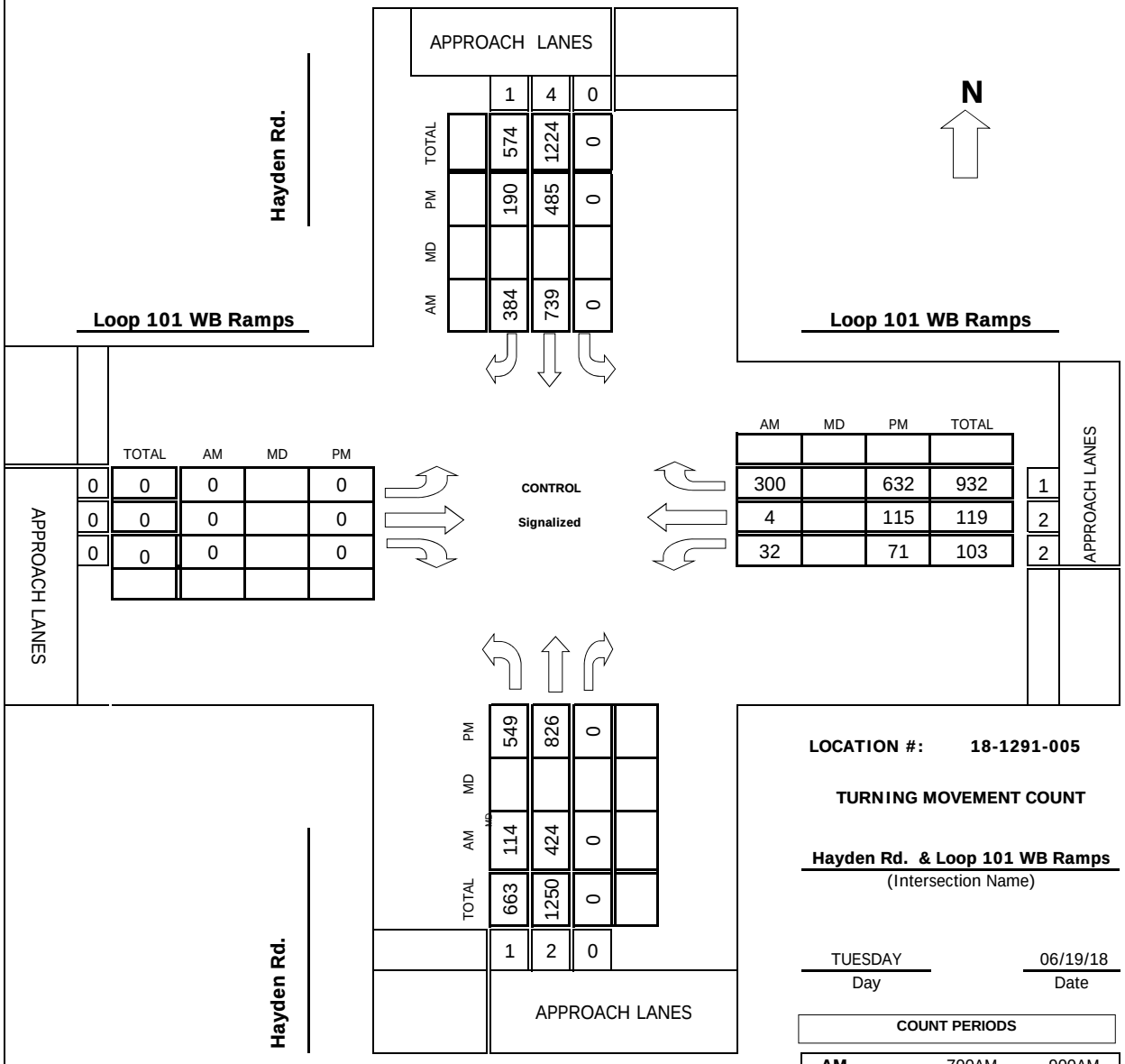
PM PEAK HOUR 500 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-005

TMC SUMMARY OF Hayden Rd. & Loop 101 WB Ramps



LOCATION #: 18-1291-005

TURNING MOVEMENT COUNT

Hayden Rd. & Loop 101 WB Ramps
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

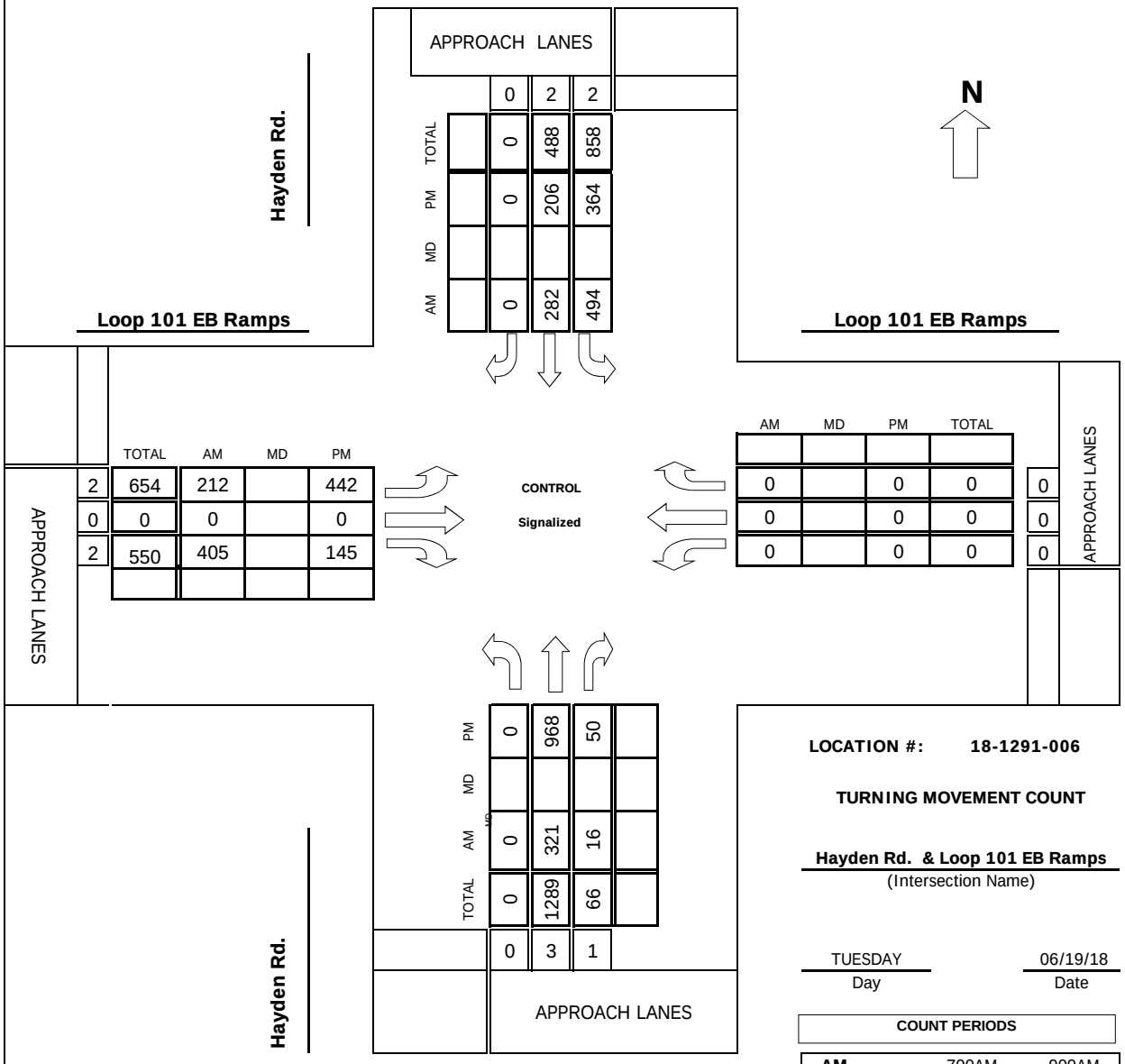
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-006

TMC SUMMARY OF Hayden Rd. & Loop 101 EB Ramps



LOCATION #: 18-1291-006

TURNING MOVEMENT COUNT

Hayden Rd. & Loop 101 EB Ramps
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

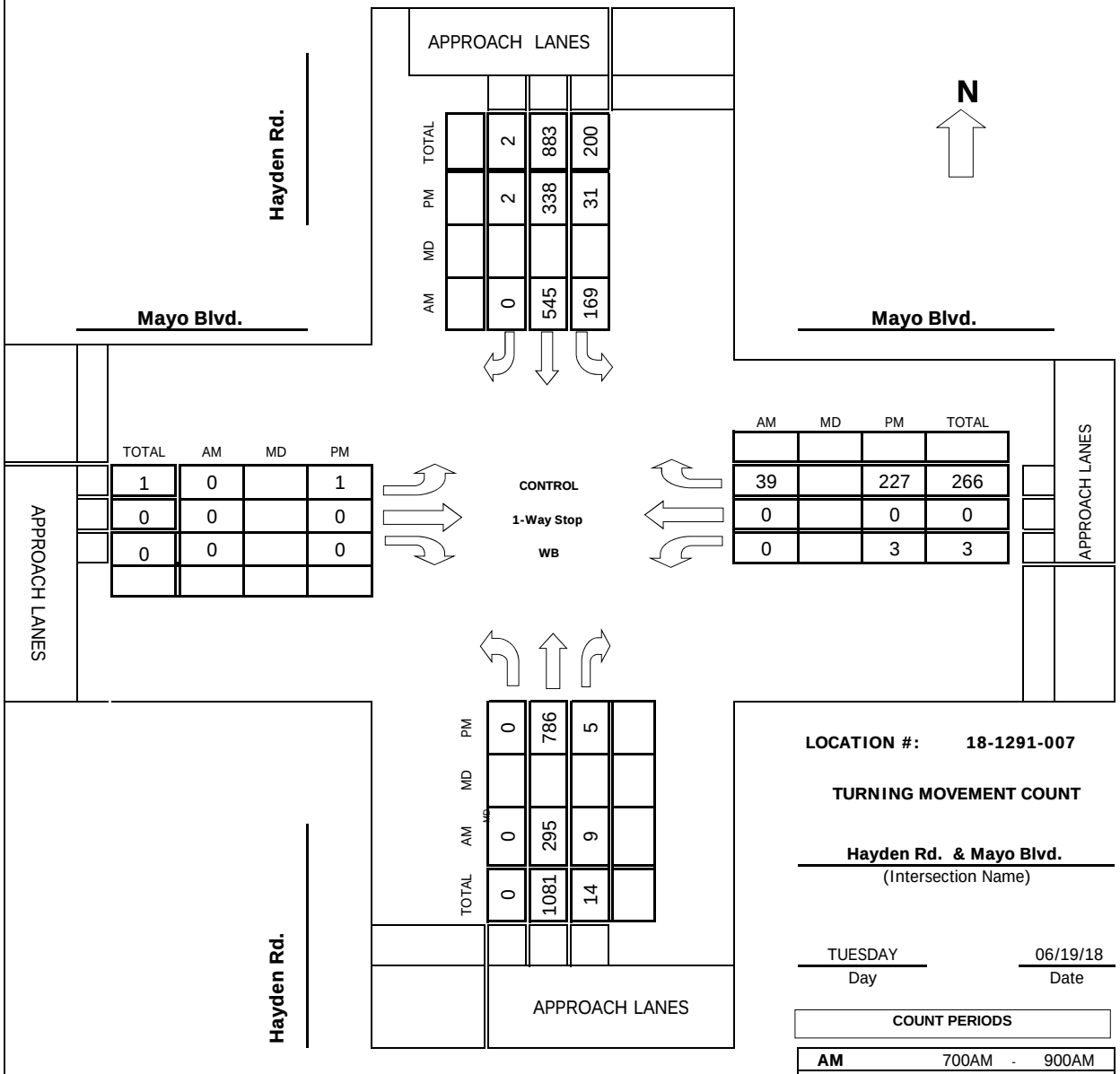
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-007

TMC SUMMARY OF Hayden Rd. & Mayo Blvd.



LOCATION #: 18-1291-007

TURNING MOVEMENT COUNT

Hayden Rd. & Mayo Blvd.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

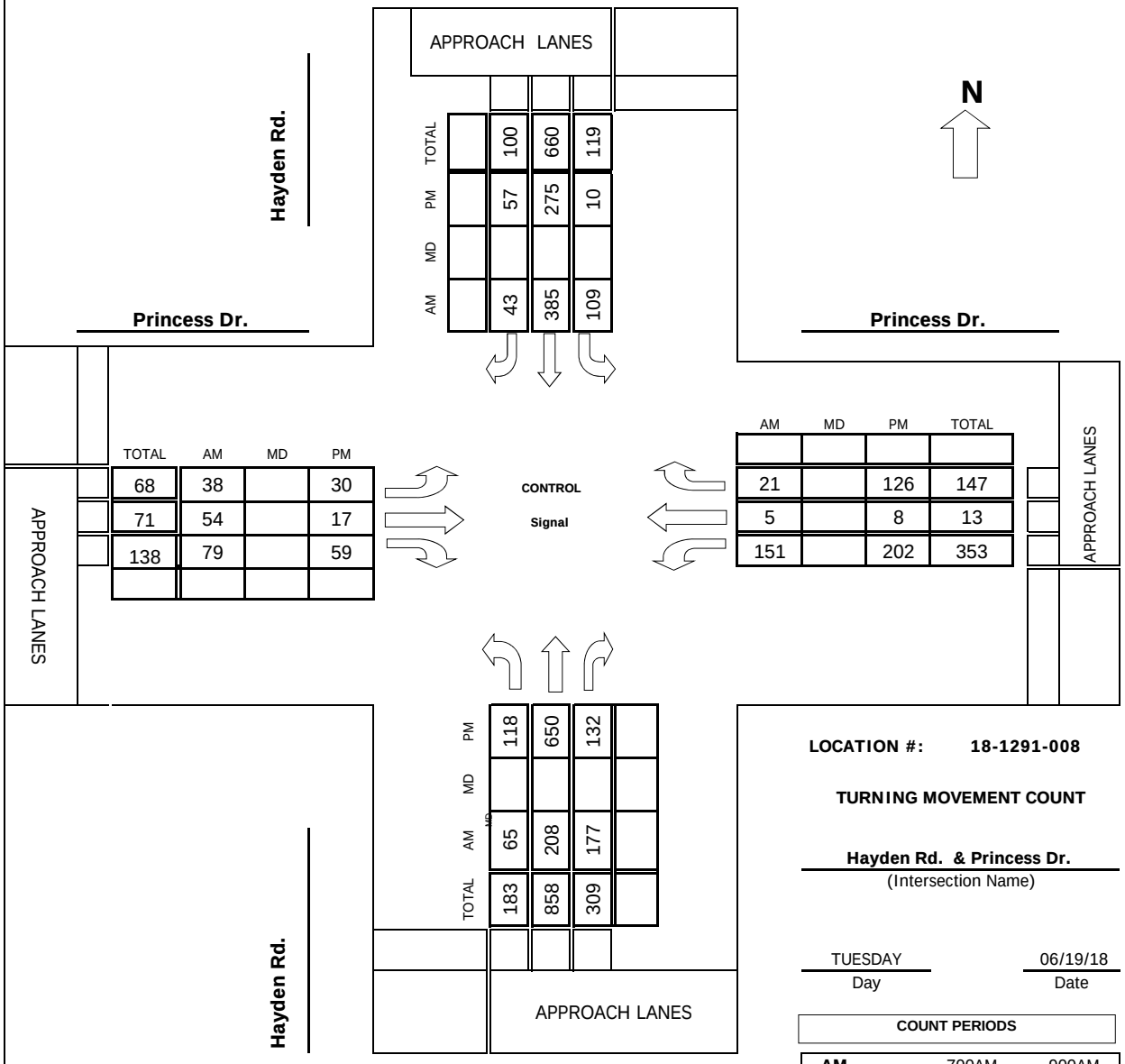
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-008

TMC SUMMARY OF Hayden Rd. & Princess Dr.



LOCATION #: 18-1291-008

TURNING MOVEMENT COUNT

Hayden Rd. & Princess Dr.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 745 AM

NOON PEAK HOUR

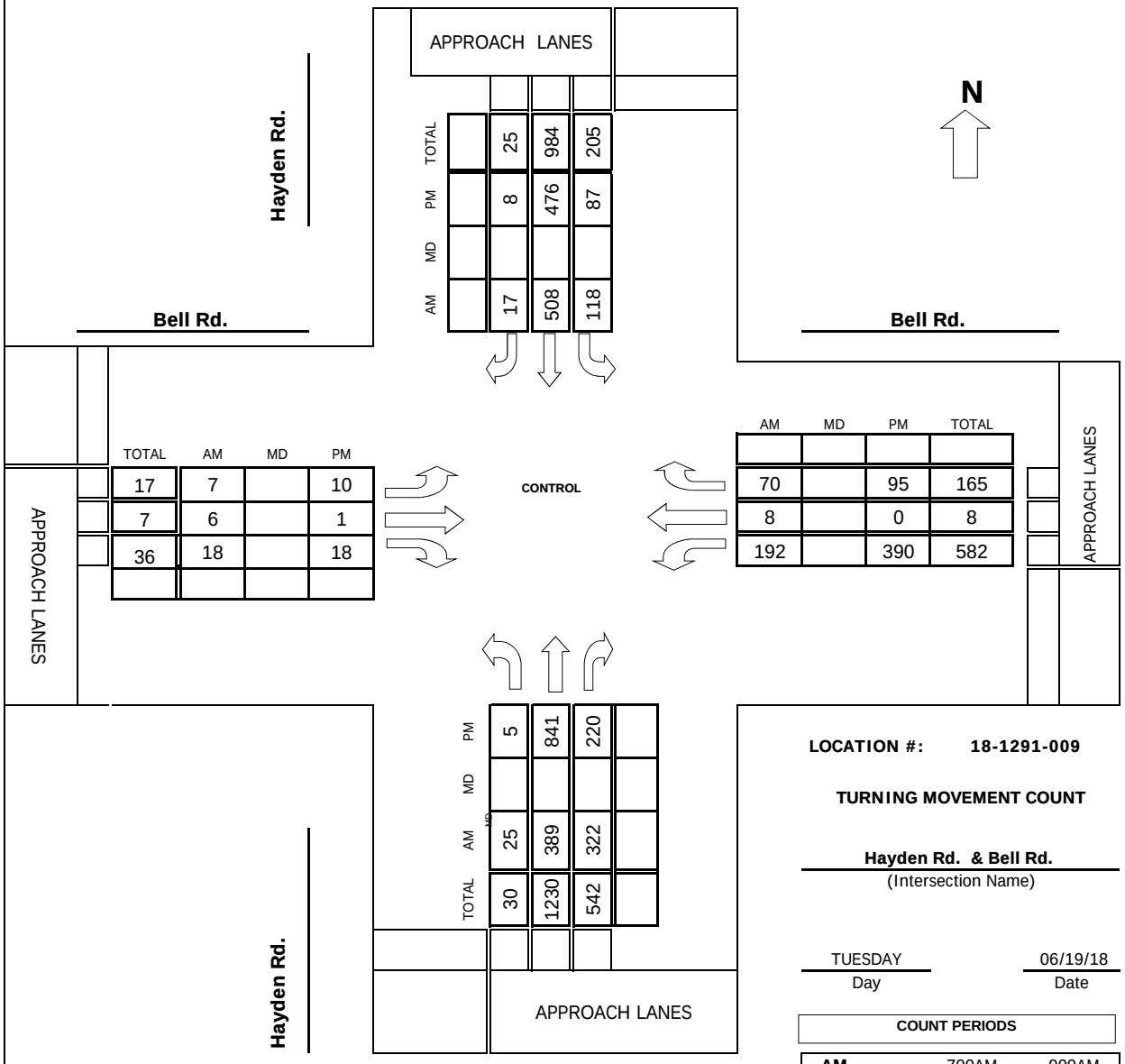
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-009

TMC SUMMARY OF Hayden Rd. & Bell Rd.



LOCATION #: 18-1291-009

TURNING MOVEMENT COUNT

Hayden Rd. & Bell Rd.
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 730 AM

NOON PEAK HOUR

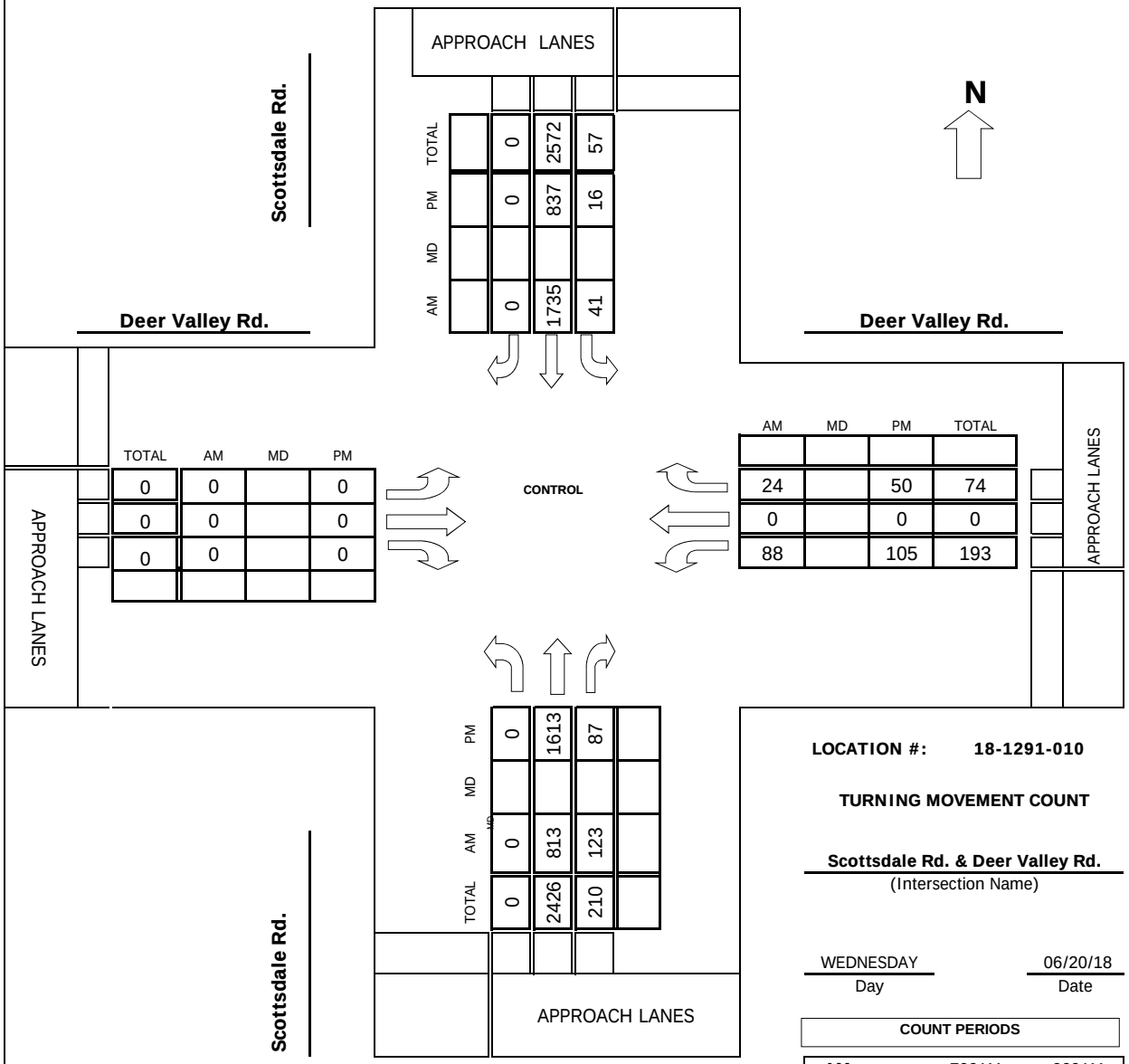
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-010

TMC SUMMARY OF Scottsdale Rd. & Deer Valley Rd.



LOCATION #: 18-1291-010

TURNING MOVEMENT COUNT

Scottsdale Rd. & Deer Valley Rd.
(Intersection Name)

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

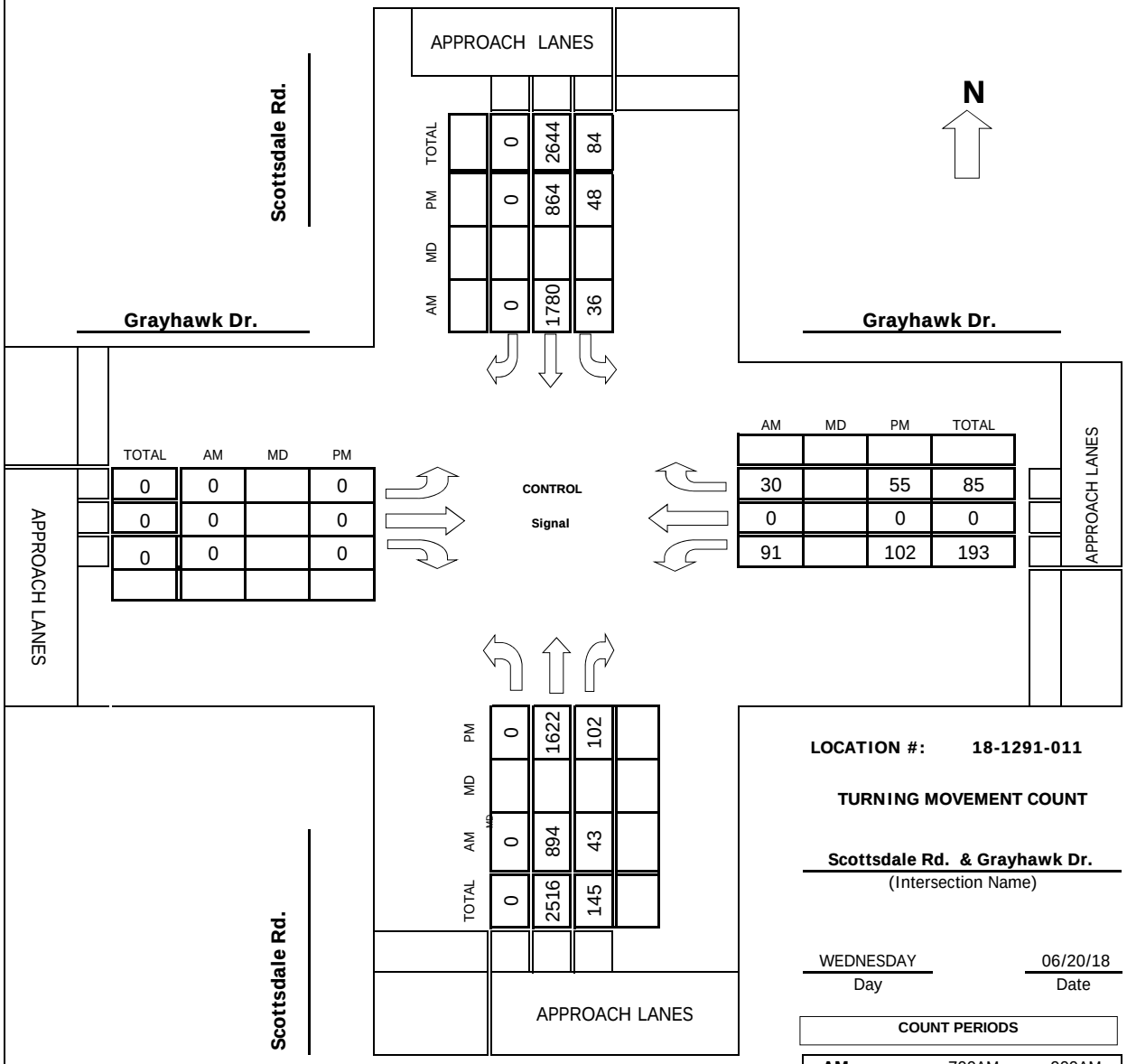
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-011

TMC SUMMARY OF Scottsdale Rd. & Grayhawk Dr.



LOCATION #: 18-1291-011

TURNING MOVEMENT COUNT

Scottsdale Rd. & Grayhawk Dr.
(Intersection Name)

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

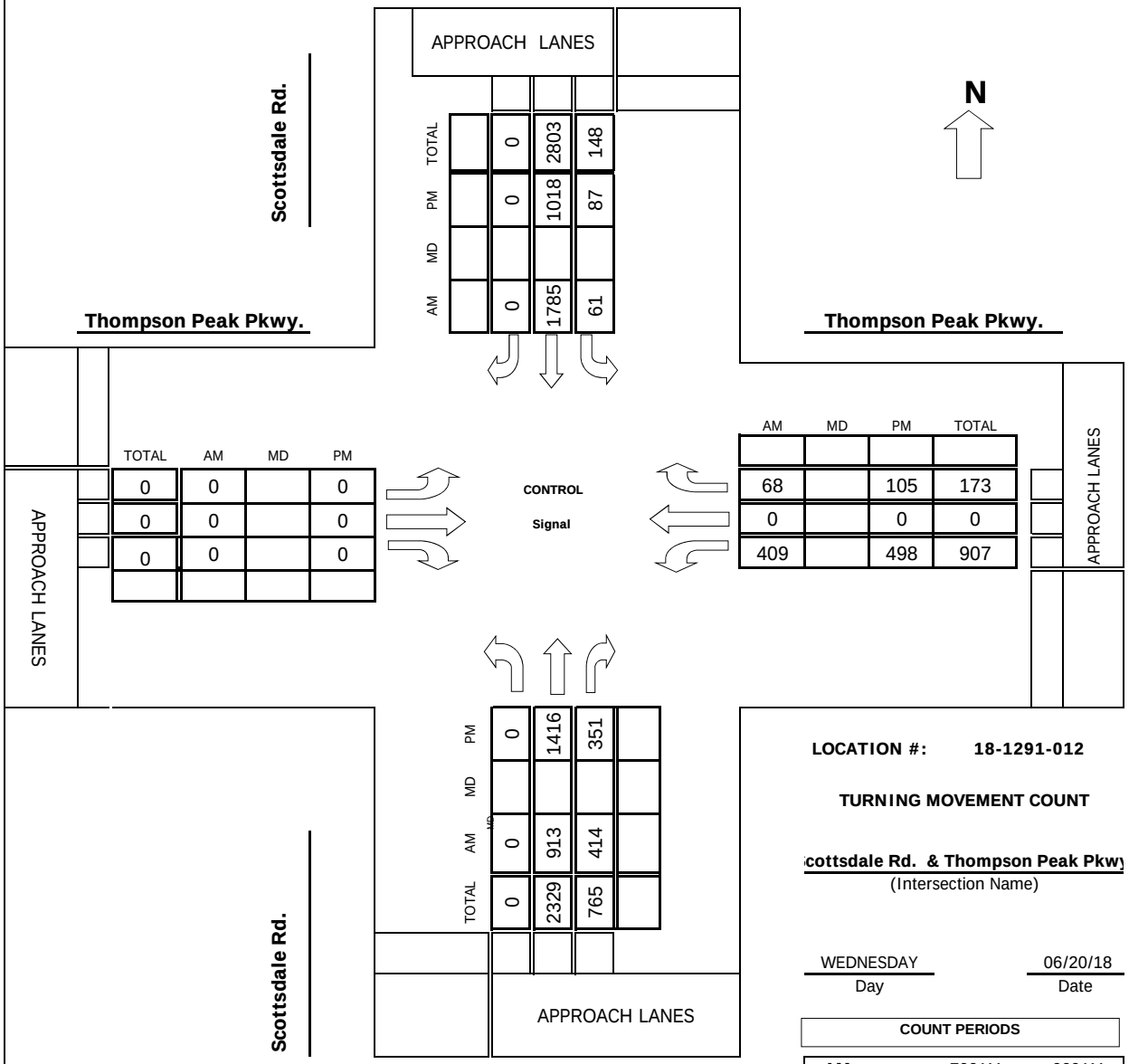
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-012

TMC SUMMARY OF Scottsdale Rd. & Thompson Peak Pkwy.



LOCATION #: 18-1291-012

TURNING MOVEMENT COUNT

Scottsdale Rd. & Thompson Peak Pkwy
(Intersection Name)

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 730 AM

NOON PEAK HOUR

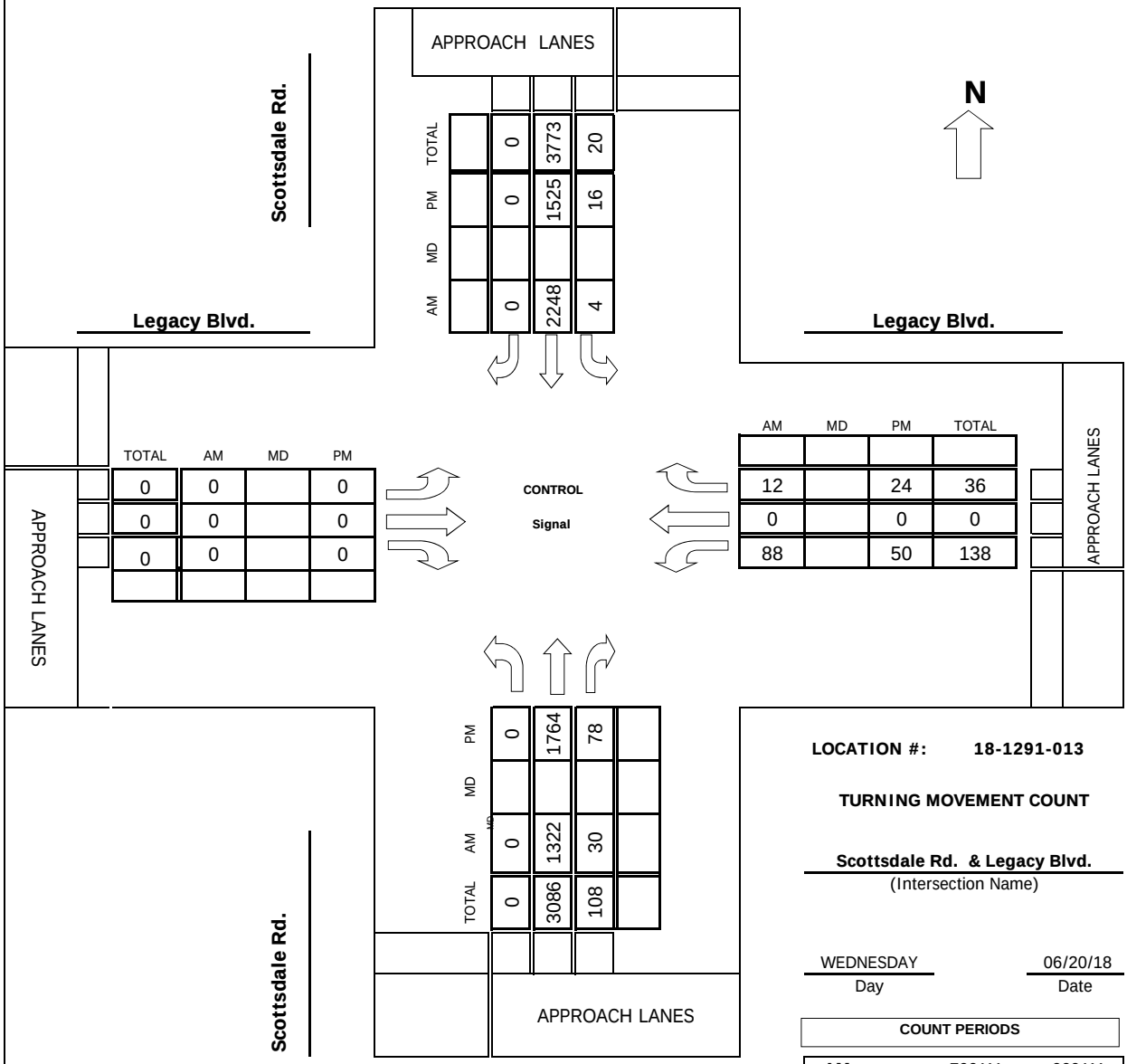
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-013

TMC SUMMARY OF Scottsdale Rd. & Legacy Blvd.



LOCATION #: 18-1291-013

TURNING MOVEMENT COUNT

Scottsdale Rd. & Legacy Blvd.
(Intersection Name)

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

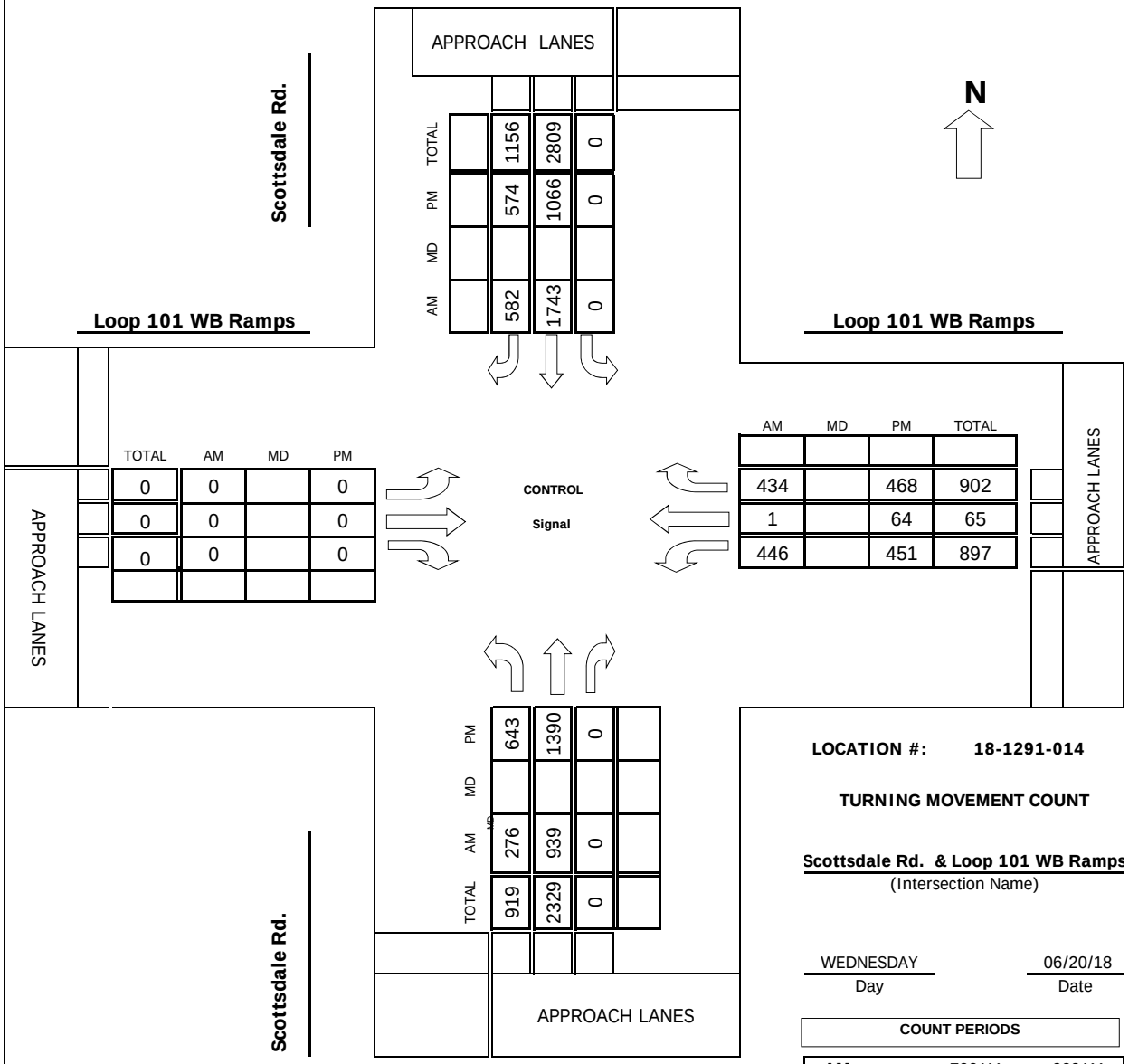
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-014

TMC SUMMARY OF Scottsdale Rd. & Loop 101 WB Ramps



LOCATION #: 18-1291-014

TURNING MOVEMENT COUNT

Scottsdale Rd. & Loop 101 WB Ramps
(Intersection Name)

WEDNESDAY (Day) 06/20/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 730 AM

NOON PEAK HOUR

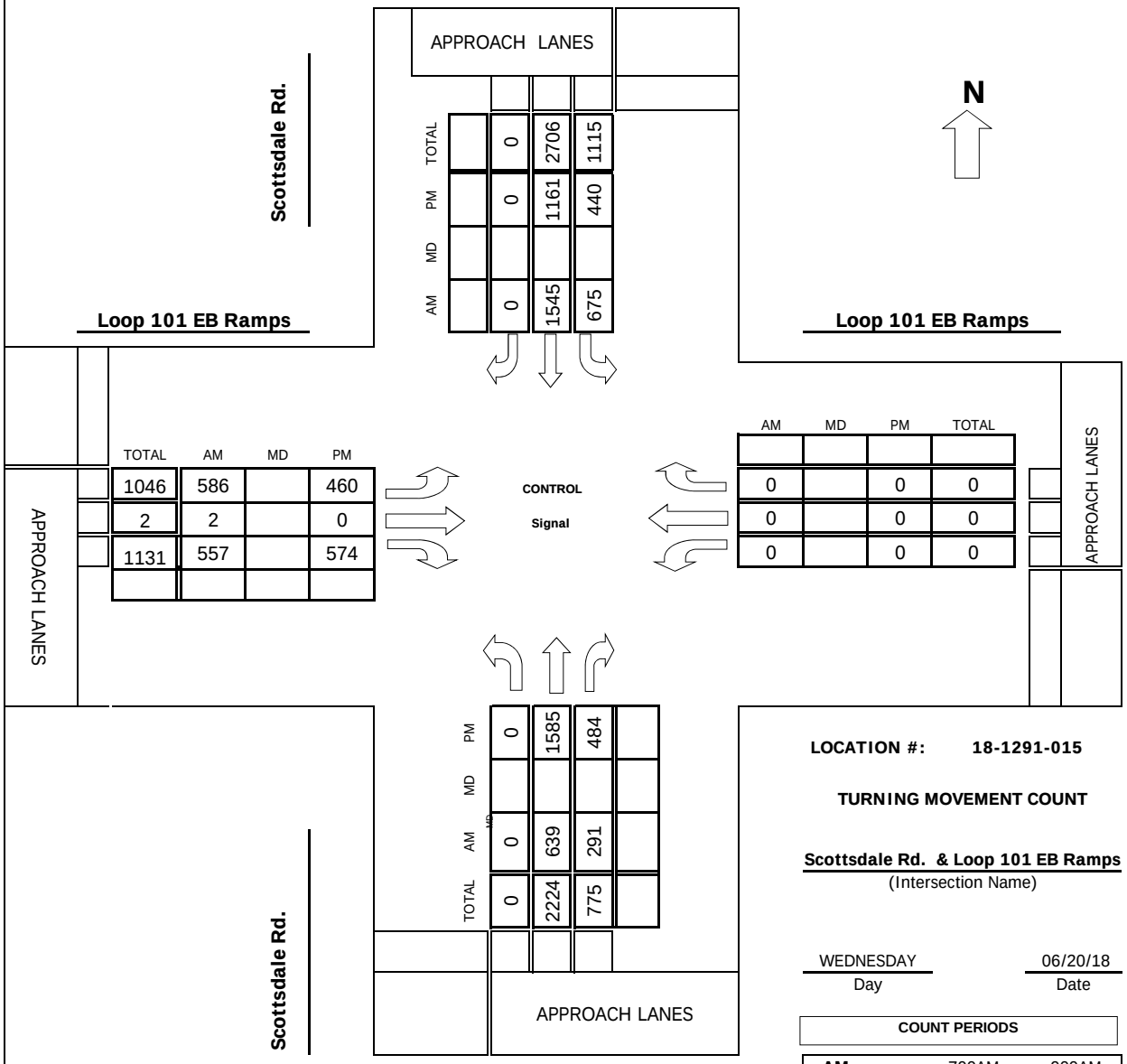
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-015

TMC SUMMARY OF Scottsdale Rd. & Loop 101 EB Ramps



LOCATION #: 18-1291-015

TURNING MOVEMENT COUNT

Scottsdale Rd. & Loop 101 EB Ramps
(Intersection Name)

WEDNESDAY (Day) 06/20/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 730 AM

NOON PEAK HOUR

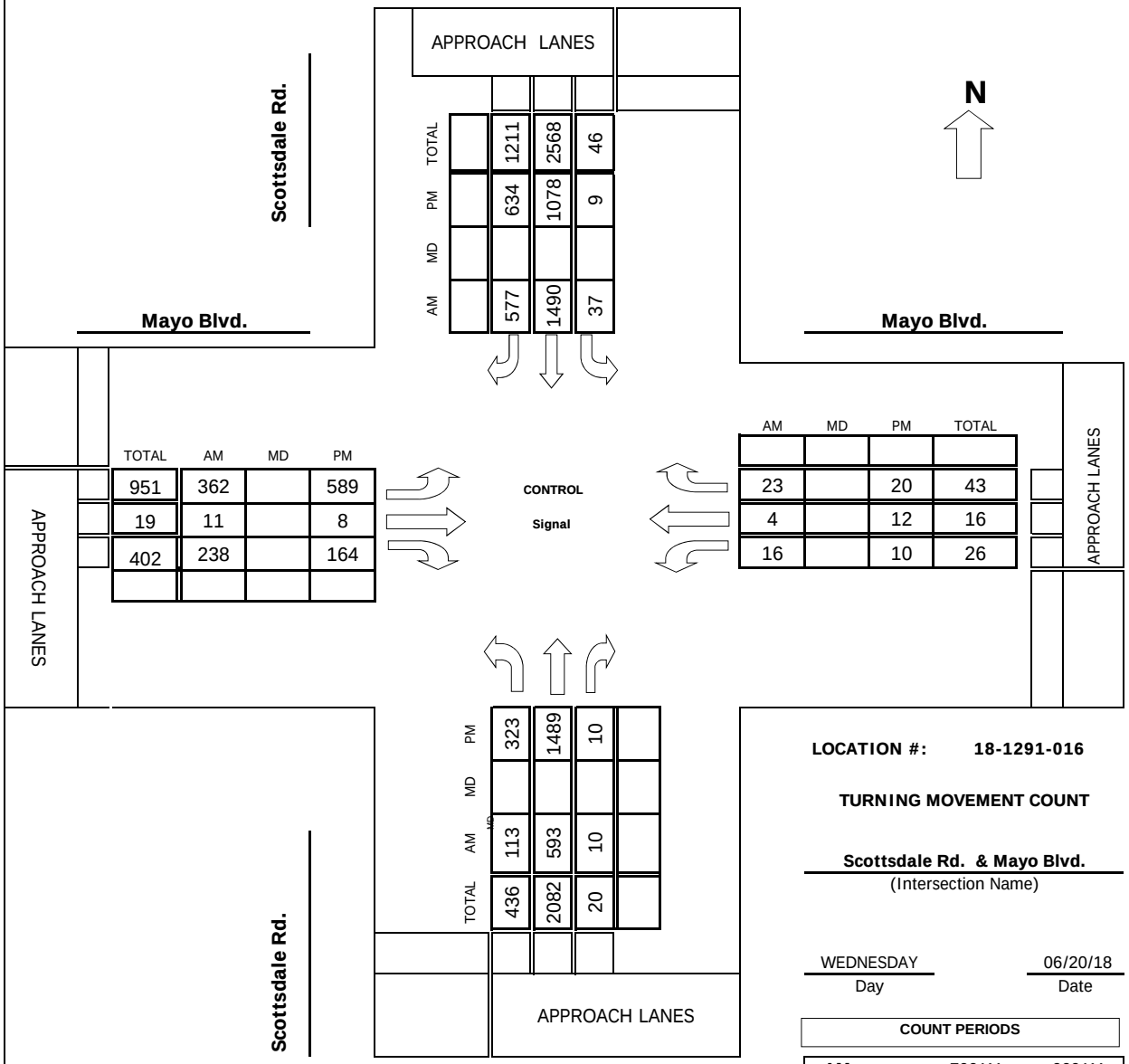
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-016

TMC SUMMARY OF Scottsdale Rd. & Mayo Blvd.



LOCATION #: 18-1291-016

TURNING MOVEMENT COUNT

Scottsdale Rd. & Mayo Blvd.
(Intersection Name)

WEDNESDAY (Day) 06/20/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 745 AM

NOON PEAK HOUR

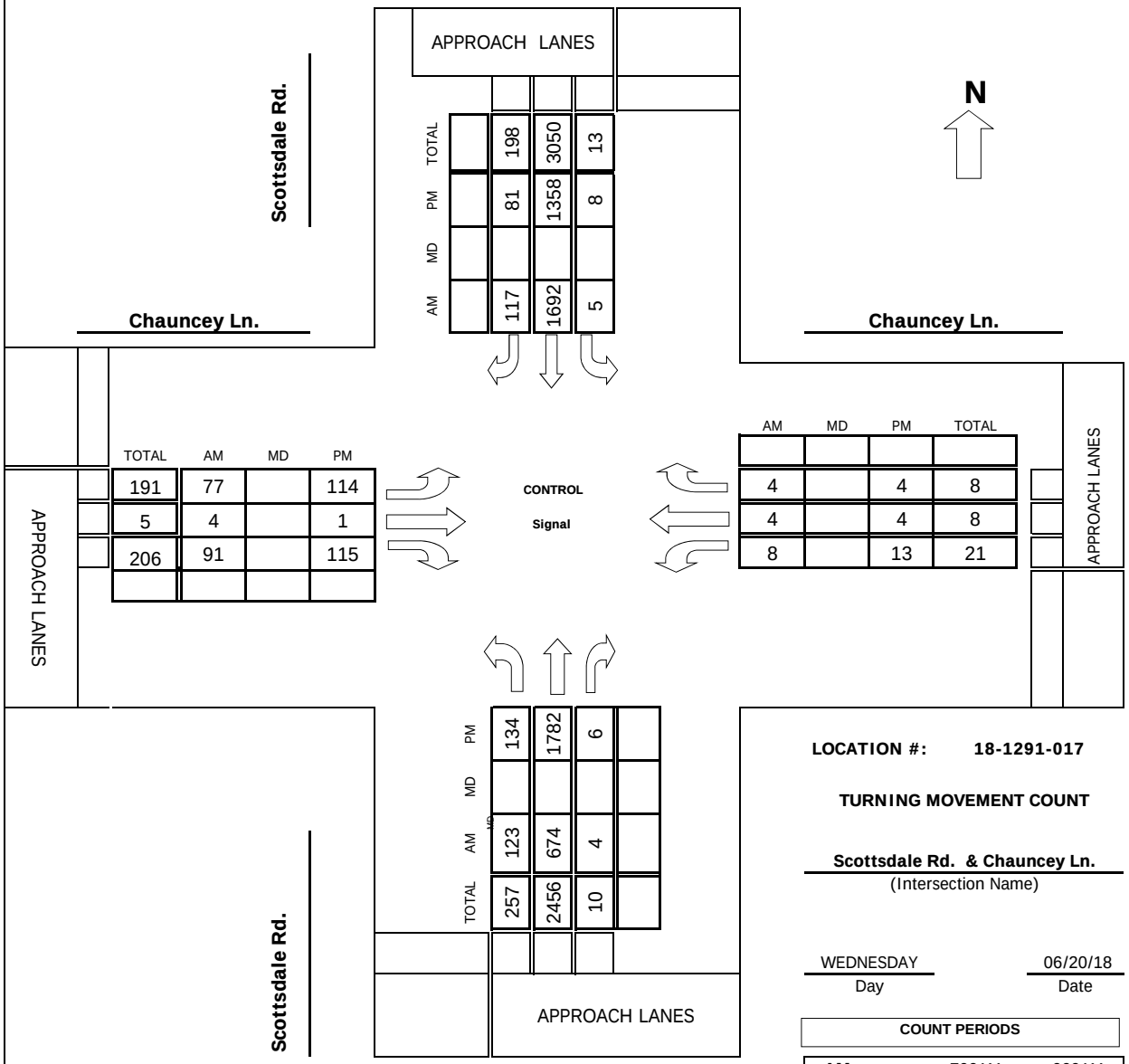
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-017

TMC SUMMARY OF Scottsdale Rd. & Chauncey Ln.



LOCATION #: 18-1291-017

TURNING MOVEMENT COUNT

Scottsdale Rd. & Chauncey Ln.
(Intersection Name)

WEDNESDAY (Day) 06/20/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

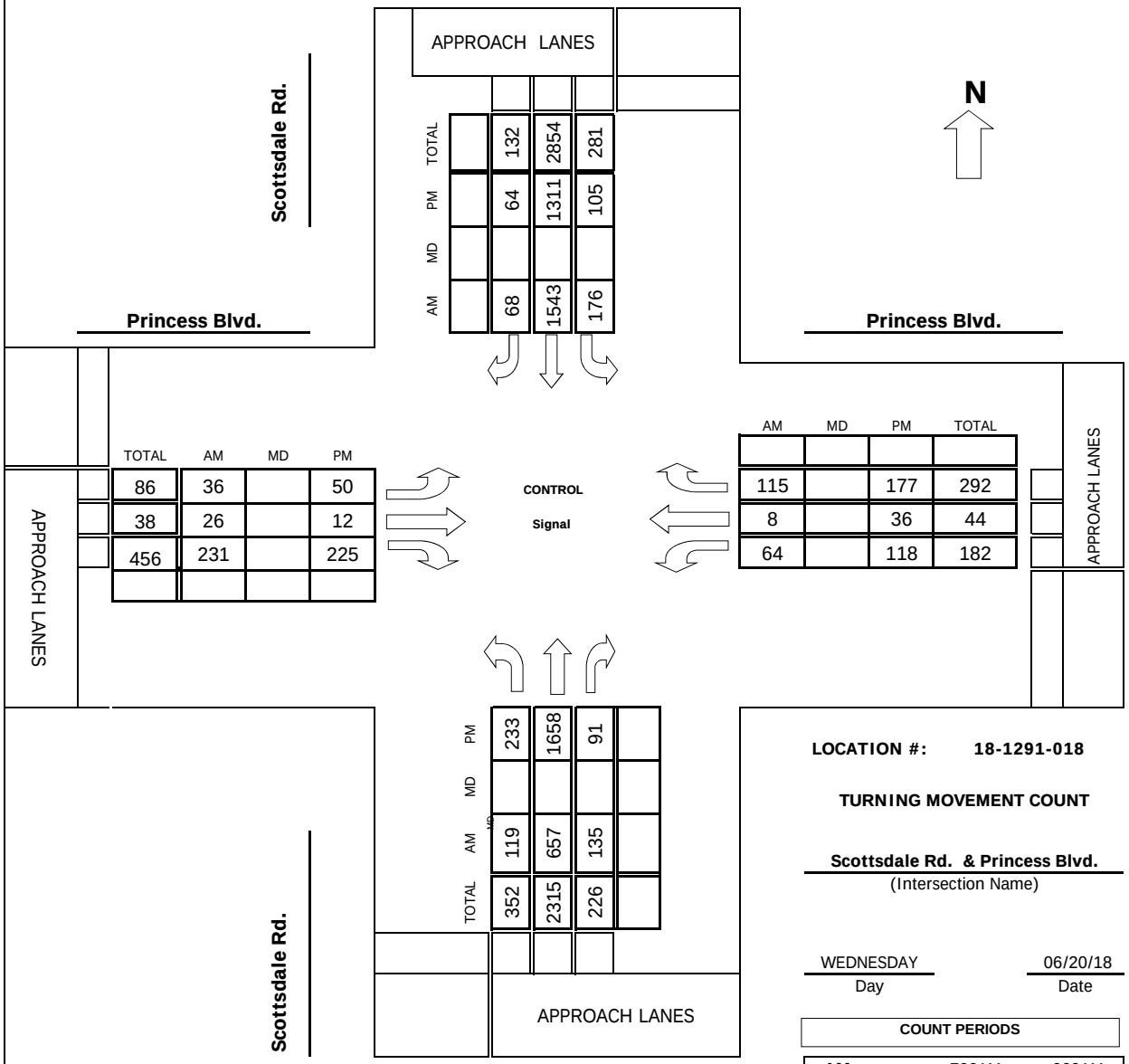
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-018

TMC SUMMARY OF Scottsdale Rd. & Princess Blvd.



LOCATION #: 18-1291-018

TURNING MOVEMENT COUNT

Scottsdale Rd. & Princess Blvd.
(Intersection Name)

WEDNESDAY (Day) 06/20/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 745 AM

NOON PEAK HOUR

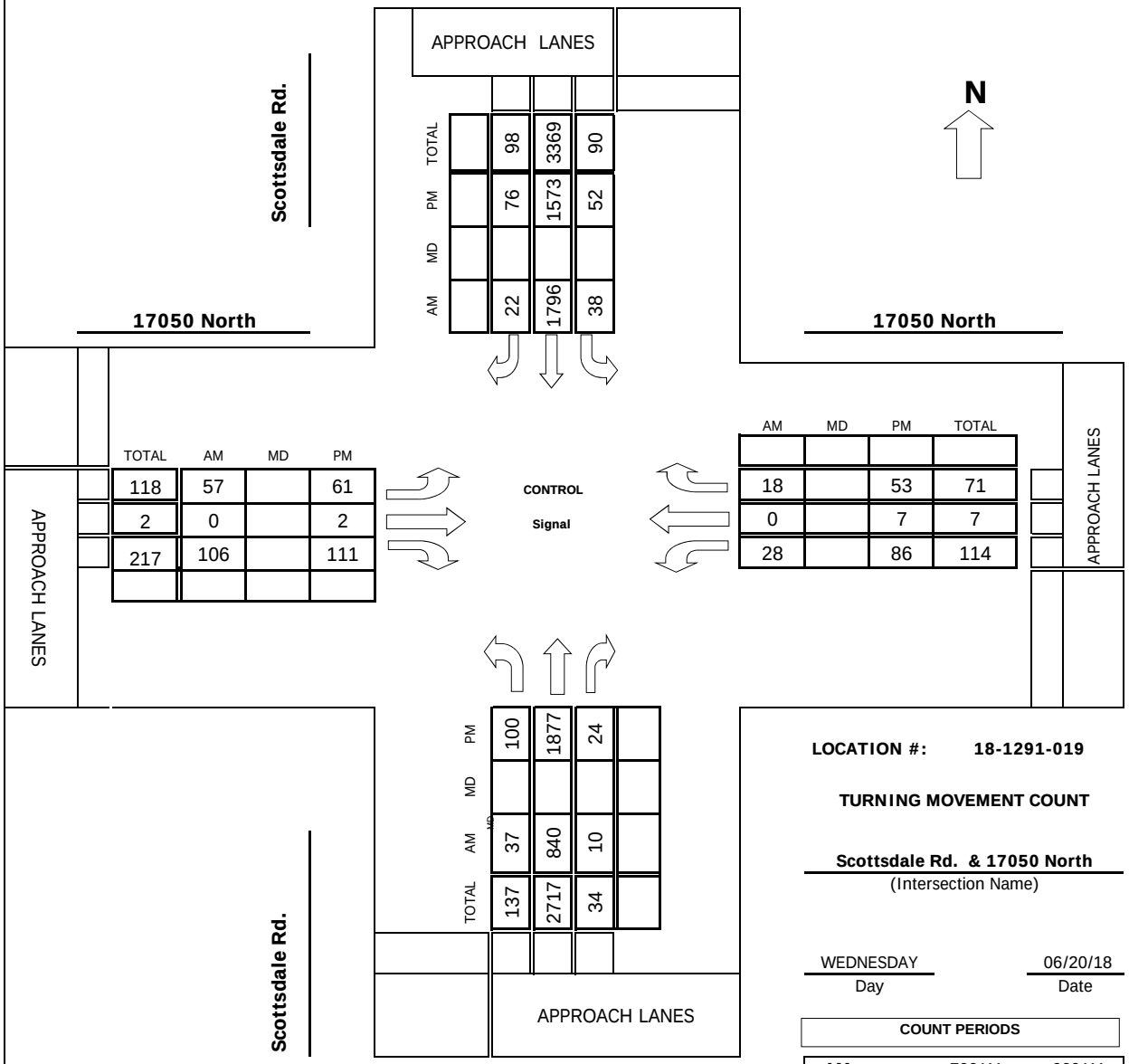
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-019

TMC SUMMARY OF Scottsdale Rd. & 17050 North



LOCATION #: 18-1291-019

TURNING MOVEMENT COUNT

Scottsdale Rd. & 17050 North
(Intersection Name)

WEDNESDAY (Day) 06/20/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

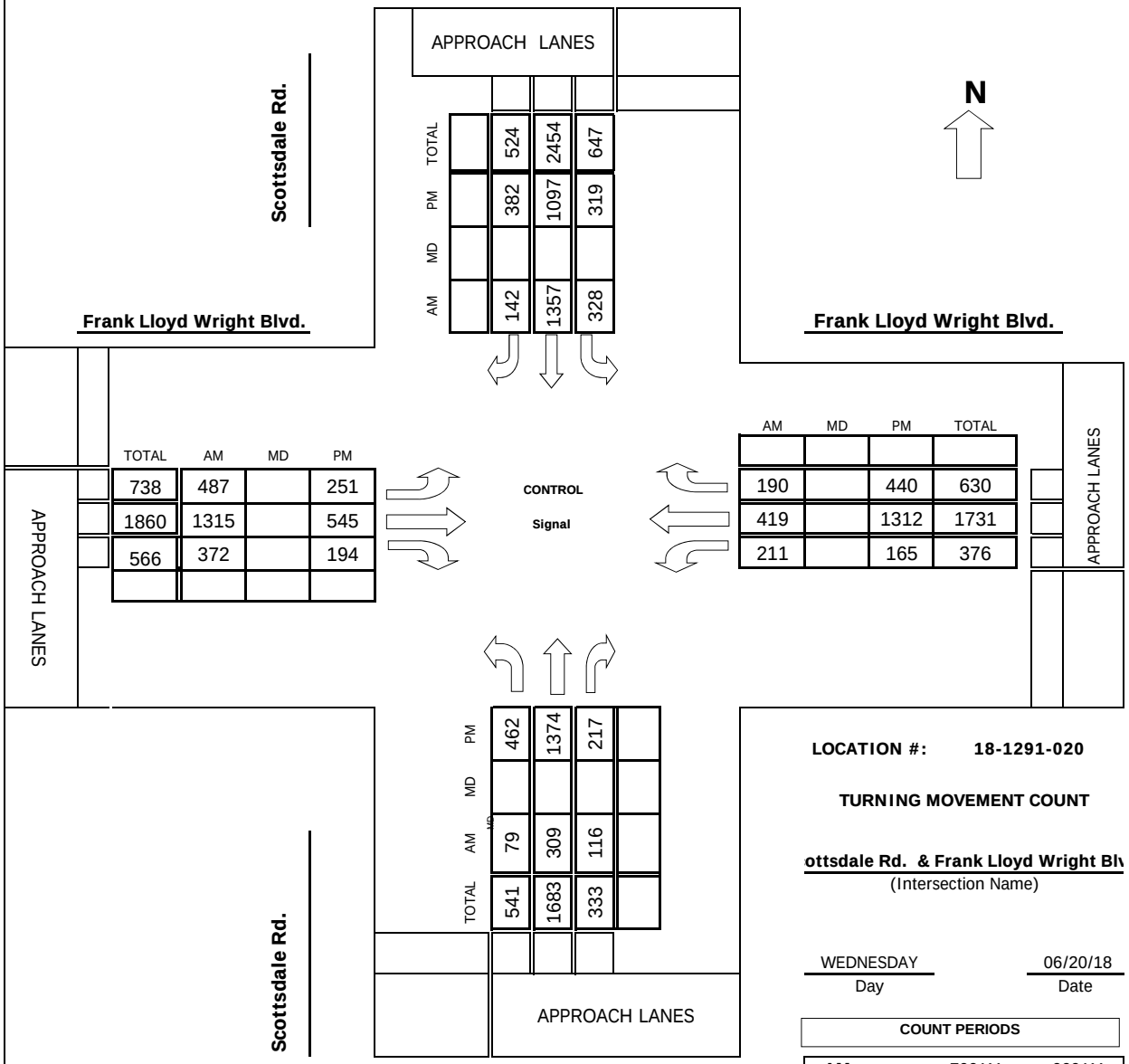
PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-020

TMC SUMMARY OF Scottsdale Rd. & Frank Lloyd Wright Blvd.



LOCATION #: 18-1291-020

TURNING MOVEMENT COUNT

ottsdale Rd. & Frank Lloyd Wright Blv
(Intersection Name)

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 730 AM

NOON PEAK HOUR

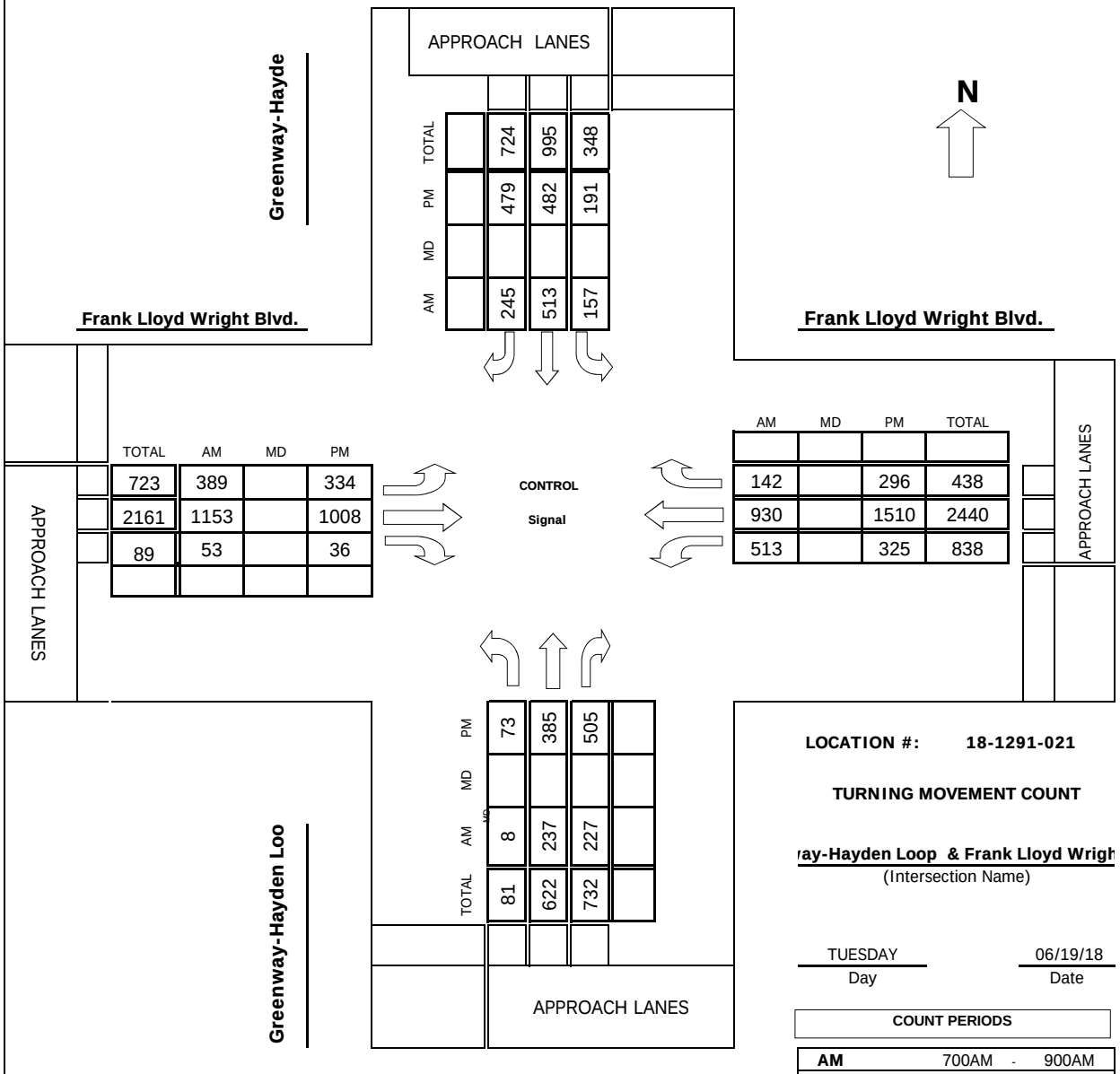
PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-021

TMC SUMMARY OF Greenway-Hayden Loop & Frank Lloyd Wright Blvd.



LOCATION #: 18-1291-021

TURNING MOVEMENT COUNT

ay-Hayden Loop & Frank Lloyd Wrigh
(Intersection Name)

TUESDAY — Day
06/19/18 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 730 AM

NOON PEAK HOUR

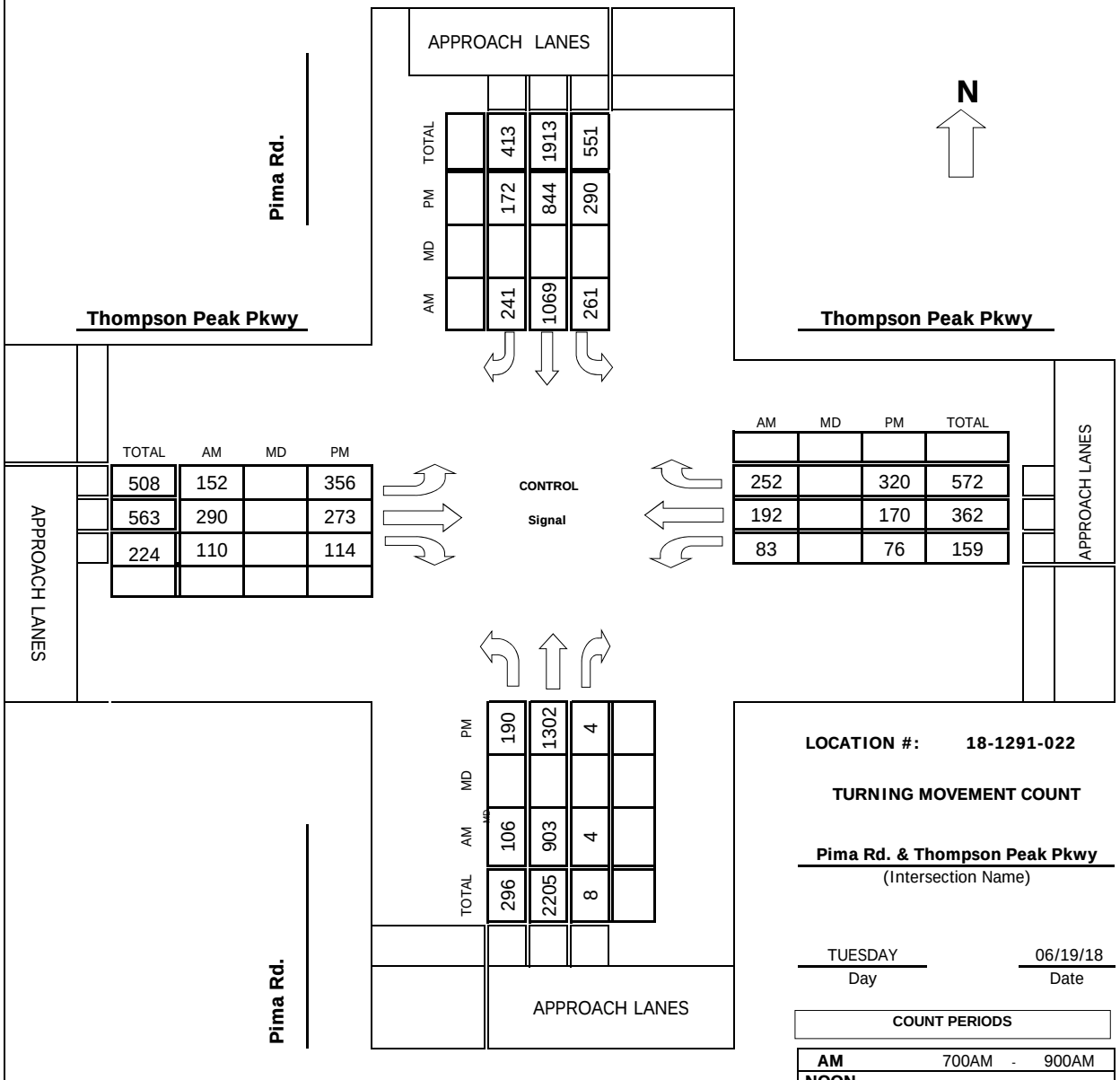
PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-022

TMC SUMMARY OF Pima Rd. & Thompson Peak Pkwy



LOCATION #: 18-1291-022

TURNING MOVEMENT COUNT

Pima Rd. & Thompson Peak Pkwy
(Intersection Name)

TUESDAY (Day) 06/19/18 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

PM PEAK HOUR 430 PM

APPENDIX C

EXISTING SIGNAL TIMING SHEETS

FRANK LLOYD WRIGHT & GREENWAY-HAYDEN

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	31	24	STANDARD
YELLOW	4.3	4.9	3.0
ALL-RED	2.7	2.1	1.0

DATE DESIGNED: 4/29/2016

SYSTEM #	SECTION #
208	1618

COMMUNICATIONS: MM-1-5-1 | I.P. ADDRESS: 172.17. 12.08

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

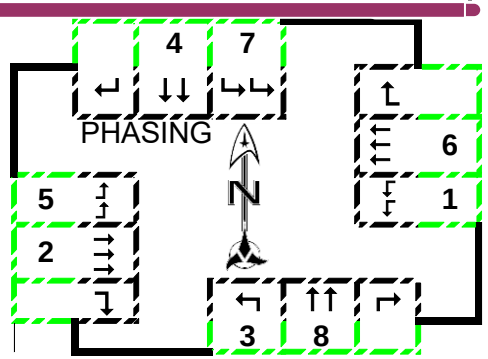
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	2	3	4	5	6	7	8
MOVEMENT	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
NOTES								
MIN GRN	5	10	5	7	5	10	5	7
BK MGRN								
CS MGRN								
DLY GRN								
WALK		7		7		7		7
WALK2								
WLK MAX								
PED CLR/FDW		24		31		24		31
PD CLR2								
PC MAX								
PED CO								
VEH EXT	2	2	2	2	2	2	2	2
VH EXT2								
MAX 1	30	60	20	45	30	60	25	40
MAX 2	45	65	45	50	45	65	50	50
MAX 3								
DYM MAX								
DYM STP								
YELLOW	3	4.9	3	4.3	3	4.9	3	4.3
RED CLR	1	2.1	1	2.7	1	2.1	1	2.7
RED MAX								
RED RVT		2		2		2		2
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL		X				X		
PED RECALL								
MAX RECALL								
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
40	44	61	25	45	44	61	25
42	65	42	43	12	65	46	41

SPLIT PLAN MAXIMUMS

NOTES

-ADJUSTED WALK TIME TO 7 SEC
-MIN GREEN TIME 5 SEC FOR LEFT TURN
-MIN GREEN TIME 7 SEC FOR MINOR THRU
-MIN GREEN TIME 10 SEC FOR MAJOR THRU
-VERIFIED TOTAL WALK INTERVAL AND PED CLEARANCE TIME SATISFIES MUTCD SECTION 4E.06 PARAGRAPH 14
-DID NOT RE-EVALUATE EXIST VEH EXT TIME
-FDW = D/W - 5
-USED 20 FT. DESIGN VEHICLE
-E/W VEH RECALL
-NO OTHER CHANGES EXCEPT AS DESCRIBED ABOVE



FRANK LLOYD WRIGHT & GREENWAY-HAYDEN

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	0	24	0	31	0	24	0	31
YELLOW	3.0	4.9	3.0	4.3	3.0	4.9	3.0	4.3
ALL RED	1.0	2.1	1.0	2.7	1.0	2.1	1.0	2.7

SYSTEM # 208

SECTION # 1618

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 1

ACTION PLAN #

SEQUENCE

R1	8 ↑	7 ↳	6 ←	5 ↴
R2	4 ↓	3 ↰	2 →	1 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 9/23/2014

OPERATIVE TIMES 0630-0900

MOVEMENTS	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
PHASE	1	2	3	4	5	6	7	8
SPLIT	21	51	20	28	28	51	13	28
COORD		X				X		
RECALLS (V, P, Mx)		V				V		
GREEN	17	44	16	21	24	44	9	21

RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE 120 | RING 1 | RING 2

MM-3-2: 1 1, 1 2, 1 3, 1 4, 1 5, 1 6

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	40	1
2	SB	40	2

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

MOVEMENTS	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
PHASE	1	2	3	4	5	6	7	8
SPLIT	24	28	40	28	33	19	40	28
COORD			X				X	
RECALLS (V, P, Mx)			P				P	
GREEN	20	21	36	21	29	12	36	21

RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE 120 | RING 1 | RING 2

MM-3-2: 2 1, 2 2, 2 3, 2 4, 2 5, 2 6

DIR CODE	COORD DIR	B.O.G. OFFSET	
3	NS	40	3
4	EB	20	4

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

MOVEMENTS	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
PHASE	1	2	3	4	5	6	7	8
SPLIT	25	22	54	19	28	19	54	19
COORD			X				X	
RECALLS (V, P, Mx)			P				P	
GREEN	21	15	50	12	24	12	50	12

RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE 120 | RING 1 | RING 2

MM-3-2: 3 1, 3 2, 3 3, 3 4, 3 5, 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET	
5	WB	50	5
6	EW	40	6

FRANK LLOYD WRIGHT & GREENWAY-HAYDEN

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	0	24	0	31	0	24	0	31
YELLOW	3.0	4.9	3.0	4.3	3.0	4.9	3.0	4.3
ALL RED	1.0	2.1	1.0	2.7	1.0	2.1	1.0	2.7

SYSTEM # 208

SECTION # 1618

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

SEQUENCE

R1	8 ↑	7 ↦	6 ←	5 ↴
R2	4 ↓	3 ↤	2 →	1 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

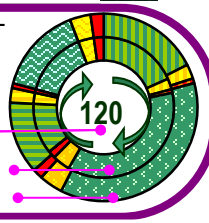
MOVEMENTS	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT

PLAN # 7

DATE EFFECTIVE 9/23/2014

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	26	51	18	25	25	51	19	25	120
COORD		X				X			ACTUAL CYCLE
RECALLS (V, P, Mx)		V				V			
GREEN	22	44	14	18	21	44	15	18	RING 1
									RING 2

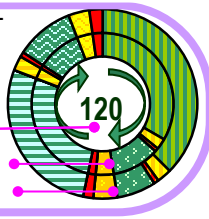


PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	44	20	37	19	49	15	37	19	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	40	13	33	12	45	8	33	12	RING 1
									RING 2

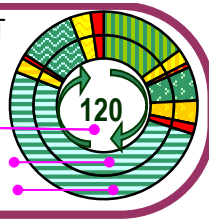


PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	22	14	65	19	22	14	65	19	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	18	7	61	12	18	7	61	12	RING 1
									RING 2



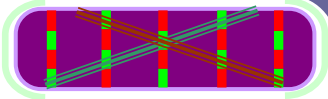
MM-3-2

AVAILABLE COORDINATOR PATTERN #s

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6



PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	60
2	SB	60
3	NS	60
4	EB	60
5	WB	70
6	EW	60

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

HAYDEN RD. & BELL / T.P.C.

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	19	21	STANDARD
YELLOW	4.1	4.3	3.0
ALL-RED	1.9	3.7	1.0

DATE DESIGNED: 10/19/2010

SYSTEM #: 223 SECTION #: 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.23

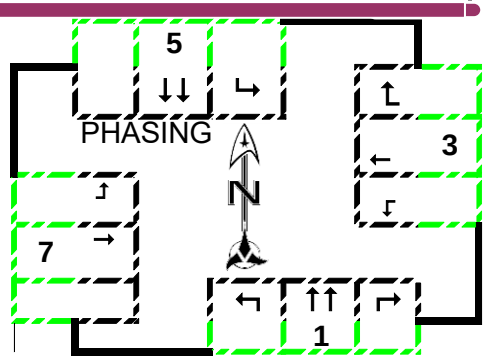
TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS | PEDESTRIAN | MAXIMUMS | REDS | VOL DENSITY | MM-2-8 RECALLS

PHASE	1	3	5	7
MOVEMENT	NBT	WBT	SBT	EBT
NOTES		EXCL		EXCL
MIN GRN	10	8	10	6
BK MGRN				
CS MGRN				
DLY GRN				
WALK	21	9	21	9
WALK2				
WLK MAX				
PED CLR/FDW	19	21	19	21
PD CLR2				
PC MAX				
PED CO				
VEH EXT		2		1
VH EXT2				
MAX 1	50	40	50	30
MAX 2	85	65	85	75
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.1	4.3	4.1	4.3
RED CLR	1.9	3.7	1.9	3.7
RED MAX				
RED RVT	2	2	2	2
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL				
PED RECALL	X		X	
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
68	0	30	38	68	0	30	38
84	0	64	83	84	0	75	72

SPLIT PLAN MAXIMUMS

NOTES

SIGNAL IS ALWAYS IN FREE AND PHS 3 & 7 ***MUST*** BE EXCLUSIVE.
ALWAYS USE SEQ 3 OR 9. CHANGE ALL SEQS TO MATCH EITHER #3 OR #9 AND PLACE BARRIER BETWEEN PH3 & PH7

ONLY VALID WHEN STAMPED

HAYDEN RD. & BELL / T.P.C.

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	21	0	19	0	21	0
YELLOW	4.1	0.0	4.3	0.0	4.1	0.0	4.3	0.0
ALL RED	1.9	0.0	3.7	0.0	1.9	0.0	3.7	0.0

SYSTEM # 223

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 3

ACTION PLAN #

SEQUENCE

R1	1 ↑			3 ←
R2	5 ↓		7 →	

E/W: WALK & GREEN | FDW & GREEN | GREEN w/o WALK | LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES 0630-0900

MOVEMENTS	NBT		WBT		SBT		EBT	
PHASE	1	2	3	4	5	6	7	8
SPLIT	64		28	28	64		28	28
COORD RECALLS (V, P, Mx)								
GREEN	58	0	20	28	58	0	20	28

RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE 120 | RING 1 | RING 2

AVAILABLE COORDINATOR PATTERN #s: 1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

PLAN # 2

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

MOVEMENTS	NBT		WBT		SBT		EBT	
PHASE	1	2	3	4	5	6	7	8
SPLIT	74		23	23	74		23	23
COORD RECALLS (V, P, Mx)								
GREEN	68	0	15	23	68	0	15	23

RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE 120 | RING 1 | RING 2

AVAILABLE COORDINATOR PATTERN #s: 2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

PLAN # 3

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

MOVEMENTS	NBT		WBT		SBT		EBT	
PHASE	1	2	3	4	5	6	7	8
SPLIT	54		33	33	54		33	33
COORD RECALLS (V, P, Mx)								
GREEN	48	0	25	33	48	0	25	33

RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE 120 | RING 1 | RING 2

AVAILABLE COORDINATOR PATTERN #s: 3 1 | 3 2 | 3 3 | 3 4 | 3 5 | 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	110
2	SB	40
3	NS	110
4	EB	110
5	WB	110
6	EW	110

HAYDEN RD. & BELL / T.P.C.

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	21	0	19	0	21	0
YELLOW	4.1	0.0	4.3	0.0	4.1	0.0	4.3	0.0
ALL RED	1.9	0.0	3.7	0.0	1.9	0.0	3.7	0.0

SYSTEM # 223

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 3

ACTION PLAN

SEQUENCE

	NBT	WBT	SBT	EBT
R1	1 ↑			3 ←
R2	5 ↓		7 →	

MOVEMENTS

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	110
2	SB	40
3	NS	110
4	EB	110
5	WB	110
6	EW	110

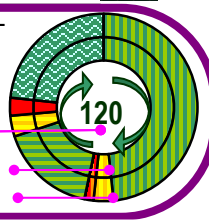
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	64		28	28	64		28	28	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	58	0	20	28	58	0	20	28	RING 1 / RING 2

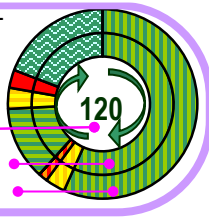


PLAN # 8

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	74		23	23	74		23	23	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	68	0	15	23	68	0	15	23	RING 1 / RING 2

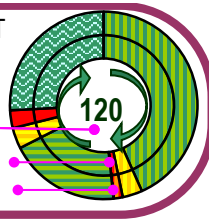


PLAN # 9

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	58		31	31	58		31	31	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	52	0	23	31	52	0	23	31	RING 1 / RING 2



HAYDEN RD. & DEER VALLEY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	8	25	STANDARD
YELLOW	4.8	3.6	3.0
ALL-RED	1.2	3.4	1.0

DATE DESIGNED: 8/31/2010

SYSTEM #: 285 SECTION #: 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.85

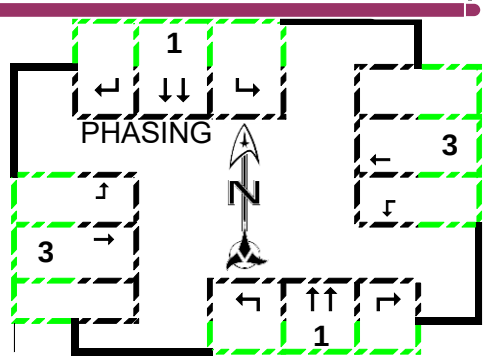
TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS
PEDESTRIAN
MAXIMUMS
REDS
VOL DENSITY
MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	20	6
WALK2		
WLK MAX		
PED CLR/FDW	10	24
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	40	35
MAX 2	50	45
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.8	3.6
RED CLR	1.2	3.4
RED MAX		
RED RVT	2	2
ACT B4		
SEC/ACT		
MAX INT		
TIME B4		
CARS WT		
STPTDUC		
TTREDUC		
MIN GAP		
LOCK DET		
VEH RECALL		
PED RECALL	X	
MAX RECALL		
SOFT RECALL		
NO REST		
ADD INIT CAL		

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
-6	0	-7	0	0	0	0	0
-6	0	-7	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

HAYDEN RD. & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	24	0	0	0	0	0
YELLOW	4.8	0.0	3.6	0.0	0.0	0.0	0.0	0.0
ALL RED	1.2	0.0	3.4	0.0	0.0	0.0	0.0	0.0

SYSTEM # 285

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1 1 ↕ 3 ↔
R2

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-7	0	0	0	0	0	RING 2

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-7	0	0	0	0	0	RING 2

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-7	0	0	0	0	0	RING 2

DIR CODE	COORD DIR	B.O.G. OFFSET	
	NB		1
	SB		2
	NS		3
	EB		4
	WB		5
	EW		6

HAYDEN RD. & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	24	0	0	0	0	0
YELLOW	4.8	0.0	3.6	0.0	0.0	0.0	0.0	0.0
ALL RED	1.2	0.0	3.4	0.0	0.0	0.0	0.0	0.0

SYSTEM # 285

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN
MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-7	0	0	0	0	0	RING 2

0

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-7	0	0	0	0	0	RING 2

0

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-7	0	0	0	0	0	RING 2

0

DIR CODE	COORD DIR	B.O.G. OFFSET	
	NB		1
	SB		2
	NS		3
	EB		4
	WB		5
	EW		6

HAYDEN RD. & GRAYHAWK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	16	28	STANDARD
YELLOW	4.5	3.6	3.0
ALL-RED	1.5	4.4	1.0

DATE DESIGNED: 8/31/2010

SYSTEM # 268 | SECTION # 101

COMMUNICATIONS: MM-1-5-1 | I.P. ADDRESS: 172.17. 12.68

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

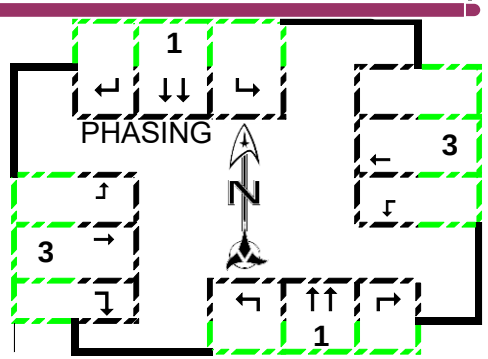
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	15	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	9	20
WALK2		
WLK MAX		
PED CLR/FDW	16	28
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	30	60
MAX 2	40	70
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.5	3.6
RED CLR	1.5	4.4
RED MAX		
RED RVT	2	2
ACT B4		
SEC/ACT		
MAX INT		
TIME B4		
CARS WT		
STPTDUC		
TTREDUC		
MIN GAP		
LOCK DET		
VEH RECALL		
PED RECALL	X	
MAX RECALL		
SOFT RECALL		
NO REST		
ADD INIT CAL		

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
-6	0	-8	0	0	0	0	0
-6	0	-8	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

HAYDEN RD. & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	28	0	0	0	0	0
YELLOW	4.5	0.0	3.6	0.0	0.0	0.0	0.0	0.0
ALL RED	1.5	0.0	4.4	0.0	0.0	0.0	0.0	0.0

SYSTEM # 268

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | | 3 ↔ |
R2: | | | |

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2
AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB		1
2	SB		2
3	NS		3
4	EB		4
5	WB		5
6	EW		6

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-8	0	0	0	0	0	RING 2



PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-8	0	0	0	0	0	RING 2



PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-8	0	0	0	0	0	RING 2



HAYDEN RD. & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	28	0	0	0	0	0
YELLOW	4.5	0.0	3.6	0.0	0.0	0.0	0.0	0.0
ALL RED	1.5	0.0	4.4	0.0	0.0	0.0	0.0	0.0

SYSTEM # 268

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN
MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	
2	SB	
3	NS	
4	EB	
5	WB	
6	EW	

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-8	0	0	0	0	0	RING 2

0

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-8	0	0	0	0	0	RING 2

0

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-6	0	-8	0	0	0	0	0	RING 2

0

HAYDEN & 101 FREEWAY

BASIC TIMING PLANS

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	15	33	STANDARD	10/25/2010
YELLOW	4.4	4.9	3.0	SYSTEM # 255 / SECTION # 101
ALL-RED	1.6	3.1	1.0	

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.55

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

RECOMMENDED CLEARANCES

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

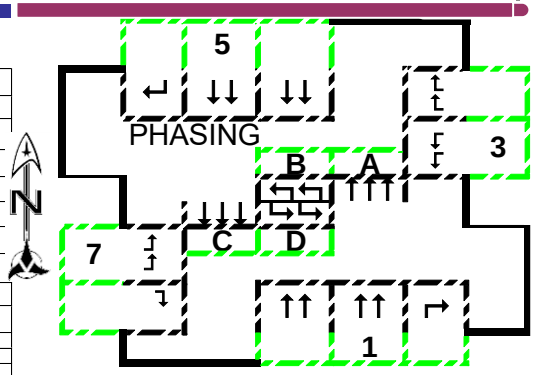
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3		5	6	7	
MOVEMENT	NBT, A	OL C,D	WB,OLC,D		SBT, C	OL A,B	EB,OLA,B	
NOTES		DUMMY				DUMMY		
MIN GRN	12	6	7		12	6	7	
BK MGRN								
CS MGRN								
DLY GRN								
WALK	5		7		5		7	
WALK2								
WLK MAX								
PED CLR/FDW	15		33		15		33	
PD CLR2								
PC MAX								
PED CO								
VEH EXT		2	2			2	2	
VH EXT2								
MAX 1	50	35	30		45	32	30	
MAX 2	105	65	50		60	105	110	
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.4	4.4	4.3		4.4	4.4	4.3	
RED CLR	1.6	1.6	2.7		1.6	1.6	2.7	
RED MAX								
RED RVT	2		2		2		2	
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL		?		X		?		X
PED RECALL								
MAX RECALL	X				X			
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
39	34	33	34	34	39	25	34
94	48	40	115	48	94	108	47

SPLIT PLAN MAXIMUMS

NOTES

PHS 3&7 EXCL
OVERLAPS:
OL-A=1+6+7
OL-B=6+7
OL-C=2+3+5
OL-D=2+3
REASSIGN SP:
SP-2=4(D), O
SP-4=1(A), O
SP-6=2(B), O
SP-8=3(C), O

ONLY VALID WHEN STAMPED

HAYDEN & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	15	0	33	0	15	0	33	0
YELLOW	4.4	4.4	4.3	0.0	4.4	4.4	4.3	0.0
ALL RED	1.6	1.6	2.7	0.0	1.6	1.6	2.7	0.0
O.L. EXT	9.0	9.0	9.0		9.0	9.0	9.0	

SYSTEM # 255

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 4

ACTION PLAN #

SEQUENCE

R1	2 ↳	1 ↑		3 ←
R2	5 ↓	6 ↰	7 →	

MOVEMENTS: NBT, A | OL C,D | WB,OLC,D | 0 | SBT, C | OL A,B | EB,OLA,B | 0

E/W: WALK & GREEN | FDW & GREEN | GREEN w/o WALK | LEFT

N/S

PLAN # 1

DATE EFFECTIVE 12/23/2005

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	24	47	23	26	47	24	26	23	120
COORD		X			X				ACTUAL CYCLE
RECALLS (V, P, Mx)		M			M				
GREEN	18	32	16	26	32	18	10	23	RING 1 / RING 2

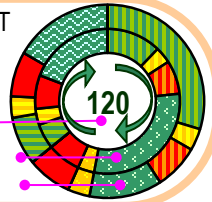


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	28	49	20	23	49	28	23	20	120
COORD		X			X				ACTUAL CYCLE
RECALLS (V, P, Mx)		M			M				
GREEN	22	34	13	23	34	22	7	20	RING 1 / RING 2

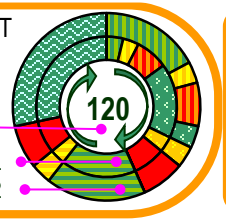


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	18	34	34	34	34	18	34	34	120
COORD		X			X				ACTUAL CYCLE
RECALLS (V, P, Mx)		M			M				
GREEN	12	19	27	34	19	12	18	34	RING 1 / RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s

1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

3 1 | 3 2 | 3 3 | 3 4 | 3 5 | 3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	0
2	SB	0
3	NS	0
4	EB	0
5	WB	0
6	EW	0

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

HAYDEN & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	15	0	33	0	15	0	33	0
YELLOW	4.4	4.4	4.3	0.0	4.4	4.4	4.3	0.0
ALL RED	1.6	1.6	2.7	0.0	1.6	1.6	2.7	0.0
O.L. EXT	9.0	9.0	9.0		9.0	9.0	9.0	

SYSTEM # 255

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 13

ACTION PLAN

R1	1 ↑	2 ↳	3 ←	
R2	6 ↰	5 ↓		7 →

MOVEMENTS: NBT, A | OL C,D | WB,OLC,D | 0 | SBT, C | OL A,B | EB,OLA,B | 0

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	0
2	SB	0
3	NS	0
4	EB	0
5	WB	0
6	EW	0

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 12/23/2005

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	51	21	26	22	21	51	22	26	120
COORD	x					x			ACTUAL CYCLE
RECALLS (V, P, Mx)	v	v			v	v			
GREEN	36	15	10	22	15	36	15	26	RING 1 / RING 2



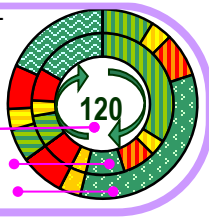
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	54	24	22	20	24	54	20	22	120
COORD	x					x			ACTUAL CYCLE
RECALLS (V, P, Mx)	v	v			v	v			
GREEN	39	18	6	20	18	39	13	22	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	39	20	29	32	20	39	32	29	120
COORD	x					x			ACTUAL CYCLE
RECALLS (V, P, Mx)	v	v			v	v			
GREEN	24	14	13	32	14	24	25	29	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

HAYDEN RD. & LEGACY BLVD

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	25	25	STANDARD
YELLOW	4.8	4.8	3.0
ALL-RED	2.2	2.2	1.0

DATE DESIGNED: 8/31/2010

SYSTEM #: 293 SECTION #: 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.93

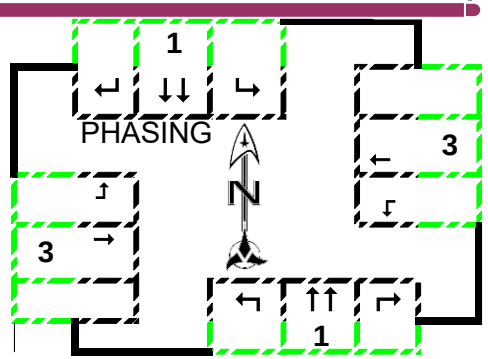
TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS
PEDESTRIAN
MAXIMUMS
REDS
VOL DENSITY
MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	15	10
WALK2		
WLK MAX		
PED CLR/FDW	25	25
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	50	40
MAX 2	60	50
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.8	4.8
RED CLR	2.2	2.2
RED MAX		
RED RVT	2	2
ACT B4		
SEC/ACT		
MAX INT		
TIME B4		
CARS WT		
STPTDUC		
TTREDUC		
MIN GAP		
LOCK DET		
VEH RECALL		
PED RECALL	X	
MAX RECALL		
SOFT RECALL		
NO REST		
ADD INIT CAL		

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
-7	0	-7	0	0	0	0	0
-7	0	-7	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

HAYDEN RD. & LEGACY BLVD

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	25	0	25	0	0	0	0	0
YELLOW	4.8	0.0	4.8	0.0	0.0	0.0	0.0	0.0
ALL RED	2.2	0.0	2.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 293

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | | 3 ↔ |
R2: | | | |

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET	HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS
	NB		1
	SB		2
	NS		3
	EB		4
	WB		5
	EW		6

PLAN # 1

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-7	0	-7	0	0	0	0	0	RING 2

0

PLAN # 2

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-7	0	-7	0	0	0	0	0	RING 2

0

PLAN # 3

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT									120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-7	0	-7	0	0	0	0	0	RING 2

0

HAYDEN RD. & LEGACY BLVD

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	25	0	25	0	0	0	0	0
YELLOW	4.8	0.0	4.8	0.0	0.0	0.0	0.0	0.0
ALL RED	2.2	0.0	2.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 293

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1 1 ↕ 3 ↔

R2

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	
2	SB	
3	NS	
4	EB	
5	WB	
6	EW	

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-7	0	-7	0	0	0	0	0	RING 2

PLAN # 8

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT									
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-7	0	-7	0	0	0	0	0	RING 2

PLAN # 9

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT									120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									RING 1
GREEN	-7	0	-7	0	0	0	0	0	RING 2

HAYDEN RD. & PRINCESS DR.

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	20	22	STANDARD
YELLOW	4	4	3.0
ALL-RED	2	3	1.0

DATE DESIGNED: 8/30/2010

SYSTEM # 265 | SECTION # 101

COMMUNICATIONS: MM-1-5-1 | I.P. ADDRESS: 172.17. 12.65

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

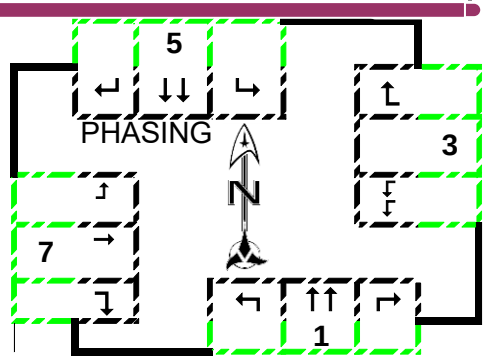
REDS

VOL DENSITY

MM-2-8 RECALLS

PHASE	1	3	5	7
MOVEMENT	NBT	WBTL	SBT	EBTL
NOTES		EXCL		EXCL
MIN GRN	10	8	10	6
BK MGRN				
CS MGRN				
DLY GRN				
WALK	20	10	20	10
WALK2				
WLK MAX				
PED CLR/FDW	20	25	20	25
PD CLR2				
PC MAX				
PED CO				
VEH EXT		2		1
VH EXT2				
MAX 1	50	40	50	30
MAX 2	60	50	60	40
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4	4	4	4
RED CLR	2	3	2	3
RED MAX				
RED RVT	2	2	2	2
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL				
PED RECALL	X		X	
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
68	0	26	33	68	0	26	33
84	0	76	83	84	0	76	83

SPLIT PLAN MAXIMUMS

NOTES

SIGNAL IS ALWAYS IN FREE AND PHS 3 & 7 ***MUST*** BE EXCLUSIVE. ALWAYS USE SEQ 3 OR 9. CHANGE ALL SEQS TO MATCH EITHER #3 OR #9 AND PLACE BARRIER BETWEEN PH3 & PH7

ONLY VALID WHEN STAMPED

HAYDEN RD. & PRINCESS DR.

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	20	0	25	0	20	0	25	0
YELLOW	4.0	0.0	4.0	0.0	4.0	0.0	4.0	0.0
ALL RED	2.0	0.0	3.0	0.0	2.0	0.0	3.0	0.0

SYSTEM # 265

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 3

ACTION PLAN #

SEQUENCE

R1	1 ↑			3 ←
R2	5 ↓		7 →	

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

3 1 | 3 2 | 3 3 | 3 4 | 3 5 | 3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	10
2	SB	10
3	NS	1
4	EB	1
5	WB	1
6	EW	1

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

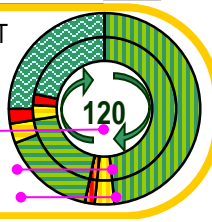
1 2 3 4 5 6

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	64		30	26	64		26	30	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	58	0	23	26	58	0	19	30	RING 1 / RING 2

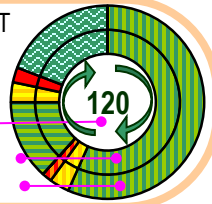


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	74		23	23	74		23	23	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	68	0	16	23	68	0	16	23	RING 1 / RING 2

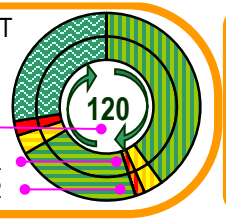


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	54		33	33	54		33	33	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	48	0	26	33	48	0	26	33	RING 1 / RING 2



HAYDEN RD. & PRINCESS DR.

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	20	0	25	0	20	0	25	0
YELLOW	4.0	0.0	4.0	0.0	4.0	0.0	4.0	0.0
ALL RED	2.0	0.0	3.0	0.0	2.0	0.0	3.0	0.0

SYSTEM # 265

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 3
ACTION PLAN

SEQUENCE

R1	1 ↑			3 ←
R2	5 ↓		7 →	

MOVEMENTS NBT WBTL SBT EBTL

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	10
2	SB	10
3	NS	1
4	EB	1
5	WB	1
6	EW	1

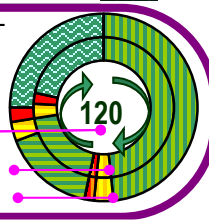
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	64		30	26	64		26	30	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									
GREEN	58	0	23	26	58	0	19	30	RING 1 / RING 2

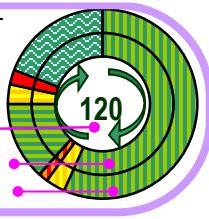


PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	74		23	23	74		23	23	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									
GREEN	68	0	16	23	68	0	16	23	RING 1 / RING 2

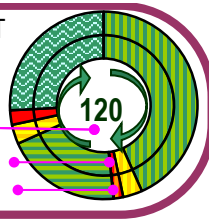


PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	58		31	31	58		31	31	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									
GREEN	52	0	24	31	52	0	24	31	RING 1 / RING 2



HAYDEN & THOMPSON PEAK PKWY

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	32	28	STANDARD
YELLOW	4.5	4.7	3.0
ALL-RED	2.5	2.3	1.0

DATE DESIGNED: 1/13/2011

SYSTEM #: 227 SECTION #: 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.27

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

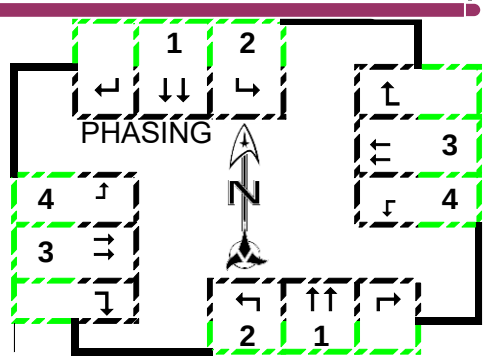
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4
MOVEMENT	NST	NSL	EWT	EWL
NOTES				
MIN GRN	10	4	10	4
BK MGRN				
CS MGRN				
DLY GRN				
WALK	8		7	
WALK2				
WLK MAX				
PED CLR/FDW	32		28	
PD CLR2				
PC MAX				
PED CO				
VEH EXT		1	2	1
VH EXT2				
MAX 1	50	20	30	20
MAX 2	55	35	40	40
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.5	3	4.7	3
RED CLR	2.5	1	2.3	1
RED MAX				
RED RVT	2		2	
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL			X	
PED RECALL	X			
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
49	18	29	20	0	0	0	0
50	32	33	37	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

NORMALLY RUNS IN FREE

ONLY VALID WHEN STAMPED

HAYDEN & THOMPSON PEAK PKWY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	32	0	28	0	0	0	0	0
YELLOW	4.5	3.0	4.7	3.0	0.0	0.0	0.0	0.0
ALL RED	2.5	1.0	2.3	1.0	0.0	0.0	0.0	0.0

SYSTEM # 227

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

	1	2	3	4
R1	1	2	3	4
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MOVEMENTS NST NSL EWT EWL

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	46	19	36	19	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	39	15	29	15	0	0	0	0	RING 1 / RING 2



1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	56	22	26	16	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	49	18	19	12	0	0	0	0	RING 1 / RING 2



2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	46	19	36	19	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	39	15	29	15	0	0	0	0	RING 1 / RING 2



3 1 | 3 2 | 3 3 | 3 4 | 3 5 | 3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	0
2	SB	0
3	NS	0
4	EB	0
5	WB	0
6	EW	0

HAYDEN & THOMPSON PEAK PKWY

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	32	0	28	0	0	0	0	0
YELLOW	4.5	3.0	4.7	3.0	0.0	0.0	0.0	0.0
ALL RED	2.5	1.0	2.3	1.0	0.0	0.0	0.0	0.0

SYSTEM # 227

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

	1	2	3	4
R1	1	2	3	4
R2				

MOVEMENTS NST NSL EWT EWL

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	46	19	36	19	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	39	15	29	15	0	0	0	0	RING 1 / RING 2



PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	55	22	27	16	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	48	18	20	12	0	0	0	0	RING 1 / RING 2

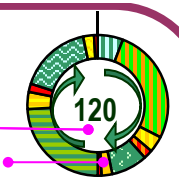


PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	46	14	36	24	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	39	10	29	20	0	0	0	0	RING 1 / RING 2



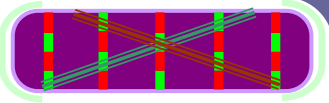
MM-3-2

AVAILABLE COORDINATOR PATTERN #s

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6



PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	0
2	SB	0
3	NS	0
4	EB	0
5	WB	0
6	EW	0

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

PIMA & THOMPSON PEAK PKWY.

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	29	28	STANDARD	
YELLOW	4.7	4.7	3.0	SYSTEM # 207
ALL-RED	2.3	2.3	1.0	SECTION # 101

COMMUNICATIONS MM-1-5-1 | I.P. ADDRESS 172.17. 12.07 | M.A.C. ADDRESS

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

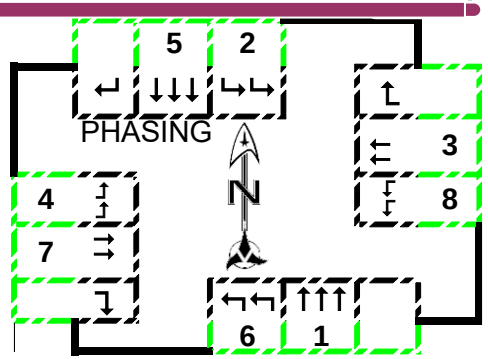
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4	5	6	7	8
MOVEMENT	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
NOTES								
MIN GRN	20	6	10	6	20	6	10	6
BK MGRN								
CS MGRN								
DLY GRN								
WALK	7		7		7		7	
WALK2								
WLK MAX								
PED CLR/FDW	29		28		29		28	
PD CLR2								
PC MAX								
PED CO								
VEH EXT	2	2	2	2	2	2	2	2
VH EXT2								
MAX 1	65	20	25	20	65	40	20	30
MAX 2	70	45	40	40	70	45	40	40
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.7	3	4.7	3	4.7	3	4.7	3
RED CLR	2.3	1	2.3	1	2.3	1	2.3	1
RED MAX								
RED RVT	2	2	2	2	2	2	2	2
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL								
PED RECALL	X				X			
MAX RECALL								
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
62	20	23	20	62	36	19	26
68	41	40	39	68	41	40	39

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

PIMA & THOMPSON PEAK PKWY.

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	29	0	28	0	29	0	28	0
YELLOW	4.7	3.0	4.7	3.0	4.7	3.0	4.7	3.0
ALL RED	2.3	1.0	2.3	1.0	2.3	1.0	2.3	1.0

SYSTEM # 207

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

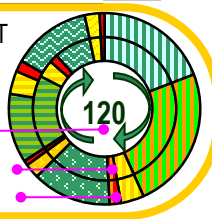
MOVEMENTS: NBT | SBL | WBT | EBL | SBT | NBL | EBT | WBL

PLAN # 1

DATE EFFECTIVE 12/11/2003

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	59	20	27	14	59	20	21	20	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	52	16	20	10	52	16	14	16	RING 1
									RING 2

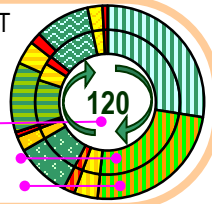


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	69	15	19	17	69	15	21	15	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	62	11	12	13	62	11	14	11	RING 1
									RING 2

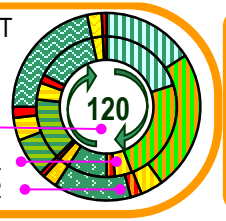


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	60	15	24	21	55	20	15	30	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	53	11	17	17	48	16	8	26	RING 1
									RING 2



MM-3-2

AVAILABLE COORDINATOR PATTERN #s

1 1
1 2
1 3
1 4
1 5
1 6
2 1
2 2
2 3
2 4
2 5
2 6
3 1
3 2
3 3
3 4
3 5
3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	85	1
2	SB	85	2
3	NS	85	3
4	EB	85	4
5	WB	85	5
6	EW	85	6

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PIMA & THOMPSON PEAK PKWY.

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	29	0	28	0	29	0	28	0
YELLOW	4.7	3.0	4.7	3.0	4.7	3.0	4.7	3.0
ALL RED	2.3	1.0	2.3	1.0	2.3	1.0	2.3	1.0

SYSTEM # 207

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

SEQUENCE

R1	1 ↑	2 ↪	3 ←	4 ↴
R2	5 ↓	6 ↩	7 →	8 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

MOVEMENTS	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
PHASE	1	2	3	4	5	6	7	8

PLAN # 7

DATE EFFECTIVE 8/28/2001

OPERATIVE TIMES 1530-1830

RING 1 / RING 2

	1	2	3	4	5	6	7	8	TARGET
SPLIT	55	24	22	19	48	31	22	19	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	48	20	15	15	41	27	15	15	RING 1 / RING 2

120

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

RING 1 / RING 2

	1	2	3	4	5	6	7	8	TARGET
SPLIT	68	20	17	15	48	40	17	15	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	61	16	10	11	41	36	10	11	RING 1 / RING 2

120

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

RING 1 / RING 2

	1	2	3	4	5	6	7	8	TARGET
SPLIT	50	20	26	24	45	25	26	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	43	16	19	20	38	21	19	20	RING 1 / RING 2

120

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	50
2	SB	50
3	NS	50
4	EB	50
5	WB	50
6	EW	50

SCOTTSDALE & N. 17050

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	10	28	STANDARD	
YELLOW	4.7	2.9	3.0	SYSTEM # 229
ALL-RED	1.3	4.1	1.0	SECTION # 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.29

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

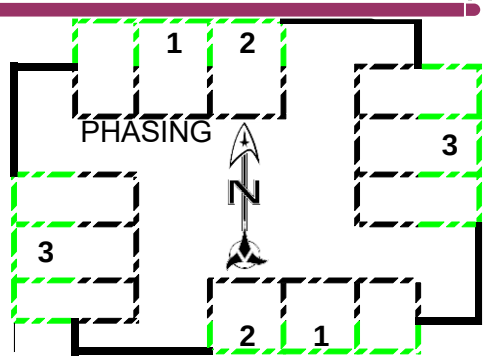
REDS

VOL DENSITY

MM-2-8 RECALLS

PHASE	1	2	3
MOVEMENT	NST	NSL	EWT
NOTES		p&P	
MIN GRN	20	4	6
BK MGRN			
CS MGRN			
DLY GRN			
WALK	7		7
WALK2			
WLK MAX			
PED CLR/FDW	10		28
PD CLR2			
PC MAX			
PED CO			
VEH EXT	0	1	3
VH EXT2			
MAX 1	95	15	35
MAX 2	100	30	50
MAX 3			
DYM MAX			
DYM STP			
YELLOW	4.7	3	2.9
RED CLR	1.3	1	4.1
RED MAX			
RED RVT	2		2
ACT B4			
SEC/ACT			
MAX INT			
TIME B4			
CARS WT			
STPTDUC			
TTREDUC			
MIN GAP			
LOCK DET			
VEH RECALL			
PED RECALL	X		
MAX RECALL			
SOFT RECALL			
NO REST			
ADD INIT CAL			

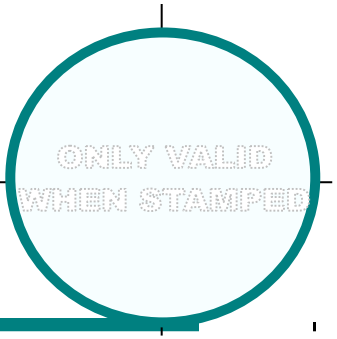
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
88	10	25	0	0	0	0	0
83	25	40	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES



SCOTTSDALE & N. 17050

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	28	0	0	0	0	0
YELLOW	4.7	3.0	2.9	0.0	0.0	0.0	0.0	0.0
ALL RED	1.3	1.0	4.1	0.0	0.0	0.0	0.0	0.0

SYSTEM # 229

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

	1	2	3	
R1	1 ↕	2 ↰↳	3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MOVEMENTS NST NSL EWT

PLAN # 1

DATE EFFECTIVE 4/4/1900

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	89	14	17	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	83	10	10	0	0	0	0	0	RING 1
									RING 2



PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	94	11	15	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	88	7	8	0	0	0	0	0	RING 1
									RING 2



PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

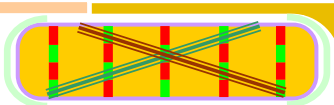
	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	82	11	27	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	76	7	20	0	0	0	0	0	RING 1
									RING 2



MM-3-2

AVAILABLE COORDINATOR PATTERN #s

1 1
1 2
1 3
1 4
1 5
1 6
2 1
2 2
2 3
2 4
2 5
2 6
3 1
3 2
3 3
3 4
3 5
3 6



PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	95
2	SB	95
3	NS	95
4	EB	95
5	WB	95
6	EW	95

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & N. 17050

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	28	0	0	0	0	0
YELLOW	4.7	3.0	2.9	0.0	0.0	0.0	0.0	0.0
ALL RED	1.3	1.0	4.1	0.0	0.0	0.0	0.0	0.0

SYSTEM # 229

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

MOVEMENTS NST NSL EWT

SEQUENCE

	1	2	3	4
R1	1 ↕	2 ↰↳	3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PLAN # 7

DATE EFFECTIVE 4/4/1900

OPERATIVE TIMES 1530-1830

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	84	11	25	0				
COORD	X							
RECALLS (V, P, Mx)	P							
GREEN	78	7	18	0	0	0	0	0

TARGET 120

ACTUAL CYCLE 120

RING 1

RING 2

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	92	11	17	0				
COORD	X							
RECALLS (V, P, Mx)	P							
GREEN	86	7	10	0	0	0	0	0

TARGET 120

ACTUAL CYCLE 120

RING 1

RING 2

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	77	11	32	0				
COORD	X							
RECALLS (V, P, Mx)	P							
GREEN	71	7	25	0	0	0	0	0

TARGET 120

ACTUAL CYCLE 120

RING 1

RING 2

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	95
2	SB	95
3	NS	95
4	EB	95
5	WB	95
6	EW	95

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 | 2 | 3 | 4 | 5 | 6

SCOTTSDALE & CHAUNCEY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	23	28	STANDARD
YELLOW	4.9	3.9	3.0
ALL-RED	2.1	3.1	1.0

DATE DESIGNED: 2/10/2010

SYSTEM #: 289 SECTION #: 724

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.89

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

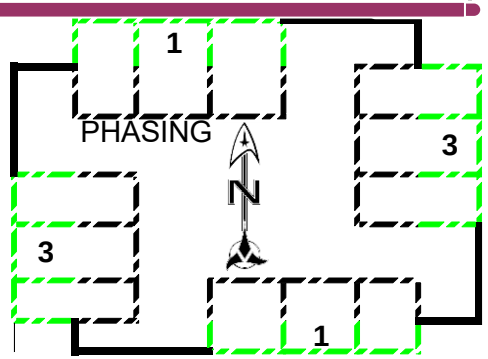
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	20	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	7	7
WALK2		
WLK MAX		
PED CLR/FDW	23	28
PD CLR2		
PC MAX		
PED CO		
VEH EXT	0	2
VH EXT2		
MAX 1	95	25
MAX 2	100	45
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.9	3.9
RED CLR	2.1	3.1
RED MAX		
RED RVT	2	2
ACT B4		
SEC/ACT		
MAX INT		
TIME B4		
CARS WT		
STPTDUC		
TTREDUC		
MIN GAP		
LOCK DET		
VEH RECALL		
PED RECALL	X	
MAX RECALL		
SOFT RECALL		
NO REST		
ADD INIT CAL		

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
94	0	22	0	0	0	0	0
98	0	45	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & CHAUNCEY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	28	0	0	0	0	0
YELLOW	4.9	0.0	3.9	0.0	0.0	0.0	0.0	0.0
ALL RED	2.1	0.0	3.1	0.0	0.0	0.0	0.0	0.0

SYSTEM # 289

SECTION # 724

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | | 3 ↔ |
R2: | | | |

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	99		21						120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)	X P								
GREEN	92	0	14	0	0	0	0	0	RING 1 / RING 2



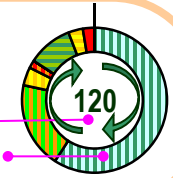
AVAILABLE COORDINATOR PATTERN #s: 1 1, 1 2, 1 3, 1 4, 1 5, 1 6

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	101		19						120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)	X P								
GREEN	94	0	12	0	0	0	0	0	RING 1 / RING 2



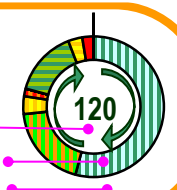
AVAILABLE COORDINATOR PATTERN #s: 2 1, 2 2, 2 3, 2 4, 2 5, 2 6

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	95		25						120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)	X P								
GREEN	88	0	18	0	0	0	0	0	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 3 1, 3 2, 3 3, 3 4, 3 5, 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	25
2	SB	25
3	NS	25
4	EB	25
5	WB	25
6	EW	25

SCOTTSDALE & CHAUNCEY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	28	0	0	0	0	0
YELLOW	4.9	0.0	3.9	0.0	0.0	0.0	0.0	0.0
ALL RED	2.1	0.0	3.1	0.0	0.0	0.0	0.0	0.0

SYSTEM # 289

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	25
2	SB	25
3	NS	25
4	EB	25
5	WB	25
6	EW	25

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	95		25						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	88	0	18	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	99		21						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	92	0	14	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	91		29						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	84	0	22	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE & DEER VALLEY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	12	12	STANDARD
YELLOW	4.8	4.2	3.0
ALL-RED	1.2	1.8	1.0

DATE DESIGNED: 11/20/2012

SYSTEM # 276 | SECTION # 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.76

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

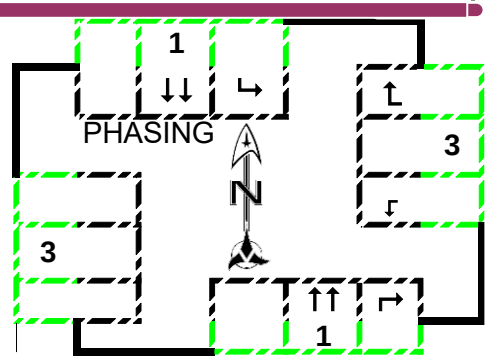
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	18	8
WALK2		
WLK MAX		
PED CLR/FDW	12	12
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	95	35
MAX 2	105	50
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.8	4.2
RED CLR	1.2	1.8
RED MAX		
RED RVT	2	2
ACT B4		
SEC/ACT		
MAX INT		
TIME B4		
CARS WT		
STPTDUC		
TTREDUC		
MIN GAP		
LOCK DET		
VEH RECALL		
PED RECALL	X	
MAX RECALL		
SOFT RECALL		
NO REST		
ADD INIT CAL		

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
93	0	35	0	0	0	0	0
102	0	48	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	12	0	12	0	0	0	0	0
YELLOW	4.8	0.0	4.2	0.0	0.0	0.0	0.0	0.0
ALL RED	1.2	0.0	1.8	0.0	0.0	0.0	0.0	0.0

SYSTEM # 276

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 1

ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | 3 ↔

R2

E/W: WALK & GREEN | FDW & GREEN | GREEN w/o WALK | LEFT

N/S

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

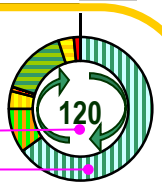
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	96	0	24	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	90	0	18	0	0	0	0	0	RING 1
									RING 2



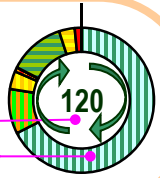
AVAILABLE COORDINATOR PATTERN #s: 1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

PLAN # 2

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	99	0	21	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	93	0	15	0	0	0	0	0	RING 1
									RING 2



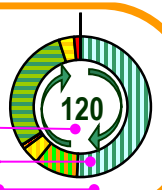
AVAILABLE COORDINATOR PATTERN #s: 2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

PLAN # 3

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	79	0	41	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	35	0	0	0	0	0	RING 1
									RING 2



AVAILABLE COORDINATOR PATTERN #s: 3 1 | 3 2 | 3 3 | 3 4 | 3 5 | 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	3	1
2	SB	70	2
3	NS	67	3
4	EB	67	4
5	WB	67	5
6	EW	67	6

SCOTTSDALE & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	12	0	12	0	0	0	0	0
YELLOW	4.8	0.0	4.2	0.0	0.0	0.0	0.0	0.0
ALL RED	1.2	0.0	1.8	0.0	0.0	0.0	0.0	0.0

SYSTEM # 276

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	89	0	31	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	83	0	25	0	0	0	0	0	RING 1
									RING 2

120

7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

PLAN # 8

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	94	0	26	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	88	0	20	0	0	0	0	0	RING 1
									RING 2

120

8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

PLAN # 9

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	84	0	36	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	30	0	0	0	0	0	RING 1
									RING 2

120

9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	95
2	SB	42
3	NS	42
4	EB	42
5	WB	42
6	EW	42

SCOTTSDALE & FRANK LLOYD WRIGHT

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	28	29	STANDARD	4/19/2016
YELLOW	4.7	4.7	3.0	SYSTEM # 162 / SECTION # 1617
ALL-RED	2.3	2.3	1.0	

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 11.62

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

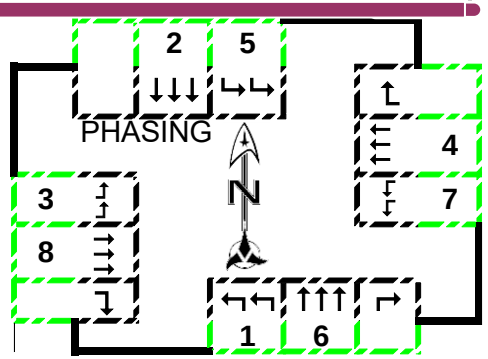
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4	5	6	7	8
MOVEMENT	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
NOTES								
MIN GRN	5	10	5	7	5	10	5	7
BK MGRN								
CS MGRN								
DLY GRN								
WALK		7		7		7		7
WALK2								
WLK MAX								
PED CLR/FDW		28		29		28		29
PD CLR2								
PC MAX								
PED CO								
VEH EXT	2		2	3	2		2	3
VH EXT2								
MAX 1	25	50	20	35	25	50	20	40
MAX 2	40	55	35	45	40	55	30	45
MAX 3								
DYM MAX								
DYM STP								
YELLOW	3	4.7	3	4.7	3	4.7	3	4.7
RED CLR	1	2.3	1	2.3	1	2.3	1	2.3
RED MAX								
RED RVT		2		2		2		2
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL		X		X		X		X
PED RECALL								
MAX RECALL								
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
50	17	43	17	53	20	46	15
55	34	45	28	55	34	45	27

SPLIT PLAN MAXIMUMS

NOTES

-ADJUSTED WALK TIME TO 7 SEC
-MIN GREEN TIME 5 SEC FOR LEFT TURN
-MIN GREEN TIME 7 SEC FOR MINOR THRU
-MIN GREEN TIME 10 SEC FOR MAJOR THRU
-VERIFIED TOTAL WALK INTERVAL AND PED CLEARANCE TIME SATISFIES MUTCD SECTION 4E.06 PARAGRAPH 14
-DID NOT RE-EVALUATE EXIST VEH EXT TIME
-FDW = D/W - 5
-USED 20 FT. DESIGN VEHICLE
-NO OTHER CHANGES EXCEPT AS DESCRIBED ABOVE

ONLY VALID WHEN STAMPED

SCOTTSDALE & FRANK LLOYD WRIGHT

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	0	28	0	29	0	28	0	29
YELLOW	3.0	4.7	3.0	4.7	3.0	4.7	3.0	4.7
ALL RED	1.0	2.3	1.0	2.3	1.0	2.3	1.0	2.3

SYSTEM # 162

SECTION # 1617

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

R1	6 ↑	5 ↳	4 ←	3 ↴
R2	2 ↓	1 ↰	8 →	7 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

PLAN # 1

DATE EFFECTIVE 11/18/2013

OPERATIVE TIMES 0630-0900

RING 1 / RING 2

MOVEMENTS	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
PHASE	1	2	3	4	5	6	7	8
SPLIT	34	22	40	24	45	11	49	15
COORD	x				x			
RECALLS (V, P, Mx)	v				v			
GREEN	30	15	36	17	41	4	45	8

TARGET 120 — ACTUAL CYCLE 120 — RING 1 — RING 2

PLAN # 2

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

RING 1 / RING 2

MOVEMENTS	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
PHASE	1	2	3	4	5	6	7	8
SPLIT	52	24	30	14	57	19	30	14
COORD	x				x			
RECALLS (V, P, Mx)	v				v			
GREEN	48	17	26	7	53	12	26	7

TARGET 120 — ACTUAL CYCLE 120 — RING 1 — RING 2

PLAN # 3

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

RING 1 / RING 2

MOVEMENTS	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
PHASE	1	2	3	4	5	6	7	8
SPLIT	33	18	47	22	38	13	50	19
COORD	x				x			
RECALLS (V, P, Mx)	v				v			
GREEN	29	11	43	15	34	6	46	12

TARGET 120 — ACTUAL CYCLE 120 — RING 1 — RING 2

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6
2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6
3 1 | 3 2 | 3 3 | 3 4 | 3 5 | 3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	36
2	SB	100
3	NS	100
4	EB	100
5	WB	100
6	EW	100

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & FRANK LLOYD WRIGHT

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	0	28	0	29	0	28	0	29
YELLOW	3.0	4.7	3.0	4.7	3.0	4.7	3.0	4.7
ALL RED	1.0	2.3	1.0	2.3	1.0	2.3	1.0	2.3

SYSTEM # 162

SECTION # 1617

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

R1	6 ↑	5 ↦	4 ←	3 ↴
R2	2 ↓	1 ↤	8 →	7 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

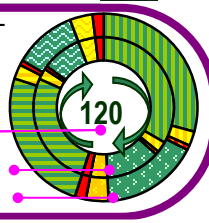
MOVEMENTS: NBL SBT EBL WBT SBL NBT WBL EBT

PLAN # 7

DATE EFFECTIVE 9/4/2013

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	44	22	36	18	39	27	34	20	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	v				v				
GREEN	40	15	32	11	35	20	30	13	RING 1 / RING 2

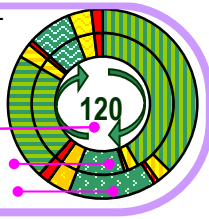


PLAN # 8

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	54	20	30	16	49	25	30	16	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	v				v				
GREEN	50	13	26	9	45	18	26	9	RING 1 / RING 2

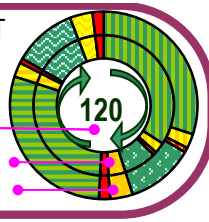


PLAN # 9

DATE EFFECTIVE 8/30/2013

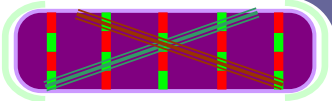
OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	45	16	39	20	40	21	39	20	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	v				v				
GREEN	41	9	35	13	36	14	35	13	RING 1 / RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s

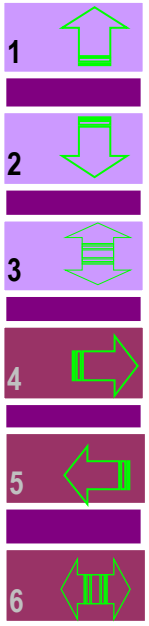
7 1	7 2	7 3	7 4	7 5	7 6	
8 1	8 2	8 3	8 4	8 5	8 6	
9 1	9 2	9 3	9 4	9 5	9 6	



PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	10
2	SB	67
3	NS	67
4	EB	67
5	WB	67
6	EW	67

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS



SCOTTSDALE & GRAYHAWK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	14	15	STANDARD
YELLOW	4.7	4	3.0
ALL-RED	1.3	2	1.0

DATE DESIGNED: 12/3/2012

SYSTEM # 217 | SECTION # 101

COMMUNICATIONS MM-1-5-1 | I.P. ADDRESS 172.17. 12.17

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

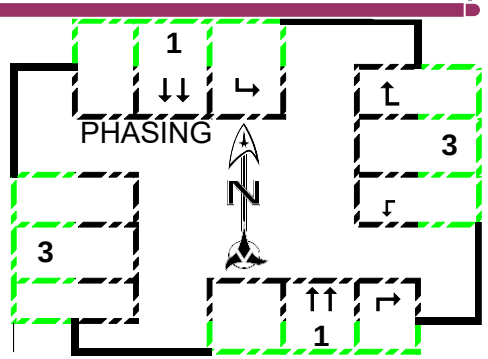
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	26	6
WALK2		
WLK MAX		
PED CLR/FDW	14	15
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	100	40
MAX 2	105	60
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.7	4
RED CLR	1.3	2
RED MAX		
RED RVT	2	2
ACT B4		
SEC/ACT		
MAX INT		
TIME B4		
CARS WT		
STPTDUC		
TTREDUC		
MIN GAP		
LOCK DET		
VEH RECALL		
PED RECALL	X	
MAX RECALL		
SOFT RECALL		
NO REST		
ADD INIT CAL		

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
98	0	36	0	0	0	0	0
102	0	59	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	14	0	15	0	0	0	0	0
YELLOW	4.7	0.0	4.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.3	0.0	2.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 217

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | 3 ↔
R2

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

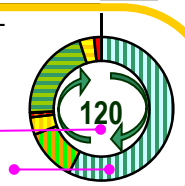
PLAN # 1

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES 0630-0900

RING 1 / RING 2

	1	2	3	4	5	6	7	8	TARGET
PHASE SPLIT	89	0	31	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	83	0	25	0	0	0	0	0	RING 1
									RING 2



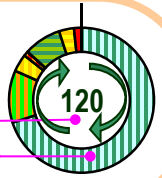
PLAN # 2

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

RING 1 / RING 2

	1	2	3	4	5	6	7	8	TARGET
PHASE SPLIT	104	0	16	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	98	0	10	0	0	0	0	0	RING 1
									RING 2



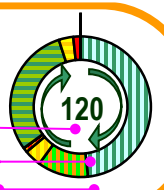
PLAN # 3

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

RING 1 / RING 2

	1	2	3	4	5	6	7	8	TARGET
PHASE SPLIT	78	0	42	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	72	0	36	0	0	0	0	0	RING 1
									RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s

1 1	2 1	3 1
1 2	2 2	3 2
1 3	2 3	3 3
1 4	2 4	3 4
1 5	2 5	3 5
1 6	2 6	3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	90
2	SB	90
3	NS	90
4	EB	90
5	WB	90
6	EW	90

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	14	0	15	0	0	0	0	0
YELLOW	4.7	0.0	4.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.3	0.0	2.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 217

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN
MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	90
2	SB	90
3	NS	90
4	EB	90
5	WB	90
6	EW	90

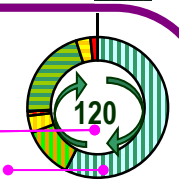
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	89	0	31	0	0	0	0	0	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx) X									
RECALLS (V, P, Mx) P									
GREEN	83	0	25	0	0	0	0	0	RING 1 / RING 2



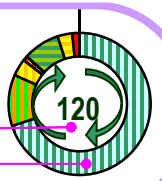
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	104	0	16	0	0	0	0	0	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx) X									
RECALLS (V, P, Mx) P									
GREEN	98	0	10	0	0	0	0	0	RING 1 / RING 2



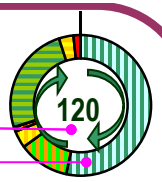
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	84	0	36	0	0	0	0	0	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx) X									
RECALLS (V, P, Mx) P									
GREEN	78	0	30	0	0	0	0	0	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE & 101 FREEWAY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED	
F.D.W.	12	35	STANDARD	10/25/2010	
YELLOW	4.5	4.8	3.0	SYSTEM #	SECTION #
ALL-RED	1.5	3.2	1.0	254	101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.54

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

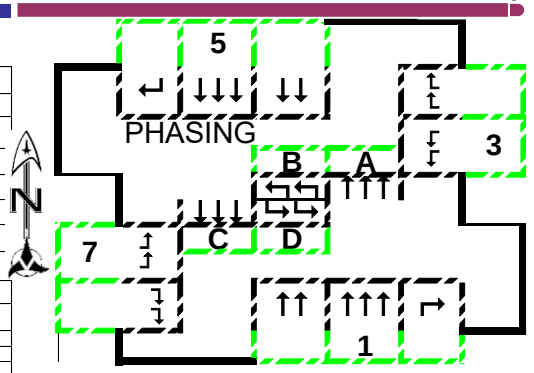
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4	5	6	7	8
MOVEMENT	NBT, A	OL A,D	WBT	OL A	SBT, C	OL B,C	EBT	OL C
NOTES		SP-2		SP-4		SP-6		SP-8
MIN GRN	10	5	7	1	10	5	7	1
BK MGRN								
CS MGRN								
DLY GRN								
WALK	6		6		6		6	
WALK2								
WLK MAX								
PED CLR/FDW	14		34		14		34	
PD CLR2								
PC MAX								
PED CO								
VEH EXT		2	2			2	2	
VH EXT2								
MAX 1	40	50	30	15	45	40	30	15
MAX 2	70	45	55	55	70	45	55	55
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.5	3	4.3	3	4.5	3	4.3	3
RED CLR	1.5	1	2.7	1	1.5	1	2.7	1
RED MAX								
RED RVT	2		2		2		2	
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL				X				X
PED RECALL								
MAX RECALL	X				X			
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
50	49	27	16	41	51	30	8
65	42	52	55	65	42	52	55

SPLIT PLAN MAXIMUMS

NOTES

OVERLAPS:
OL-A=1+2+4
OL-B=6
OL-C=5+6+8
OL-D=2
REASSIGN SP:
SP-2=4(D), O
SP-4=1(A), O
SP-6=2(B), O
SP-8=3(C), O

ONLY VALID WHEN STAMPED

SCOTTSDALE & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	14	0	34	0	14	0	34	0
YELLOW	4.5	3.0	4.3	3.0	4.5	3.0	4.3	3.0
ALL RED	1.5	1.0	2.7	1.0	1.5	1.0	2.7	1.0

SYSTEM # 254

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 1

ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MOVEMENTS: NBT, A | OL A,D | WBT | OL A | SBT, C | OL B,C | EBT | OL C

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

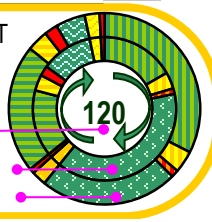
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	26	51	25	18	45	32	33	10	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	20	47	18	14	39	28	26	6	RING 1 / RING 2



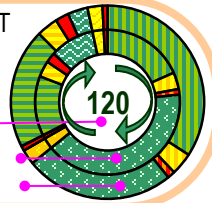
AVAILABLE COORDINATOR PATTERN #s: 1 1, 1 2, 1 3, 1 4, 1 5, 1 6

PLAN # 2

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	28	53	23	16	47	34	31	8	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	22	49	16	12	41	30	24	4	RING 1 / RING 2



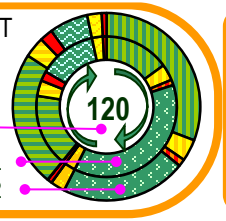
AVAILABLE COORDINATOR PATTERN #s: 2 1, 2 2, 2 3, 2 4, 2 5, 2 6

PLAN # 3

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	24	49	27	20	43	30	35	12	120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	18	45	20	16	37	26	28	8	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 3 1, 3 2, 3 3, 3 4, 3 5, 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	1
2	SB	1
3	NS	1
4	EB	1
5	WB	1
6	EW	1

SCOTTSDALE & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	14	0	34	0	14	0	34	0
YELLOW	4.5	3.0	4.3	3.0	4.5	3.0	4.3	3.0
ALL RED	1.5	1.0	2.7	1.0	1.5	1.0	2.7	1.0

SYSTEM # 254

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

SEQUENCE

R1	1 ↑	2 ↦	3 ←	4 ↴
R2	5 ↓	6 ↤	7 →	8 ↱

MOVEMENTS: NBT, A | OL A,D | WBT | OL A | SBT, C | OL B,C | EBT | OL C

E/W: WALK & GREEN | FDW & GREEN | GREEN w/o WALK | LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	1
2	SB	1
3	NS	1
4	EB	1
5	WB	1
6	EW	1

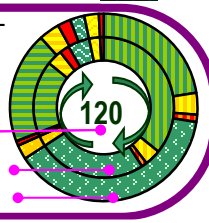
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	49	34	27	10	33	50	30	7	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									
GREEN	43	30	20	6	27	46	23	3	RING 1 / RING 2



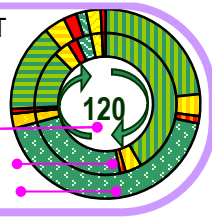
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	56	33	23	8	34	55	25	6	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									
GREEN	50	29	16	4	28	51	18	2	RING 1 / RING 2



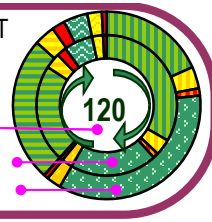
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	46	28	34	12	28	46	37	9	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)									
GREEN	40	24	27	8	22	42	30	5	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE & LEGACY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	23	27	STANDARD
YELLOW	4.9	3	3.0
ALL-RED	2.1	4	1.0

DATE DESIGNED: 2/10/2010

SYSTEM #: 291 SECTION #: 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.91 M.A.C. ADDRESS

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

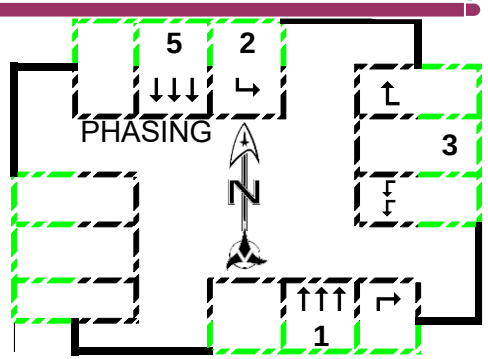
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3		5			
MOVEMENT	NBT	NSL	EWT		SBT			
NOTES		PROT						
MIN GRN	20	5	6		20			
BK MGRN								
CS MGRN								
DLY GRN								
WALK	7		7		7			
WALK2								
WLK MAX								
PED CLR/FDW	23		27		23			
PD CLR2								
PC MAX								
PED CO								
VEH EXT	0	1	1		0			
VH EXT2								
MAX 1	80	20	25		100			
MAX 2	95	50	45		110			
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.9	3	3		4.9			
RED CLR	2.1	1	4		2.1			
RED MAX								
RED RVT	2	0	2		2			
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL								
PED RECALL	X				X			
MAX RECALL								
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
80	18	24	0	92	22	31	0
94	50	44	0	94	54	51	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & LEGACY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	27	0	23	0	0	0
YELLOW	4.9	3.0	3.0	0.0	4.9	0.0	0.0	0.0
ALL RED	2.1	1.0	4.0	0.0	2.1	0.0	0.0	0.0

SYSTEM # 291

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

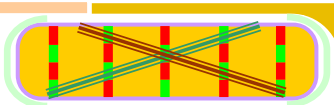
SEQUENCE

R1	1 ↑	2 ↳	3 ←	
R2	5 ↓			

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s



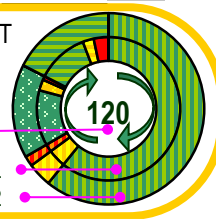
PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1
DATE EFFECTIVE 1/22/2010
OPERATIVE TIMES 0630-0900

MOVEMENTS	NBT	NSL	EWT	SBT

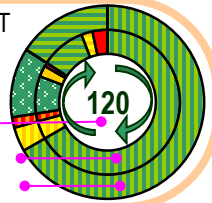
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	80	19	21	0	80	19	21	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	73	15	14	0	73	19	21	0	RING 1 / RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s: 1 1, 1 2, 1 3, 1 4, 1 5, 1 6

PLAN # 2
DATE EFFECTIVE 1/22/2010
OPERATIVE TIMES

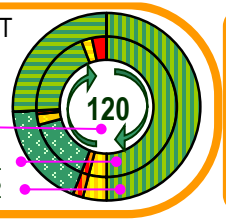
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	87	14	19	0	87	14	19	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	80	10	12	0	80	14	19	0	RING 1 / RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s: 2 1, 2 2, 2 3, 2 4, 2 5, 2 6

PLAN # 3
DATE EFFECTIVE 1/22/2010
OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	67	22	31	0	67	22	31	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	60	18	24	0	60	22	31	0	RING 1 / RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s: 3 1, 3 2, 3 3, 3 4, 3 5, 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	7
2	SB	30
3	NS	30
4	EB	30
5	WB	30
6	EW	30

SCOTTSDALE & LEGACY

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	27	0	23	0	0	0
YELLOW	4.9	3.0	3.0	0.0	4.9	0.0	0.0	0.0
ALL RED	2.1	1.0	4.0	0.0	2.1	0.0	0.0	0.0

SYSTEM # 291

SECTION # 101

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

SEQUENCE

R1	1 ↑	2 ↪	3 ←	
R2	5 ↓			

MOVEMENTS NBT NSL EWT SBT

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	79
2	SB	102
3	NS	102
4	EB	102
5	WB	102
6	EW	102

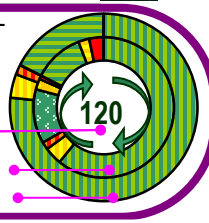
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	80	19	21	0	99	0	21	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	73	15	14	0	92	0	21	0	RING 1
									RING 2



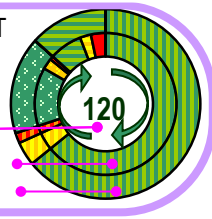
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	84	20	16	0	84	20	16	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	77	16	9	0	77	20	16	0	RING 1
									RING 2



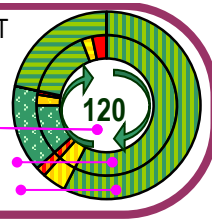
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	76	18	26	0	76	18	26	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	69	14	19	0	69	18	26	0	RING 1
									RING 2



AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE RD & MAYO BLVD

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	26	30	STANDARD	2/4/2010
YELLOW	4.7	3.5	3.0	SYSTEM # 215 / SECTION # 724
ALL-RED	2.3	4.5	1.0	

COMMUNICATIONS MM-1-5-1 | I.P. ADDRESS 172.17. 12.15

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

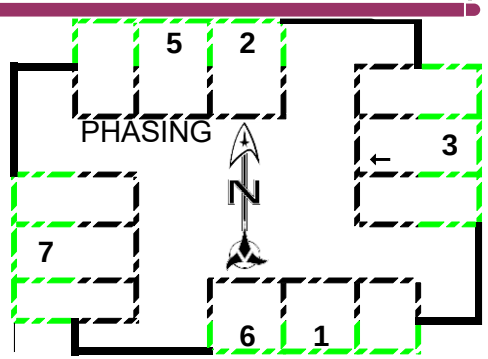
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS | PEDESTRIAN | MAXIMUMS | REDS | VOL DENSITY | MM-2-8 RECALLS

PHASE	1	2	3		5	6	7	
MOVEMENT	NBT	SBL	WBT		SBT	NBL	EBT	
NOTES								
MIN GRN	20	5	4		20	5	10	
BK MGRN								
CS MGRN								
DLY GRN								
WALK	7	0	7		7	0	7	
WALK2								
WLK MAX								
PED CLR/FDW	26		30		26		30	
PD CLR2								
PC MAX								
PED CO								
VEH EXT		2	2			2	2	
VH EXT2								
MAX 1	60	25	15		50	25	35	
MAX 2	70	35	40		70	35	50	
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.8	3	3.9		4.8	3	3.9	
RED CLR	2.2	1	3.1		2.2	1	3.1	
RED MAX								
RED RVT	2		2		2		2	
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL								
PED RECALL	X				X			
MAX RECALL								
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16

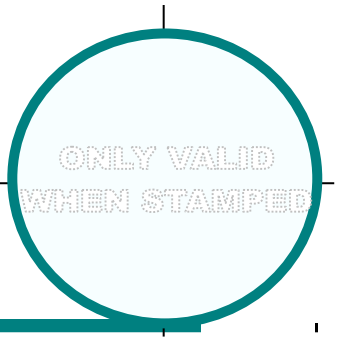


1	2	3	4	5	6	7	8
57	21	15	41	49	25	34	22
66	33	40	53	66	33	46	47

SPLIT PLAN MAXIMUMS

NOTES

PHASE 3 & 7 EXCLUSIVE, SET UP ON BARRIER PAGE. PH3 LEADS



SCOTTSDALE RD & MAYO BLVD

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	26	0	30	0	26	0	30	0
YELLOW	4.8	3.0	3.9	0.0	4.8	3.0	3.9	0.0
ALL RED	2.2	1.0	3.1	0.0	2.2	1.0	3.1	0.0

SYSTEM # 215

SECTION # 724

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 9
ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↳	3 ←	
R2	5 ↓	6 ↰		7 →

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

MOVEMENTS	NBT	SBL	WBT	SBT	NBL	EBT
RING 1 PHASE	1	2	3	4		
SPLIT	52	18	15	35		
COORD	X					
RECALLS (V, P, Mx)	P					
GREEN	45	14	8	35		
RING 2 PHASE					5	6	7	8
SPLIT					56	14	35	15
COORD					X			
RECALLS (V, P, Mx)					P			
GREEN					49	10	28	15

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

1 1, 1 2, 1 3, 1 4, 1 5, 1 6

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

MOVEMENTS	NBT	SBL	WBT	SBT	NBL	EBT
RING 1 PHASE	1	2	3	4		
SPLIT	50	25	14	31		
COORD	X					
RECALLS (V, P, Mx)	P					
GREEN	43	21	7	31		
RING 2 PHASE					5	6	7	8
SPLIT					54	21	31	14
COORD					X			
RECALLS (V, P, Mx)					P			
GREEN					47	17	24	14

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

2 1, 2 2, 2 3, 2 4, 2 5, 2 6

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

MOVEMENTS	NBT	SBL	WBT	SBT	NBL	EBT
RING 1 PHASE	1	2	3	4		
SPLIT	41	16	22	41		
COORD	X					
RECALLS (V, P, Mx)	P					
GREEN	34	12	15	41		
RING 2 PHASE					5	6	7	8
SPLIT					45	12	41	22
COORD					X			
RECALLS (V, P, Mx)					P			
GREEN					38	8	34	22

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

3 1, 3 2, 3 3, 3 4, 3 5, 3 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	98
2	SB	98
3	NS	98
4	EB	98
5	WB	98
6	EW	98

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS 1 2 3 4 5 6

SCOTTSDALE RD & MAYO BLVD

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	26	0	30	0	26	0	30	0
YELLOW	4.8	3.0	3.9	0.0	4.8	3.0	3.9	0.0
ALL RED	2.2	1.0	3.1	0.0	2.2	1.0	3.1	0.0

SYSTEM # 215

SECTION # 724

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 9
ACTION PLAN

R1	1 ↑	2 ↦	3 ←				
R2	5 ↓	6 ↤		7 →			
MOVEMENTS	NBT	SBL	WBT	SBT	NBL	EBT	

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	60	15	16	29	48	27	29	16
COORD			X		X			
RECALLS (V, P, Mx)			P		P			
GREEN	53	11	9	29	41	23	22	16

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

AVAILABLE PATTERNS: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	64	17	14	25	52	29	25	14
COORD			X		X			
RECALLS (V, P, Mx)			P		P			
GREEN	57	13	7	25	45	25	18	14

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

AVAILABLE PATTERNS: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	55	14	19	32	43	26	32	19
COORD			X		X			
RECALLS (V, P, Mx)			P		P			
GREEN	48	10	12	32	36	22	25	19

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

AVAILABLE PATTERNS: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	98
2	SB	98
3	NS	98
4	EB	98
5	WB	98
6	EW	98

SCOTTSDALE & PRINCESS

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	17	28	STANDARD	2/10/2010
YELLOW	4.4	2.9	3.0	SYSTEM # 163
ALL-RED	1.6	4.1	1.0	SECTION # 724

COMMUNICATIONS MM-1-5-1 | I.P. ADDRESS 172.17. 11.63

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

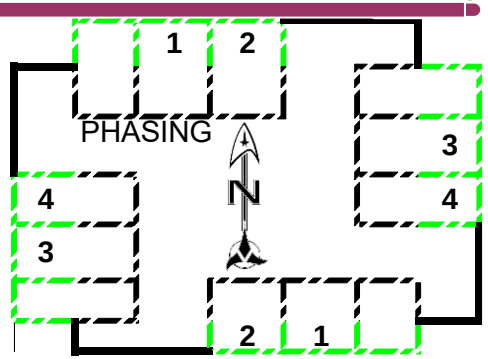
REDS

VOL DENSITY

MM-2-8 RECALLS

PHASE	1	2	3	4
MOVEMENT	NST	NSL	EWT	EWL
NOTES		p&P		p&P
MIN GRN	20	4	6	4
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		7	
WALK2				
WLK MAX				
PED CLR/FDW	17		28	
PD CLR2				
PC MAX				
PED CO				
VEH EXT	0	1	2	1
VH EXT2				
MAX 1	65	20	25	15
MAX 2	70	35	40	35
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.4	3	2.9	3
RED CLR	1.6	1	4.1	1
RED MAX				
RED RVT	2		2	
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL				
PED RECALL	X			
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

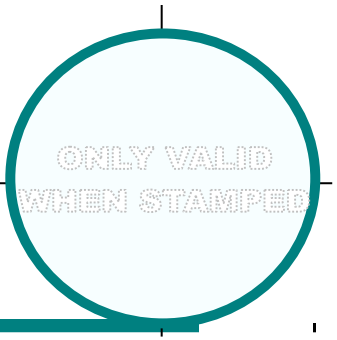
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
63	16	22	14	0	0	0	0
63	35	35	35	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES



SCOTTSDALE & PRINCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	28	0	0	0	0	0
YELLOW	4.4	3.0	2.9	3.0	0.0	0.0	0.0	0.0
ALL RED	1.6	1.0	4.1	1.0	0.0	0.0	0.0	0.0

SYSTEM # 163

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 1

ACTION PLAN #

MOVEMENTS NST NSL EWT EWL

SEQUENCE

	1	2	3	4
R1	1 ↕	2 ↰↳	3 ↔	4 ↴↱
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	67	18	20	15					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	61	14	13	11	0	0	0	0	RING 1
									RING 2

120

MM-3-2: 1 1; 1 2; 1 3; 1 4; 1 5; 1 6

PLAN # 2

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	69	20	19	12					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	63	16	12	8	0	0	0	0	RING 1
									RING 2

120

MM-3-2: 2 1; 2 2; 2 3; 2 4; 2 5; 2 6

PLAN # 3

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	65	14	27	14					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	59	10	20	10	0	0	0	0	RING 1
									RING 2

120

MM-3-2: 3 1; 3 2; 3 3; 3 4; 3 5; 3 6

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	25	1
2	SB	25	2
3	NS	25	3
4	EB	25	4
5	WB	25	5
6	EW	25	6

SCOTTSDALE & PRINCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	28	0	0	0	0	0
YELLOW	4.4	3.0	2.9	3.0	0.0	0.0	0.0	0.0
ALL RED	1.6	1.0	4.1	1.0	0.0	0.0	0.0	0.0

SYSTEM # 163

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

MOVEMENTS NST NSL EWT EWL

SEQUENCE

	1	2	3	4
R1	1 ↕	2 ↰↳	3 ↔	4 ↴↧
R2				

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	25
2	SB	25
3	NS	25
4	EB	25
5	WB	25
6	EW	25

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	63	18	21	18					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	57	14	14	14	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	67	20	21	12					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	61	16	14	8	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	62	13	29	16					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	56	9	22	12	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE & THOMPSON PEAK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	32	30	STANDARD	2/11/2010
YELLOW	5.3	4.6	3.0	SYSTEM # 216
ALL-RED	2.7	2.4	1.0	SECTION # 724

COMMUNICATIONS MM-1-5-1 | I.P. ADDRESS 172.17. 12.16

TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

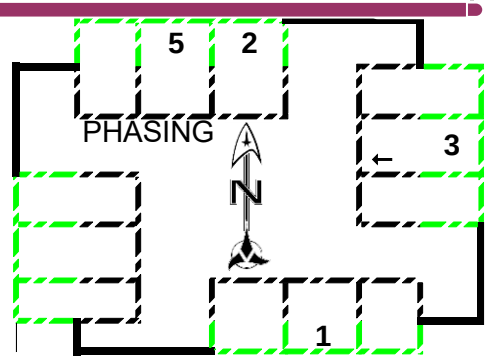
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	5
MOVEMENT	NBT	NSL	EWT	SBT
NOTES		PROT		
MIN GRN	20	5	6	20
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		7	7
WALK2				
WLK MAX				
PED CLR/FDW	32		30	32
PD CLR2				
PC MAX				
PED CO				
VEH EXT		3	2	
VH EXT2				
MAX 1	70	25	40	70
MAX 2	80	30	60	80
MAX 3				
DYM MAX				
DYM STP				
YELLOW	5.3	3	4.6	5.3
RED CLR	2.7	1	2.4	2.7
RED MAX				
RED RVT	2		2	2
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL				
PED RECALL	X			X
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

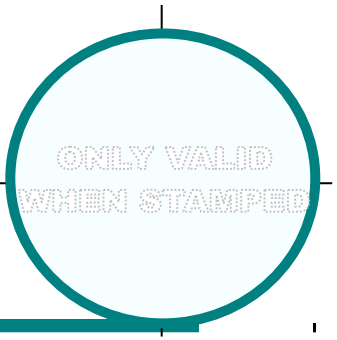
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
67	21	40	0	67	25	47	0
77	26	58	0	77	30	65	0

SPLIT PLAN MAXIMUMS

NOTES



SCOTTSDALE & THOMPSON PEAK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	32	0	30	0	32	0	0	0
YELLOW	5.3	3.0	4.6	0.0	5.3	0.0	0.0	0.0
ALL RED	2.7	1.0	2.4	0.0	2.7	0.0	0.0	0.0

SYSTEM # 216

SECTION # 724

MORNING | EVENING | N/S EX | MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NBT NSL EWT SBT

R1: 1 ↑ | 2 ↪ | 3 ←
R2: 5 ↓

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

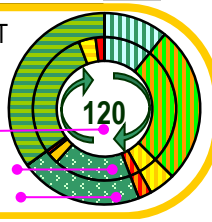
N/S

PLAN # 1

DATE EFFECTIVE #N/A

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	53	25	42	0	53	25	42	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	45	21	35	0	45	25	42	0	RING 1 / RING 2

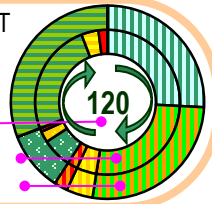


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	71	12	37	0	71	12	37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	63	8	30	0	63	12	37	0	RING 1 / RING 2

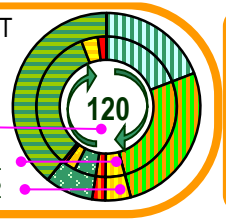


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

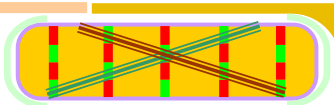
	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	63	10	47	0	63	10	47	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	55	6	40	0	55	10	47	0	RING 1 / RING 2



MM-3-2

AVAILABLE COORDINATOR PATTERN #s

1 1
1 2
1 3
1 4
1 5
1 6
2 1
2 2
2 3
2 4
2 5
2 6
3 1
3 2
3 3
3 4
3 5
3 6



PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	40
2	SB	40
3	NS	40
4	EB	40
5	WB	40
6	EW	40

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & THOMPSON PEAK

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	32	0	30	0	32	0	0	0
YELLOW	5.3	3.0	4.6	0.0	5.3	0.0	0.0	0.0
ALL RED	2.7	1.0	2.4	0.0	2.7	0.0	0.0	0.0

SYSTEM # 216

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

	R1	R2
1	1 ↑	5 ↓
2	2 ↪	
3	3 ←	

MOVEMENTS: NBT NSL EWT SBT

E/W: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	40
2	SB	40
3	NS	40
4	EB	40
5	WB	40
6	EW	40

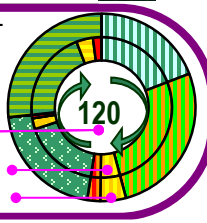
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	63	25	32	0	63	25	32	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	55	21	25	0	55	25	32	0	RING 1 / RING 2



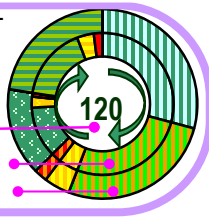
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	75	18	27	0	75	18	27	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	67	14	20	0	67	18	27	0	RING 1 / RING 2



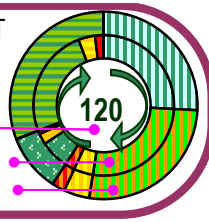
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

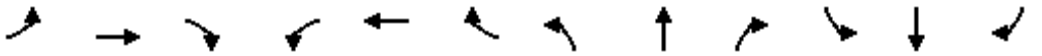
	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	71	12	37	0	71	12	37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	63	8	30	0	63	12	37	0	RING 1 / RING 2



AVAILABLE COORDINATOR PATTERN #s: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

APPENDIX D

EXISTING PEAK HOUR ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	10	58	60	11	2	57	487	15	3	545	31
Future Volume (vph)	25	10	58	60	11	2	57	487	15	3	545	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1624		1770	1823		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.37	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	1394	1624		1319	1823		698	3539	1583	770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	11	64	67	12	2	63	541	17	3	606	34
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	9	0	0	18
Lane Group Flow (vph)	28	37	0	67	13	0	63	541	8	3	606	16
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	649		527	729		323	1639	733	356	1639	733
v/s Ratio Prot		0.02			0.01			0.15			c0.17	
v/s Ratio Perm	0.02			c0.05			0.09		0.00	0.00		0.01
v/c Ratio	0.05	0.06		0.13	0.02		0.20	0.33	0.01	0.01	0.37	0.02
Uniform Delay, d1	17.5	17.5		18.0	17.2		15.0	16.2	13.8	13.7	16.5	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.5	0.0		1.3	0.5	0.0	0.0	0.6	0.1
Delay (s)	17.6	17.7		18.5	17.3		16.4	16.7	13.8	13.8	17.2	13.9
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		17.6			18.3			16.6			17.0	
Approach LOS		B			B			B			B	

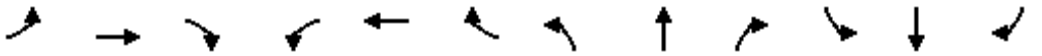
Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





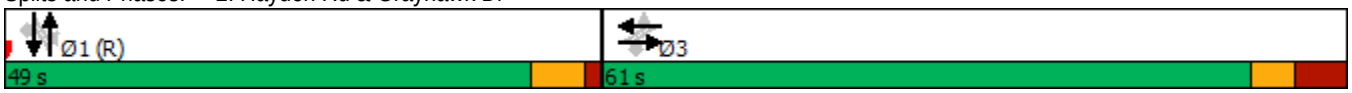
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	2	87	43	7	18	34	510	8	3	644	33
Future Volume (vph)	29	2	87	43	7	18	34	510	8	3	644	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1663		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.28	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1377	1863	1583	1409	1663		514	3539	1583	679	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	2	97	48	8	20	38	567	9	3	716	37
RTOR Reduction (vph)	0	0	50	0	10	0	0	0	5	0	0	23
Lane Group Flow (vph)	32	2	47	48	18	0	38	567	4	3	716	14
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	663	897	762	678	801		200	1383	618	265	1383	618
v/s Ratio Prot		0.00			0.01			0.16			c0.20	
v/s Ratio Perm	0.02		0.03	c0.03			0.07		0.00	0.00		0.01
v/c Ratio	0.05	0.00	0.06	0.07	0.02		0.19	0.41	0.01	0.01	0.52	0.02
Uniform Delay, d1	15.1	14.8	15.2	15.3	14.9		22.0	24.3	20.5	20.5	25.6	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.2	0.1		2.1	0.9	0.0	0.1	1.4	0.1
Delay (s)	15.3	14.8	15.4	15.5	15.0		24.1	25.2	20.5	20.6	27.0	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.3			15.3			25.1			26.6	
Approach LOS		B			B			C			C	

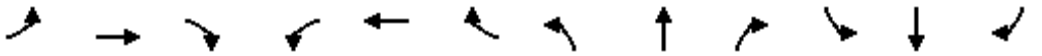
Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	248	254	282	234	84	128	422	241	198	543	42
Future Volume (vph)	26	248	254	282	234	84	128	422	241	198	543	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.59	1.00	1.00	0.33	1.00	1.00	0.39	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1101	3539	1583	620	3539	1583	735	3539	1583	700	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	276	282	313	260	93	142	469	268	220	603	47
RTOR Reduction (vph)	0	0	241	0	0	69	0	0	153	0	0	25
Lane Group Flow (vph)	29	276	41	313	260	24	142	469	115	220	603	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.0	17.5	17.5	40.3	31.3	31.3	61.1	51.3	51.3	69.3	56.4	56.4
Effective Green, g (s)	22.0	17.5	17.5	40.3	31.3	31.3	61.1	51.3	51.3	69.3	56.4	56.4
Actuated g/C Ratio	0.18	0.15	0.15	0.34	0.26	0.26	0.51	0.43	0.43	0.58	0.47	0.47
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	516	230	393	923	412	458	1512	676	519	1663	744
v/s Ratio Prot	0.00	0.08		c0.13	0.07		0.03	0.13		c0.05	c0.17	
v/s Ratio Perm	0.02		0.03	c0.14		0.02	0.13		0.07	c0.20		0.01
v/c Ratio	0.13	0.53	0.18	0.80	0.28	0.06	0.31	0.31	0.17	0.42	0.36	0.03
Uniform Delay, d1	40.7	47.5	44.9	32.6	35.4	33.3	15.8	22.7	21.2	13.1	20.3	17.1
Progression Factor	1.04	0.97	1.36	1.14	1.11	2.36	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.0	0.3	10.5	0.2	0.1	0.4	0.5	0.5	0.6	0.6	0.1
Delay (s)	42.5	47.2	61.4	47.7	39.4	78.6	16.2	23.2	21.7	13.7	20.9	17.2
Level of Service	D	D	E	D	D	E	B	C	C	B	C	B
Approach Delay (s)		53.8			48.8			21.6			18.9	
Approach LOS		D			D			C			B	

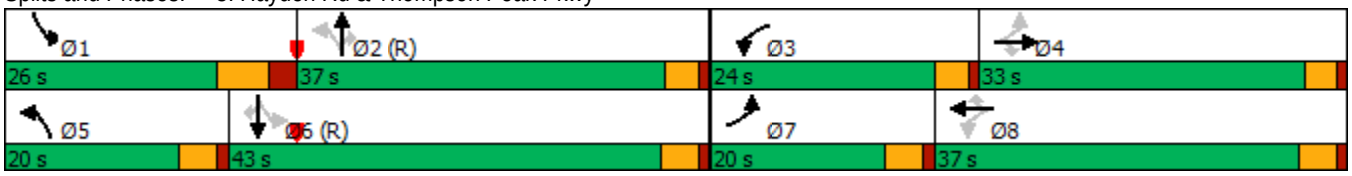
Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

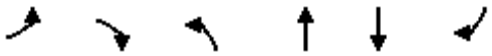
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	31	8	747	1094	4
Future Volume (vph)	8	31	8	747	1094	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	416	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	34	9	830	1216	4
RTOR Reduction (vph)	0	33	0	0	0	0
Lane Group Flow (vph)	9	1	9	830	1216	4
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				1	1	
Permitted Phases	3	3	1			1
Actuated Green, G (s)	4.2	4.2	91.8	91.8	91.8	91.8
Effective Green, g (s)	4.2	4.2	91.8	91.8	91.8	91.8
Actuated g/C Ratio	0.04	0.04	0.83	0.83	0.83	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	67	60	347	2953	2953	1321
v/s Ratio Prot				0.23	c0.34	
v/s Ratio Perm	c0.01	0.00	0.02			0.00
v/c Ratio	0.13	0.02	0.03	0.28	0.41	0.00
Uniform Delay, d1	51.1	50.9	1.5	2.0	2.3	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	0.1	0.2	0.4	0.0
Delay (s)	52.1	51.1	1.7	2.2	2.7	1.5
Level of Service	D	D	A	A	A	A
Approach Delay (s)	51.3			2.2	2.7	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

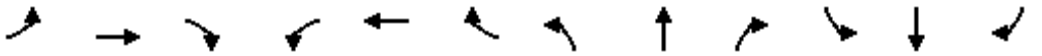
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	40
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	33	4	309	117	437	0	0	761	396
Future Volume (vph)	0	0	0	33	4	309	117	437	0	0	761	396
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1510	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1510	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	37	4	343	130	486	0	0	846	440
RTOR Reduction (vph)	0	0	0	0	139	139	0	0	0	0	0	238
Lane Group Flow (vph)	0	0	0	37	37	32	130	486	0	0	846	202
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				22.8	22.8	22.8	22.1	24.6			55.1	55.1
Effective Green, g (s)				22.8	22.8	22.8	22.1	24.6			55.1	55.1
Actuated g/C Ratio				0.19	0.19	0.19	0.18	0.21			0.46	0.46
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				652	286	285	325	725			2942	726
v/s Ratio Prot					c0.02		c0.07	c0.14			c0.13	
v/s Ratio Perm				0.01		0.02						0.13
v/c Ratio				0.06	0.13	0.11	0.40	0.67			0.29	0.28
Uniform Delay, d1				39.8	40.3	40.2	43.1	44.0			20.2	20.1
Progression Factor				1.00	1.00	1.00	1.34	0.28			1.00	1.00
Incremental Delay, d2				0.0	0.2	0.2	3.5	2.3			0.2	1.0
Delay (s)				39.8	40.6	40.4	61.2	14.5			20.5	21.1
Level of Service				D	D	D	E	B			C	C
Approach Delay (s)		0.0			40.4			24.3			20.7	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

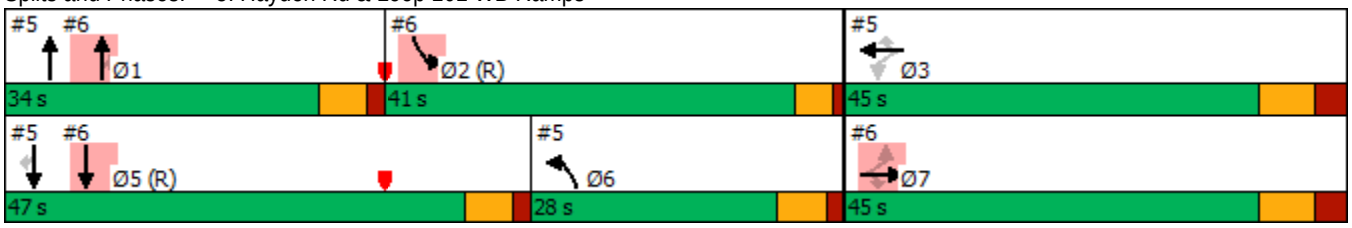
c Critical Lane Group

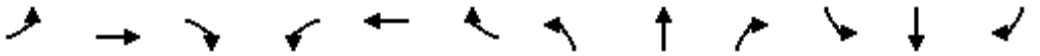
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	80	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	0	417	0	0	0	0	331	16	509	290	0
Future Volume (vph)	218	0	417	0	0	0	0	331	16	509	290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1459	1504					5085	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1459	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	242	0	463	0	0	0	0	368	18	566	322	0
RTOR Reduction (vph)	0	180	195	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	218	66	46	0	0	0	0	368	4	566	322	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	22.8	22.8	22.8					24.6	24.6	54.1	55.1	
Effective Green, g (s)	22.8	22.8	22.8					24.6	24.6	54.1	55.1	
Actuated g/C Ratio	0.19	0.19	0.19					0.21	0.21	0.45	0.46	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	319	277	285					1042	324	1547	1624	
v/s Ratio Prot								c0.07		c0.16	0.09	
v/s Ratio Perm	c0.13	0.05	0.03						0.00			
v/c Ratio	0.68	0.24	0.16					0.35	0.01	0.37	0.20	
Uniform Delay, d1	45.2	41.2	40.6					40.9	38.0	21.7	19.3	
Progression Factor	1.34	4.22	5.73					1.07	1.00	0.81	0.29	
Incremental Delay, d2	4.1	0.3	0.2					0.2	0.0	0.7	0.3	
Delay (s)	64.6	174.1	232.7					44.0	38.0	18.1	6.0	
Level of Service	E	F	F					D	D	B	A	
Approach Delay (s)		160.3			0.0			43.7			13.7	
Approach LOS		F			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	71.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

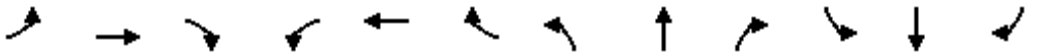
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	40	304	9	174	561
Future Volume (Veh/h)	0	40	304	9	174	561
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	44	338	10	193	623
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.99					
vC, conflicting volume	1036	169			348	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010	169			348	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			84	
cM capacity (veh/h)	196	845			1208	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	44	169	169	10	193	312	312
Volume Left	0	0	0	0	193	0	0
Volume Right	44	0	0	10	0	0	0
cSH	845	1700	1700	1700	1208	1700	1700
Volume to Capacity	0.05	0.10	0.10	0.01	0.16	0.18	0.18
Queue Length 95th (ft)	4	0	0	0	14	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	8.5	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.5	0.0			2.0		
Approach LOS	A						

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	56	81	156	0	22	67	214	182	112	397	44
Future Volume (vph)	39	56	81	156	0	22	67	214	182	112	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.49	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	919	3539	1583	1125	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	62	90	173	0	24	74	238	202	124	441	49
RTOR Reduction (vph)	0	0	81	0	0	22	0	0	74	0	0	18
Lane Group Flow (vph)	0	105	9	173	0	2	74	238	128	124	441	31
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		12.4	12.4	11.4		11.4	76.2	76.2	76.2	76.2	76.2	76.2
Effective Green, g (s)		12.4	12.4	11.4		11.4	76.2	76.2	76.2	76.2	76.2	76.2
Actuated g/C Ratio		0.10	0.10	0.10		0.10	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		188	163	326		150	583	2247	1005	714	2247	1005
v/s Ratio Prot		c0.06		c0.05				0.07			c0.12	
v/s Ratio Perm			0.01			0.00	0.08		0.08	0.11		0.02
v/c Ratio		0.56	0.06	0.53		0.02	0.13	0.11	0.13	0.17	0.20	0.03
Uniform Delay, d1		51.2	48.5	51.8		49.2	8.7	8.6	8.7	9.0	9.1	8.2
Progression Factor		0.98	1.44	1.00		1.00	1.37	1.44	3.66	1.02	1.03	1.00
Incremental Delay, d2		3.5	0.1	1.7		0.0	0.4	0.1	0.3	0.5	0.2	0.1
Delay (s)		53.7	69.8	53.4		49.3	12.4	12.5	32.1	9.7	9.6	8.2
Level of Service		D	E	D		D	B	B	C	A	A	A
Approach Delay (s)		61.1			52.9			20.2			9.5	
Approach LOS		E			D			C			A	

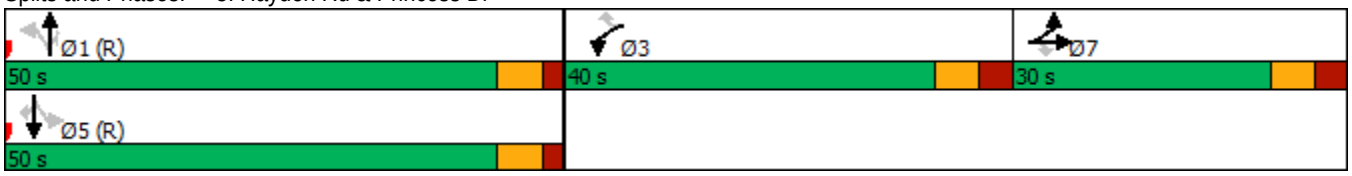
Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

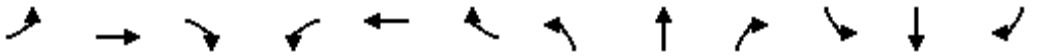
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	6	19	198	8	72	26	401	332	122	523	18
Future Volume (vph)	7	6	19	198	8	72	26	401	332	122	523	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3194		1681	1692	1583	1770	3539	1583	1770	3522	
Flt Permitted		0.87		0.73	0.72	1.00	0.42	1.00	1.00	0.49	1.00	
Satd. Flow (perm)		2815		1296	1266	1583	779	3539	1583	920	3522	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	7	21	220	9	80	29	446	369	136	581	20
RTOR Reduction (vph)	0	20	0	0	0	67	0	0	105	0	1	0
Lane Group Flow (vph)	0	16	0	114	115	13	29	446	264	136	600	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.1		20.2	20.2	20.2	85.8	85.8	85.8	85.8	85.8	
Effective Green, g (s)		4.1		20.2	20.2	20.2	85.8	85.8	85.8	85.8	85.8	
Actuated g/C Ratio		0.03		0.17	0.17	0.17	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96		244	241	266	556	2530	1131	657	2518	
v/s Ratio Prot				0.03	c0.03			0.13			c0.17	
v/s Ratio Perm		0.01		0.05	c0.05	0.01	0.04		0.17	0.15		
v/c Ratio		0.16		0.47	0.48	0.05	0.05	0.18	0.23	0.21	0.24	
Uniform Delay, d1		56.3		45.5	45.1	41.9	5.1	5.6	5.8	5.7	5.9	
Progression Factor		1.00		1.00	1.00	1.00	1.45	1.11	5.80	1.26	1.29	
Incremental Delay, d2		0.8		1.4	1.5	0.1	0.2	0.1	0.4	0.7	0.2	
Delay (s)		57.1		46.9	46.6	41.9	7.5	6.3	34.3	7.9	7.8	
Level of Service		E		D	D	D	A	A	C	A	A	
Approach Delay (s)		57.1			45.5			18.6			7.8	
Approach LOS		E			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

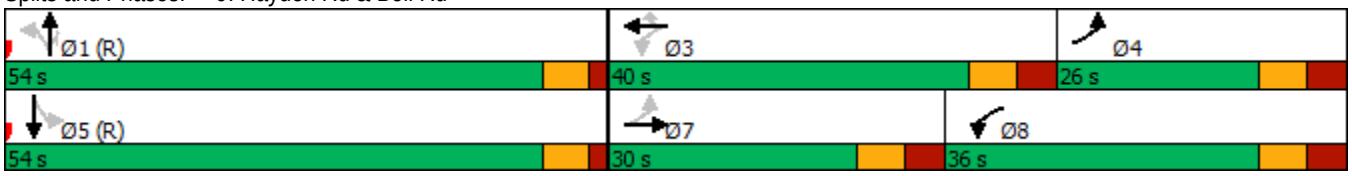
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	25	837	127	42	1787
Future Volume (vph)	91	25	837	127	42	1787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.30	1.00
Satd. Flow (perm)	1770	1583	3539	1583	555	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	28	930	141	47	1986
RTOR Reduction (vph)	0	25	0	28	0	0
Lane Group Flow (vph)	101	3	930	113	47	1986
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	11.8	11.8	96.2	96.2	96.2	96.2
Effective Green, g (s)	11.8	11.8	96.2	96.2	96.2	96.2
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	174	155	2837	1269	444	2837
v/s Ratio Prot	c0.06		0.26			c0.56
v/s Ratio Perm		0.00		0.07	0.08	
v/c Ratio	0.58	0.02	0.33	0.09	0.11	0.70
Uniform Delay, d1	51.7	48.9	3.2	2.5	2.6	5.4
Progression Factor	1.00	1.00	0.58	0.43	1.00	1.00
Incremental Delay, d2	4.9	0.0	0.3	0.1	0.5	1.5
Delay (s)	56.6	48.9	2.1	1.2	3.1	6.8
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.9		2.0			6.8
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	31	921	44	37	1833
Future Volume (vph)	94	31	921	44	37	1833
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.27	1.00
Satd. Flow (perm)	1770	1583	3539	1583	498	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	34	1023	49	41	2037
RTOR Reduction (vph)	0	31	0	10	0	0
Lane Group Flow (vph)	104	3	1023	39	41	2037
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.3	12.3	95.7	95.7	95.7	95.7
Effective Green, g (s)	12.3	12.3	95.7	95.7	95.7	95.7
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	162	2822	1262	397	2822
v/s Ratio Prot	c0.06		0.29			c0.58
v/s Ratio Perm		0.00		0.02	0.08	
v/c Ratio	0.57	0.02	0.36	0.03	0.10	0.72
Uniform Delay, d1	51.4	48.4	3.5	2.5	2.7	5.8
Progression Factor	1.00	1.00	1.44	2.88	1.28	1.12
Incremental Delay, d2	4.4	0.1	0.3	0.0	0.4	1.2
Delay (s)	55.7	48.5	5.3	7.3	3.8	7.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	53.9		5.4			7.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	421	70	940	426	63	1839
Future Volume (vph)	421	70	940	426	63	1839
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	468	78	1044	473	70	2043
RTOR Reduction (vph)	0	64	0	259	0	0
Lane Group Flow (vph)	468	14	1044	214	70	2043
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	21.7	21.7	54.3	54.3	25.0	83.3
Effective Green, g (s)	21.7	21.7	54.3	54.3	25.0	83.3
Actuated g/C Ratio	0.18	0.18	0.45	0.45	0.21	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	620	286	1601	716	368	2456
v/s Ratio Prot	c0.14		0.29		0.04	c0.58
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.75	0.05	0.65	0.30	0.19	0.83
Uniform Delay, d1	46.6	40.6	25.5	20.8	39.2	13.3
Progression Factor	0.83	0.63	1.01	3.44	1.02	1.08
Incremental Delay, d2	5.2	0.1	1.7	0.8	0.8	2.4
Delay (s)	43.8	25.6	27.5	72.5	40.8	16.8
Level of Service	D	C	C	E	D	B
Approach Delay (s)	41.2		41.5			17.6
Approach LOS	D		D			B

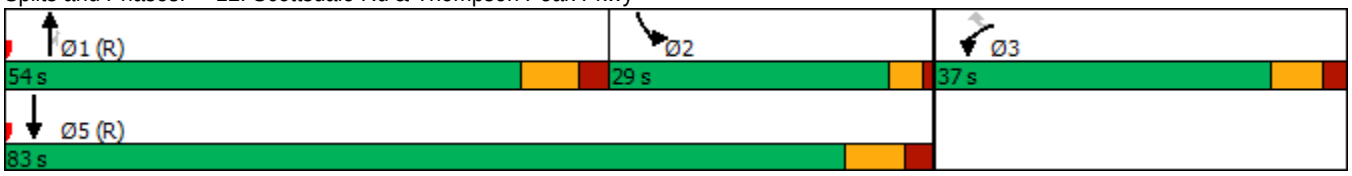
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	12	1362	31	4	2315
Future Volume (vph)	91	12	1362	31	4	2315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	13	1513	34	4	2572
RTOR Reduction (vph)	0	12	0	6	0	0
Lane Group Flow (vph)	101	1	1513	28	4	2572
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	8.9	8.9	83.1	83.1	10.0	97.1
Effective Green, g (s)	8.9	8.9	83.1	83.1	10.0	97.1
Actuated g/C Ratio	0.07	0.07	0.69	0.69	0.08	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	117	2450	1096	147	2863
v/s Ratio Prot	c0.03		0.43		0.00	c0.73
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.40	0.01	0.62	0.03	0.03	0.90
Uniform Delay, d1	53.0	51.5	9.9	5.8	50.5	8.0
Progression Factor	1.00	1.00	1.99	1.81	1.03	0.83
Incremental Delay, d2	1.0	0.0	1.0	0.0	0.2	3.3
Delay (s)	54.0	51.5	20.7	10.5	52.2	9.9
Level of Service	D	D	C	B	D	A
Approach Delay (s)	53.7		20.5			10.0
Approach LOS	D		C			A

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

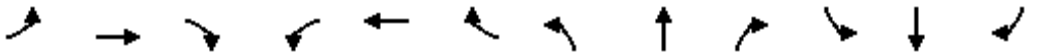
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	459	1	447	284	967	0	0	1795	599
Future Volume (vph)	0	0	0	459	1	447	284	967	0	0	1795	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1505	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1505	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	510	1	497	316	1074	0	0	1994	666
RTOR Reduction (vph)	0	0	0	0	183	183	0	0	0	0	0	381
Lane Group Flow (vph)	0	0	0	510	67	65	316	1074	0	0	1994	285
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				31.6	31.6	31.6	20.0	41.4			51.4	51.4
Effective Green, g (s)				31.6	31.6	31.6	20.0	41.4			51.4	51.4
Actuated g/C Ratio				0.26	0.26	0.26	0.17	0.34			0.43	0.43
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				904	396	396	572	1754			3231	678
v/s Ratio Prot					0.04		c0.09	0.21			c0.26	
v/s Ratio Perm				c0.15		0.04						0.18
v/c Ratio				0.56	0.17	0.16	0.55	0.61			0.62	0.42
Uniform Delay, d1				38.2	34.1	34.0	45.9	32.6			26.7	23.9
Progression Factor				1.01	1.42	1.43	1.31	0.48			1.13	3.01
Incremental Delay, d2				0.8	0.2	0.2	3.4	1.4			0.4	0.9
Delay (s)				39.4	48.6	48.7	63.5	17.0			30.5	72.9
Level of Service				D	D	D	E	B			C	E
Approach Delay (s)		0.0			44.0			27.6			41.1	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

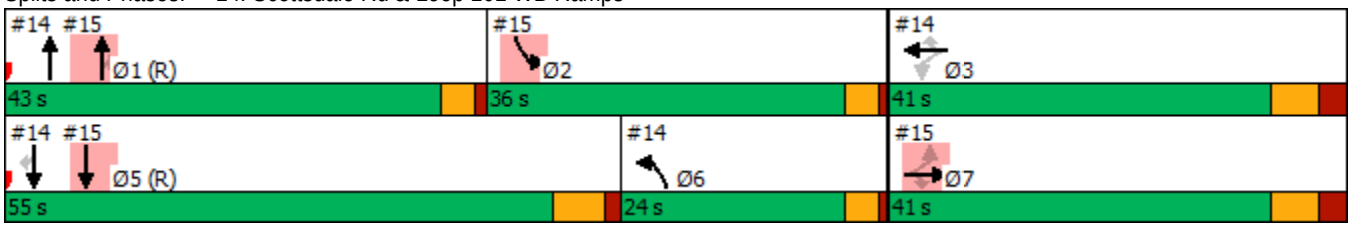
c Critical Lane Group

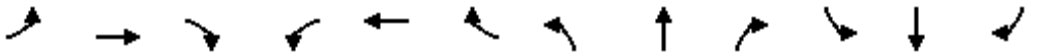
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

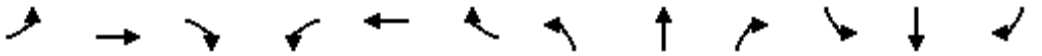




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	604	2	574	0	0	0	0	658	300	695	1591	0
Future Volume (vph)	604	2	574	0	0	0	0	658	300	695	1591	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	671	2	638	0	0	0	0	731	333	772	1768	0
RTOR Reduction (vph)	0	235	235	0	0	0	0	0	218	0	0	0
Lane Group Flow (vph)	671	86	84	0	0	0	0	731	115	772	1768	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	31.6	31.6	31.6					41.4	41.4	32.0	51.4	
Effective Green, g (s)	31.6	31.6	31.6					41.4	41.4	32.0	51.4	
Actuated g/C Ratio	0.26	0.26	0.26					0.34	0.34	0.27	0.43	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	904	396	396					2602	546	915	2178	
v/s Ratio Prot		0.06						0.10		c0.22	c0.35	
v/s Ratio Perm	c0.20		0.06						0.07			
v/c Ratio	0.74	0.22	0.21					0.28	0.21	0.84	0.81	
Uniform Delay, d1	40.5	34.5	34.5					28.5	27.8	41.6	30.1	
Progression Factor	1.00	1.00	1.00					1.51	7.85	0.93	0.43	
Incremental Delay, d2	3.3	0.3	0.3					0.3	0.8	7.8	2.8	
Delay (s)	43.8	34.8	34.8					43.4	218.7	46.4	15.8	
Level of Service	D	C	C					D	F	D	B	
Approach Delay (s)		39.4			0.0			98.3			25.1	
Approach LOS		D			A			F			C	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	11	245	16	4	24	116	611	10	38	1535	594
Future Volume (vph)	373	11	245	16	4	24	116	611	10	38	1535	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3077		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3077		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	414	12	272	18	4	27	129	679	11	42	1706	660
RTOR Reduction (vph)	0	0	153	0	29	0	0	0	9	0	0	323
Lane Group Flow (vph)	414	12	119	18	2	0	129	679	2	42	1706	337
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	27.3	31.2	31.2	4.3	8.2		10.7	23.8	23.8	35.3	48.7	48.7
Effective Green, g (s)	27.3	31.2	31.2	4.3	8.2		10.7	23.8	23.8	35.3	48.7	48.7
Actuated g/C Ratio	0.23	0.26	0.26	0.04	0.07		0.09	0.20	0.20	0.29	0.41	0.41
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	781	1322	411	123	210		306	1008	313	1009	2063	642
v/s Ratio Prot	c0.12	0.00		0.01	0.00		c0.04	0.13		0.01	c0.34	
v/s Ratio Perm			c0.08						0.00			0.21
v/c Ratio	0.53	0.01	0.29	0.15	0.01		0.42	0.67	0.01	0.04	0.83	0.53
Uniform Delay, d1	40.7	32.9	35.5	56.1	52.1		51.7	44.5	38.6	30.3	31.9	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.98	1.06	1.00	1.39	1.08	3.04
Incremental Delay, d2	0.7	0.0	0.4	0.6	0.0		4.2	1.8	0.0	0.1	1.9	0.5
Delay (s)	41.4	32.9	35.9	56.6	52.1		55.1	48.9	38.6	42.1	36.3	82.2
Level of Service	D	C	D	E	D		E	D	D	D	D	F
Approach Delay (s)		39.1			53.8			49.7			49.0	
Approach LOS		D			D			D			D	

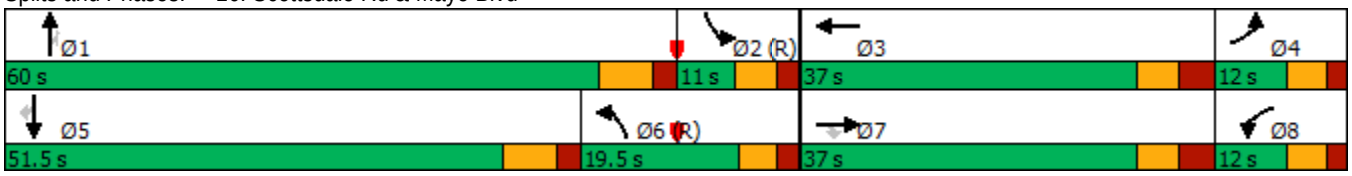
Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

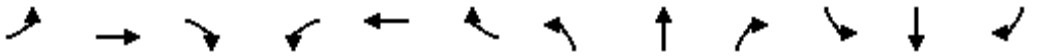
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	4	94	8	4	4	127	694	4	5	1743	121
Future Volume (vph)	79	4	94	8	4	4	127	694	4	5	1743	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.40	1.00	1.00	0.91	1.00	1.00	0.06	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	753	3539	1583	1693	3539	1583	113	5085	1583	648	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	88	4	104	9	4	4	141	771	4	6	1937	134
RTOR Reduction (vph)	0	0	92	0	0	4	0	0	1	0	0	55
Lane Group Flow (vph)	88	4	12	9	4	0	141	771	3	6	1937	79
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.7	13.8	13.8	5.8	4.4	4.4	85.3	78.6	78.6	71.8	70.6	70.6
Effective Green, g (s)	20.7	13.8	13.8	5.8	4.4	4.4	85.3	78.6	78.6	71.8	70.6	70.6
Actuated g/C Ratio	0.17	0.12	0.12	0.05	0.04	0.04	0.71	0.65	0.65	0.60	0.59	0.59
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	406	182	82	129	58	207	3330	1036	398	2991	931
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.05	0.15		0.00	0.38	
v/s Ratio Perm	c0.03		0.01	0.00		0.00	c0.43		0.00	0.01		0.05
v/c Ratio	0.40	0.01	0.07	0.11	0.03	0.00	0.68	0.23	0.00	0.02	0.65	0.08
Uniform Delay, d1	43.4	47.0	47.4	54.6	55.7	55.7	22.9	8.4	7.2	9.7	16.4	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.36	1.00	0.48	0.58	0.73
Incremental Delay, d2	1.2	0.0	0.2	0.6	0.1	0.0	8.7	0.2	0.0	0.0	0.7	0.1
Delay (s)	44.5	47.1	47.5	55.2	55.8	55.7	33.3	11.6	7.2	4.6	10.2	7.9
Level of Service	D	D	D	E	E	E	C	B	A	A	B	A
Approach Delay (s)		46.2			55.5			14.9			10.0	
Approach LOS		D			E			B			B	

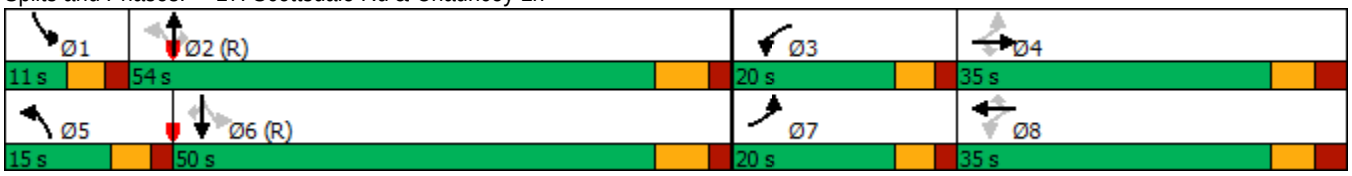
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

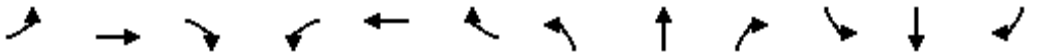
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	27	238	66	8	118	123	677	139	181	1589	70
Future Volume (vph)	37	27	238	66	8	118	123	677	139	181	1589	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.41	1.00	1.00	0.08	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1400	3063		769	3539	1583	156	5085	1583	632	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	30	264	73	9	131	137	752	154	201	1766	78
RTOR Reduction (vph)	0	222	0	0	0	118	0	0	64	0	0	32
Lane Group Flow (vph)	41	72	0	73	9	13	137	752	90	201	1766	46
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	15.9	11.5		15.9	11.5	11.5	83.1	70.1	70.1	83.1	70.1	70.1
Effective Green, g (s)	15.9	11.5		15.9	11.5	11.5	83.1	70.1	70.1	83.1	70.1	70.1
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.58	0.58	0.69	0.58	0.58
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	293		138	339	151	282	2970	924	560	2970	924
v/s Ratio Prot	0.01	0.02		c0.02	0.00		c0.05	0.15		0.04	c0.35	
v/s Ratio Perm	0.02			c0.05		0.01	0.28		0.06	0.21		0.03
v/c Ratio	0.21	0.25		0.53	0.03	0.08	0.49	0.25	0.10	0.36	0.59	0.05
Uniform Delay, d1	46.5	50.2		51.5	49.2	49.4	26.7	12.2	11.0	9.5	15.9	10.7
Progression Factor	1.00	1.00		1.01	1.01	1.37	0.37	1.41	3.21	0.51	0.70	4.63
Incremental Delay, d2	0.5	0.4		3.6	0.0	0.2	5.7	0.2	0.2	1.5	0.7	0.1
Delay (s)	47.0	50.7		55.5	49.7	67.9	15.6	17.4	35.5	6.3	11.9	49.6
Level of Service	D	D		E	D	E	B	B	D	A	B	D
Approach Delay (s)		50.2			62.9			19.8			12.8	
Approach LOS		D			E			B			B	

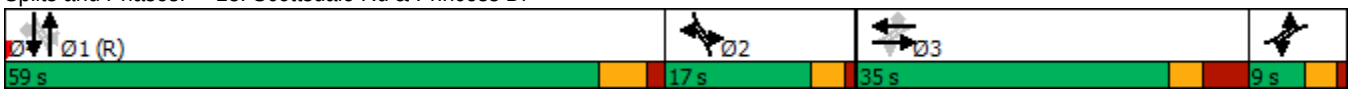
Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

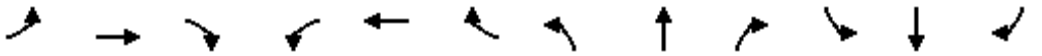
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	0	109	29	0	19	38	865	10	39	1850	23
Future Volume (vph)	59	0	109	29	0	19	38	865	10	39	1850	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1671			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.59		0.06	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)		1465			1043		121	5085	1583	509	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	66	0	121	32	0	21	42	961	11	43	2056	26
RTOR Reduction (vph)	0	63	0	0	46	0	0	0	4	0	0	8
Lane Group Flow (vph)	0	124	0	0	7	0	42	961	7	43	2056	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.1			16.1		86.9	80.9	80.9	86.9	80.9	80.9
Effective Green, g (s)		16.1			16.1		86.9	80.9	80.9	86.9	80.9	80.9
Actuated g/C Ratio		0.13			0.13		0.72	0.67	0.67	0.72	0.67	0.67
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		196			139		170	3428	1067	431	3428	1067
v/s Ratio Prot							c0.01	0.19		0.00	c0.40	
v/s Ratio Perm		c0.08			0.01		0.17		0.00	0.07		0.01
v/c Ratio		0.63			0.05		0.25	0.28	0.01	0.10	0.60	0.02
Uniform Delay, d1		49.1			45.3		17.0	7.9	6.4	6.1	10.7	6.4
Progression Factor		1.00			1.00		1.66	1.11	1.00	1.27	1.42	1.00
Incremental Delay, d2		6.5			0.2		2.8	0.2	0.0	0.4	0.7	0.0
Delay (s)		55.6			45.4		31.1	8.9	6.4	8.1	15.9	6.5
Level of Service		E			D		C	A	A	A	B	A
Approach Delay (s)		55.6			45.4			9.8			15.6	
Approach LOS		E			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

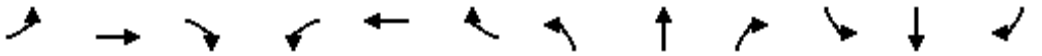
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	1354	383	217	432	196	81	318	119	338	1398	146
Future Volume (vph)	502	1354	383	217	432	196	81	318	119	338	1398	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	558	1504	426	241	480	218	90	353	132	376	1553	162
RTOR Reduction (vph)	0	0	97	0	0	66	0	0	99	0	10	0
Lane Group Flow (vph)	558	1504	329	241	480	152	90	353	33	376	1705	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	20.9	40.1	40.1	10.9	30.1	47.4	5.0	29.7	29.7	17.3	42.0	
Effective Green, g (s)	20.9	40.1	40.1	10.9	30.1	47.4	5.0	29.7	29.7	17.3	42.0	
Actuated g/C Ratio	0.17	0.33	0.33	0.09	0.25	0.39	0.04	0.25	0.25	0.14	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	597	1699	528	311	1275	625	143	1258	391	494	1754	
v/s Ratio Prot	c0.16	c0.30		0.07	0.09	0.04	0.03	0.07		c0.11	c0.34	
v/s Ratio Perm			0.21			0.06			0.02			
v/c Ratio	0.93	0.89	0.62	0.77	0.38	0.24	0.63	0.28	0.08	0.76	0.97	
Uniform Delay, d1	48.9	37.8	33.6	53.4	37.2	24.3	56.6	36.5	34.7	49.4	38.4	
Progression Factor	1.00	1.00	1.00	0.95	1.89	0.47	1.00	1.00	1.00	0.91	0.84	
Incremental Delay, d2	21.9	7.2	5.5	10.1	0.7	0.2	8.4	0.6	0.4	5.6	13.8	
Delay (s)	70.8	44.9	39.1	60.7	71.1	11.5	65.0	37.1	35.1	50.5	46.0	
Level of Service	E	D	D	E	E	B	E	D	D	D	D	
Approach Delay (s)		49.7			54.6			41.0			46.8	
Approach LOS		D			D			D			D	

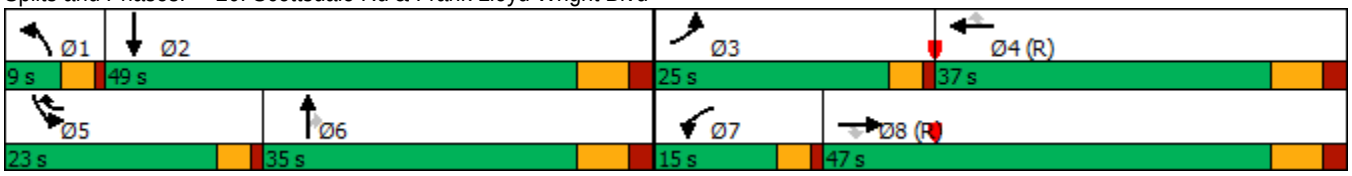
Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

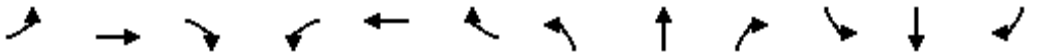
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	1188	55	528	958	146	8	244	234	162	528	252
Future Volume (vph)	401	1188	55	528	958	146	8	244	234	162	528	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	446	1320	61	587	1064	162	9	271	260	180	587	280
RTOR Reduction (vph)	0	0	39	0	0	105	0	0	65	0	0	211
Lane Group Flow (vph)	446	1320	22	587	1064	57	9	271	195	180	587	69
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.6	42.4	42.4	20.6	42.4	42.4	0.6	21.0	41.6	8.0	28.4	28.4
Effective Green, g (s)	20.6	42.4	42.4	20.6	42.4	42.4	0.6	21.0	41.6	8.0	28.4	28.4
Actuated g/C Ratio	0.17	0.35	0.35	0.17	0.35	0.35	0.00	0.18	0.35	0.07	0.24	0.24
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	589	1796	559	589	1796	559	8	619	641	228	837	374
v/s Ratio Prot	0.13	c0.26		c0.17	0.21		0.01	0.08	0.05	c0.05	c0.17	
v/s Ratio Perm			0.01			0.04			0.07			0.04
v/c Ratio	0.76	0.73	0.04	1.00	0.59	0.10	1.12	0.44	0.30	0.79	0.70	0.19
Uniform Delay, d1	47.3	33.9	25.4	49.7	31.7	26.0	59.7	44.2	28.6	55.2	41.9	36.6
Progression Factor	1.12	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.95	2.12
Incremental Delay, d2	3.2	1.5	0.1	36.0	1.4	0.4	366.8	0.5	0.3	16.3	2.7	0.2
Delay (s)	56.4	30.3	25.5	85.6	33.2	26.4	426.5	44.7	28.9	66.5	42.3	77.6
Level of Service	E	C	C	F	C	C	F	D	C	E	D	E
Approach Delay (s)		36.5			49.6			43.5			55.9	
Approach LOS		D			D			D			E	

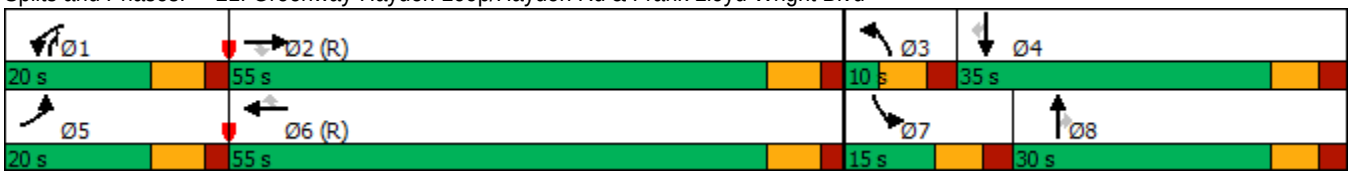
Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

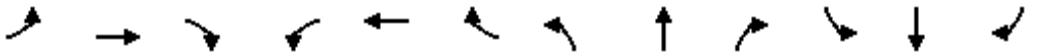
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	299	113	85	198	260	109	930	4	269	1101	248
Future Volume (vph)	157	299	113	85	198	260	109	930	4	269	1101	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	174	332	126	94	220	289	121	1033	4	299	1223	276
RTOR Reduction (vph)	0	0	55	0	0	53	0	0	0	0	0	116
Lane Group Flow (vph)	174	332	71	94	220	236	121	1037	0	299	1223	160
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	11.6	16.6	29.6	10.3	15.3	33.3	13.0	53.1		18.0	58.1	69.7
Effective Green, g (s)	11.6	16.6	29.6	10.3	15.3	33.3	13.0	53.1		18.0	58.1	69.7
Actuated g/C Ratio	0.10	0.14	0.25	0.09	0.13	0.28	0.11	0.44		0.15	0.48	0.58
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	489	443	294	451	492	371	2248		514	2461	972
v/s Ratio Prot	c0.05	c0.09	0.02	0.03	0.06	0.07	0.04	0.20		c0.09	c0.24	0.02
v/s Ratio Perm			0.03			0.08						0.09
v/c Ratio	0.53	0.68	0.16	0.32	0.49	0.48	0.33	0.46		0.58	0.50	0.16
Uniform Delay, d1	51.6	49.2	35.5	51.6	48.7	36.1	49.5	23.4		47.5	21.0	11.7
Progression Factor	1.07	1.38	2.34	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	3.6	0.2	0.6	0.8	0.7	2.3	0.7		4.8	0.7	0.1
Delay (s)	56.9	71.3	83.1	52.2	49.5	36.9	51.8	24.1		52.2	21.7	11.7
Level of Service	E	E	F	D	D	D	D	C		D	C	B
Approach Delay (s)		69.7			43.9			27.0			25.3	
Approach LOS		E			D			C			C	

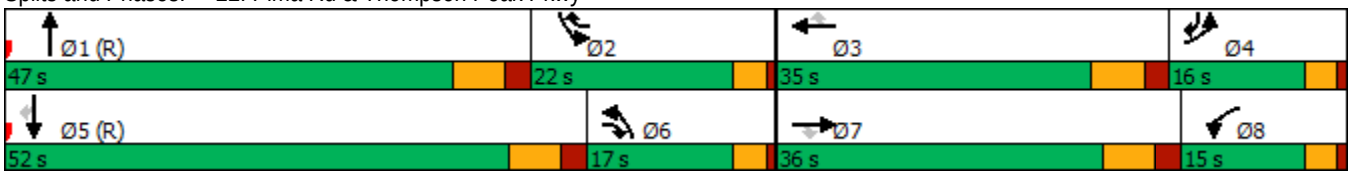
Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

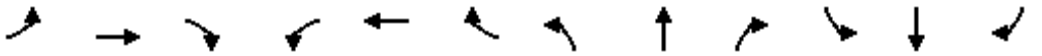
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	15	60	34	10	3	70	879	68	4	379	14
Future Volume (vph)	20	15	60	34	10	3	70	879	68	4	379	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1640		1770	1803		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.49	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1394	1640		1308	1803		918	3539	1583	367	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	17	67	38	11	3	78	977	76	4	421	16
RTOR Reduction (vph)	0	40	0	0	2	0	0	0	28	0	0	9
Lane Group Flow (vph)	22	44	0	38	12	0	78	977	48	4	421	7
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	656		523	721		425	1639	733	169	1639	733
v/s Ratio Prot		0.03			0.01			c0.28			0.12	
v/s Ratio Perm	0.02			c0.03			0.08		0.03	0.01		0.00
v/c Ratio	0.04	0.07		0.07	0.02		0.18	0.60	0.07	0.02	0.26	0.01
Uniform Delay, d1	17.4	17.6		17.6	17.2		15.0	18.9	14.1	13.8	15.5	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.3	0.0		0.9	1.6	0.2	0.3	0.4	0.0
Delay (s)	17.5	17.8		17.9	17.3		15.9	20.5	14.3	14.1	15.9	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.7			17.7			19.8			15.8	
Approach LOS		B			B			B			B	

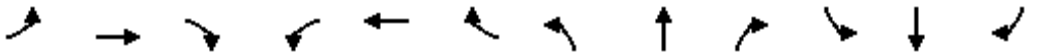
Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





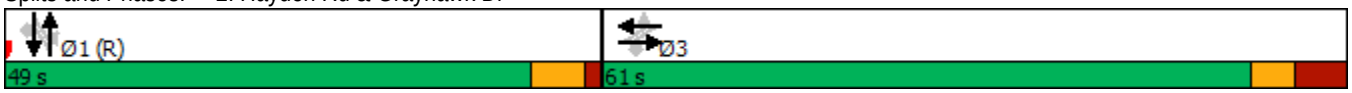
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	7	57	20	6	10	65	992	32	10	415	33
Future Volume (vph)	31	7	57	20	6	10	65	992	32	10	415	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1692		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.44	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1389	1863	1583	1402	1692		813	3539	1583	192	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	8	63	22	7	11	72	1102	36	11	461	37
RTOR Reduction (vph)	0	0	33	0	6	0	0	0	22	0	0	23
Lane Group Flow (vph)	34	8	30	22	12	0	72	1102	14	11	461	14
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	669	897	762	675	815		317	1383	618	75	1383	618
v/s Ratio Prot		0.00			0.01			c0.31			0.13	
v/s Ratio Perm	c0.02		0.02	0.02			0.09		0.01	0.06		0.01
v/c Ratio	0.05	0.01	0.04	0.03	0.02		0.23	0.80	0.02	0.15	0.33	0.02
Uniform Delay, d1	15.1	14.8	15.1	15.0	14.9		22.4	29.6	20.6	21.6	23.5	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	0.1	0.0		1.7	4.8	0.1	4.1	0.6	0.1
Delay (s)	15.3	14.8	15.2	15.1	14.9		24.1	34.5	20.7	25.7	24.1	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.2			15.0			33.5			23.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	321	204	165	200	139	266	907	327	184	278	52
Future Volume (vph)	55	321	204	165	200	139	266	907	327	184	278	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.61	1.00	1.00	0.26	1.00	1.00	0.56	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	1142	3539	1583	492	3539	1583	1050	3539	1583	260	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	61	357	227	183	222	154	296	1008	363	204	309	58
RTOR Reduction (vph)	0	0	190	0	0	120	0	0	153	0	0	32
Lane Group Flow (vph)	61	357	37	183	222	34	296	1008	210	204	309	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	26.6	19.5	19.5	38.1	26.5	26.5	66.4	51.4	51.4	68.4	53.4	53.4
Effective Green, g (s)	26.6	19.5	19.5	38.1	26.5	26.5	66.4	51.4	51.4	68.4	53.4	53.4
Actuated g/C Ratio	0.22	0.16	0.16	0.32	0.22	0.22	0.55	0.43	0.43	0.57	0.44	0.44
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	290	575	257	317	781	349	671	1515	678	336	1574	704
v/s Ratio Prot	0.01	0.10		c0.07	0.06		0.06	c0.28		c0.08	0.09	
v/s Ratio Perm	0.03		0.02	c0.11		0.02	0.19		0.13	0.27		0.02
v/c Ratio	0.21	0.62	0.14	0.58	0.28	0.10	0.44	0.67	0.31	0.61	0.20	0.04
Uniform Delay, d1	37.6	46.8	43.1	31.9	38.9	37.2	14.4	27.4	22.6	17.5	20.3	18.8
Progression Factor	1.17	1.10	1.76	1.22	1.19	4.18	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.0	0.2	2.4	0.2	0.1	0.5	2.3	1.2	3.1	0.3	0.1
Delay (s)	44.5	53.4	76.0	41.2	46.3	155.6	14.8	29.7	23.8	20.6	20.5	18.9
Level of Service	D	D	E	D	D	F	B	C	C	C	C	B
Approach Delay (s)		60.5			74.8			25.8			20.4	
Approach LOS		E			E			C			C	

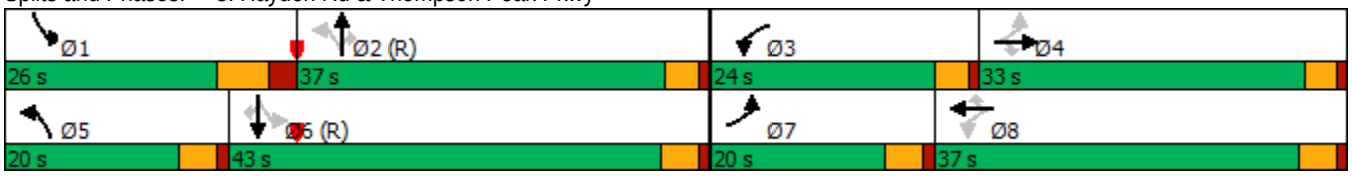
Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

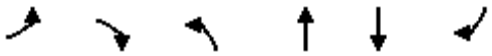
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	15	34	1474	589	14
Future Volume (vph)	14	15	34	1474	589	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.40	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	751	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	17	38	1638	654	16
RTOR Reduction (vph)	0	16	0	0	0	3
Lane Group Flow (vph)	16	1	38	1638	654	13
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				1	1	
Permitted Phases	3	3	1			1
Actuated Green, G (s)	4.4	4.4	91.6	91.6	91.6	91.6
Effective Green, g (s)	4.4	4.4	91.6	91.6	91.6	91.6
Actuated g/C Ratio	0.04	0.04	0.83	0.83	0.83	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	70	63	625	2947	2947	1318
v/s Ratio Prot				c0.46	0.18	
v/s Ratio Perm	c0.01	0.00	0.05			0.01
v/c Ratio	0.23	0.01	0.06	0.56	0.22	0.01
Uniform Delay, d1	51.2	50.7	1.6	2.9	1.9	1.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.1	0.2	0.8	0.2	0.0
Delay (s)	52.8	50.8	1.8	3.6	2.1	1.6
Level of Service	D	D	A	A	A	A
Approach Delay (s)	51.8			3.6	2.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

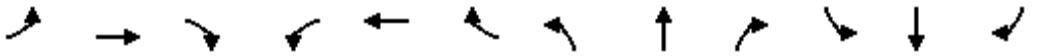
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	40
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	73	118	651	565	851	0	0	500	196
Future Volume (vph)	0	0	0	73	118	651	565	851	0	0	500	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1584	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1584	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	81	131	723	628	946	0	0	556	218
RTOR Reduction (vph)	0	0	0	0	74	306	0	0	0	0	0	135
Lane Group Flow (vph)	0	0	0	81	361	113	628	946	0	0	556	83
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				32.4	32.4	32.4	22.0	32.6			45.6	45.6
Effective Green, g (s)				32.4	32.4	32.4	22.0	32.6			45.6	45.6
Actuated g/C Ratio				0.27	0.27	0.27	0.18	0.27			0.38	0.38
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				926	427	406	324	961			2435	601
v/s Ratio Prot					c0.23		c0.35	c0.27			c0.09	
v/s Ratio Perm				0.02		0.08						0.05
v/c Ratio				0.09	0.85	0.28	1.94	0.98			0.23	0.14
Uniform Delay, d1				32.7	41.4	34.6	49.0	43.4			25.3	24.3
Progression Factor				1.00	1.00	1.00	1.02	0.65			1.00	1.00
Incremental Delay, d2				0.0	14.3	0.4	430.1	20.5			0.2	0.5
Delay (s)				32.8	55.7	35.0	480.1	48.7			25.5	24.8
Level of Service				C	E	C	F	D			C	C
Approach Delay (s)		0.0			44.4			220.8			25.3	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	124.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

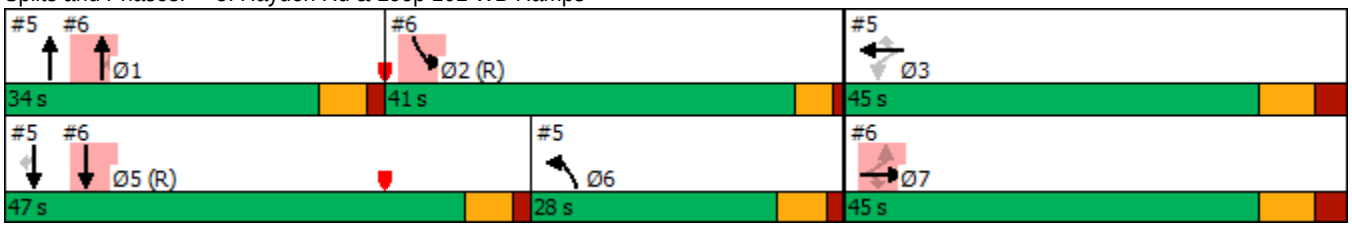
c Critical Lane Group

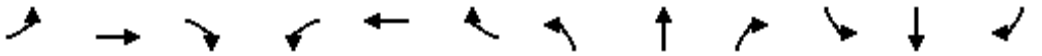
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	100	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	455	0	149	0	0	0	0	997	52	375	212	0
Future Volume (vph)	455	0	149	0	0	0	0	997	52	375	212	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1604	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1604	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	506	0	166	0	0	0	0	1108	58	417	236	0
RTOR Reduction (vph)	0	99	109	0	0	0	0	0	42	0	0	0
Lane Group Flow (vph)	263	161	40	0	0	0	0	1108	16	417	236	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	32.4	32.4	32.4					32.6	32.6	36.5	45.6	
Effective Green, g (s)	32.4	32.4	32.4					32.6	32.6	36.5	45.6	
Actuated g/C Ratio	0.27	0.27	0.27					0.27	0.27	0.30	0.38	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	453	433	406					1381	430	1044	1344	
v/s Ratio Prot								c0.22		c0.12	0.07	
v/s Ratio Perm	c0.16	0.10	0.03						0.01			
v/c Ratio	0.58	0.37	0.10					0.80	0.04	0.40	0.18	
Uniform Delay, d1	37.9	35.5	32.9					40.7	32.1	33.1	24.7	
Progression Factor	1.30	1.79	3.34					0.91	1.00	0.90	0.35	
Incremental Delay, d2	1.5	0.4	0.1					3.4	0.0	1.1	0.3	
Delay (s)	50.8	64.1	109.8					40.4	32.2	30.9	9.0	
Level of Service	D	E	F					D	C	C	A	
Approach Delay (s)		69.0			0.0			40.0			23.0	
Approach LOS		E			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

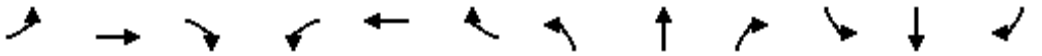
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	234	810	5	32	348
Future Volume (Veh/h)	3	234	810	5	32	348
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	260	900	6	36	387
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.98					
vC, conflicting volume	1166	450			906	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	450			906	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	53			95	
cM capacity (veh/h)	184	556			747	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	263	450	450	6	36	194	194
Volume Left	3	0	0	0	36	0	0
Volume Right	260	0	0	6	0	0	0
cSH	544	1700	1700	1700	747	1700	1700
Volume to Capacity	0.48	0.26	0.26	0.00	0.05	0.11	0.11
Queue Length 95th (ft)	65	0	0	0	4	0	0
Control Delay (s)	17.7	0.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	17.7	0.0			0.9		
Approach LOS	C						

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	18	61	208	0	130	122	670	136	10	283	59
Future Volume (vph)	31	18	61	208	0	130	122	670	136	10	283	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1806	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.56	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)		1806	1583	3433		1583	1045	3539	1583	636	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	20	68	231	0	144	136	744	151	11	314	66
RTOR Reduction (vph)	0	0	63	0	0	128	0	0	53	0	0	23
Lane Group Flow (vph)	0	54	5	231	0	16	136	744	98	11	314	43
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		9.0	9.0	13.4		13.4	77.6	77.6	77.6	77.6	77.6	77.6
Effective Green, g (s)		9.0	9.0	13.4		13.4	77.6	77.6	77.6	77.6	77.6	77.6
Actuated g/C Ratio		0.08	0.08	0.11		0.11	0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		135	118	383		176	675	2288	1023	411	2288	1023
v/s Ratio Prot		c0.03		c0.07				c0.21			0.09	
v/s Ratio Perm			0.00			0.01	0.13		0.06	0.02		0.03
v/c Ratio		0.40	0.04	0.60		0.09	0.20	0.33	0.10	0.03	0.14	0.04
Uniform Delay, d1		52.9	51.5	50.8		47.8	8.6	9.5	8.0	7.6	8.2	7.7
Progression Factor		1.31	3.34	1.00		1.00	1.22	1.18	2.29	1.82	1.66	7.75
Incremental Delay, d2		1.9	0.1	2.7		0.2	0.6	0.4	0.2	0.1	0.1	0.1
Delay (s)		71.4	172.0	53.4		48.1	11.1	11.6	18.5	14.0	13.8	59.8
Level of Service		E	F	D		D	B	B	B	B	B	E
Approach Delay (s)		127.5			51.4			12.5			21.5	
Approach LOS		F			D			B			C	

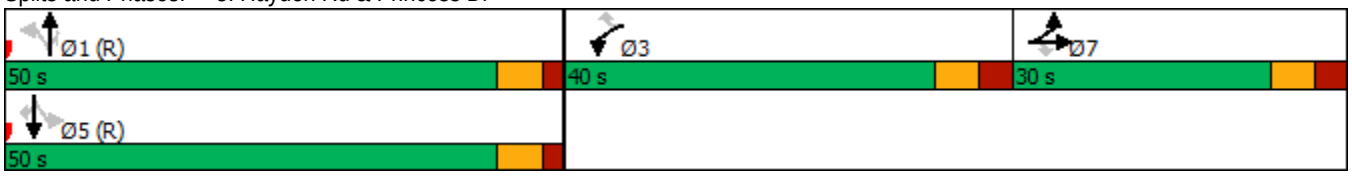
Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

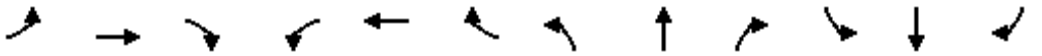
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	19	402	0	98	5	866	227	90	490	8
Future Volume (vph)	10	1	19	402	0	98	5	866	227	90	490	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3531	
Flt Permitted		0.87		0.73	0.73	1.00	0.43	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		2775		1300	1300	1583	806	3539	1583	478	3531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	1	21	447	0	109	6	962	252	100	544	9
RTOR Reduction (vph)	0	20	0	0	0	83	0	0	89	0	1	0
Lane Group Flow (vph)	0	13	0	223	224	26	6	962	163	100	552	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.0		28.5	28.5	28.5	77.5	77.5	77.5	77.5	77.5	
Effective Green, g (s)		4.0		28.5	28.5	28.5	77.5	77.5	77.5	77.5	77.5	
Actuated g/C Ratio		0.03		0.24	0.24	0.24	0.65	0.65	0.65	0.65	0.65	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		92		361	361	375	520	2285	1022	308	2280	
v/s Ratio Prot				0.08	c0.09			c0.27			0.16	
v/s Ratio Perm		0.00		0.06	c0.06	0.02	0.01		0.10	0.21		
v/c Ratio		0.14		0.62	0.62	0.07	0.01	0.42	0.16	0.32	0.24	
Uniform Delay, d1		56.3		40.2	40.9	35.5	7.6	10.3	8.4	9.5	8.9	
Progression Factor		1.00		1.00	1.00	1.00	1.49	1.26	3.41	1.38	1.44	
Incremental Delay, d2		0.7		3.1	3.3	0.1	0.0	0.4	0.2	2.8	0.3	
Delay (s)		57.0		43.4	44.2	35.5	11.3	13.4	28.8	15.9	13.1	
Level of Service		E		D	D	D	B	B	C	B	B	
Approach Delay (s)		57.0			42.2			16.6			13.5	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

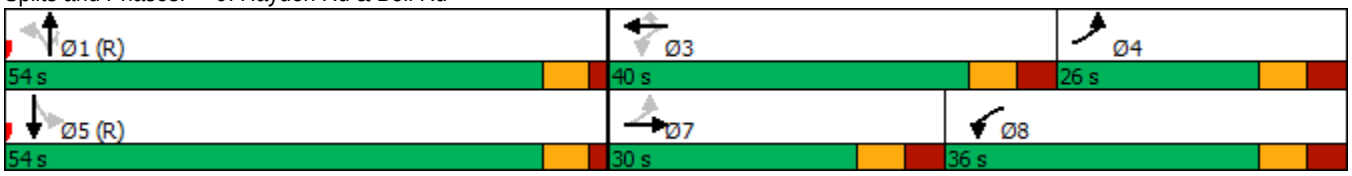
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	108	52	1661	90	16	862
Future Volume (vph)	108	52	1661	90	16	862
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.09	1.00
Satd. Flow (perm)	1770	1583	3539	1583	172	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	58	1846	100	18	958
RTOR Reduction (vph)	0	39	0	14	0	0
Lane Group Flow (vph)	120	19	1846	86	18	958
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	136	2813
v/s Ratio Prot	c0.07		c0.52			0.27
v/s Ratio Perm		0.01		0.05	0.10	
v/c Ratio	0.65	0.11	0.66	0.07	0.13	0.34
Uniform Delay, d1	51.6	48.6	5.3	2.7	2.8	3.5
Progression Factor	1.00	1.00	0.70	0.41	1.00	1.00
Incremental Delay, d2	7.6	0.3	0.9	0.1	2.0	0.3
Delay (s)	59.2	48.9	4.6	1.2	4.8	3.8
Level of Service	E	D	A	A	A	A
Approach Delay (s)	55.8		4.5			3.8
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	57	1671	105	49	890
Future Volume (vph)	105	57	1671	105	49	890
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.09	1.00
Satd. Flow (perm)	1770	1583	3539	1583	168	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	117	63	1857	117	54	989
RTOR Reduction (vph)	0	36	0	22	0	0
Lane Group Flow (vph)	117	27	1857	95	54	989
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.0	13.0	95.0	95.0	95.0	95.0
Effective Green, g (s)	13.0	13.0	95.0	95.0	95.0	95.0
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	191	171	2801	1253	133	2801
v/s Ratio Prot	c0.07		c0.52			0.28
v/s Ratio Perm		0.02		0.06	0.32	
v/c Ratio	0.61	0.16	0.66	0.08	0.41	0.35
Uniform Delay, d1	51.1	48.5	5.5	2.8	3.8	3.6
Progression Factor	1.00	1.00	2.19	3.61	1.02	0.85
Incremental Delay, d2	5.7	0.4	0.5	0.0	8.5	0.3
Delay (s)	56.8	49.0	12.5	10.1	12.4	3.4
Level of Service	E	D	B	B	B	A
Approach Delay (s)	54.1		12.4			3.9
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	513	108	1458	362	90	1049
Future Volume (vph)	513	108	1458	362	90	1049
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	570	120	1620	402	100	1166
RTOR Reduction (vph)	0	95	0	231	0	0
Lane Group Flow (vph)	570	25	1620	171	100	1166
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.1	25.1	50.9	50.9	25.0	79.9
Effective Green, g (s)	25.1	25.1	50.9	50.9	25.0	79.9
Actuated g/C Ratio	0.21	0.21	0.42	0.42	0.21	0.67
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	718	331	1501	671	368	2356
v/s Ratio Prot	c0.17		c0.46		0.06	c0.33
v/s Ratio Perm		0.02		0.11		
v/c Ratio	0.79	0.08	1.08	0.25	0.27	0.49
Uniform Delay, d1	45.0	38.1	34.5	22.3	39.9	10.0
Progression Factor	1.02	1.52	1.14	3.76	0.89	0.76
Incremental Delay, d2	5.9	0.1	43.7	0.6	1.7	0.7
Delay (s)	51.7	58.1	83.1	84.5	37.4	8.3
Level of Service	D	E	F	F	D	A
Approach Delay (s)	52.8		83.4			10.6
Approach LOS	D		F			B

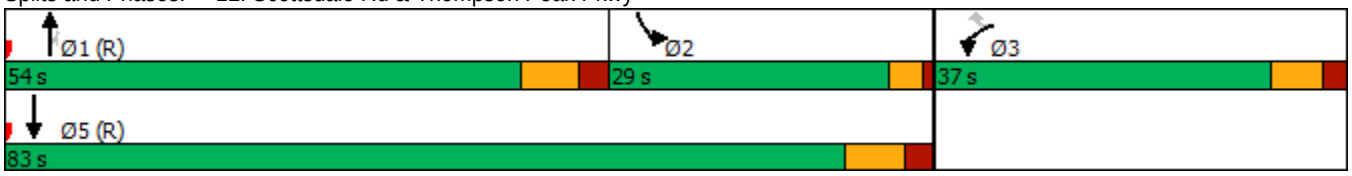
Intersection Summary			
HCM 2000 Control Delay	54.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	52	25	1817	80	16	1571
Future Volume (vph)	52	25	1817	80	16	1571
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	28	2019	89	18	1746
RTOR Reduction (vph)	0	27	0	11	0	0
Lane Group Flow (vph)	58	1	2019	78	18	1746
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	6.3	6.3	85.7	85.7	10.0	99.7
Effective Green, g (s)	6.3	6.3	85.7	85.7	10.0	99.7
Actuated g/C Ratio	0.05	0.05	0.71	0.71	0.08	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	180	83	2527	1130	147	2940
v/s Ratio Prot	c0.02		c0.57		0.01	c0.49
v/s Ratio Perm		0.00		0.05		
v/c Ratio	0.32	0.02	0.80	0.07	0.12	0.59
Uniform Delay, d1	54.8	53.9	11.4	5.2	50.9	3.4
Progression Factor	1.00	1.00	2.00	2.21	0.92	0.38
Incremental Delay, d2	1.0	0.1	1.7	0.1	1.4	0.8
Delay (s)	55.8	54.0	24.5	11.5	48.6	2.0
Level of Service	E	D	C	B	D	A
Approach Delay (s)	55.2		24.0			2.5
Approach LOS	E		C			A

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

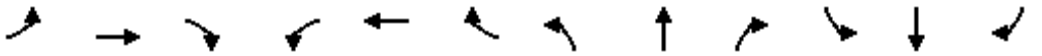
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	465	66	482	662	1432	0	0	1098	591
Future Volume (vph)	0	0	0	465	66	482	662	1432	0	0	1098	591
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1567	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1567	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	517	73	536	736	1591	0	0	1220	657
RTOR Reduction (vph)	0	0	0	0	103	229	0	0	0	0	0	270
Lane Group Flow (vph)	0	0	0	517	206	71	736	1591	0	0	1220	387
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				28.5	28.5	28.5	20.0	44.5			54.5	54.5
Effective Green, g (s)				28.5	28.5	28.5	20.0	44.5			54.5	54.5
Actuated g/C Ratio				0.24	0.24	0.24	0.17	0.37			0.45	0.45
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				815	372	357	572	1885			3426	718
v/s Ratio Prot					0.13		c0.21	c0.31			0.16	
v/s Ratio Perm				c0.15		0.05						c0.24
v/c Ratio				0.63	0.55	0.20	1.29	0.84			0.36	0.54
Uniform Delay, d1				41.1	40.2	36.6	50.0	34.6			21.3	23.7
Progression Factor				0.70	0.61	2.25	1.08	0.29			1.24	2.03
Incremental Delay, d2				0.1	0.2	0.0	139.2	3.8			0.2	2.5
Delay (s)				29.0	24.8	82.3	193.1	13.7			26.6	50.5
Level of Service				C	C	F	F	B			C	D
Approach Delay (s)		0.0			42.0			70.4			35.0	
Approach LOS		A			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

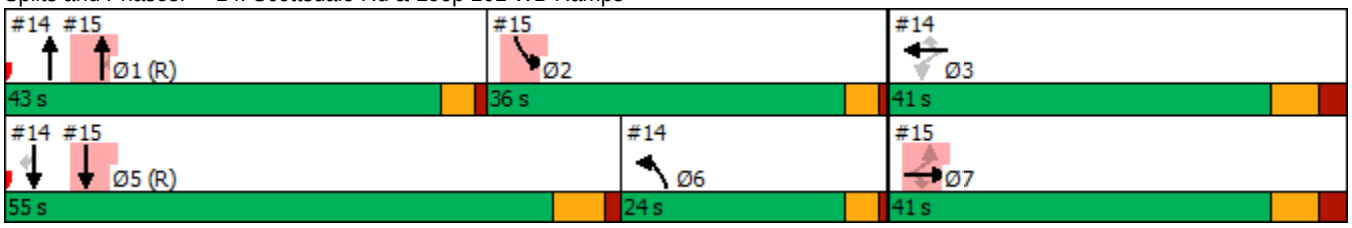
c Critical Lane Group

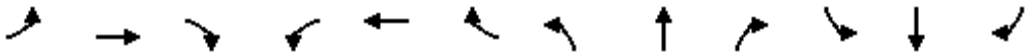
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

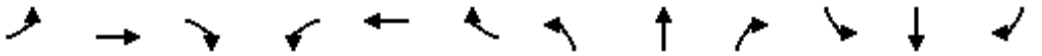




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	474	0	591	0	0	0	0	1633	499	453	1196	0
Future Volume (vph)	474	0	591	0	0	0	0	1633	499	453	1196	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	527	0	657	0	0	0	0	1814	554	503	1329	0
RTOR Reduction (vph)	0	251	250	0	0	0	0	0	221	0	0	0
Lane Group Flow (vph)	527	78	78	0	0	0	0	1814	333	503	1329	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	28.5	28.5	28.5					44.5	44.5	32.0	54.5	
Effective Green, g (s)	28.5	28.5	28.5					44.5	44.5	32.0	54.5	
Actuated g/C Ratio	0.24	0.24	0.24					0.37	0.37	0.27	0.45	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	815	357	357					2797	587	915	2309	
v/s Ratio Prot		0.05						c0.24		c0.15	0.26	
v/s Ratio Perm	c0.15		0.05						0.21			
v/c Ratio	0.65	0.22	0.22					0.65	0.57	0.55	0.58	
Uniform Delay, d1	41.2	36.8	36.8					31.3	30.1	37.8	24.2	
Progression Factor	1.00	1.00	1.00					1.13	1.82	1.12	0.45	
Incremental Delay, d2	1.8	0.3	0.3					0.8	2.5	2.2	1.0	
Delay (s)	43.0	37.1	37.1					36.0	57.3	44.7	11.9	
Level of Service	D	D	D					D	E	D	B	
Approach Delay (s)		39.7			0.0			41.0			21.0	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	607	8	169	10	12	21	333	1534	10	9	1110	653
Future Volume (vph)	607	8	169	10	12	21	333	1534	10	9	1110	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3200		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3200		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	674	9	188	11	13	23	370	1704	11	10	1233	726
RTOR Reduction (vph)	0	0	126	0	21	0	0	0	6	0	0	464
Lane Group Flow (vph)	674	9	62	11	15	0	370	1704	5	10	1233	262
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	32.4	39.6	39.6	1.3	8.5		10.7	51.5	51.5	2.2	43.3	43.3
Effective Green, g (s)	32.4	39.6	39.6	1.3	8.5		10.7	51.5	51.5	2.2	43.3	43.3
Actuated g/C Ratio	0.27	0.33	0.33	0.01	0.07		0.09	0.43	0.43	0.02	0.36	0.36
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	926	1678	522	37	226		306	2182	679	62	1834	571
v/s Ratio Prot	c0.20	0.00		0.00	0.00		c0.11	c0.34		0.00	0.24	
v/s Ratio Perm			c0.04						0.00			0.17
v/c Ratio	0.73	0.01	0.12	0.30	0.06		1.21	0.78	0.01	0.16	0.67	0.46
Uniform Delay, d1	39.8	27.0	28.0	58.9	52.0		54.6	29.4	19.6	58.0	32.4	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.86	1.08	1.00	1.33	1.17	8.13
Incremental Delay, d2	2.9	0.0	0.1	4.5	0.1		117.0	1.6	0.0	4.7	0.8	0.5
Delay (s)	42.7	27.0	28.1	63.4	52.2		164.1	33.3	19.6	81.6	38.8	239.2
Level of Service	D	C	C	E	D		F	C	B	F	D	F
Approach Delay (s)		39.4			54.8			56.4			112.9	
Approach LOS		D			D			E			F	

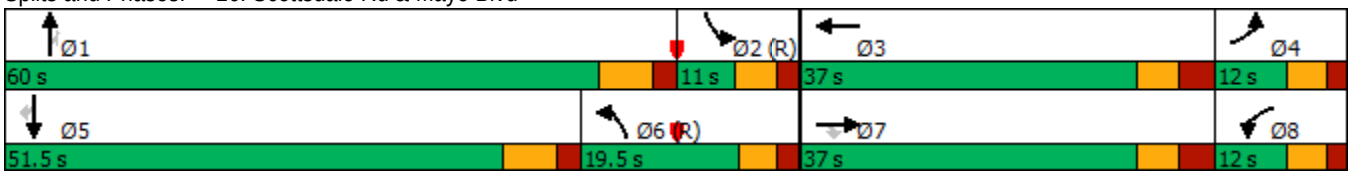
Intersection Summary			
HCM 2000 Control Delay	75.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

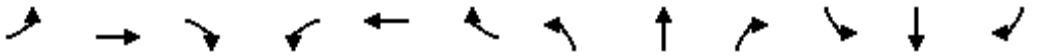
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1	118	13	4	4	138	1835	6	8	1399	83
Future Volume (vph)	117	1	118	13	4	4	138	1835	6	8	1399	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	768	3539	1583	1774	3539	1583	192	5085	1583	129	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	1	131	14	4	4	153	2039	7	9	1554	92
RTOR Reduction (vph)	0	0	114	0	0	4	0	0	3	0	0	41
Lane Group Flow (vph)	130	1	17	14	4	0	153	2039	4	9	1554	51
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.0	15.6	15.6	7.1	4.2	4.2	82.0	75.2	75.2	67.6	66.3	66.3
Effective Green, g (s)	24.0	15.6	15.6	7.1	4.2	4.2	82.0	75.2	75.2	67.6	66.3	66.3
Actuated g/C Ratio	0.20	0.13	0.13	0.06	0.04	0.04	0.68	0.63	0.63	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	460	205	104	123	55	265	3186	992	90	2809	874
v/s Ratio Prot	c0.06	0.00		0.00	0.00		c0.05	c0.40		0.00	0.31	
v/s Ratio Perm	c0.04		0.01	0.00		0.00	0.34		0.00	0.06		0.03
v/c Ratio	0.48	0.00	0.08	0.13	0.03	0.00	0.58	0.64	0.00	0.10	0.55	0.06
Uniform Delay, d1	41.6	45.4	45.9	53.5	55.9	55.9	11.5	14.0	8.4	12.6	17.3	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	2.05	1.54	1.00	0.64	0.66	2.47
Incremental Delay, d2	1.3	0.0	0.2	0.6	0.1	0.0	2.4	0.8	0.0	0.4	0.7	0.1
Delay (s)	42.9	45.4	46.1	54.1	56.0	55.9	26.0	22.3	8.4	8.5	12.2	30.7
Level of Service	D	D	D	D	E	E	C	C	A	A	B	C
Approach Delay (s)		44.5			54.8			22.5			13.2	
Approach LOS		D			D			C			B	

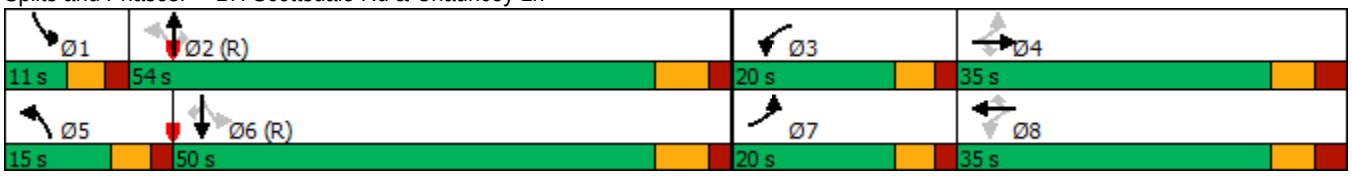
Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

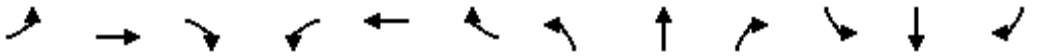
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	12	232	122	37	182	240	1708	94	108	1350	66
Future Volume (vph)	52	12	232	122	37	182	240	1708	94	108	1350	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3034		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.47	1.00	1.00	0.12	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1358	3034		871	3539	1583	225	5085	1583	118	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	13	258	136	41	202	267	1898	104	120	1500	73
RTOR Reduction (vph)	0	211	0	0	0	182	0	0	46	0	0	32
Lane Group Flow (vph)	58	60	0	136	41	20	267	1898	58	120	1500	41
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	18.6	11.6		18.6	11.6	11.6	80.4	67.4	67.4	80.4	67.4	67.4
Effective Green, g (s)	18.6	11.6		18.6	11.6	11.6	80.4	67.4	67.4	80.4	67.4	67.4
Actuated g/C Ratio	0.16	0.10		0.16	0.10	0.10	0.67	0.56	0.56	0.67	0.56	0.56
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	293		187	342	153	318	2856	889	258	2856	889
v/s Ratio Prot	0.01	0.02		c0.04	0.01		c0.09	0.37		0.05	0.29	
v/s Ratio Perm	0.02			c0.07		0.01	c0.47		0.04	0.26		0.03
v/c Ratio	0.25	0.20		0.73	0.12	0.13	0.84	0.66	0.07	0.47	0.53	0.05
Uniform Delay, d1	44.8	49.9		49.4	49.5	49.6	27.4	18.4	12.0	30.4	16.4	11.8
Progression Factor	1.00	1.00		1.01	1.00	1.32	0.72	1.52	4.39	0.69	0.73	5.64
Incremental Delay, d2	0.6	0.3		13.2	0.2	0.4	17.8	0.9	0.1	5.3	0.6	0.1
Delay (s)	45.3	50.3		62.8	49.5	66.0	37.7	29.0	52.6	26.4	12.5	66.9
Level of Service	D	D		E	D	E	D	C	D	C	B	E
Approach Delay (s)		49.4			63.1			31.1			15.9	
Approach LOS		D			E			C			B	

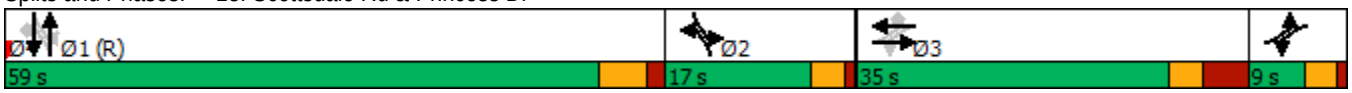
Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

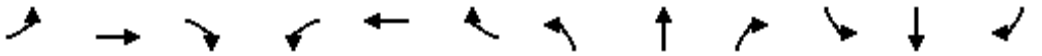
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	2	114	89	7	55	103	1933	25	54	1620	78
Future Volume (vph)	63	2	114	89	7	55	103	1933	25	54	1620	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.62		0.09	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1387			1095		164	5085	1583	97	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	2	127	99	8	61	114	2148	28	60	1800	87
RTOR Reduction (vph)	0	59	0	0	19	0	0	0	10	0	0	31
Lane Group Flow (vph)	0	140	0	0	149	0	114	2148	18	60	1800	56
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.4			20.4		82.6	76.6	76.6	82.6	76.6	76.6
Effective Green, g (s)		20.4			20.4		82.6	76.6	76.6	82.6	76.6	76.6
Actuated g/C Ratio		0.17			0.17		0.69	0.64	0.64	0.69	0.64	0.64
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		235			186		193	3245	1010	150	3245	1010
v/s Ratio Prot							c0.03	c0.42		0.02	0.35	
v/s Ratio Perm		0.10			c0.14		0.38		0.01	0.25		0.04
v/c Ratio		0.60			0.80		0.59	0.66	0.02	0.40	0.55	0.05
Uniform Delay, d1		46.0			47.8		27.1	13.6	7.9	29.1	12.2	8.1
Progression Factor		1.00			1.00		1.90	1.78	1.00	0.75	1.32	2.67
Incremental Delay, d2		4.0			21.3		1.2	0.1	0.0	6.9	0.6	0.1
Delay (s)		50.0			69.2		52.7	24.3	7.9	28.6	16.6	21.8
Level of Service		D			E		D	C	A	C	B	C
Approach Delay (s)		50.0			69.2			25.5			17.2	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

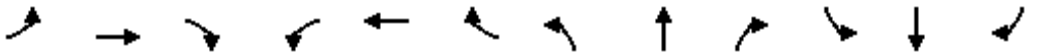
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	561	200	170	1351	453	476	1415	224	329	1130	393
Future Volume (vph)	259	561	200	170	1351	453	476	1415	224	329	1130	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	288	623	222	189	1501	503	529	1572	249	366	1256	437
RTOR Reduction (vph)	0	0	96	0	0	61	0	0	137	0	52	0
Lane Group Flow (vph)	288	623	126	189	1501	442	529	1572	112	366	1641	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	15.3	40.6	40.6	10.4	35.7	53.1	5.0	29.6	29.6	17.4	42.0	
Effective Green, g (s)	15.3	40.6	40.6	10.4	35.7	53.1	5.0	29.6	29.6	17.4	42.0	
Actuated g/C Ratio	0.13	0.34	0.34	0.09	0.30	0.44	0.04	0.25	0.25	0.14	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	437	1720	535	297	1512	700	143	1254	390	497	1710	
v/s Ratio Prot	c0.08	0.12		0.06	c0.30	0.09	c0.15	c0.31		0.11	c0.34	
v/s Ratio Perm			0.08			0.19			0.07			
v/c Ratio	0.66	0.36	0.24	0.64	0.99	0.63	3.70	1.25	0.29	0.74	0.96	
Uniform Delay, d1	49.9	29.9	28.5	53.0	42.0	25.9	57.5	45.2	36.6	49.1	38.2	
Progression Factor	1.00	1.00	1.00	0.91	1.62	1.20	1.00	1.00	1.00	0.87	0.91	
Incremental Delay, d2	3.6	0.6	1.0	1.7	12.5	0.7	1231.7	120.8	1.8	4.8	12.6	
Delay (s)	53.4	30.5	29.6	49.7	80.5	31.6	1289.2	166.0	38.5	47.7	47.2	
Level of Service	D	C	C	D	F	C	F	F	D	D	D	
Approach Delay (s)		36.2			66.6			405.3			47.3	
Approach LOS		D			E			F			D	

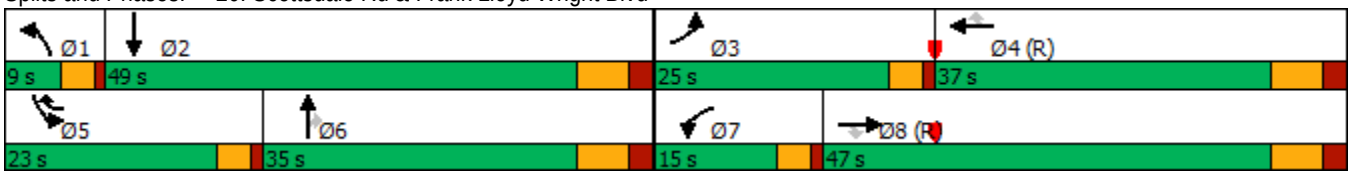
Intersection Summary			
HCM 2000 Control Delay	159.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

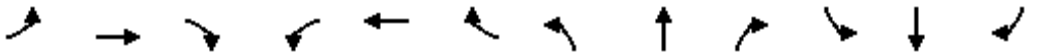
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	135
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	1038	37	335	1555	305	75	397	520	197	496	493
Future Volume (vph)	344	1038	37	335	1555	305	75	397	520	197	496	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	382	1153	41	372	1728	339	83	441	578	219	551	548
RTOR Reduction (vph)	0	0	25	0	0	98	0	0	70	0	0	172
Lane Group Flow (vph)	382	1153	16	372	1728	241	83	441	508	219	551	376
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Effective Green, g (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Actuated g/C Ratio	0.11	0.40	0.40	0.11	0.40	0.40	0.02	0.19	0.30	0.07	0.23	0.23
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	2034	633	371	2034	633	44	678	567	228	825	369
v/s Ratio Prot	0.11	0.23		0.11	c0.34		0.05	0.12	c0.10	c0.06	0.16	
v/s Ratio Perm			0.01			0.15			0.22			c0.24
v/c Ratio	1.03	0.57	0.03	1.00	0.85	0.38	1.89	0.65	0.90	0.96	0.67	1.02
Uniform Delay, d1	53.5	27.9	21.8	53.5	32.7	25.5	58.5	44.8	40.2	55.8	41.8	46.0
Progression Factor	1.03	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	1.11	1.28
Incremental Delay, d2	53.2	1.1	0.1	47.4	4.7	1.7	472.4	2.2	16.6	47.7	2.0	51.4
Delay (s)	108.5	26.3	21.9	100.9	37.4	27.2	530.9	47.0	56.8	94.2	48.3	110.5
Level of Service	F	C	C	F	D	C	F	D	E	F	D	F
Approach Delay (s)		46.1			45.7			88.6			81.8	
Approach LOS		D			D			F			F	

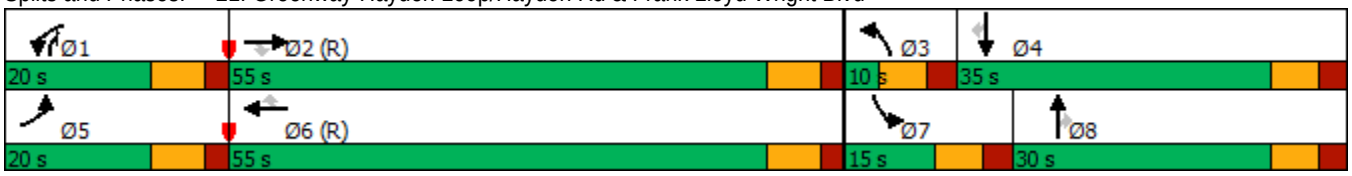
Intersection Summary			
HCM 2000 Control Delay	60.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

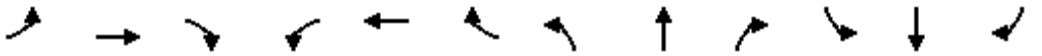
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	281	117	78	175	330	196	1341	4	299	869	177
Future Volume (vph)	367	281	117	78	175	330	196	1341	4	299	869	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	408	312	130	87	194	367	218	1490	4	332	966	197
RTOR Reduction (vph)	0	0	72	0	0	53	0	0	0	0	0	82
Lane Group Flow (vph)	408	312	58	87	194	314	218	1494	0	332	966	115
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	22.1	15.5	28.5	21.4	14.8	32.8	13.0	43.1		18.0	48.1	70.2
Effective Green, g (s)	22.1	15.5	28.5	21.4	14.8	32.8	13.0	43.1		18.0	48.1	70.2
Actuated g/C Ratio	0.18	0.13	0.24	0.18	0.12	0.27	0.11	0.36		0.15	0.40	0.59
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	632	457	428	612	436	485	371	1825		514	2038	978
v/s Ratio Prot	c0.12	0.09	0.01	0.03	0.05	c0.10	0.06	c0.29		0.10	0.19	0.02
v/s Ratio Perm			0.02			0.10						0.05
v/c Ratio	0.65	0.68	0.13	0.14	0.44	0.65	0.59	0.82		0.65	0.47	0.12
Uniform Delay, d1	45.3	49.9	36.0	41.6	48.8	38.5	50.9	34.9		48.0	26.6	11.1
Progression Factor	0.80	1.38	2.75	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	3.8	0.1	0.1	0.7	3.0	6.7	4.2		6.2	0.8	0.1
Delay (s)	38.3	72.5	99.3	41.7	49.5	41.5	57.6	39.1		54.2	27.4	11.2
Level of Service	D	E	F	D	D	D	E	D		D	C	B
Approach Delay (s)		60.2			43.9			41.5			31.2	
Approach LOS		E			D			D			C	

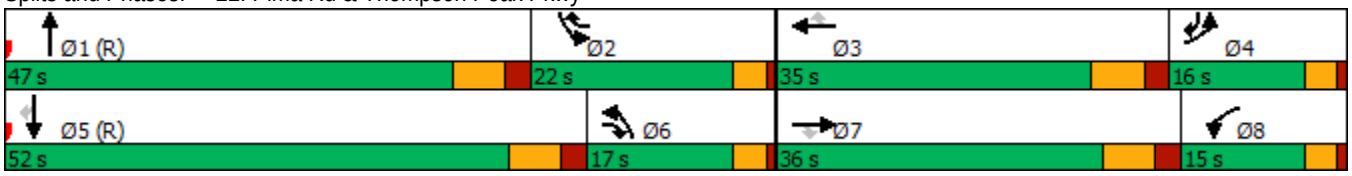
Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy



APPENDIX E

CAVASSON TRIP GENERATION

Land Use Types and Size

Parcel	LUC	Setting/Location	Proposed Use	Amount	Units	ITE LUC	ITE Land Use Name
			Phase 1				
	310	General	Hotel or motel	135	Rooms	310	Hotel
	220	General	Apartments	350	Dwelling Units	220	Multifamily Housing (Low-Rise)
	820	General	Shopping Center	11.000	KSF	820	Shopping Center
	930	General	Fast Casual Restaurant	6.000	KSF	930	Fast Casual Restaurant
	710	General	General Office Building	740.000	KSF	710	General Office Building
			Phase 2				
	310	General	Hotel or motel	265	Rooms	310	Hotel
	220	General	Apartments	1,250	Dwelling Units	220	Multifamily Housing (Low-Rise)
	820	General	Shopping Center	183.000	KSF	820	Shopping Center
	710	General	General Office Building	1060.000	KSF	710	General Office Building
	930	General	Fast Casual Restaurant	6.000	KSF	930	Fast Casual Restaurant

-Abbreviations: ITE = Institute of Transportation Engineers, LUC = land use code, SF = square feet, KSF = 1,000 square feet, DU = Dwelling Units, Keys = keyed gu

Weighted Average Rate or Fitted Curve Equation Used in Analysis?

Parcel	Proposed Use	ADT	Rate	Trips	AM	Rate	Trips	PM	Rate	Trips
Phase 1										
	Hotel or motel	T=11.29(X)-426.97	8.36	1,128	T=0.50(X)-5.34	0.49	66	T=0.75(X)-26.02	0.68	92
	Apartments	T=7.56*X-40.86	7.53	2,636	LN(T=0.95*LN(X)-0.51	0.42	147	LN(T)=0.89*LN(X)-0.02	0.44	154
	Shopping Center	LN(T)=0.68*LN(X)+5.57	48.16	530	T=0.5(X)+151.78	1.26	14	LN(T)=0.74*LN(X)+2.89	4.54	50
	Fast Casual Restaurant	Weighted Average	315.17	1,892	Weighted Average	2.07	12	Weighted Average	14.13	85
	General Office Building	LN(T)=0.97*LN(X)+2.50	9.73	7,200	T=0.94(X)+26.94	0.95	703	LN(T)=0.95*LN(X)+0.36	0.99	733
Phase 2										
	Hotel or motel	Weighted Average	8.36	2,216	T=0.50(X)-5.34	0.49	130	T=0.75(X)-26.02	0.68	180
	Apartments	T=7.56*X-40.86	7.53	9,412	LN(T=0.95*LN(X)-0.51	0.42	525	LN(T)=0.89*LN(X)-0.02	0.44	550
	Shopping Center	LN(T)=0.68*LN(X)+5.57	48.16	8,814	T=0.5(X)+151.78	1.26	231	LN(T)=0.74*LN(X)+2.89	4.54	831
	General Office Building	LN(T)=0.97*LN(X)+2.50	9.73	10,314	T=0.94(X)+26.94	0.95	1,007	LN(T)=0.95*LN(X)+0.36	0.99	1,049
	Fast Casual Restaurant	Weighted Average	315.17	1,892	Weighted Average	2.07	12	Weighted Average	14.13	85

Notes: -ITE methodology per the *Trip Generation Handbook* is the basis for deciding which rate/equation to use. Exceptions are highlighted.

Base Trips

Parcel	Proposed Use	ADT % In	ADT In	ADT Out	ADT Total	AM % In	AM In	AM Out	AM Total	PM % In	PM In	PM Out	PM Total
	Hotel or motel	50%	564	564	1,128	59%	39	27	66	51%	47	45	92
	Apartments	50%	1,318	1,318	2,636	23%	34	113	147	63%	97	57	154
	Shopping Center	50%	265	265	530	57%	8	6	14	52%	26	24	50
	Fast Casual Restaurant	50%	946	946	1,892	67%	8	4	12	55%	47	38	85
	General Office Building	50%	3,600	3,600	7,200	86%	605	98	703	16%	117	616	733
	Hotel or motel	50%	1,108	1,108	2,216	59%	77	53	130	51%	92	88	180
	Apartments	50%	4,706	4,706	9,412	23%	121	404	525	63%	347	203	550
	Shopping Center	50%	4,407	4,407	8,814	57%	132	99	231	52%	432	399	831
	General Office Building	50%	5,157	5,157	10,314	86%	866	141	1,007	16%	168	881	1,049
	Fast Casual Restaurant	50%	946	946	1,892	67%	8	4	12	55%	47	38	85
	Totals		**23,017**	**23,017**	**46,034**		**1,898**	**949**	**2,847**		**1,420**	**2,389**	**3,809**

Notes:

-Per ITE's *Trip Generation Handbook, 3rd edition*, the rates in the *Trip Generation Manual* represent base trip generation rates for "low-density, single-use, suburba little or no transit service, limited bicycle access, and little or no convenient pedestrian access" and that the "analyst needs to adjust the baseline vehicle trip genera development is an infill site, mixed-use development, transit-friendly development, is located within an urban core area or near a school, and/or other conditions.

-The base trips projected for the site are displayed in the table above. The following pages, if any, present appropriate adjustments to the base volumes and/or sepa

Adjustments for Internal Trips

Parcel	Proposed Use	ADT	ADT In	ADT Out	ADT Total	AM	AM In	AM Out	AM Total	PM	PM In	PM Out	PM Total
	Hotel or motel	7%	37	37	74	3%	1	1	2	4%	2	1	3
	Apartments	7%	86	86	172	3%	1	3	4	4%	4	2	6
	Shopping Center	7%	17	17	34	3%	0	0	0	4%	1	1	2
	Fast Casual Restaurant	7%	61	61	122	3%	0	0	0	4%	2	1	3
	General Office Building	7%	234	234	468	3%	16	2	18	4%	4	23	27
	Hotel or motel	24%	266	266	532	10%	7	5	12	18%	17	15	32
	Apartments	24%	1,129	1,129	2,258	10%	12	38	50	18%	62	37	99
	Shopping Center	24%	1,058	1,058	2,116	10%	13	9	22	18%	78	72	150
	General Office Building	24%	1,238	1,238	2,476	10%	83	14	97	18%	30	159	189
	Fast Casual Restaurant	24%	227	227	454	10%	1	0	1	18%	8	7	15
	Totals		**4,353**	**4,353**	**8,706**		**134**	**72**	**206**		**208**	**318**	**526**

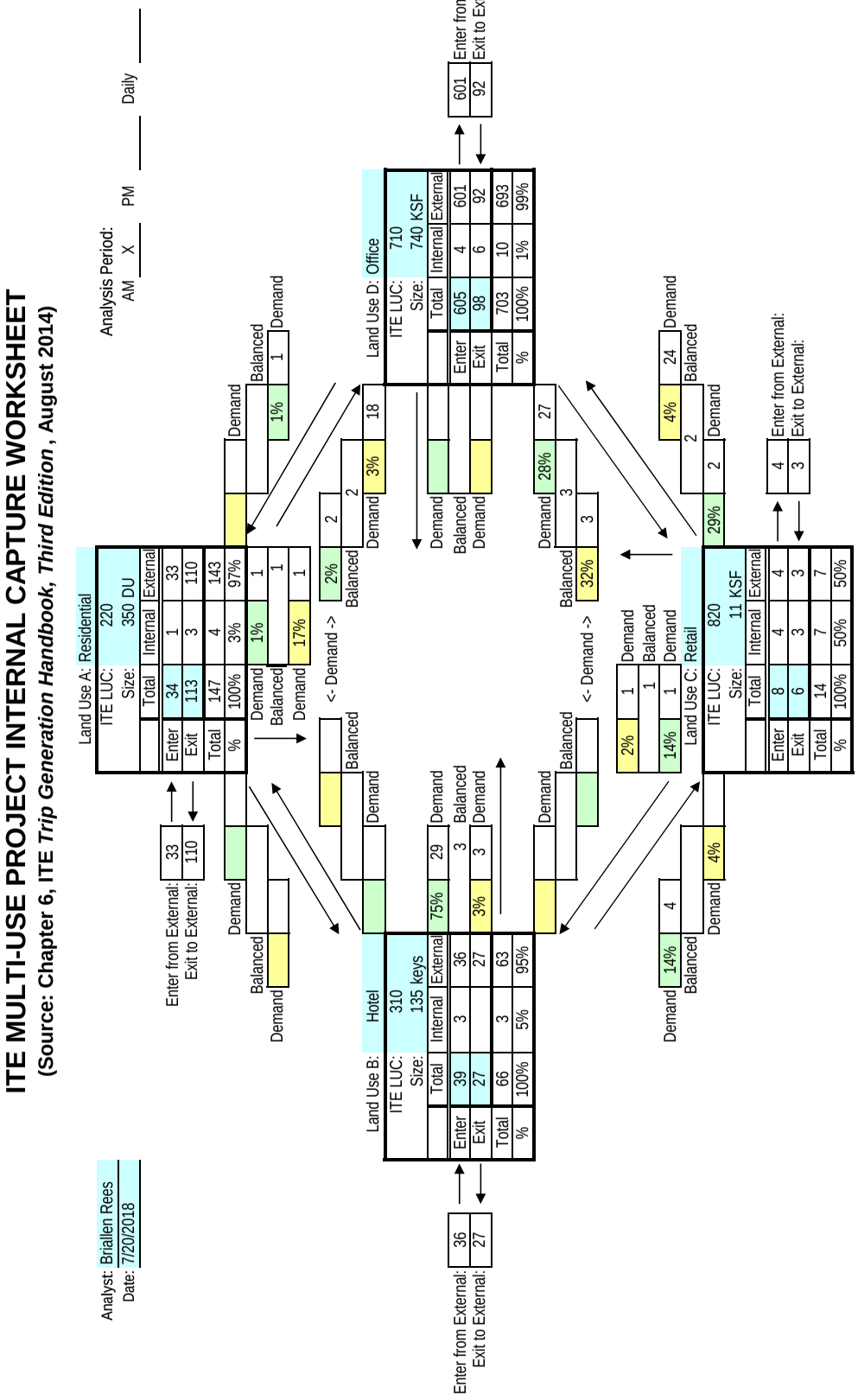
External Vehicular Trips

Parcel	Proposed Use	ADT In	ADT Out	ADT Total	AM In	AM Out	AM Total	PM In	PM Out	PM Total
	Hotel or motel	527	527	1,054	38	26	64	45	44	89
	Apartments	1,232	1,232	2,464	33	110	143	93	55	148
	Shopping Center	248	248	496	8	6	14	25	23	48
	Fast Casual Restaurant	885	885	1,770	8	4	12	45	37	82
	General Office Building	3,366	3,366	6,732	589	96	685	113	593	706
	Hotel or motel	842	842	1,684	70	48	118	75	73	148
	Apartments	3,577	3,577	7,154	109	366	475	285	166	451
	Shopping Center	3,349	3,349	6,698	119	90	209	354	327	681
	General Office Building	3,919	3,919	7,838	783	127	910	138	722	860
	Fast Casual Restaurant	719	719	1,438	7	4	11	39	31	70
	Totals	**18,664**	**18,664**	**37,328**	**1,764**	**877**	**2,641**	**1,212**	**2,071**	**3,283**

Phase	ADT	AM in	AM out	PM in	PM out
1	12,516	676	242	321	752
2	24,812	1,088	635	891	1,319
Totals	**37,328**	**1,764**	**877**	**1,212**	**2,071**
Differences (check)	0	0	0	0	0

APPENDIX F

INTERNAL CAPTURE



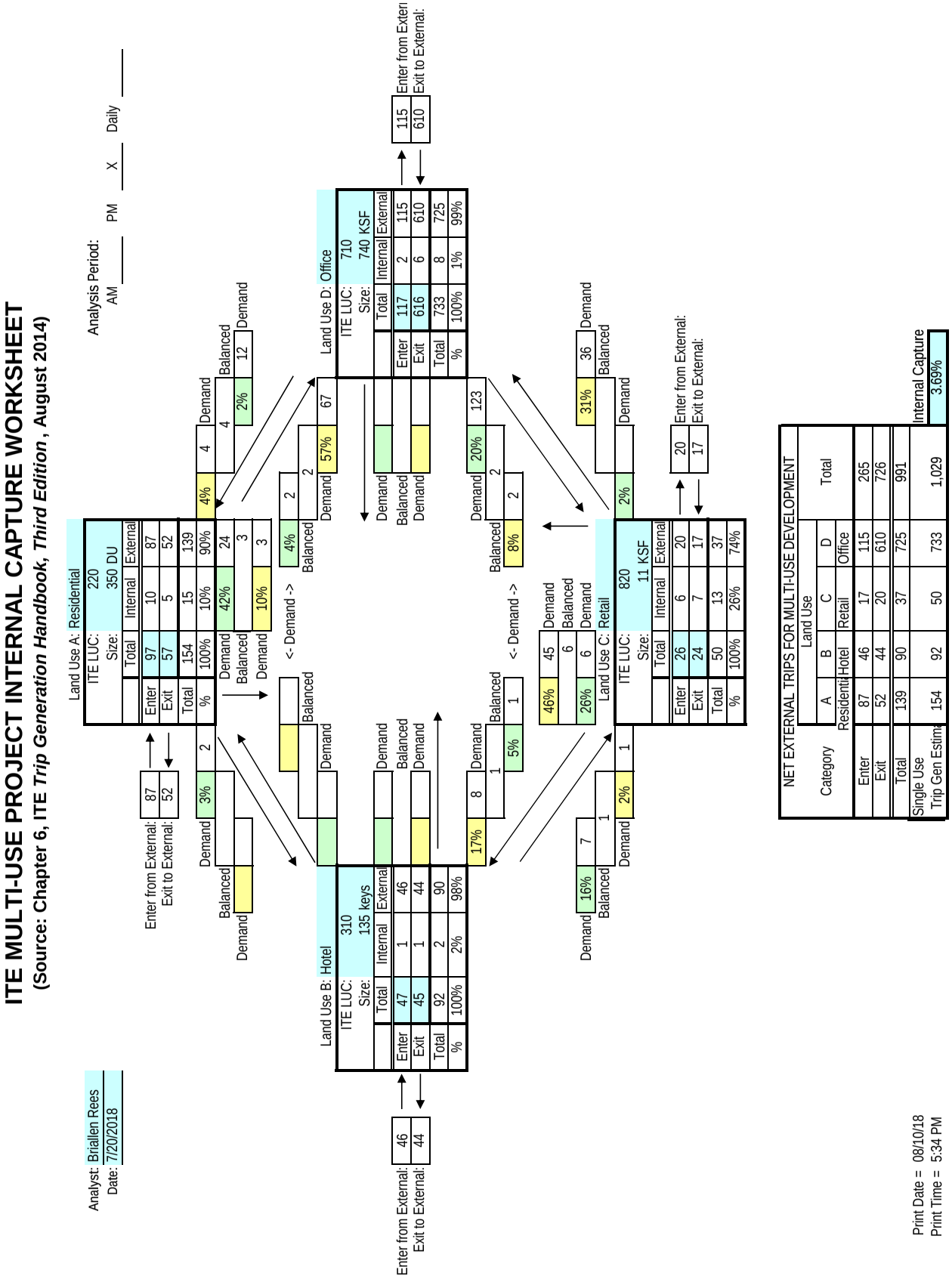
NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT

Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total
Enter	33	36	3	601	673
Exit	110	27	4	92	233
Total	143	63	7	693	906
Single Use Trip Gen Estim	147	66	14	703	930

Internal Capture 2.58%

Print Date = 08/10/18
Print Time = 5:34 PM

CivTech

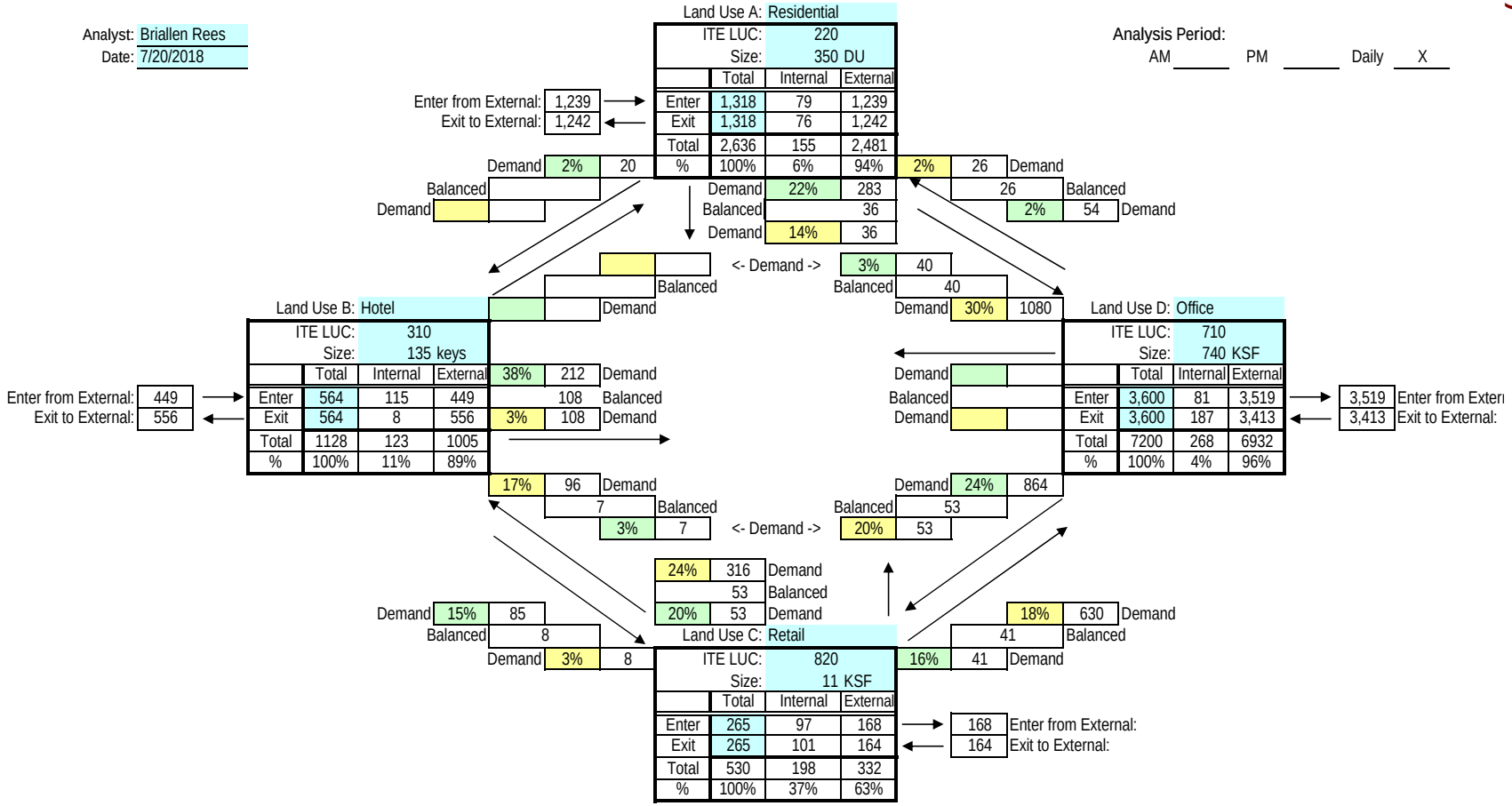

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET
(Source: Chapter 6, ITE Trip Generation Handbook, Third Edition, August 2014)
Analyst: Briallen Rees
Date: 7/20/2018
Analysis Period:
AM ____ PM X Daily ____
Land Use A: Residential
ITE LUC: 220
Size: 350 DU
Land Use B: Hotel
ITE LUC: 310
Size: 135 keys
Land Use C: Retail
ITE LUC: 820
Size: 11 KSF
Land Use D: Office
ITE LUC: 710
Size: 740 KSF
Enter from External: 87
Exit to External: 52
Enter from External: 46
Exit to External: 44
Enter from External: 20
Exit to External: 17
Enter from External: 115
Exit to External: 610
<- Demand ->
Balanced
Demand
NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT
Land Use
Category
A Residenti
B Hotel
C Retail
D Office
Total
Enter 87 46 17 115 265
Exit 52 44 20 610 726
Total 139 90 37 725 991
Single Use Trip Gen Estim 154 92 50 733 1,029
Internal Capture 3.69%
Print Date = 08/10/18
Print Time = 5:34 PM

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period: AM ____ PM ____ Daily X



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT						
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total	
Enter	1,239	449	164	3,519	5,371	
Exit	1,242	556	168	3,413	5,379	
Total	2,481	1,005	332	6,932	10,750	
Single Use Trip Gen Estim	2,636	1,128	530	7,200	11,494	Internal Capture 6.47%

Print Date = 08/10/18
Print Time = 5:34 PM

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period: AM X PM ____ Daily ____

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT					
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total
Enter	119	73	68	829	1,089
Exit	392	48	84	98	622
Total	511	121	152	927	1,711
Single Use Trip Gen Estim	525	130	231	1,007	1,893

Internal Capture: 9.61%

Print Date = 08/10/18
Print Time = 5:36 PM

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ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period:
AM ____ PM X Daily ____

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT					
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total
Enter	229	76	271	152	728
Exit	152	79	345	832	1,408
Total	381	155	616	984	2,136
Single Use Trip Gen Estim	550	180	831	1,049	2,610

Internal Capture: 18.16%

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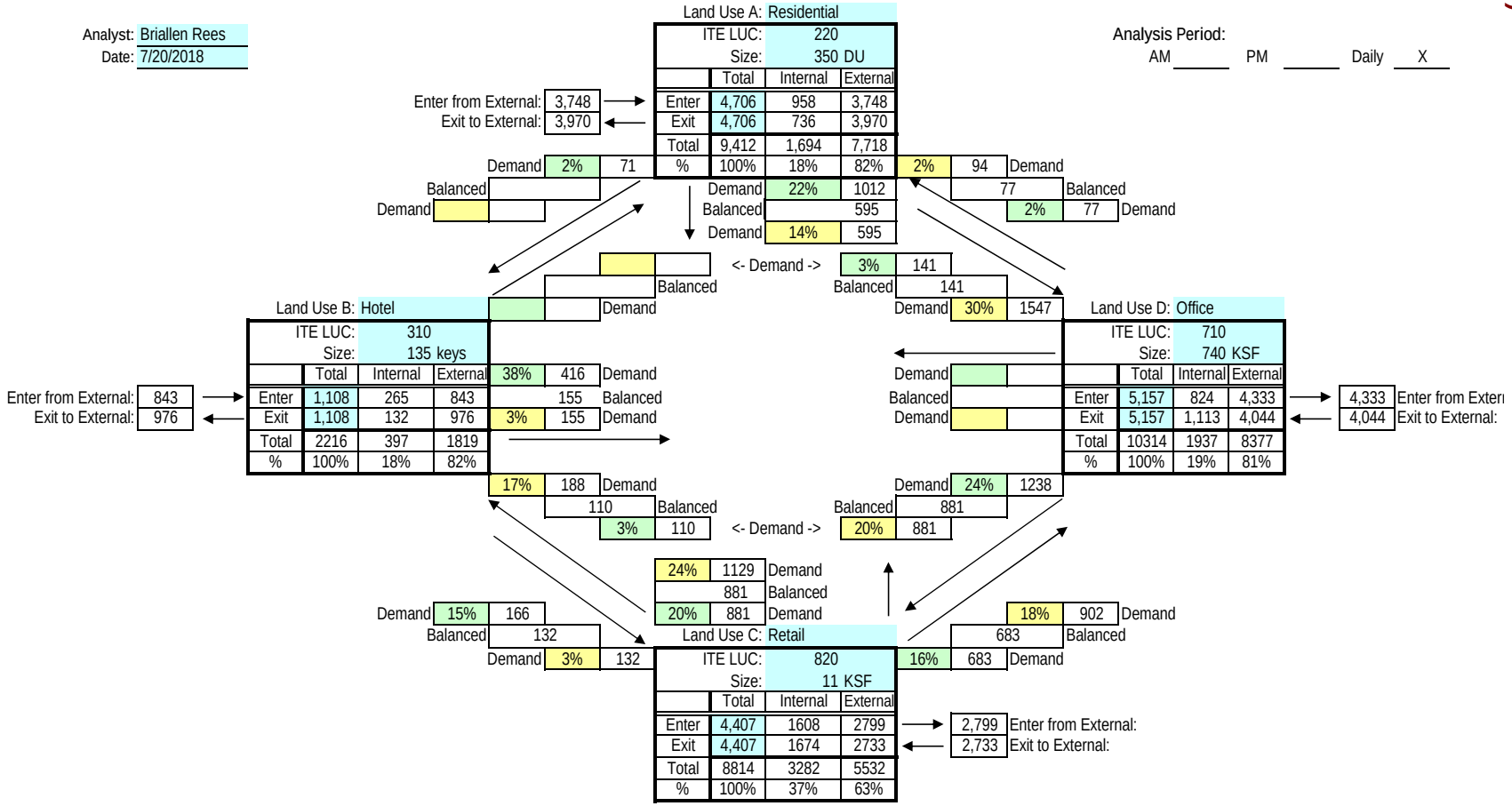
CivTech

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period: AM ____ PM ____ Daily X



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT						
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total	
Enter	3,748	843	2,733	4,333	11,657	
Exit	3,970	976	2,799	4,044	11,789	
Total	7,718	1,819	5,532	8,377	23,446	
Single Use Trip Gen Estim	9,412	2,216	8,814	10,314	30,756	Internal Capture 23.77%

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APPENDIX G

TRIP DISTRIBUTION CALCULATIONS

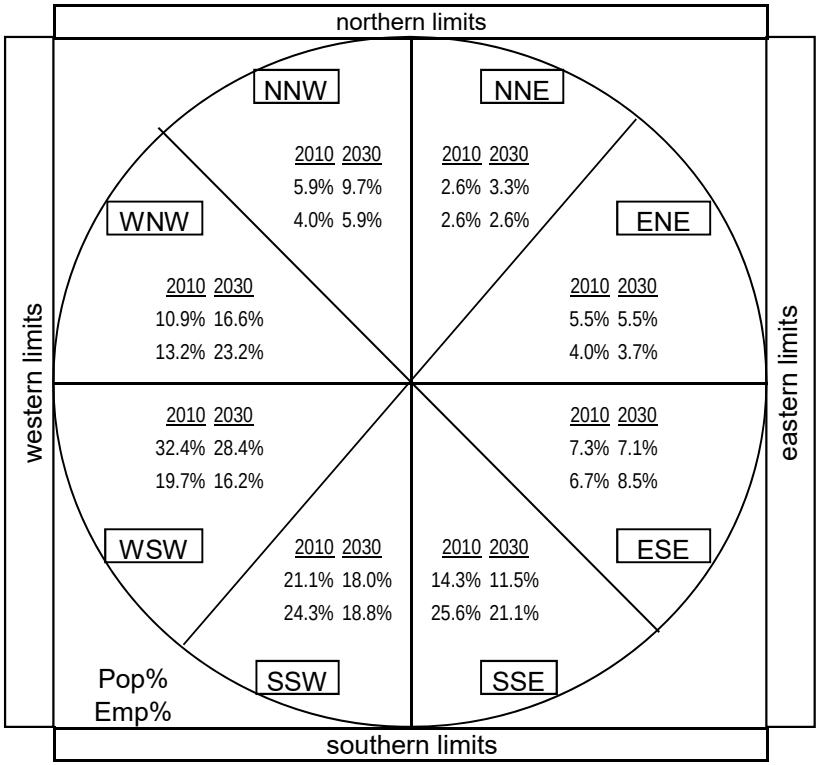
Crossroads East TIA

Trip Distribution - Summaries

	2010				2030			
Quadrant	**Population**	**Percent**	**Employment**	**Percent**	**Population**	**Percent**	**Employment**	**Percent**
North Northwest	44,693	5.9%	14,407	4.0%	93,892	9.7%	28,777	5.9%
North Northeast	20,070	2.6%	9,253	2.6%	32,204	3.3%	12,508	2.6%
North	64,763	**8.5%**	23,660	**6.6%**	126,096	**13.0%**	41,285	**8.5%**
East Northeast	42,287	5.5%	14,416	4.0%	53,001	5.5%	18,187	3.7%
East Southeast	55,441	7.3%	24,064	6.7%	69,310	7.1%	41,708	8.5%
East	97,728	**12.8%**	38,481	**10.7%**	122,311	**12.6%**	59,895	**12.2%**
South Southeast	108,723	14.3%	92,264	25.6%	111,265	11.5%	103,255	21.1%
South Southwest	160,488	21.1%	87,576	24.3%	174,342	18.0%	92,164	18.8%
South	269,211	**35.4%**	179,840	**49.9%**	285,608	**29.5%**	195,419	**39.9%**
West Southwest	246,952	32.4%	70,904	19.7%	275,017	28.4%	79,469	16.2%
West Northwest	83,419	10.9%	47,634	13.2%	160,902	16.6%	113,343	23.2%
West	330,371	**43.3%**	118,538	**32.9%**	435,919	**45.0%**	192,811	**39.4%**
Totals	762,073	100.0%	360,519	100.1%	969,934	100.1%	489,410	100.0%

Radii

Population: 12-mile Radius
Employment: 12-mile radius



CivTech

Crossroads East TIA

Trip Distribution - Pop from North

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
NNW						
206	PH	31,389	57,432	10%	3,139	5,743
207	CC	5,110	12,897	40%	2,044	5,159
208	CA	4,043	4,895	30%	1,213	1,469
209	SC	12,385	15,195	20%	2,477	3,039
217	PH	8,097	69,595	20%	1,619	13,919
218	PH	16,657	17,859		16,657	17,859
219	PH	20,374	57,616	50%	10,187	28,808
228	PH	24,521	59,655	30%	7,356	17,897
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From North					44,693	93,892

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
NNE						
208	CA	4,043	4,895	50%	2,022	2,448
209	SC	12,385	15,195	80%	9,908	12,156
210	SC	3,927	14,459	60%	2,356	8,675
229	SC	19,282	29,751	30%	5,785	8,925
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					20,070	32,204
					64,763	126,096

CivTech

Crossroads East TIA

Trip Distribution - Pop from East

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
ENE						
210	SC	3,927	14,459	10%	393	1,446
229	SC	19,282	29,751	70%	13,497	20,826
230	SC	28,471	41,061	10%	2,847	4,106
231	CO	1,727	2,034	30%	518	610
245	PH	62,580	65,033	40%	25,032	26,013
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From East					42,287	53,001

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
ESE						
230	SC	28,471	41,061	80%	22,777	32,849
231	CO	1,727	2,034	25%	432	509
249	SC	27,842	28,865	70%	19,489	20,206
250	FH	24,748	30,742	50%	12,374	15,371
264	SA	7,378	7,527	5%	369	376
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					55,441	69,310
					97,728	122,311

Crossroads East TIA

Trip Distribution - Pop from South

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
SSE						
230	SC	28,471	41,061	10%	2,847	4,106
247	SC	12,498	12,729	80%	9,998	10,183
248	SC	40,505	40,911		40,505	40,911
249	SC	27,842	28,865	30%	8,353	8,660
263	SC	37,358	37,553		37,358	37,553
264	SA	7,378	7,527	35%	2,582	2,634
272	SC	70,798	72,182	10%	7,080	7,218
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From South					108,723	111,265

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
SSW						
228	PH	24,521	59,655	20%	4,904	11,931
244	PH	58,232	61,790	5%	2,912	3,090
245	PH	62,580	65,033	50%	31,290	32,517
246	PH	64,312	66,555	90%	57,881	59,900
247	SC	12,498	12,729	20%	2,500	2,546
261	PH	35,935	38,155	80%	28,748	30,524
262	PA	15,180	15,883		15,180	15,883
271	PH	67,667	71,719	20%	13,533	14,344
272	SC	70,798	72,182	5%	3,540	3,609
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					160,488	174,342
					269,211	285,608

Crossroads East TIA

Trip Distribution - Pop from West

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
WSW						
224	PH	51,812	53,682	30%	15,544	16,105
226	PH	67,280	70,273		67,280	70,273
227	PH	54,266	74,093	40%	21,706	29,637
228	PH	24,521	59,655	30%	7,356	17,897
241	PH	45,519	46,783	30%	13,656	14,035
242	PH	31,280	32,288		31,280	32,288
244	PH	58,232	61,790	90%	52,409	55,611
245	PH	62,580	65,033	50%	31,290	32,517
246	PH	64,312	66,555	10%	6,431	6,656
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From West					246,952	275,017

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
WNW						
217	PH	8,097	69,595	60%	4,858	41,757
219	PH	20,374	57,616	50%	10,187	28,808
223	PH	48,677	53,670	20%	9,735	10,734
225	PH	21,175	23,216		21,175	23,216
227	PH	54,266	74,093	60%	32,560	44,456
228	PH	24,521	59,655	20%	4,904	11,931
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					83,419	160,902
					330,371	435,919

Crossroads East TIA

Trip Distribution - Emp from North

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
NNW						
206	PH	8,391	16,816	10%	839	1,682
207	CC	1,890	3,664	40%	756	1,466
208	CA	2,749	3,150	30%	825	945
209	SC	5,097	5,464	20%	1,019	1,093
217	PH	5,641	40,119	20%	1,128	8,024
218	PH	2,614	2,420		2,614	2,420
219	PH	3,223	5,448	50%	1,612	2,724
228	PH	18,714	34,747	30%	5,614	10,424
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From North					14,407	28,777

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
NNE						
208	CA	2,749	3,150	50%	1,375	1,575
209	SC	5,097	5,464	80%	4,078	4,371
210	SC	1,340	4,815	60%	804	2,889
229	SC	9,990	12,243	30%	2,997	3,673
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					9,253	12,508
					23,660	41,285

Crossroads East TIA

Trip Distribution - Emp from East

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
ENE						
210	SC	1,340	4,815	10%	134	482
229	SC	9,990	12,243	70%	6,993	8,570
230	SC	16,241	34,780	10%	1,624	3,478
231	CO	267	303	30%	80	91
245	PH	13,963	13,916	40%	5,585	5,566
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From East					14,416	18,187

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
ESE						
230	SC	16,241	34,780	80%	12,993	27,824
231	CO	267	303	25%	67	76
249	SC	9,677	12,159	70%	6,774	8,511
250	FH	7,686	8,634	50%	3,843	4,317
264	SA	7,755	19,598	5%	388	980
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					24,064	41,708
					38,481	59,895

Crossroads East TIA

Trip Distribution - Emp from South

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
SSE						
230	SC	16,241	34,780	10%	1,624	3,478
247	SC	35,648	38,871	80%	28,518	31,097
248	SC	25,592	26,823		25,592	26,823
249	SC	9,677	12,159	30%	2,903	3,648
263	SC	25,716	25,979		25,716	25,979
264	SA	7,755	19,598	35%	2,714	6,859
272	SC	51,966	53,707	10%	5,197	5,371
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From South					92,264	103,255

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
SSW						
228	PH	18,714	34,747	20%	3,743	6,949
244	PH	13,072	13,120	5%	654	656
245	PH	13,963	13,916	50%	6,982	6,958
246	PH	26,791	27,134	90%	24,112	24,421
247	SC	35,648	38,871	20%	7,130	7,774
261	PH	33,750	33,793	80%	27,000	27,034
262	PA	5,597	5,907		5,597	5,907
271	PH	48,806	48,896	20%	9,761	9,779
272	SC	51,966	53,707	5%	2,598	2,685
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					87,576	92,164
					179,840	195,419

Crossroads East TIA

Trip Distribution - Emp from West

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
WSW						
224	PH	19,202	20,010	30%	5,761	6,003
226	PH	19,241	21,312		19,241	21,312
227	PH	16,487	18,859	40%	6,595	7,544
228	PH	18,714	34,747	30%	5,614	10,424
241	PH	10,214	10,462	30%	3,064	3,139
242	PH	9,204	9,568		9,204	9,568
244	PH	13,072	13,120	90%	11,765	11,808
245	PH	13,963	13,916	50%	6,982	6,958
246	PH	26,791	27,134	10%	2,679	2,713
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From West					70,904	79,469

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
WNW						
217	PH	5,641	40,119	60%	3,385	24,071
219	PH	3,223	5,448	50%	1,612	2,724
223	PH	15,395	20,337	20%	3,079	4,067
225	PH	25,924	64,215		25,924	64,215
227	PH	16,487	18,859	60%	9,892	11,315
228	PH	18,714	34,747	20%	3,743	6,949
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					47,634	113,343
					118,538	192,811

APPENDIX H

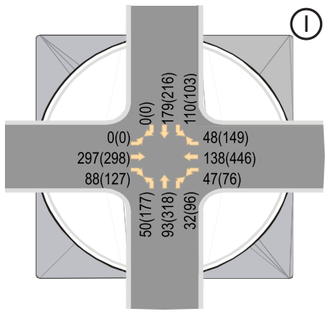
BACKGROUND TRAFFIC CALCULATIONS, EXCERPTS FROM CROSSROADS EAST

Location of counts: Thompson Peak Pkwy between Scottsdale and Hayden
Source(s): https://www.scottsdaleaz.gov/transportation/studies-reports/traffic-volume

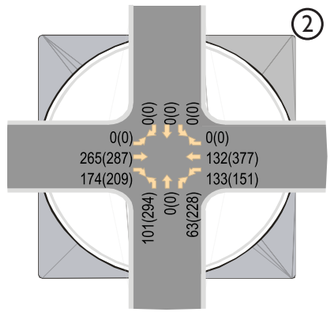
	Year	Volume	Avg Growth Rate to 2014	Expansion Factor to 2014
Beginning	2014	11,900		
End	2016	12,400	2.1%	0.960

Growth Rate Used	2.1%	1.0%
Per-Year Multiplier	1.021	1.010

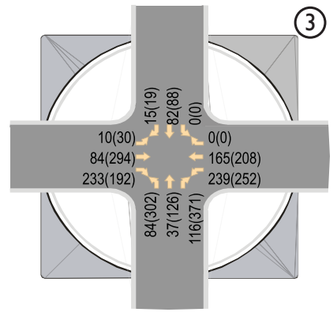
Year	Expansion Factor(s)		
2018	1.000	0.802	
2019	1.021	0.810	
2020	1.042	0.818	Expansion Factor for Phase 1
2021	1.064	0.826	
2022	1.087	0.835	
2023	1.110	0.843	
2024	1.133	0.851	
2025	1.157	0.860	
2026	1.181	0.869	
2027	1.206	0.878	
2028	1.231	0.886	
2029	1.257	0.895	
2030	1.283	0.904	Reduction Factor for Phase 2
2031	1.310	0.914	
2032	1.338	0.923	
2033	1.366	0.932	
2034	1.394	0.941	
2035	1.424	0.951	
2036	1.454	0.961	
2037	1.484	0.970	
2038	1.515	0.980	
2039	1.547	0.990	
2040	1.580	1.000	



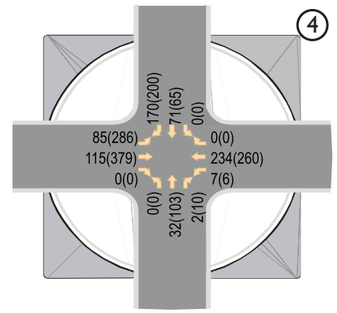
Scottsdale Rd. & Thompson Peak Pkwy



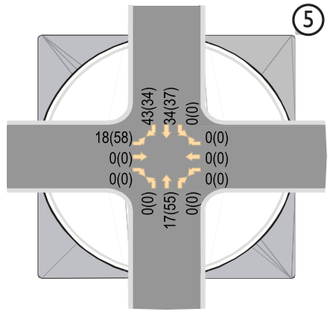
Miller Rd. & Thompson Peak Pkwy



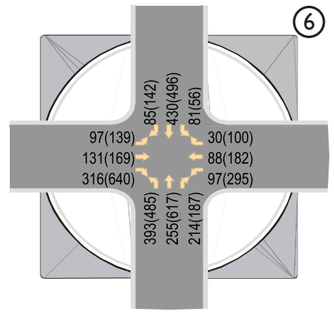
Hayden Rd. & Thompson Peak Pkwy



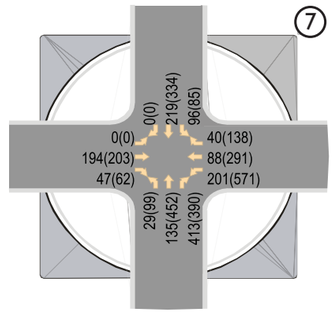
Pima Rd. & Thompson Peak Pkwy



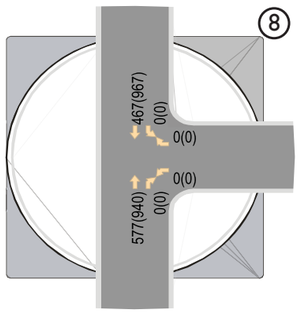
Pima Rd. & Hualapai Dr.



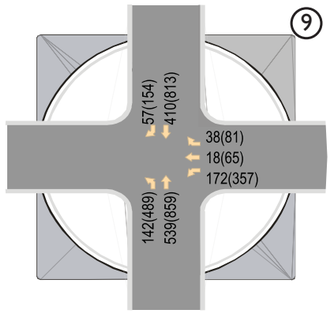
Hayden Rd. & Legacy Blvd.



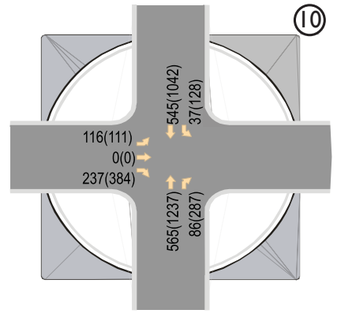
Scottsdale Rd.& Legacy Blvd.



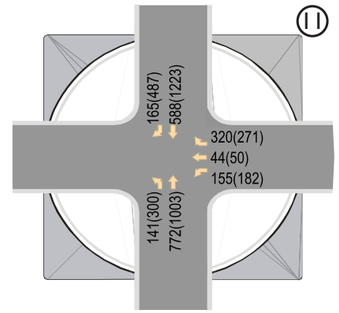
Scottsdale Rd. & 19200 North



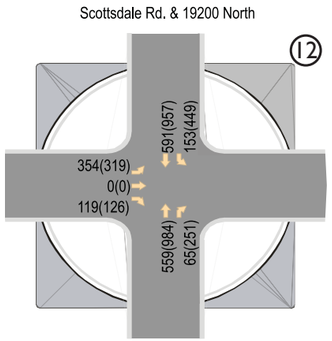
Scottsdale Rd. & Loop 101 WB Ramps



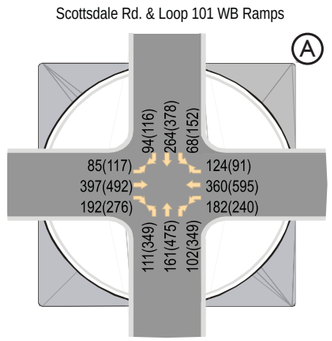
Scottsdale Rd. & Loop 101 EB Ramps



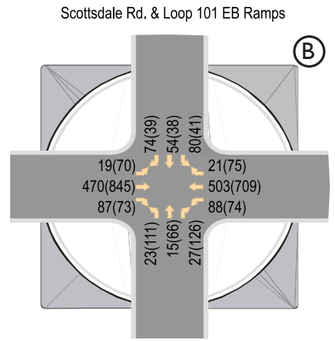
Hayden Rd. & Loop 101 WB Ramps



Scottsdale Rd. & 19200 North

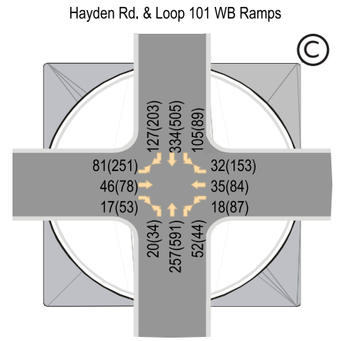


Scottsdale Rd. & Loop 101 WB Ramps



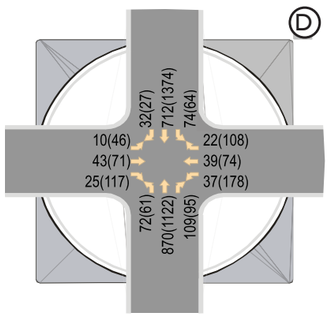
Scottsdale Rd. & Loop 101 EB Ramps

B



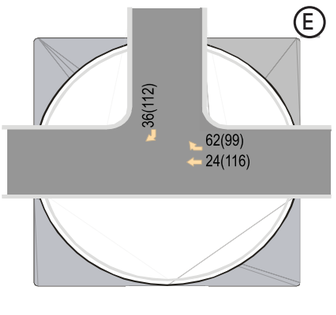
Hayden Rd. & Loop 101 WB Ramps

C



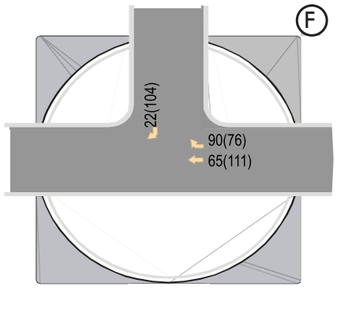
Hayden Rd. & Loop 101 EB Ramps

D

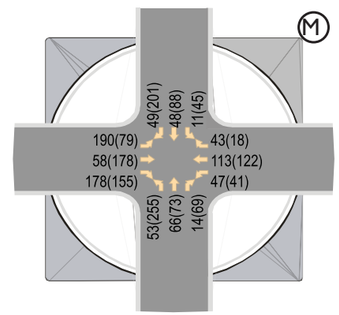


Miller Rd. & Legacy Blvd.

E



F



M

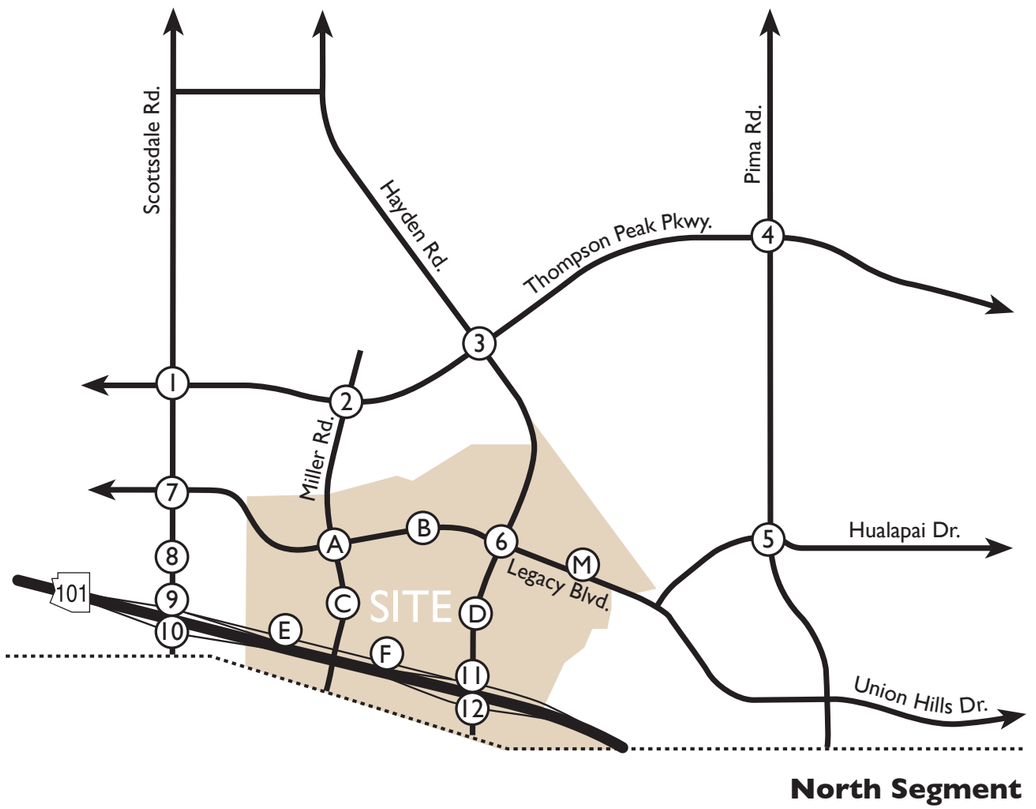
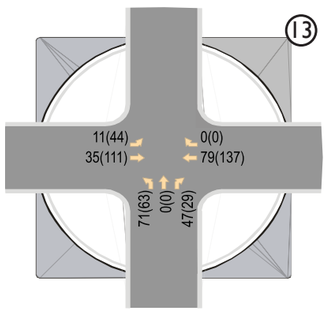
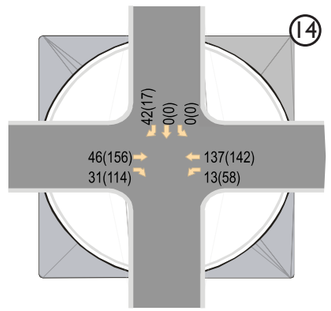


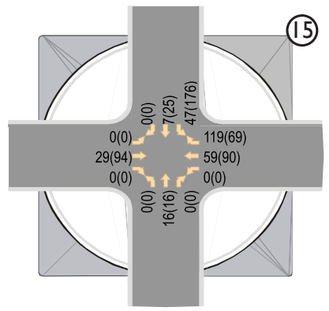
Figure 9: 2030 Peak Hour Site Generated Traffic - North



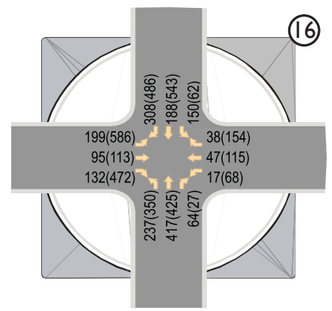
Pima Rd. & Loop 101 NB Ramps



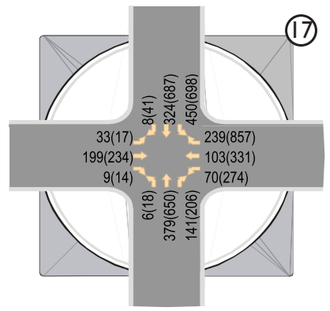
Pima Rd. & Loop 101 SB Ramps



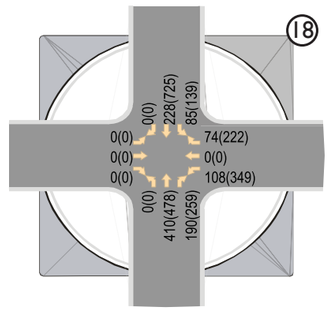
Perimeter Dr. & Princess Dr.



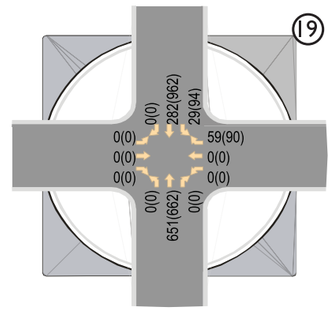
Hayden Rd. & Union Hills Rd.



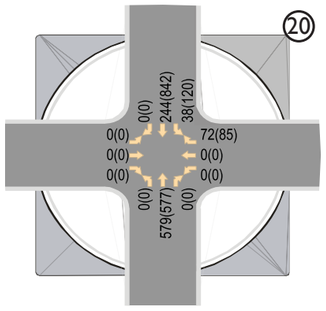
Scottsdale Rd. & Mayo Blvd.



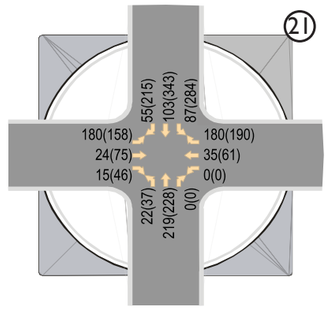
Scottsdale Rd. & Princess Dr.



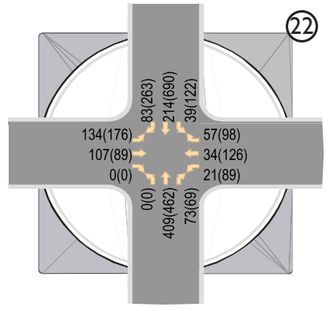
Hayden Rd. & Princess Dr.



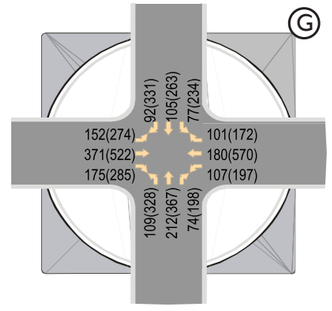
Hayden Rd. & Bell Rd.



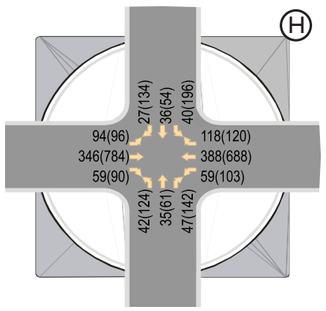
Hayden Rd. & Frank Lloyd Wright Blvd.



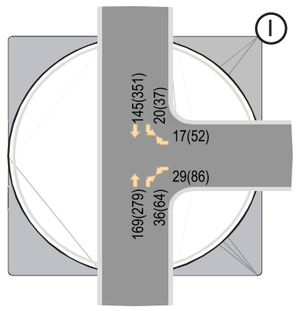
Scottsdale Rd. & Frank Lloyd Wright Blvd.



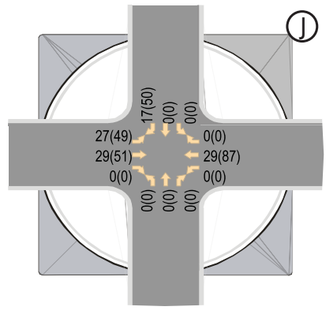
Miller Rd. & Union Hills Dr.



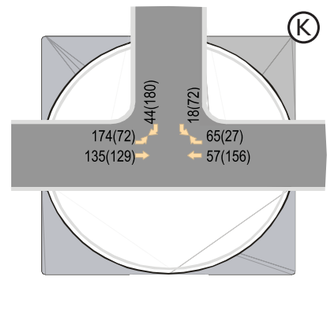
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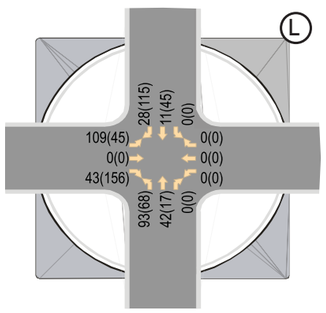
Miller Rd. & Princess Dr.



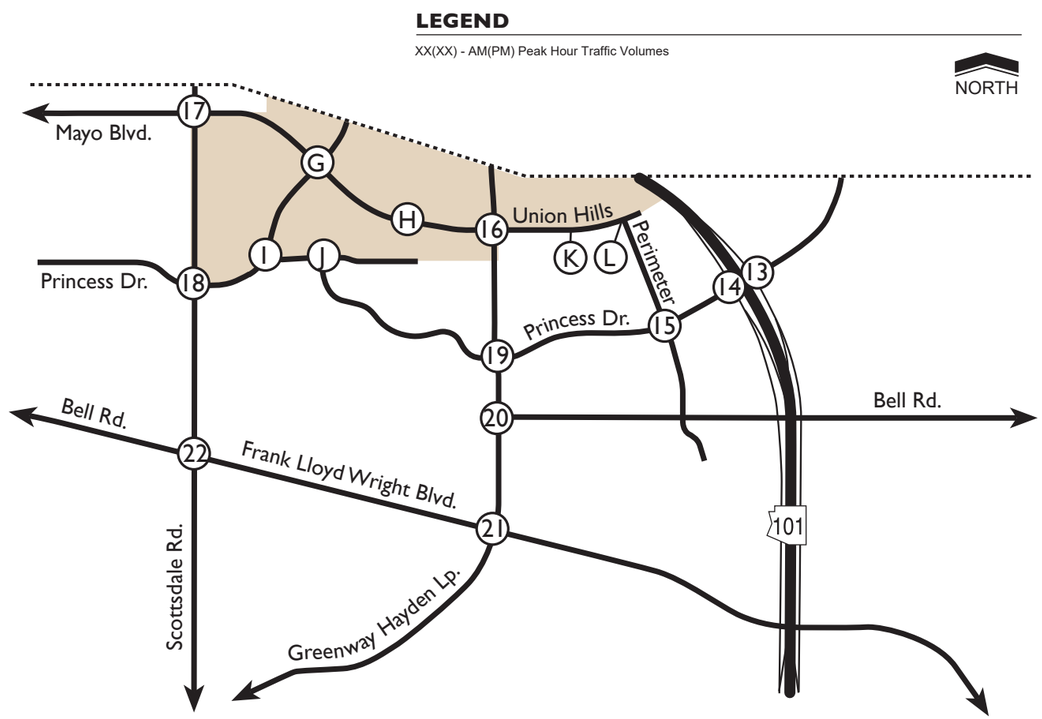
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K



L

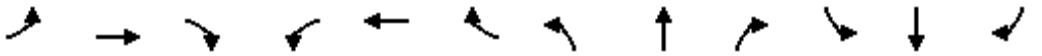


South Segment

Figure 10: 2030 Peak Hour Site Generated Traffic - South

APPENDIX I

2020 PEAK HOUR TRAFFIC ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	11	60	62	12	2	59	508	16	3	568	32
Future Volume (vph)	26	11	60	62	12	2	59	508	16	3	568	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1825		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.36	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1393	1626		1314	1825		672	3539	1583	744	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	12	67	69	13	2	66	564	18	3	631	36
RTOR Reduction (vph)	0	40	0	0	1	0	0	0	10	0	0	19
Lane Group Flow (vph)	29	39	0	69	14	0	66	564	8	3	631	17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	650		525	730		311	1639	733	344	1639	733
v/s Ratio Prot		0.02			0.01			0.16			c0.18	
v/s Ratio Perm	0.02			c0.05			0.10		0.01	0.00		0.01
v/c Ratio	0.05	0.06		0.13	0.02		0.21	0.34	0.01	0.01	0.38	0.02
Uniform Delay, d1	17.5	17.5		18.0	17.2		15.2	16.3	13.8	13.7	16.7	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.5	0.0		1.6	0.6	0.0	0.0	0.7	0.1
Delay (s)	17.6	17.7		18.6	17.3		16.7	16.9	13.8	13.8	17.3	13.9
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		17.7			18.3			16.8			17.1	
Approach LOS		B			B			B			B	

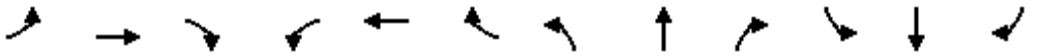
Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	90	45	8	18	35	531	9	3	671	34
Future Volume (vph)	30	2	90	45	8	18	35	531	9	3	671	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1670		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.26	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1375	1863	1583	1409	1670		484	3539	1583	651	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	2	100	50	9	20	39	590	10	3	746	38
RTOR Reduction (vph)	0	0	45	0	10	0	0	0	6	0	0	23
Lane Group Flow (vph)	33	2	55	50	19	0	39	590	4	3	746	15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	662	897	762	678	804		189	1383	618	254	1383	618
v/s Ratio Prot		0.00			0.01			0.17			c0.21	
v/s Ratio Perm	0.02		0.04	c0.04			0.08		0.00	0.00		0.01
v/c Ratio	0.05	0.00	0.07	0.07	0.02		0.21	0.43	0.01	0.01	0.54	0.02
Uniform Delay, d1	15.1	14.8	15.3	15.3	14.9		22.2	24.5	20.5	20.5	25.9	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.2	0.1		2.5	1.0	0.0	0.1	1.5	0.1
Delay (s)	15.3	14.8	15.5	15.5	15.0		24.7	25.5	20.5	20.6	27.4	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.4			15.3			25.3			27.0	
Approach LOS		B			B			C			C	

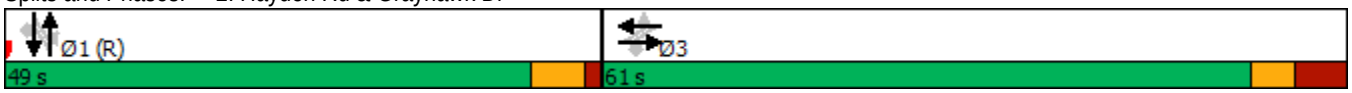
Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

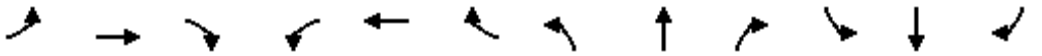
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	259	265	294	244	88	133	440	251	206	566	44
Future Volume (vph)	27	259	265	294	244	88	133	440	251	206	566	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.58	1.00	1.00	0.33	1.00	1.00	0.38	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1089	3539	1583	607	3539	1583	704	3539	1583	668	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	288	294	327	271	98	148	489	279	229	629	49
RTOR Reduction (vph)	0	0	250	0	0	72	0	0	163	0	0	26
Lane Group Flow (vph)	30	288	44	327	271	26	148	489	116	229	629	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.6	18.1	18.1	41.0	32.0	32.0	60.2	50.1	50.1	68.8	55.4	55.4
Effective Green, g (s)	22.6	18.1	18.1	41.0	32.0	32.0	60.2	50.1	50.1	68.8	55.4	55.4
Actuated g/C Ratio	0.19	0.15	0.15	0.34	0.27	0.27	0.50	0.42	0.42	0.57	0.46	0.46
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	230	533	238	395	943	422	442	1477	660	506	1633	730
v/s Ratio Prot	0.00	0.08		c0.13	0.08		0.03	0.14		c0.05	c0.18	
v/s Ratio Perm	0.02		0.03	c0.15		0.02	0.14		0.07	c0.21		0.01
v/c Ratio	0.13	0.54	0.19	0.83	0.29	0.06	0.33	0.33	0.18	0.45	0.39	0.03
Uniform Delay, d1	40.2	47.1	44.5	32.4	34.9	32.8	16.4	23.6	22.0	13.6	21.1	17.6
Progression Factor	1.06	0.99	1.40	1.15	1.11	2.35	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.0	0.4	13.1	0.2	0.1	0.5	0.6	0.6	0.6	0.7	0.1
Delay (s)	42.8	47.5	62.6	50.4	39.1	77.2	16.8	24.2	22.6	14.2	21.8	17.7
Level of Service	D	D	E	D	D	E	B	C	C	B	C	B
Approach Delay (s)		54.5			49.8			22.5			19.7	
Approach LOS		D			D			C			B	

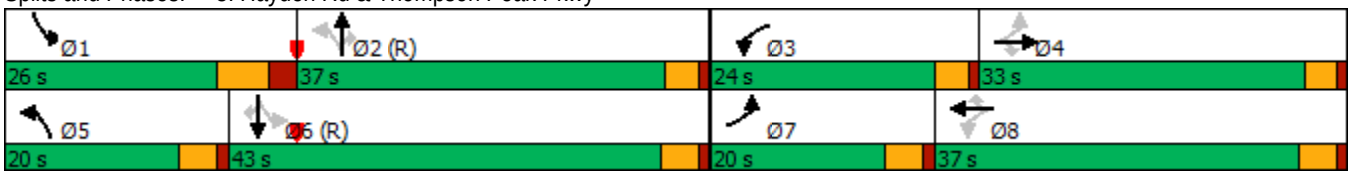
Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

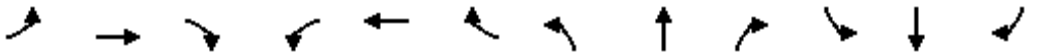
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	0	32	0	0	0	9	778	0	0	1140	4
Future Volume (vph)	9	0	32	0	0	0	9	778	0	0	1140	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0				7.0	7.0			7.0	7.0
Lane Util. Factor	1.00		1.00				1.00	0.95			0.95	1.00
Frt	1.00		0.85				1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770		1583				1770	3539			3539	1583
Flt Permitted	0.93		1.00				0.21	1.00			1.00	1.00
Satd. Flow (perm)	1733		1583				392	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	0	36	0	0	0	10	864	0	0	1267	4
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	10	0	1	0	0	0	10	864	0	0	1267	3
Turn Type	Perm		Perm	Perm		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	4.3		4.3				91.7	91.7			91.7	91.7
Effective Green, g (s)	4.3		4.3				91.7	91.7			91.7	91.7
Actuated g/C Ratio	0.04		0.04				0.83	0.83			0.83	0.83
Clearance Time (s)	7.0		7.0				7.0	7.0			7.0	7.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	67		61				326	2950			2950	1319
v/s Ratio Prot								0.24			c0.36	
v/s Ratio Perm	c0.01		0.00				0.03					0.00
v/c Ratio	0.15		0.02				0.03	0.29			0.43	0.00
Uniform Delay, d1	51.1		50.8				1.6	2.0			2.4	1.5
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	1.0		0.2				0.2	0.3			0.5	0.0
Delay (s)	52.1		51.0				1.7	2.3			2.8	1.5
Level of Service	D		D				A	A			A	A
Approach Delay (s)		51.2			0.0			2.3			2.8	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

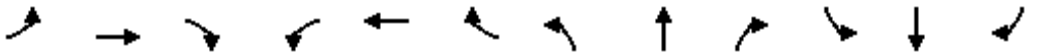
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	85
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	4	322	122	455	0	0	793	412
Future Volume (vph)	0	0	0	34	4	322	122	455	0	0	793	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1510	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1510	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	38	4	358	136	506	0	0	881	458
RTOR Reduction (vph)	0	0	0	0	144	144	0	0	0	0	0	250
Lane Group Flow (vph)	0	0	0	38	39	35	136	506	0	0	881	208
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				23.4	23.4	23.4	22.0	25.4			54.6	54.6
Effective Green, g (s)				23.4	23.4	23.4	22.0	25.4			54.6	54.6
Actuated g/C Ratio				0.19	0.19	0.19	0.18	0.21			0.46	0.46
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				669	294	293	324	749			2915	720
v/s Ratio Prot					c0.03		c0.08	c0.14			c0.14	
v/s Ratio Perm				0.01		0.02						0.13
v/c Ratio				0.06	0.13	0.12	0.42	0.68			0.30	0.29
Uniform Delay, d1				39.3	39.9	39.8	43.4	43.5			20.7	20.5
Progression Factor				1.00	1.00	1.00	1.33	0.28			1.00	1.00
Incremental Delay, d2				0.0	0.2	0.2	3.8	2.3			0.3	1.0
Delay (s)				39.4	40.1	40.0	61.2	14.6			20.9	21.5
Level of Service				D	D	D	E	B			C	C
Approach Delay (s)		0.0			40.0			24.5			21.1	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

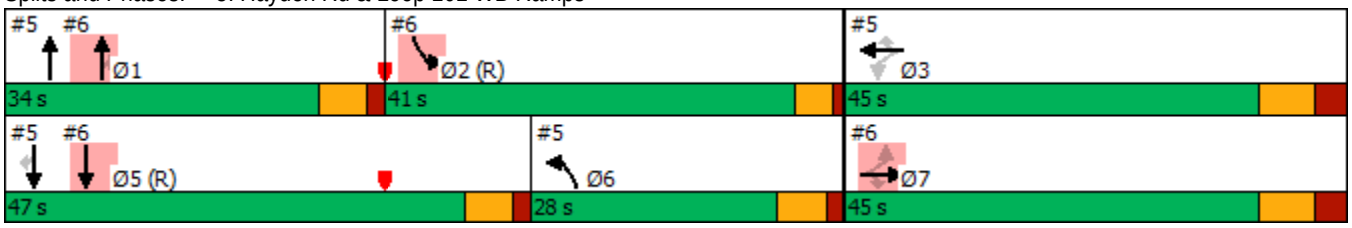
c Critical Lane Group

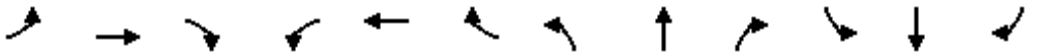
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	0	435	0	0	0	0	345	17	530	303	0
Future Volume (vph)	228	0	435	0	0	0	0	345	17	530	303	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1458	1504					5085	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1458	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	253	0	483	0	0	0	0	383	19	589	337	0
RTOR Reduction (vph)	0	187	202	0	0	0	0	0	15	0	0	0
Lane Group Flow (vph)	228	70	49	0	0	0	0	383	4	589	337	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	23.4	23.4	23.4					25.4	25.4	52.7	54.6	
Effective Green, g (s)	23.4	23.4	23.4					25.4	25.4	52.7	54.6	
Actuated g/C Ratio	0.19	0.19	0.19					0.21	0.21	0.44	0.46	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	327	284	293					1076	335	1507	1610	
v/s Ratio Prot								c0.08		c0.17	0.10	
v/s Ratio Perm	c0.14	0.05	0.03						0.00			
v/c Ratio	0.70	0.25	0.17					0.36	0.01	0.39	0.21	
Uniform Delay, d1	45.0	40.9	40.2					40.3	37.4	22.8	19.7	
Progression Factor	1.35	4.29	5.87					1.07	1.00	0.81	0.29	
Incremental Delay, d2	4.1	0.3	0.2					0.2	0.0	0.7	0.3	
Delay (s)	64.8	175.7	236.0					43.2	37.4	19.1	6.1	
Level of Service	E	F	F					D	D	B	A	
Approach Delay (s)		161.9			0.0			42.9			14.4	
Approach LOS		F			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	72.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

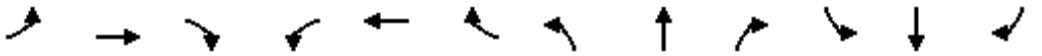
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	317	10	181	585
Future Volume (Veh/h)	0	42	317	10	181	585
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	47	352	11	201	650
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.98					
vC, conflicting volume	1079	176			363	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	176			363	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			83	
cM capacity (veh/h)	183	837			1192	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	176	176	11	201	325	325
Volume Left	0	0	0	0	201	0	0
Volume Right	47	0	0	11	0	0	0
cSH	837	1700	1700	1700	1192	1700	1700
Volume to Capacity	0.06	0.10	0.10	0.01	0.17	0.19	0.19
Queue Length 95th (ft)	4	0	0	0	15	0	0
Control Delay (s)	9.6	0.0	0.0	0.0	8.6	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.6	0.0			2.0		
Approach LOS	A						

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	58	85	162	0	23	70	223	190	117	413	46
Future Volume (vph)	41	58	85	162	0	23	70	223	190	117	413	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.48	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	898	3539	1583	1114	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	64	94	180	0	26	78	248	211	130	459	51
RTOR Reduction (vph)	0	0	84	0	0	23	0	0	78	0	0	19
Lane Group Flow (vph)	0	110	10	180	0	3	78	248	133	130	459	32
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		12.7	12.7	11.7		11.7	75.6	75.6	75.6	75.6	75.6	75.6
Effective Green, g (s)		12.7	12.7	11.7		11.7	75.6	75.6	75.6	75.6	75.6	75.6
Actuated g/C Ratio		0.11	0.11	0.10		0.10	0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		193	167	334		154	565	2229	997	701	2229	997
v/s Ratio Prot		c0.06		c0.05				0.07			c0.13	
v/s Ratio Perm			0.01			0.00	0.09		0.08	0.12		0.02
v/c Ratio		0.57	0.06	0.54		0.02	0.14	0.11	0.13	0.19	0.21	0.03
Uniform Delay, d1		51.1	48.3	51.6		48.9	9.0	8.8	9.0	9.3	9.4	8.4
Progression Factor		1.01	1.49	1.00		1.00	1.35	1.42	3.55	1.06	1.07	34.44
Incremental Delay, d2		3.7	0.1	1.7		0.0	0.5	0.1	0.3	0.6	0.2	0.1
Delay (s)		55.2	72.1	53.3		49.0	12.6	12.6	32.1	10.5	10.3	288.8
Level of Service		E	E	D		D	B	B	C	B	B	F
Approach Delay (s)		63.0			52.7			20.3			32.5	
Approach LOS		E			D			C			C	

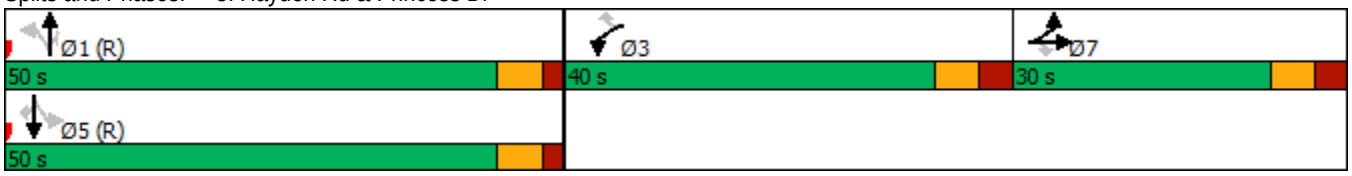
Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

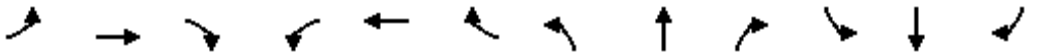
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	19	206	9	75	27	417	346	127	545	18
Future Volume (vph)	8	6	19	206	9	75	27	417	346	127	545	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3199		1681	1692	1583	1770	3539	1583	1770	3522	
Flt Permitted		0.86		0.73	0.72	1.00	0.41	1.00	1.00	0.49	1.00	
Satd. Flow (perm)		2797		1295	1266	1583	756	3539	1583	905	3522	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	7	21	229	10	83	30	463	384	141	606	20
RTOR Reduction (vph)	0	20	0	0	0	69	0	0	110	0	1	0
Lane Group Flow (vph)	0	17	0	119	120	14	30	463	274	141	625	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.1		20.5	20.5	20.5	85.5	85.5	85.5	85.5	85.5	
Effective Green, g (s)		4.1		20.5	20.5	20.5	85.5	85.5	85.5	85.5	85.5	
Actuated g/C Ratio		0.03		0.17	0.17	0.17	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		95		248	246	270	538	2521	1127	644	2509	
v/s Ratio Prot				0.03	c0.03			0.13			c0.18	
v/s Ratio Perm		0.01		0.05	c0.05	0.01	0.04		0.17	0.16		
v/c Ratio		0.18		0.48	0.49	0.05	0.06	0.18	0.24	0.22	0.25	
Uniform Delay, d1		56.3		45.4	45.0	41.6	5.2	5.7	6.0	5.9	6.0	
Progression Factor		1.00		1.00	1.00	1.00	1.52	1.19	6.26	1.22	1.26	
Incremental Delay, d2		0.9		1.5	1.5	0.1	0.2	0.1	0.4	0.8	0.2	
Delay (s)		57.2		46.9	46.5	41.7	8.0	6.9	38.0	7.9	7.8	
Level of Service		E		D	D	D	A	A	D	A	A	
Approach Delay (s)		57.2			45.4			20.6			7.9	
Approach LOS		E			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

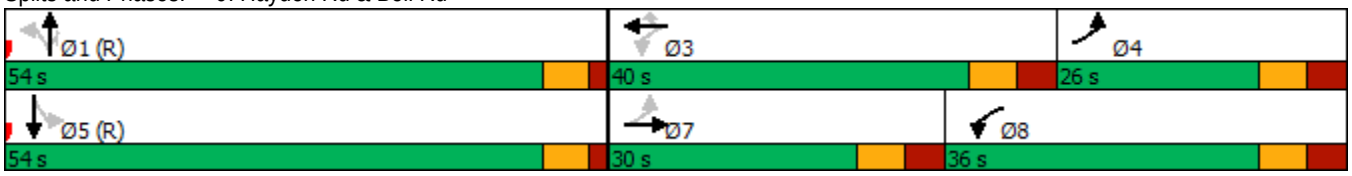
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	26	873	132	44	1862
Future Volume (vph)	94	26	873	132	44	1862
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.28	1.00
Satd. Flow (perm)	1770	1583	3539	1583	530	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	29	970	147	49	2069
RTOR Reduction (vph)	0	26	0	29	0	0
Lane Group Flow (vph)	104	3	970	118	49	2069
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	11.9	11.9	96.1	96.1	96.1	96.1
Effective Green, g (s)	11.9	11.9	96.1	96.1	96.1	96.1
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	156	2834	1267	424	2834
v/s Ratio Prot	c0.06		0.27			c0.58
v/s Ratio Perm		0.00		0.07	0.09	
v/c Ratio	0.59	0.02	0.34	0.09	0.12	0.73
Uniform Delay, d1	51.7	48.8	3.3	2.6	2.6	5.7
Progression Factor	1.00	1.00	0.49	0.34	1.00	1.00
Incremental Delay, d2	5.3	0.0	0.3	0.1	0.6	1.7
Delay (s)	57.1	48.8	1.9	1.0	3.2	7.4
Level of Service	E	D	A	A	A	A
Approach Delay (s)	55.3		1.8			7.3
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	32	959	46	39	1910
Future Volume (vph)	98	32	959	46	39	1910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.25	1.00
Satd. Flow (perm)	1770	1583	3539	1583	473	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	36	1066	51	43	2122
RTOR Reduction (vph)	0	32	0	10	0	0
Lane Group Flow (vph)	109	4	1066	41	43	2122
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	376	2813
v/s Ratio Prot	c0.06		0.30			c0.60
v/s Ratio Perm		0.00		0.03	0.09	
v/c Ratio	0.59	0.02	0.38	0.03	0.11	0.75
Uniform Delay, d1	51.2	48.2	3.6	2.6	2.8	6.3
Progression Factor	1.00	1.00	1.49	3.07	1.33	1.15
Incremental Delay, d2	4.7	0.1	0.3	0.0	0.4	1.3
Delay (s)	56.0	48.2	5.7	8.0	4.1	8.6
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		5.8			8.5
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	73	980	444	65	1916
Future Volume (vph)	439	73	980	444	65	1916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	81	1089	493	72	2129
RTOR Reduction (vph)	0	66	0	273	0	0
Lane Group Flow (vph)	488	15	1089	220	72	2129
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	22.4	22.4	53.6	53.6	25.0	82.6
Effective Green, g (s)	22.4	22.4	53.6	53.6	25.0	82.6
Actuated g/C Ratio	0.19	0.19	0.45	0.45	0.21	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	640	295	1580	707	368	2436
v/s Ratio Prot	c0.14		0.31		0.04	c0.60
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.76	0.05	0.69	0.31	0.20	0.87
Uniform Delay, d1	46.3	40.1	26.5	21.3	39.2	14.6
Progression Factor	0.84	0.64	1.04	3.61	1.05	1.12
Incremental Delay, d2	5.3	0.1	1.9	0.9	0.8	3.2
Delay (s)	44.0	25.8	29.6	77.9	41.8	19.5
Level of Service	D	C	C	E	D	B
Approach Delay (s)	41.4		44.6			20.3
Approach LOS	D		D			C

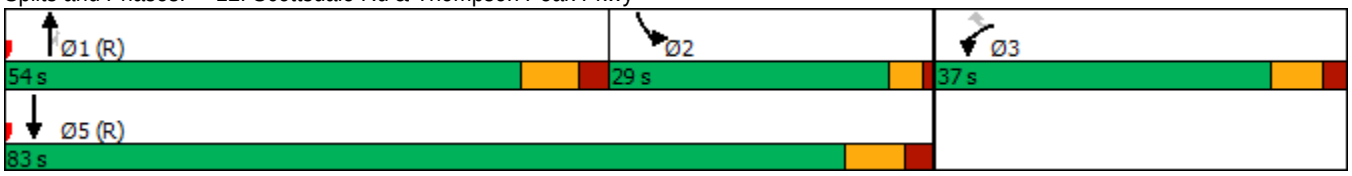
Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	13	1419	32	4	2413
Future Volume (vph)	94	13	1419	32	4	2413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	14	1577	36	4	2681
RTOR Reduction (vph)	0	13	0	6	0	0
Lane Group Flow (vph)	104	1	1577	30	4	2681
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	9.0	9.0	83.0	83.0	10.0	97.0
Effective Green, g (s)	9.0	9.0	83.0	83.0	10.0	97.0
Actuated g/C Ratio	0.08	0.08	0.69	0.69	0.08	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	257	118	2447	1094	147	2860
v/s Ratio Prot	c0.03		0.45		0.00	c0.76
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.40	0.01	0.64	0.03	0.03	0.94
Uniform Delay, d1	52.9	51.4	10.3	5.8	50.5	9.1
Progression Factor	1.00	1.00	2.07	1.92	1.04	0.89
Incremental Delay, d2	1.0	0.0	1.1	0.0	0.2	4.7
Delay (s)	54.0	51.4	22.4	11.2	52.7	12.8
Level of Service	D	D	C	B	D	B
Approach Delay (s)	53.7		22.1			12.8
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

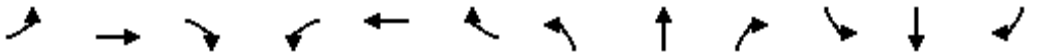
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	479	1	466	296	1008	0	0	1871	625
Future Volume (vph)	0	0	0	479	1	466	296	1008	0	0	1871	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1505	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1505	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	532	1	518	329	1120	0	0	2079	694
RTOR Reduction (vph)	0	0	0	0	190	190	0	0	0	0	0	400
Lane Group Flow (vph)	0	0	0	532	70	69	329	1120	0	0	2079	294
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				32.2	32.2	32.2	20.0	40.8			50.8	50.8
Effective Green, g (s)				32.2	32.2	32.2	20.0	40.8			50.8	50.8
Actuated g/C Ratio				0.27	0.27	0.27	0.17	0.34			0.42	0.42
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				921	403	403	572	1728			3193	670
v/s Ratio Prot					0.05		c0.10	0.22			c0.28	
v/s Ratio Perm				c0.15		0.05						0.19
v/c Ratio				0.58	0.17	0.17	0.58	0.65			0.65	0.44
Uniform Delay, d1				38.0	33.7	33.7	46.1	33.5			27.5	24.5
Progression Factor				1.01	1.42	1.43	1.30	0.48			1.14	3.08
Incremental Delay, d2				0.9	0.2	0.2	3.7	1.7			0.4	0.8
Delay (s)				39.3	48.0	48.2	63.4	17.7			31.9	76.3
Level of Service				D	D	D	E	B			C	E
Approach Delay (s)		0.0			43.7			28.1			43.0	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

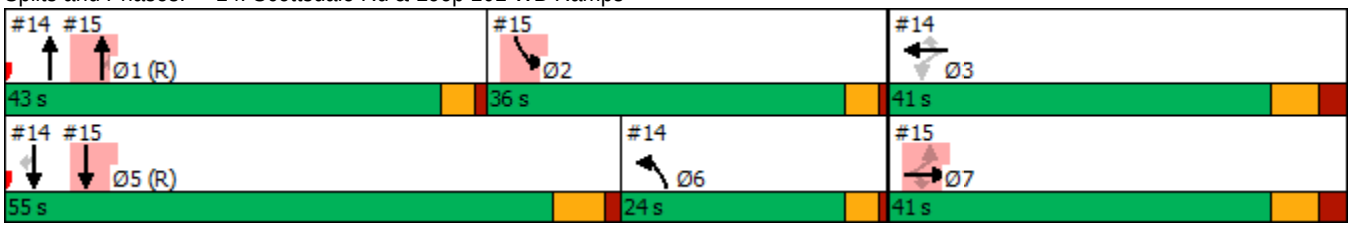
c Critical Lane Group

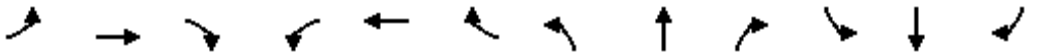
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

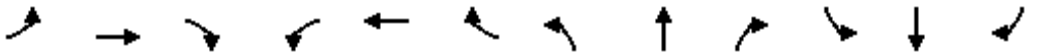




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	629	2	598	0	0	0	0	686	312	724	1658	0
Future Volume (vph)	629	2	598	0	0	0	0	686	312	724	1658	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	699	2	664	0	0	0	0	762	347	804	1842	0
RTOR Reduction (vph)	0	243	243	0	0	0	0	0	229	0	0	0
Lane Group Flow (vph)	699	91	89	0	0	0	0	762	118	804	1842	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	32.2	32.2	32.2					40.8	40.8	32.0	50.8	
Effective Green, g (s)	32.2	32.2	32.2					40.8	40.8	32.0	50.8	
Actuated g/C Ratio	0.27	0.27	0.27					0.34	0.34	0.27	0.42	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	921	404	403					2564	538	915	2152	
v/s Ratio Prot		0.06						0.10		c0.23	c0.36	
v/s Ratio Perm	c0.20		0.06						0.07			
v/c Ratio	0.76	0.23	0.22					0.30	0.22	0.88	0.86	
Uniform Delay, d1	40.3	34.2	34.1					29.1	28.2	42.1	31.3	
Progression Factor	1.00	1.00	1.00					1.49	7.82	0.92	0.42	
Incremental Delay, d2	3.6	0.3	0.3					0.3	0.9	9.5	3.7	
Delay (s)	44.0	34.5	34.4					43.6	221.7	48.1	17.0	
Level of Service	D	C	C					D	F	D	B	
Approach Delay (s)		39.3			0.0			99.3			26.4	
Approach LOS		D			A			F			C	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	12	255	17	4	25	121	636	11	40	1599	619
Future Volume (vph)	389	12	255	17	4	25	121	636	11	40	1599	619
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	432	13	283	19	4	28	134	707	12	44	1777	688
RTOR Reduction (vph)	0	0	150	0	30	0	0	0	10	0	0	326
Lane Group Flow (vph)	432	13	133	19	2	0	134	707	2	44	1777	362
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	28.0	32.0	32.0	4.2	8.2		10.7	24.6	24.6	33.8	48.0	48.0
Effective Green, g (s)	28.0	32.0	32.0	4.2	8.2		10.7	24.6	24.6	33.8	48.0	48.0
Actuated g/C Ratio	0.23	0.27	0.27	0.04	0.07		0.09	0.21	0.21	0.28	0.40	0.40
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	801	1356	422	120	210		306	1042	324	966	2034	633
v/s Ratio Prot	c0.13	0.00		0.01	0.00		c0.04	0.14		0.01	c0.35	
v/s Ratio Perm			c0.08						0.00			0.23
v/c Ratio	0.54	0.01	0.31	0.16	0.01		0.44	0.68	0.01	0.05	0.87	0.57
Uniform Delay, d1	40.3	32.3	35.2	56.2	52.1		51.8	44.0	38.0	31.4	33.2	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.98	1.07	1.00	1.37	1.06	2.73
Incremental Delay, d2	0.7	0.0	0.4	0.6	0.0		4.4	1.7	0.0	0.1	2.9	0.8
Delay (s)	41.0	32.4	35.6	56.8	52.1		55.1	48.9	38.0	43.1	38.0	77.1
Level of Service	D	C	D	E	D		E	D	D	D	D	E
Approach Delay (s)		38.8			53.9			49.7			48.8	
Approach LOS		D			D			D			D	

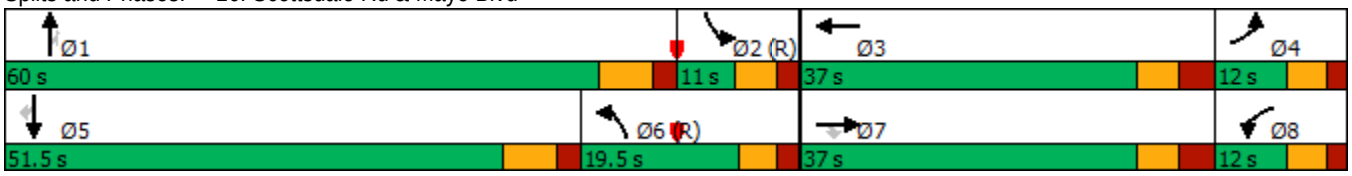
Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

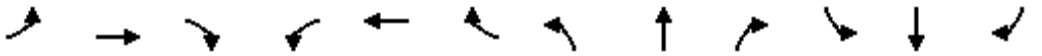
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	4	98	9	4	4	132	723	4	5	1816	126
Future Volume (vph)	83	4	98	9	4	4	132	723	4	5	1816	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.93	1.00	1.00	0.05	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	760	3539	1583	1733	3539	1583	99	5085	1583	627	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	4	109	10	4	4	147	803	4	6	2018	140
RTOR Reduction (vph)	0	0	96	0	0	4	0	0	1	0	0	57
Lane Group Flow (vph)	92	4	13	10	4	0	147	803	3	6	2018	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.8	13.9	13.9	5.7	4.3	4.3	85.2	78.5	78.5	71.3	70.1	70.1
Effective Green, g (s)	20.8	13.9	13.9	5.7	4.3	4.3	85.2	78.5	78.5	71.3	70.1	70.1
Actuated g/C Ratio	0.17	0.12	0.12	0.05	0.04	0.04	0.71	0.65	0.65	0.59	0.58	0.58
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	409	183	82	126	56	203	3326	1035	383	2970	924
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.06	0.16		0.00	0.40	
v/s Ratio Perm	c0.03		0.01	0.00		0.00	c0.46		0.00	0.01		0.05
v/c Ratio	0.41	0.01	0.07	0.12	0.03	0.00	0.72	0.24	0.00	0.02	0.68	0.09
Uniform Delay, d1	43.4	47.0	47.3	54.7	55.8	55.8	28.5	8.5	7.2	9.9	17.2	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.37	1.00	0.51	0.57	0.71
Incremental Delay, d2	1.2	0.0	0.2	0.7	0.1	0.0	11.8	0.2	0.0	0.0	0.8	0.1
Delay (s)	44.6	47.0	47.4	55.4	55.9	55.8	39.5	11.9	7.2	5.1	10.6	7.9
Level of Service	D	D	D	E	E	E	D	B	A	A	B	A
Approach Delay (s)		46.2			55.6			16.1			10.4	
Approach LOS		D			E			B			B	

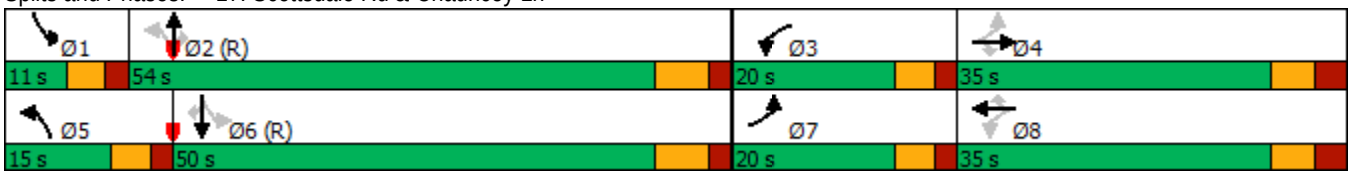
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

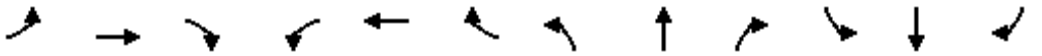
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	28	248	69	9	123	128	705	145	189	1656	73
Future Volume (vph)	39	28	248	69	9	123	128	705	145	189	1656	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3062		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.39	1.00	1.00	0.07	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1398	3062		725	3539	1583	138	5085	1583	607	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	31	276	77	10	137	142	783	161	210	1840	81
RTOR Reduction (vph)	0	218	0	0	0	124	0	0	67	0	0	34
Lane Group Flow (vph)	43	89	0	77	10	13	142	783	94	210	1840	47
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	16.2	11.8		16.2	11.8	11.8	82.8	69.8	69.8	82.8	69.8	69.8
Effective Green, g (s)	16.2	11.8		16.2	11.8	11.8	82.8	69.8	69.8	82.8	69.8	69.8
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.58	0.58	0.69	0.58	0.58
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	202	301		136	348	155	272	2957	920	544	2957	920
v/s Ratio Prot	0.01	0.03		c0.02	0.00		c0.06	0.15		0.04	c0.36	
v/s Ratio Perm	0.02			c0.06		0.01	0.30		0.06	0.22		0.03
v/c Ratio	0.21	0.30		0.57	0.03	0.09	0.52	0.26	0.10	0.39	0.62	0.05
Uniform Delay, d1	46.3	50.2		51.8	48.9	49.2	28.1	12.4	11.2	10.3	16.5	10.8
Progression Factor	1.00	1.00		1.01	1.01	1.38	0.35	1.43	3.35	0.49	0.72	4.41
Incremental Delay, d2	0.5	0.5		5.3	0.0	0.2	6.8	0.2	0.2	1.6	0.8	0.1
Delay (s)	46.8	50.8		57.7	49.6	68.2	16.7	17.9	37.6	6.7	12.6	47.8
Level of Service	D	D		E	D	E	B	B	D	A	B	D
Approach Delay (s)		50.3			63.8			20.7			13.3	
Approach LOS		D			E			C			B	

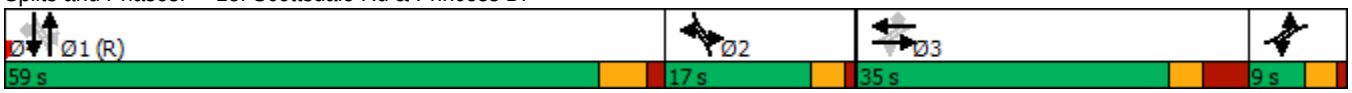
Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

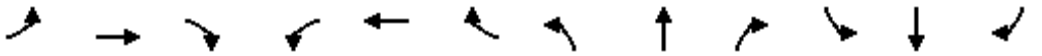
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	0	114	30	0	19	40	902	11	41	1928	24
Future Volume (vph)	61	0	114	30	0	19	40	902	11	41	1928	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1713		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.58		0.06	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)		1465			1023		105	5085	1583	484	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	0	127	33	0	21	44	1002	12	46	2142	27
RTOR Reduction (vph)	0	65	0	0	47	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	130	0	0	7	0	44	1002	8	46	2142	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.5			16.5		86.5	80.5	80.5	86.5	80.5	80.5
Effective Green, g (s)		16.5			16.5		86.5	80.5	80.5	86.5	80.5	80.5
Actuated g/C Ratio		0.14			0.14		0.72	0.67	0.67	0.72	0.67	0.67
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		201			140		158	3411	1061	413	3411	1061
v/s Ratio Prot							c0.01	0.20		0.01	c0.42	
v/s Ratio Perm		c0.09			0.01		0.19		0.01	0.07		0.01
v/c Ratio		0.65			0.05		0.28	0.29	0.01	0.11	0.63	0.02
Uniform Delay, d1		49.0			45.0		19.8	8.1	6.5	6.5	11.2	6.6
Progression Factor		1.00			1.00		1.60	1.10	1.00	1.26	1.47	1.00
Incremental Delay, d2		7.0			0.2		3.4	0.2	0.0	0.5	0.7	0.0
Delay (s)		56.0			45.1		35.1	9.1	6.5	8.6	17.3	6.6
Level of Service		E			D		D	A	A	A	B	A
Approach Delay (s)		56.0			45.1			10.1			17.0	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

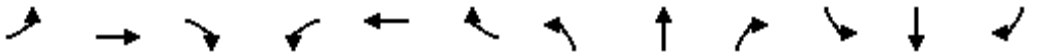
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	523	1411	399	226	450	204	85	332	124	352	1456	152
Future Volume (vph)	523	1411	399	226	450	204	85	332	124	352	1456	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	581	1568	443	251	500	227	94	369	138	391	1618	169
RTOR Reduction (vph)	0	0	97	0	0	66	0	0	104	0	10	0
Lane Group Flow (vph)	581	1568	346	251	500	161	94	369	34	391	1777	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	21.0	40.1	40.1	10.9	30.0	47.6	5.0	29.4	29.4	17.6	42.0	
Effective Green, g (s)	21.0	40.1	40.1	10.9	30.0	47.6	5.0	29.4	29.4	17.6	42.0	
Actuated g/C Ratio	0.18	0.33	0.33	0.09	0.25	0.40	0.04	0.24	0.24	0.15	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	600	1699	528	311	1271	627	143	1245	387	503	1754	
v/s Ratio Prot	c0.17	c0.31		0.07	0.10	0.04	0.03	0.07		c0.11	c0.35	
v/s Ratio Perm			0.22			0.06			0.02			
v/c Ratio	0.97	0.92	0.66	0.81	0.39	0.26	0.66	0.30	0.09	0.78	1.01	
Uniform Delay, d1	49.2	38.5	34.1	53.5	37.4	24.3	56.7	36.9	34.9	49.3	39.0	
Progression Factor	1.00	1.00	1.00	0.94	1.88	0.51	1.00	1.00	1.00	0.89	0.83	
Incremental Delay, d2	28.6	9.9	6.3	12.4	0.8	0.2	10.4	0.6	0.4	6.0	22.4	
Delay (s)	77.7	48.3	40.3	62.9	71.1	12.6	67.1	37.5	35.4	49.9	54.9	
Level of Service	E	D	D	E	E	B	E	D	D	D	D	
Approach Delay (s)		53.6			55.4			41.6			54.0	
Approach LOS		D			E			D			D	

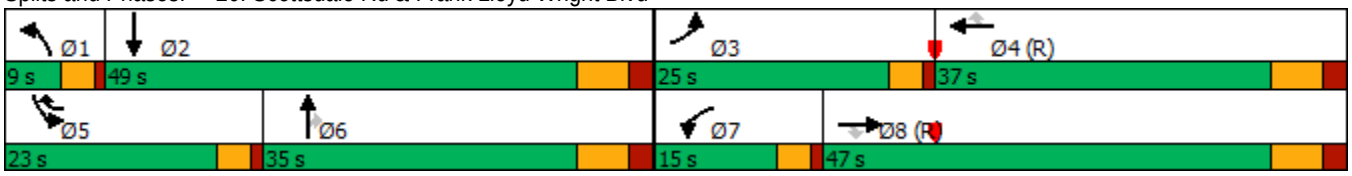
Intersection Summary			
HCM 2000 Control Delay	52.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

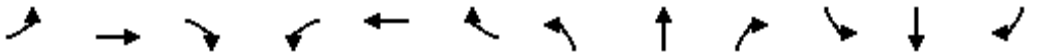
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

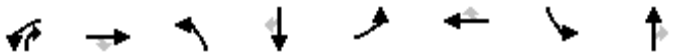




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	1237	57	551	998	152	9	254	244	169	551	263
Future Volume (vph)	417	1237	57	551	998	152	9	254	244	169	551	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	463	1374	63	612	1109	169	10	282	271	188	612	292
RTOR Reduction (vph)	0	0	41	0	0	106	0	0	65	0	0	206
Lane Group Flow (vph)	463	1374	22	612	1109	63	10	282	206	188	612	86
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.2	42.4	42.4	20.2	42.4	42.4	0.6	21.4	41.6	8.0	28.8	28.8
Effective Green, g (s)	20.2	42.4	42.4	20.2	42.4	42.4	0.6	21.4	41.6	8.0	28.8	28.8
Actuated g/C Ratio	0.17	0.35	0.35	0.17	0.35	0.35	0.00	0.18	0.35	0.07	0.24	0.24
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	577	1796	559	577	1796	559	8	631	641	228	849	379
v/s Ratio Prot	0.13	c0.27		c0.18	0.22		0.01	0.08	0.05	c0.05	c0.17	
v/s Ratio Perm			0.01			0.04			0.08			0.05
v/c Ratio	0.80	0.77	0.04	1.06	0.62	0.11	1.25	0.45	0.32	0.82	0.72	0.23
Uniform Delay, d1	48.0	34.4	25.4	49.9	32.1	26.1	59.7	44.0	28.8	55.3	41.9	36.7
Progression Factor	1.11	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.94	1.80
Incremental Delay, d2	4.2	1.6	0.1	54.6	1.6	0.4	416.4	0.5	0.3	20.7	3.0	0.3
Delay (s)	57.7	31.7	25.5	104.5	33.7	26.5	476.1	44.5	29.1	71.3	42.4	66.4
Level of Service	E	C	C	F	C	C	F	D	C	E	D	E
Approach Delay (s)		37.8			56.0			44.8			53.8	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

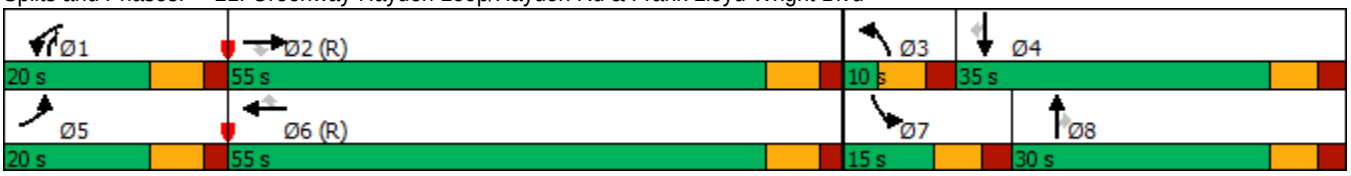
c Critical Lane Group

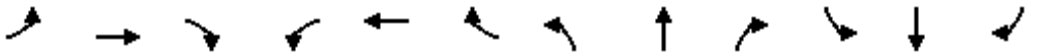


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	311	118	89	206	270	114	969	4	280	1147	259
Future Volume (vph)	163	311	118	89	206	270	114	969	4	280	1147	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	181	346	131	99	229	300	127	1077	4	311	1274	288
RTOR Reduction (vph)	0	0	55	0	0	53	0	0	0	0	0	119
Lane Group Flow (vph)	181	346	76	99	229	247	127	1081	0	311	1274	169
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	11.8	17.2	30.2	10.1	15.5	33.5	13.0	52.7		18.0	57.7	69.5
Effective Green, g (s)	11.8	17.2	30.2	10.1	15.5	33.5	13.0	52.7		18.0	57.7	69.5
Actuated g/C Ratio	0.10	0.14	0.25	0.08	0.13	0.28	0.11	0.44		0.15	0.48	0.58
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	337	507	451	288	457	494	371	2231		514	2445	969
v/s Ratio Prot	c0.05	c0.10	0.02	0.03	0.06	0.07	0.04	0.21		c0.09	c0.25	0.02
v/s Ratio Perm			0.03			0.08						0.09
v/c Ratio	0.54	0.68	0.17	0.34	0.50	0.50	0.34	0.48		0.61	0.52	0.17
Uniform Delay, d1	51.5	48.8	35.1	51.8	48.6	36.2	49.5	24.0		47.7	21.6	11.8
Progression Factor	1.06	1.39	2.33	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	3.6	0.2	0.7	0.9	0.8	2.5	0.8		5.2	0.8	0.1
Delay (s)	56.2	71.3	81.9	52.5	49.5	37.0	52.0	24.7		52.9	22.4	11.9
Level of Service	E	E	F	D	D	D	D	C		D	C	B
Approach Delay (s)		69.3			44.0			27.6			25.8	
Approach LOS		E			D			C			C	

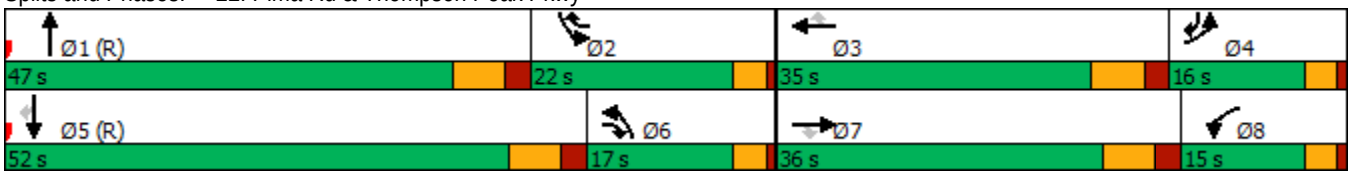
Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

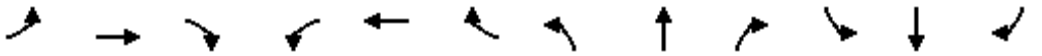
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	62	35	11	3	68	915	71	4	395	15
Future Volume (vph)	20	16	62	35	11	3	68	915	71	4	395	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1807		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.48	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1393	1641		1305	1807		894	3539	1583	339	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	18	69	39	12	3	76	1017	79	4	439	17
RTOR Reduction (vph)	0	41	0	0	2	0	0	0	28	0	0	9
Lane Group Flow (vph)	22	46	0	39	13	0	76	1017	51	4	439	8
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	656		522	722		414	1639	733	157	1639	733
v/s Ratio Prot		0.03			0.01			c0.29			0.12	
v/s Ratio Perm	0.02			c0.03			0.08		0.03	0.01		0.00
v/c Ratio	0.04	0.07		0.07	0.02		0.18	0.62	0.07	0.03	0.27	0.01
Uniform Delay, d1	17.4	17.6		17.6	17.2		15.0	19.2	14.1	13.9	15.6	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.3	0.0		1.0	1.8	0.2	0.3	0.4	0.0
Delay (s)	17.5	17.8		17.9	17.3		15.9	21.0	14.3	14.2	16.0	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.7			17.7			20.2			15.9	
Approach LOS		B			B			C			B	

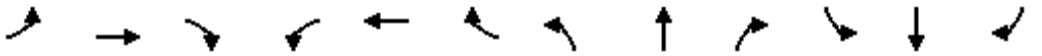
Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





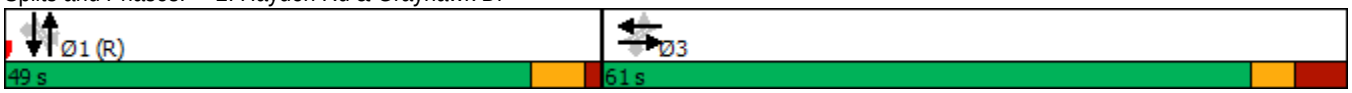
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	8	59	20	6	11	68	1034	33	11	433	34
Future Volume (vph)	32	8	59	20	6	11	68	1034	33	11	433	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1686		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.42	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1388	1863	1583	1400	1686		787	3539	1583	173	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	9	66	22	7	12	76	1149	37	12	481	38
RTOR Reduction (vph)	0	0	34	0	6	0	0	0	23	0	0	23
Lane Group Flow (vph)	36	9	32	22	13	0	76	1149	14	12	481	15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	668	897	762	674	812		307	1383	618	67	1383	618
v/s Ratio Prot		0.00			0.01			c0.32			0.14	
v/s Ratio Perm	c0.03		0.02	0.02			0.10		0.01	0.07		0.01
v/c Ratio	0.05	0.01	0.04	0.03	0.02		0.25	0.83	0.02	0.18	0.35	0.02
Uniform Delay, d1	15.2	14.8	15.1	15.0	14.9		22.6	30.2	20.6	21.9	23.6	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.1	0.0		1.9	5.9	0.1	5.8	0.7	0.1
Delay (s)	15.3	14.9	15.2	15.1	14.9		24.5	36.1	20.7	27.7	24.3	20.7
Level of Service	B	B	B	B	B		C	D	C	C	C	C
Approach Delay (s)		15.2			15.0			35.0			24.1	
Approach LOS		B			B			C			C	

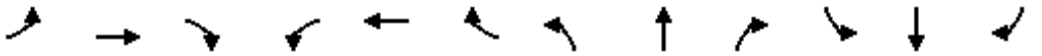
Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	335	213	172	208	145	277	946	340	192	290	54
Future Volume (vph)	57	335	213	172	208	145	277	946	340	192	290	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.61	1.00	1.00	0.26	1.00	1.00	0.56	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	1132	3539	1583	475	3539	1583	1037	3539	1583	217	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	63	372	237	191	231	161	308	1051	378	213	322	60
RTOR Reduction (vph)	0	0	198	0	0	124	0	0	157	0	0	34
Lane Group Flow (vph)	63	372	40	191	231	37	308	1051	221	213	322	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	27.2	20.0	20.0	39.0	27.3	27.3	65.2	49.9	49.9	67.8	52.2	52.2
Effective Green, g (s)	27.2	20.0	20.0	39.0	27.3	27.3	65.2	49.9	49.9	67.8	52.2	52.2
Actuated g/C Ratio	0.23	0.17	0.17	0.32	0.23	0.23	0.54	0.42	0.42	0.56	0.44	0.44
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	294	589	263	321	805	360	656	1471	658	324	1539	688
v/s Ratio Prot	0.01	0.11		c0.08	0.07		0.06	c0.30		c0.09	0.09	
v/s Ratio Perm	0.04		0.02	c0.12		0.02	0.19		0.14	c0.29		0.02
v/c Ratio	0.21	0.63	0.15	0.60	0.29	0.10	0.47	0.71	0.34	0.66	0.21	0.04
Uniform Delay, d1	37.2	46.6	42.7	31.4	38.3	36.7	15.1	29.1	23.8	19.3	21.1	19.5
Progression Factor	1.17	1.10	1.77	1.23	1.20	4.35	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.1	0.3	2.8	0.2	0.1	0.5	3.0	1.4	4.8	0.3	0.1
Delay (s)	43.8	53.2	75.8	41.5	46.2	159.7	15.7	32.1	25.2	24.1	21.4	19.6
Level of Service	D	D	E	D	D	F	B	C	C	C	C	B
Approach Delay (s)		60.3			76.0			27.7			22.2	
Approach LOS		E			E			C			C	

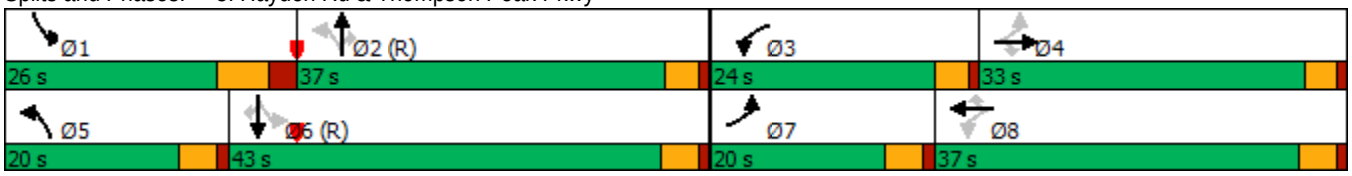
Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

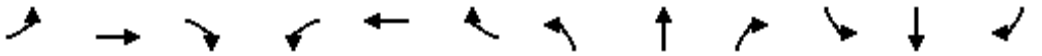
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	16	0	0	0	35	1536	0	0	614	15
Future Volume (vph)	15	0	16	0	0	0	35	1536	0	0	614	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0				7.0	7.0			7.0	7.0
Lane Util. Factor	1.00		1.00				1.00	0.95			0.95	1.00
Frt	1.00		0.85				1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770		1583				1770	3539			3539	1583
Flt Permitted	0.85		1.00				0.39	1.00			1.00	1.00
Satd. Flow (perm)	1585		1583				731	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	0	18	0	0	0	39	1707	0	0	682	17
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	0	3
Lane Group Flow (vph)	17	0	1	0	0	0	39	1707	0	0	682	14
Turn Type	Perm		Perm	Perm		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	4.7		4.7				91.3	91.3			91.3	91.3
Effective Green, g (s)	4.7		4.7				91.3	91.3			91.3	91.3
Actuated g/C Ratio	0.04		0.04				0.83	0.83			0.83	0.83
Clearance Time (s)	7.0		7.0				7.0	7.0			7.0	7.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	67		67				606	2937			2937	1313
v/s Ratio Prot								c0.48			0.19	
v/s Ratio Perm	c0.01		0.00				0.05					0.01
v/c Ratio	0.25		0.01				0.06	0.58			0.23	0.01
Uniform Delay, d1	51.0		50.4				1.7	3.1			2.0	1.6
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	2.0		0.1				0.2	0.8			0.2	0.0
Delay (s)	53.0		50.5				1.9	3.9			2.2	1.6
Level of Service	D		D				A	A			A	A
Approach Delay (s)		51.7			0.0			3.9			2.1	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

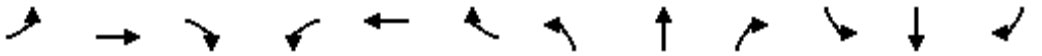
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	85
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	123	678	589	887	0	0	521	204
Future Volume (vph)	0	0	0	76	123	678	589	887	0	0	521	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1584	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1584	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	84	137	753	654	986	0	0	579	227
RTOR Reduction (vph)	0	0	0	0	72	315	0	0	0	0	0	143
Lane Group Flow (vph)	0	0	0	84	381	122	654	986	0	0	579	84
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				33.4	33.4	33.4	22.0	31.6			44.6	44.6
Effective Green, g (s)				33.4	33.4	33.4	22.0	31.6			44.6	44.6
Actuated g/C Ratio				0.28	0.28	0.28	0.18	0.26			0.37	0.37
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				955	440	418	324	931			2381	588
v/s Ratio Prot					c0.24		c0.37	c0.28			c0.09	
v/s Ratio Perm				0.02		0.08						0.05
v/c Ratio				0.09	0.87	0.29	2.02	1.06			0.24	0.14
Uniform Delay, d1				32.0	41.2	34.0	49.0	44.2			26.0	25.0
Progression Factor				1.00	1.00	1.00	1.01	0.66			1.00	1.00
Incremental Delay, d2				0.0	16.1	0.4	465.3	41.1			0.2	0.5
Delay (s)				32.1	57.3	34.4	514.6	70.3			26.3	25.5
Level of Service				C	E	C	F	E			C	C
Approach Delay (s)		0.0			44.8			247.5			26.1	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	137.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

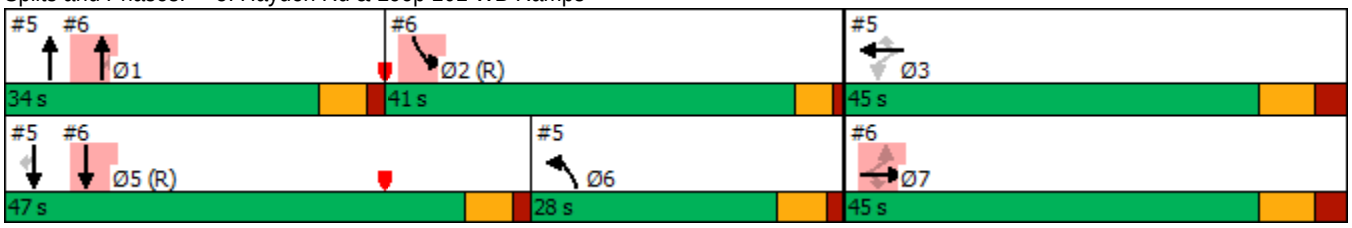
c Critical Lane Group

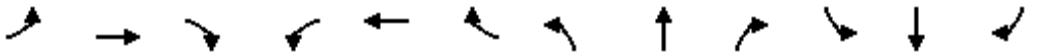
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	100	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	474	0	156	0	0	0	0	1039	54	391	221	0
Future Volume (vph)	474	0	156	0	0	0	0	1039	54	391	221	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1604	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1604	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	527	0	173	0	0	0	0	1154	60	434	246	0
RTOR Reduction (vph)	0	98	113	0	0	0	0	0	44	0	0	0
Lane Group Flow (vph)	274	172	43	0	0	0	0	1154	16	434	246	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	33.4	33.4	33.4					31.6	31.6	36.5	44.6	
Effective Green, g (s)	33.4	33.4	33.4					31.6	31.6	36.5	44.6	
Actuated g/C Ratio	0.28	0.28	0.28					0.26	0.26	0.30	0.37	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	467	446	418					1339	416	1044	1315	
v/s Ratio Prot								c0.23		c0.13	0.07	
v/s Ratio Perm	c0.16	0.11	0.03						0.01			
v/c Ratio	0.59	0.39	0.10					0.86	0.04	0.42	0.19	
Uniform Delay, d1	37.3	35.0	32.2					42.1	32.9	33.3	25.5	
Progression Factor	1.31	1.75	3.39					0.91	1.00	0.89	0.35	
Incremental Delay, d2	1.4	0.4	0.1					5.8	0.0	1.2	0.3	
Delay (s)	50.3	61.8	109.2					44.0	32.9	30.7	9.3	
Level of Service	D	E	F					D	C	C	A	
Approach Delay (s)		67.9			0.0			43.5			22.9	
Approach LOS		E			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

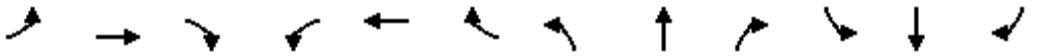
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	244	844	5	33	363
Future Volume (Veh/h)	3	244	844	5	33	363
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	271	938	6	37	403
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.98					
vC, conflicting volume	1214	469			944	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1172	469			944	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	50			95	
cM capacity (veh/h)	172	541			722	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	274	469	469	6	37	202	202
Volume Left	3	0	0	0	37	0	0
Volume Right	271	0	0	6	0	0	0
cSH	528	1700	1700	1700	722	1700	1700
Volume to Capacity	0.52	0.28	0.28	0.00	0.05	0.12	0.12
Queue Length 95th (ft)	74	0	0	0	4	0	0
Control Delay (s)	18.9	0.0	0.0	0.0	10.3	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	18.9	0.0			0.9		
Approach LOS	C						

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	18	63	217	0	135	127	698	142	11	295	61
Future Volume (vph)	32	18	63	217	0	135	127	698	142	11	295	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1805	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.55	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)		1805	1583	3433		1583	1031	3539	1583	609	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	20	70	241	0	150	141	776	158	12	328	68
RTOR Reduction (vph)	0	0	65	0	0	133	0	0	56	0	0	24
Lane Group Flow (vph)	0	56	5	241	0	17	141	776	102	12	328	44
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		9.1	9.1	13.8		13.8	77.1	77.1	77.1	77.1	77.1	77.1
Effective Green, g (s)		9.1	9.1	13.8		13.8	77.1	77.1	77.1	77.1	77.1	77.1
Actuated g/C Ratio		0.08	0.08	0.12		0.12	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	120	394		182	662	2273	1017	391	2273	1017
v/s Ratio Prot		c0.03		c0.07				c0.22			0.09	
v/s Ratio Perm			0.00			0.01	0.14		0.06	0.02		0.03
v/c Ratio		0.41	0.04	0.61		0.09	0.21	0.34	0.10	0.03	0.14	0.04
Uniform Delay, d1		52.9	51.4	50.5		47.5	8.9	9.8	8.2	7.8	8.5	7.9
Progression Factor		1.32	3.13	1.00		1.00	1.22	1.18	2.32	1.86	1.71	7.67
Incremental Delay, d2		2.0	0.1	2.8		0.2	0.7	0.4	0.2	0.1	0.1	0.1
Delay (s)		71.9	160.8	53.4		47.7	11.5	12.0	19.2	14.7	14.6	60.6
Level of Service		E	F	D		D	B	B	B	B	B	E
Approach Delay (s)		121.3			51.2			13.0			22.3	
Approach LOS		F			D			B			C	

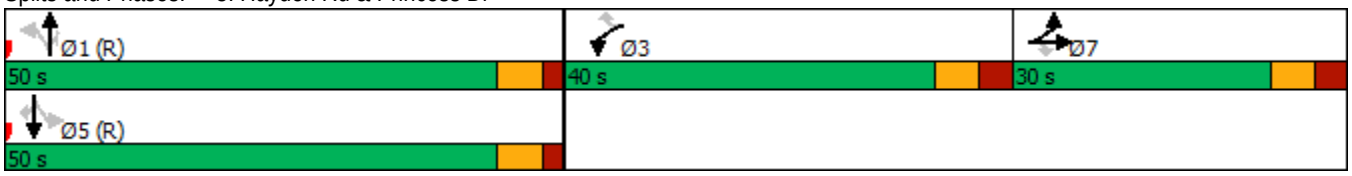
Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

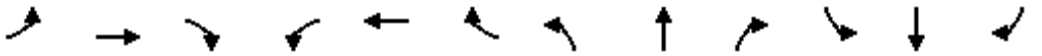
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1	19	419	0	102	5	903	236	93	511	9
Future Volume (vph)	11	1	19	419	0	102	5	903	236	93	511	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3156		1681	1681	1583	1770	3539	1583	1770	3530	
Flt Permitted		0.87		0.73	0.73	1.00	0.42	1.00	1.00	0.24	1.00	
Satd. Flow (perm)		2788		1299	1299	1583	779	3539	1583	449	3530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	1	21	466	0	113	6	1003	262	103	568	10
RTOR Reduction (vph)	0	20	0	0	0	85	0	0	95	0	1	0
Lane Group Flow (vph)	0	14	0	233	233	28	6	1003	167	103	577	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.1		29.3	29.3	29.3	76.7	76.7	76.7	76.7	76.7	
Effective Green, g (s)		4.1		29.3	29.3	29.3	76.7	76.7	76.7	76.7	76.7	
Actuated g/C Ratio		0.03		0.24	0.24	0.24	0.64	0.64	0.64	0.64	0.64	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		95		371	371	386	497	2262	1011	286	2256	
v/s Ratio Prot				c0.09	0.09			c0.28			0.16	
v/s Ratio Perm		0.00		c0.06	0.06	0.02	0.01		0.11	0.23		
v/c Ratio		0.14		0.63	0.63	0.07	0.01	0.44	0.17	0.36	0.26	
Uniform Delay, d1		56.2		39.7	40.5	34.9	7.9	10.9	8.7	10.1	9.3	
Progression Factor		1.00		1.00	1.00	1.00	1.46	1.26	3.41	1.35	1.40	
Incremental Delay, d2		0.7		3.3	3.3	0.1	0.0	0.4	0.2	3.5	0.3	
Delay (s)		56.9		43.0	43.8	35.0	11.5	14.1	30.1	17.1	13.3	
Level of Service		E		D	D	C	B	B	C	B	B	
Approach Delay (s)		56.9			41.8			17.4			13.9	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

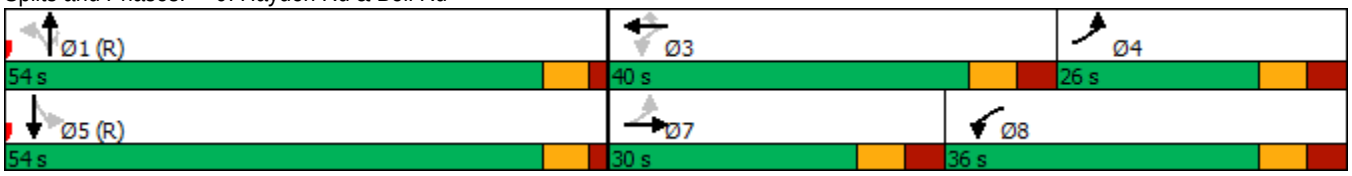
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	54	1731	93	17	898
Future Volume (vph)	113	54	1731	93	17	898
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.08	1.00
Satd. Flow (perm)	1770	1583	3539	1583	153	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	60	1923	103	19	998
RTOR Reduction (vph)	0	35	0	14	0	0
Lane Group Flow (vph)	126	25	1923	89	19	998
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.8	12.8	95.2	95.2	95.2	95.2
Effective Green, g (s)	12.8	12.8	95.2	95.2	95.2	95.2
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	188	168	2807	1255	121	2807
v/s Ratio Prot	c0.07		c0.54			0.28
v/s Ratio Perm		0.02		0.06	0.12	
v/c Ratio	0.67	0.15	0.69	0.07	0.16	0.36
Uniform Delay, d1	51.6	48.7	5.6	2.7	2.9	3.6
Progression Factor	1.00	1.00	0.71	0.54	1.00	1.00
Incremental Delay, d2	9.0	0.4	1.0	0.1	2.8	0.4
Delay (s)	60.6	49.1	5.0	1.6	5.7	3.9
Level of Service	E	D	A	A	A	A
Approach Delay (s)	56.9		4.8			4.0
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	109	59	1741	109	52	927
Future Volume (vph)	109	59	1741	109	52	927
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.08	1.00
Satd. Flow (perm)	1770	1583	3539	1583	148	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	66	1934	121	58	1030
RTOR Reduction (vph)	0	31	0	22	0	0
Lane Group Flow (vph)	121	35	1934	99	58	1030
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.2	13.2	94.8	94.8	94.8	94.8
Effective Green, g (s)	13.2	13.2	94.8	94.8	94.8	94.8
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	174	2795	1250	116	2795
v/s Ratio Prot	c0.07		c0.55			0.29
v/s Ratio Perm		0.02		0.06	0.39	
v/c Ratio	0.62	0.20	0.69	0.08	0.50	0.37
Uniform Delay, d1	51.0	48.6	5.8	2.8	4.4	3.7
Progression Factor	1.00	1.00	2.38	3.55	1.20	0.85
Incremental Delay, d2	6.1	0.6	0.5	0.0	13.8	0.4
Delay (s)	57.1	49.2	14.3	10.1	19.0	3.5
Level of Service	E	D	B	B	B	A
Approach Delay (s)	54.3		14.1			4.3
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	534	113	1520	377	93	1093
Future Volume (vph)	534	113	1520	377	93	1093
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	126	1689	419	103	1214
RTOR Reduction (vph)	0	99	0	244	0	0
Lane Group Flow (vph)	593	27	1689	175	103	1214
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.8	25.8	50.2	50.2	25.0	79.2
Effective Green, g (s)	25.8	25.8	50.2	50.2	25.0	79.2
Actuated g/C Ratio	0.22	0.22	0.42	0.42	0.21	0.66
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	340	1480	662	368	2335
v/s Ratio Prot	c0.17		c0.48		0.06	c0.34
v/s Ratio Perm		0.02		0.11		
v/c Ratio	0.80	0.08	1.14	0.26	0.28	0.52
Uniform Delay, d1	44.7	37.6	34.9	22.8	39.9	10.6
Progression Factor	1.01	1.50	1.15	3.93	0.89	0.76
Incremental Delay, d2	6.2	0.1	68.6	0.5	1.8	0.8
Delay (s)	51.5	56.7	108.7	90.3	37.4	8.9
Level of Service	D	E	F	F	D	A
Approach Delay (s)	52.4		105.0			11.1
Approach LOS	D		F			B

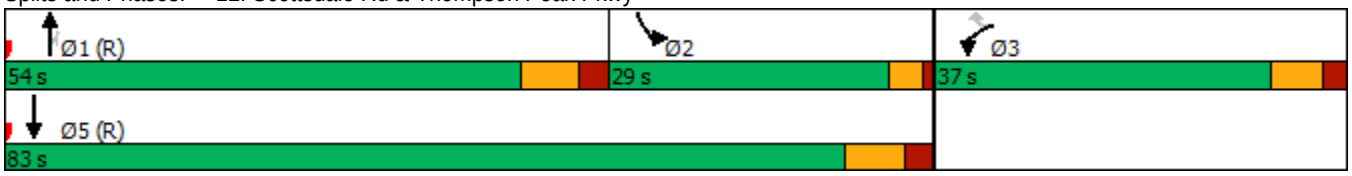
Intersection Summary			
HCM 2000 Control Delay	66.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	26	1893	84	17	1637
Future Volume (vph)	54	26	1893	84	17	1637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	29	2103	93	19	1819
RTOR Reduction (vph)	0	27	0	11	0	0
Lane Group Flow (vph)	60	2	2103	82	19	1819
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	6.4	6.4	85.6	85.6	10.0	99.6
Effective Green, g (s)	6.4	6.4	85.6	85.6	10.0	99.6
Actuated g/C Ratio	0.05	0.05	0.71	0.71	0.08	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	84	2524	1129	147	2937
v/s Ratio Prot	c0.02		c0.59		0.01	c0.51
v/s Ratio Perm		0.00		0.05		
v/c Ratio	0.33	0.02	0.83	0.07	0.13	0.62
Uniform Delay, d1	54.7	53.8	12.2	5.2	51.0	3.6
Progression Factor	1.00	1.00	2.02	2.24	0.91	0.36
Incremental Delay, d2	1.1	0.1	2.0	0.1	1.5	0.8
Delay (s)	55.8	53.9	26.5	11.7	48.0	2.1
Level of Service	E	D	C	B	D	A
Approach Delay (s)	55.2		25.9			2.6
Approach LOS	E		C			A

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

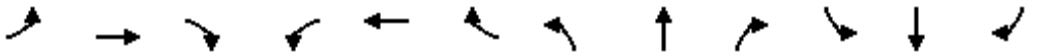
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	120	
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	484	69	502	690	1492	0	0	1144	616
Future Volume (vph)	0	0	0	484	69	502	690	1492	0	0	1144	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1567	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1567	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	538	77	558	767	1658	0	0	1271	684
RTOR Reduction (vph)	0	0	0	0	101	236	0	0	0	0	0	268
Lane Group Flow (vph)	0	0	0	538	222	76	767	1658	0	0	1271	416
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				29.2	29.2	29.2	20.0	43.8			53.8	53.8
Effective Green, g (s)				29.2	29.2	29.2	20.0	43.8			53.8	53.8
Actuated g/C Ratio				0.24	0.24	0.24	0.17	0.36			0.45	0.45
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				835	381	365	572	1856			3382	709
v/s Ratio Prot					0.14		c0.22	c0.33			0.17	
v/s Ratio Perm				c0.16		0.05						c0.26
v/c Ratio				0.64	0.58	0.21	1.34	0.89			0.38	0.59
Uniform Delay, d1				40.7	40.0	36.2	50.0	35.9			22.0	24.8
Progression Factor				0.71	0.62	2.33	1.06	0.32			1.21	1.82
Incremental Delay, d2				0.2	0.2	0.0	162.1	5.4			0.3	3.0
Delay (s)				29.1	24.9	84.3	215.1	17.0			26.9	48.0
Level of Service				C	C	F	F	B			C	D
Approach Delay (s)		0.0			42.6			79.7			34.3	
Approach LOS		A			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

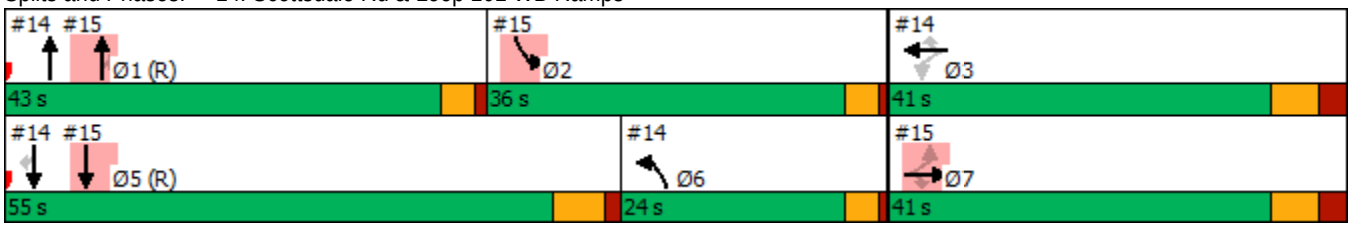
c Critical Lane Group

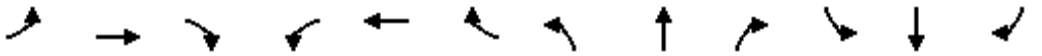
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

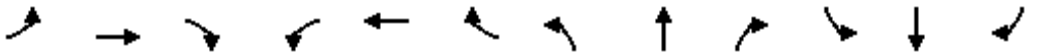




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	494	0	616	0	0	0	0	1701	519	472	1246	0
Future Volume (vph)	494	0	616	0	0	0	0	1701	519	472	1246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	549	0	684	0	0	0	0	1890	577	524	1384	0
RTOR Reduction (vph)	0	259	259	0	0	0	0	0	223	0	0	0
Lane Group Flow (vph)	549	83	83	0	0	0	0	1890	354	524	1384	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	29.2	29.2	29.2					43.8	43.8	32.0	53.8	
Effective Green, g (s)	29.2	29.2	29.2					43.8	43.8	32.0	53.8	
Actuated g/C Ratio	0.24	0.24	0.24					0.36	0.36	0.27	0.45	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	835	365	365					2753	577	915	2279	
v/s Ratio Prot		0.06						c0.25		c0.15	0.27	
v/s Ratio Perm	c0.16		0.06						0.22			
v/c Ratio	0.66	0.23	0.23					0.69	0.61	0.57	0.61	
Uniform Delay, d1	40.9	36.4	36.4					32.3	31.2	38.1	25.1	
Progression Factor	1.00	1.00	1.00					1.12	1.72	1.11	0.46	
Incremental Delay, d2	1.9	0.3	0.3					0.8	2.9	2.4	1.1	
Delay (s)	42.8	36.7	36.7					36.9	56.4	44.7	12.7	
Level of Service	D	D	D					D	E	D	B	
Approach Delay (s)		39.4			0.0			41.4			21.5	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	632	9	176	11	13	21	347	1598	11	10	1157	680
Future Volume (vph)	632	9	176	11	13	21	347	1598	11	10	1157	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	702	10	196	12	14	23	386	1776	12	11	1286	756
RTOR Reduction (vph)	0	0	131	0	21	0	0	0	7	0	0	481
Lane Group Flow (vph)	702	10	65	12	16	0	386	1776	5	11	1286	275
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	32.4	39.6	39.6	1.3	8.5		10.3	52.2	52.2	1.5	43.7	43.7
Effective Green, g (s)	32.4	39.6	39.6	1.3	8.5		10.3	52.2	52.2	1.5	43.7	43.7
Actuated g/C Ratio	0.27	0.33	0.33	0.01	0.07		0.09	0.44	0.44	0.01	0.36	0.36
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	926	1678	522	37	227		294	2211	688	42	1851	576
v/s Ratio Prot	c0.20	0.00		0.00	0.00		c0.11	c0.35		0.00	0.25	
v/s Ratio Perm			c0.04						0.00			0.17
v/c Ratio	0.76	0.01	0.12	0.32	0.07		1.31	0.80	0.01	0.26	0.69	0.48
Uniform Delay, d1	40.2	27.0	28.1	58.9	52.1		54.9	29.4	19.2	58.7	32.5	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.89	1.08	1.00	1.33	1.16	8.07
Incremental Delay, d2	3.6	0.0	0.1	5.1	0.1		159.3	1.8	0.0	12.1	0.9	0.5
Delay (s)	43.8	27.0	28.2	64.0	52.2		208.1	33.6	19.2	90.2	38.7	237.5
Level of Service	D	C	C	E	D		F	C	B	F	D	F
Approach Delay (s)		40.2			55.1			64.5			112.2	
Approach LOS		D			E			E			F	

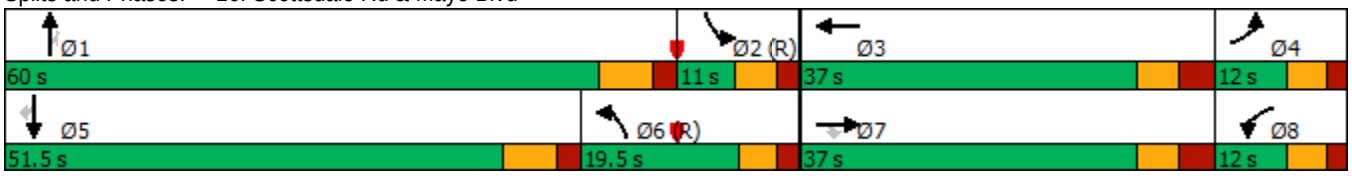
Intersection Summary			
HCM 2000 Control Delay	79.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

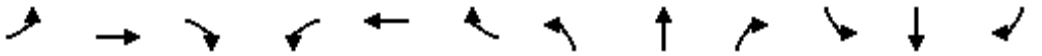
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1	123	14	4	4	144	1913	6	9	1457	87
Future Volume (vph)	122	1	123	14	4	4	144	1913	6	9	1457	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	768	3539	1583	1774	3539	1583	171	5085	1583	114	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	1	137	16	4	4	160	2126	7	10	1619	97
RTOR Reduction (vph)	0	0	119	0	0	4	0	0	3	0	0	44
Lane Group Flow (vph)	136	1	18	16	4	0	160	2126	4	10	1619	53
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.3	15.9	15.9	7.1	4.2	4.2	81.7	74.9	74.9	66.8	65.5	65.5
Effective Green, g (s)	24.3	15.9	15.9	7.1	4.2	4.2	81.7	74.9	74.9	66.8	65.5	65.5
Actuated g/C Ratio	0.20	0.13	0.13	0.06	0.04	0.04	0.68	0.62	0.62	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	468	209	104	123	55	259	3173	988	81	2775	864
v/s Ratio Prot	c0.06	0.00		0.00	0.00		c0.06	c0.42		0.00	0.32	
v/s Ratio Perm	c0.04		0.01	0.01		0.00	0.36		0.00	0.07		0.03
v/c Ratio	0.49	0.00	0.09	0.15	0.03	0.00	0.62	0.67	0.00	0.12	0.58	0.06
Uniform Delay, d1	41.5	45.2	45.7	53.6	55.9	55.9	13.4	14.6	8.5	13.3	18.2	12.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.66	1.59	1.00	0.73	0.66	1.95
Incremental Delay, d2	1.4	0.0	0.2	0.7	0.1	0.0	3.3	0.9	0.0	0.6	0.8	0.1
Delay (s)	42.8	45.2	45.9	54.3	56.0	55.9	25.5	24.0	8.5	10.3	12.7	25.1
Level of Service	D	D	D	D	E	E	C	C	A	B	B	C
Approach Delay (s)		44.4			54.8			24.0			13.4	
Approach LOS		D			D			C			B	

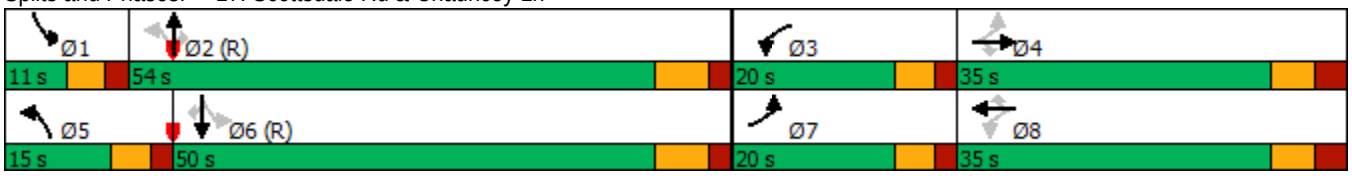
Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

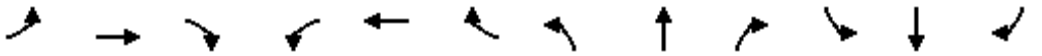
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	13	241	127	39	190	250	1779	98	113	1407	69
Future Volume (vph)	54	13	241	127	39	190	250	1779	98	113	1407	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3035		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.45	1.00	1.00	0.11	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1355	3035		835	3539	1583	203	5085	1583	111	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	14	268	141	43	211	278	1977	109	126	1563	77
RTOR Reduction (vph)	0	208	0	0	0	190	0	0	48	0	0	34
Lane Group Flow (vph)	60	74	0	141	43	21	278	1977	61	126	1563	43
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	19.1	12.0		19.1	12.0	12.0	79.9	66.9	66.9	79.9	66.9	66.9
Effective Green, g (s)	19.1	12.0		19.1	12.0	12.0	79.9	66.9	66.9	79.9	66.9	66.9
Actuated g/C Ratio	0.16	0.10		0.16	0.10	0.10	0.67	0.56	0.56	0.67	0.56	0.56
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	303		188	353	158	304	2834	882	253	2834	882
v/s Ratio Prot	0.01	0.02		c0.04	0.01		c0.10	0.39		0.05	0.31	
v/s Ratio Perm	0.02			c0.07		0.01	c0.51		0.04	0.28		0.03
v/c Ratio	0.25	0.24		0.75	0.12	0.13	0.91	0.70	0.07	0.50	0.55	0.05
Uniform Delay, d1	44.4	49.8		49.4	49.2	49.3	29.1	19.2	12.2	32.0	17.0	12.1
Progression Factor	1.00	1.00		1.01	0.99	1.32	0.75	1.54	4.19	0.67	0.72	4.91
Incremental Delay, d2	0.5	0.4		15.4	0.2	0.4	26.8	1.0	0.1	6.0	0.7	0.1
Delay (s)	44.9	50.2		65.2	49.0	65.6	48.5	30.6	51.3	27.6	12.9	59.4
Level of Service	D	D		E	D	E	D	C	D	C	B	E
Approach Delay (s)		49.3			63.7			33.7			16.0	
Approach LOS		D			E			C			B	

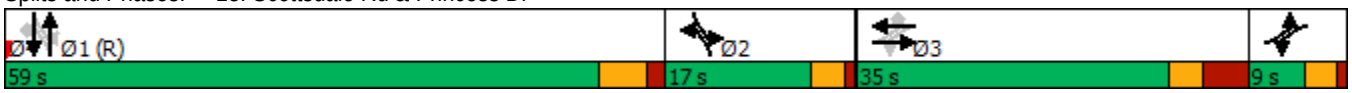
Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

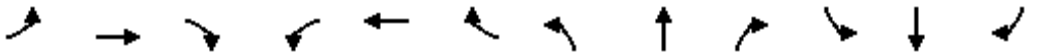
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	119	92	8	57	107	2015	26	56	1688	82
Future Volume (vph)	65	2	119	92	8	57	107	2015	26	56	1688	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1672			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.61		0.08	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1384			1087		146	5085	1583	98	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	2	132	102	9	63	119	2239	29	62	1876	91
RTOR Reduction (vph)	0	59	0	0	19	0	0	0	11	0	0	33
Lane Group Flow (vph)	0	147	0	0	155	0	119	2239	18	62	1876	58
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.9			20.9		82.1	76.1	76.1	82.1	76.1	76.1
Effective Green, g (s)		20.9			20.9		82.1	76.1	76.1	82.1	76.1	76.1
Actuated g/C Ratio		0.17			0.17		0.68	0.63	0.63	0.68	0.63	0.63
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		241			189		181	3224	1003	150	3224	1003
v/s Ratio Prot							c0.03	c0.44		0.02	0.37	
v/s Ratio Perm		0.11			c0.14		0.42		0.01	0.26		0.04
v/c Ratio		0.61			0.82		0.66	0.69	0.02	0.41	0.58	0.06
Uniform Delay, d1		45.8			47.7		28.4	14.4	8.1	31.5	12.7	8.3
Progression Factor		1.00			1.00		1.81	1.75	1.00	0.77	1.34	2.85
Incremental Delay, d2		4.5			23.9		1.7	0.1	0.0	7.2	0.7	0.1
Delay (s)		50.3			71.6		53.0	25.3	8.1	31.4	17.7	23.8
Level of Service		D			E		D	C	A	C	B	C
Approach Delay (s)		50.3			71.6			26.4			18.4	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

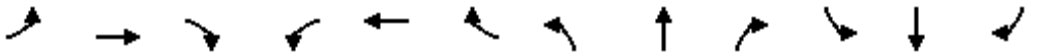
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	585	208	177	1408	472	496	1475	233	342	1177	410
Future Volume (vph)	269	585	208	177	1408	472	496	1475	233	342	1177	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	299	650	231	197	1564	524	551	1639	259	380	1308	456
RTOR Reduction (vph)	0	0	96	0	0	61	0	0	137	0	53	0
Lane Group Flow (vph)	299	650	135	197	1564	463	551	1639	122	380	1711	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	15.7	40.5	40.5	10.5	35.3	52.9	5.0	29.4	29.4	17.6	42.0	
Effective Green, g (s)	15.7	40.5	40.5	10.5	35.3	52.9	5.0	29.4	29.4	17.6	42.0	
Actuated g/C Ratio	0.13	0.34	0.34	0.09	0.29	0.44	0.04	0.24	0.24	0.15	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	449	1716	534	300	1495	697	143	1245	387	503	1710	
v/s Ratio Prot	c0.09	0.13		0.06	c0.31	0.10	c0.16	c0.32		0.11	c0.35	
v/s Ratio Perm			0.09			0.20			0.08			
v/c Ratio	0.67	0.38	0.25	0.66	1.05	0.66	3.85	1.32	0.31	0.76	1.00	
Uniform Delay, d1	49.7	30.2	28.8	53.0	42.4	26.5	57.5	45.3	37.1	49.1	39.0	
Progression Factor	1.00	1.00	1.00	0.90	1.60	1.21	1.00	1.00	1.00	0.87	0.89	
Incremental Delay, d2	3.7	0.6	1.1	1.5	27.0	0.7	1300.7	148.2	2.1	5.3	20.0	
Delay (s)	53.4	30.8	29.9	49.3	94.8	32.8	1358.2	193.5	39.2	47.9	54.8	
Level of Service	D	C	C	D	F	C	F	F	D	D	D	
Approach Delay (s)		36.4			76.7			439.2			53.5	
Approach LOS		D			E			F			D	

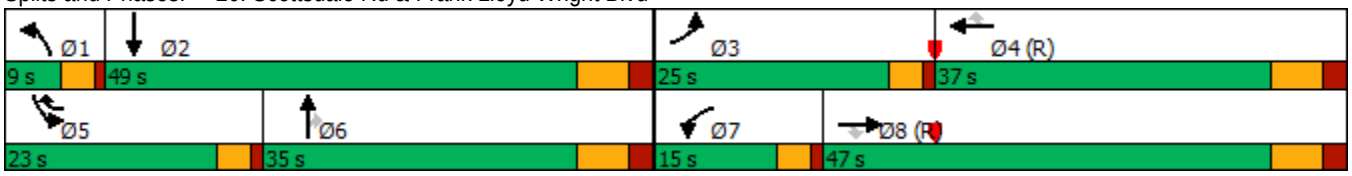
Intersection Summary			
HCM 2000 Control Delay	174.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

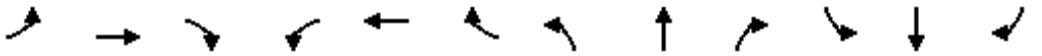
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

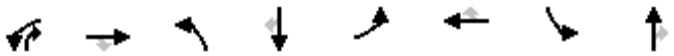




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	1082	39	349	1621	318	78	413	542	205	517	514
Future Volume (vph)	358	1082	39	349	1621	318	78	413	542	205	517	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	398	1202	43	388	1801	353	87	459	602	228	574	571
RTOR Reduction (vph)	0	0	26	0	0	98	0	0	70	0	0	171
Lane Group Flow (vph)	398	1202	17	388	1801	255	87	459	532	228	574	400
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Effective Green, g (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Actuated g/C Ratio	0.11	0.40	0.40	0.11	0.40	0.40	0.02	0.19	0.30	0.07	0.23	0.23
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	2034	633	371	2034	633	44	678	567	228	825	369
v/s Ratio Prot	0.12	0.24		0.11	c0.35		0.05	0.13	c0.10	c0.07	0.16	
v/s Ratio Perm			0.01			0.16			0.23			c0.25
v/c Ratio	1.07	0.59	0.03	1.05	0.89	0.40	1.98	0.68	0.94	1.00	0.70	1.08
Uniform Delay, d1	53.5	28.3	21.8	53.5	33.4	25.7	58.5	45.0	40.9	56.0	42.1	46.0
Progression Factor	1.03	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	1.10	1.26
Incremental Delay, d2	66.0	1.2	0.1	59.2	6.1	1.9	511.0	2.7	23.3	58.8	2.5	70.6
Delay (s)	121.0	26.5	21.9	112.7	39.6	27.6	569.5	47.7	64.2	105.0	48.7	128.5
Level of Service	F	C	C	F	D	C	F	D	E	F	D	F
Approach Delay (s)		49.3			49.1			95.9			91.3	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

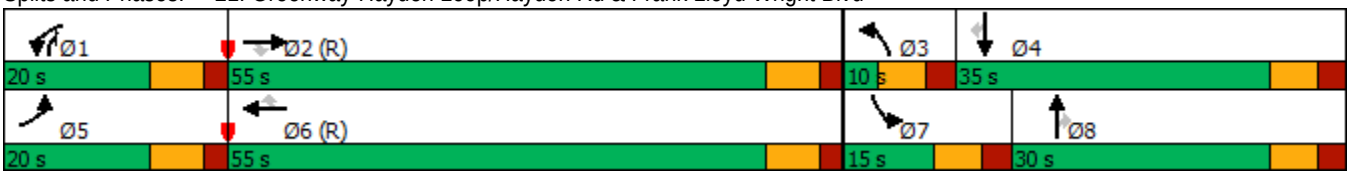
c Critical Lane Group

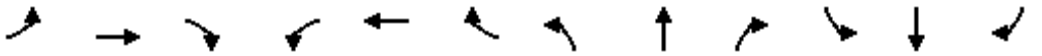


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	382	293	122	82	182	343	204	1397	4	311	906	185
Future Volume (vph)	382	293	122	82	182	343	204	1397	4	311	906	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	424	326	136	91	202	381	227	1552	4	346	1007	206
RTOR Reduction (vph)	0	0	61	0	0	53	0	0	0	0	0	86
Lane Group Flow (vph)	424	326	75	91	202	328	227	1556	0	346	1007	120
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	23.9	22.7	35.7	16.1	14.9	32.9	13.0	41.2		18.0	46.2	70.1
Effective Green, g (s)	23.9	22.7	35.7	16.1	14.9	32.9	13.0	41.2		18.0	46.2	70.1
Actuated g/C Ratio	0.20	0.19	0.30	0.13	0.12	0.27	0.11	0.34		0.15	0.39	0.58
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	683	669	523	460	439	486	371	1745		514	1957	977
v/s Ratio Prot	c0.12	0.09	0.02	0.03	0.06	c0.10	0.07	c0.31		0.10	0.20	0.02
v/s Ratio Perm			0.03			0.11						0.05
v/c Ratio	0.62	0.49	0.14	0.20	0.46	0.67	0.61	0.89		0.67	0.51	0.12
Uniform Delay, d1	43.9	43.5	30.9	46.2	48.8	38.8	51.1	37.3		48.2	28.3	11.2
Progression Factor	0.81	1.32	2.40	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.5	0.1	0.2	0.8	3.7	7.3	7.4		6.9	1.0	0.1
Delay (s)	36.9	58.0	74.5	46.4	49.6	42.5	58.4	44.7		55.1	29.3	11.2
Level of Service	D	E	E	D	D	D	E	D		E	C	B
Approach Delay (s)		50.5			45.1			46.4			32.6	
Approach LOS		D			D			D			C	

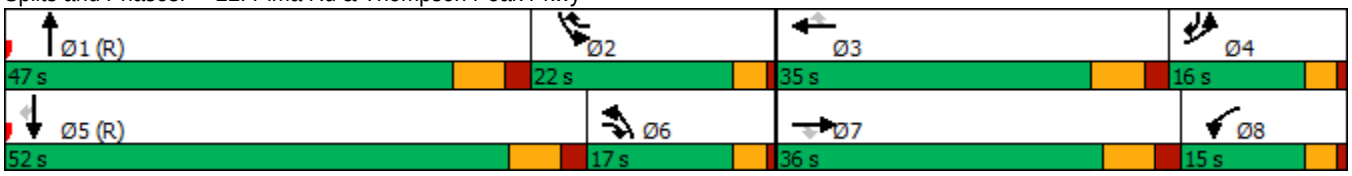
Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

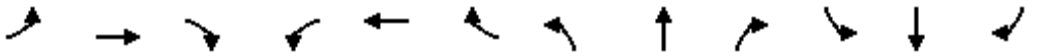
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	11	60	62	12	2	59	513	16	3	582	32
Future Volume (vph)	26	11	60	62	12	2	59	513	16	3	582	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1825		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.35	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1393	1626		1314	1825		655	3539	1583	738	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	12	67	69	13	2	66	570	18	3	647	36
RTOR Reduction (vph)	0	40	0	0	1	0	0	0	10	0	0	19
Lane Group Flow (vph)	29	39	0	69	14	0	66	570	8	3	647	17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	650		525	730		303	1639	733	341	1639	733
v/s Ratio Prot		0.02			0.01			0.16			c0.18	
v/s Ratio Perm	0.02			c0.05			0.10		0.01	0.00		0.01
v/c Ratio	0.05	0.06		0.13	0.02		0.22	0.35	0.01	0.01	0.39	0.02
Uniform Delay, d1	17.5	17.5		18.0	17.2		15.2	16.3	13.8	13.7	16.8	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.5	0.0		1.6	0.6	0.0	0.0	0.7	0.1
Delay (s)	17.6	17.7		18.6	17.3		16.9	16.9	13.8	13.8	17.5	13.9
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		17.7			18.3			16.8			17.3	
Approach LOS		B			B			B			B	

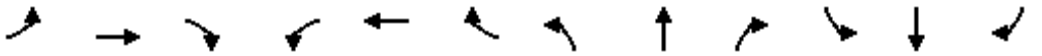
Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





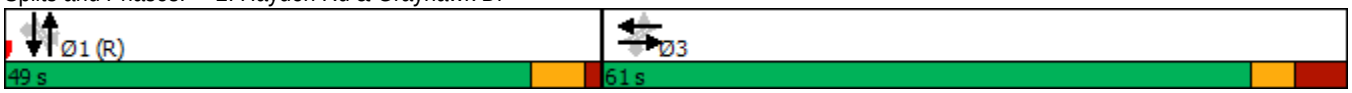
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	90	45	8	18	35	536	9	3	685	34
Future Volume (vph)	30	2	90	45	8	18	35	536	9	3	685	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1670		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.25	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1375	1863	1583	1409	1670		469	3539	1583	644	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	2	100	50	9	20	39	596	10	3	761	38
RTOR Reduction (vph)	0	0	42	0	10	0	0	0	6	0	0	23
Lane Group Flow (vph)	33	2	58	50	19	0	39	596	4	3	761	15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	662	897	762	678	804		183	1383	618	251	1383	618
v/s Ratio Prot		0.00			0.01			0.17			c0.22	
v/s Ratio Perm	0.02		c0.04	0.04			0.08		0.00	0.00		0.01
v/c Ratio	0.05	0.00	0.08	0.07	0.02		0.21	0.43	0.01	0.01	0.55	0.02
Uniform Delay, d1	15.1	14.8	15.3	15.3	14.9		22.3	24.5	20.5	20.5	26.0	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.2	0.1		2.6	1.0	0.0	0.1	1.6	0.1
Delay (s)	15.3	14.8	15.5	15.5	15.0		24.9	25.5	20.5	20.6	27.6	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.4			15.3			25.4			27.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	269	317	323	274	88	147	443	264	206	580	44
Future Volume (vph)	29	269	317	323	274	88	147	443	264	206	580	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.57	1.00	1.00	0.32	1.00	1.00	0.36	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1055	3539	1583	602	3539	1583	672	3539	1583	663	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	299	352	359	304	98	163	492	293	229	644	49
RTOR Reduction (vph)	0	0	293	0	0	71	0	0	174	0	0	27
Lane Group Flow (vph)	32	299	59	359	304	27	163	492	119	229	644	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.5	18.9	18.9	42.1	33.0	33.0	59.6	48.9	48.9	67.2	53.7	53.7
Effective Green, g (s)	23.5	18.9	18.9	42.1	33.0	33.0	59.6	48.9	48.9	67.2	53.7	53.7
Actuated g/C Ratio	0.20	0.16	0.16	0.35	0.28	0.28	0.50	0.41	0.41	0.56	0.45	0.45
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	557	249	402	973	435	431	1442	645	495	1583	708
v/s Ratio Prot	0.01	0.08		c0.15	0.09		0.03	0.14		c0.05	c0.18	
v/s Ratio Perm	0.02		0.04	c0.17		0.02	0.15		0.08	c0.21		0.01
v/c Ratio	0.14	0.54	0.24	0.89	0.31	0.06	0.38	0.34	0.19	0.46	0.41	0.03
Uniform Delay, d1	39.5	46.5	44.2	32.4	34.5	32.1	16.9	24.5	22.8	14.3	22.4	18.6
Progression Factor	1.00	1.00	1.00	1.14	1.10	2.27	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.0	0.5	20.9	0.2	0.1	0.6	0.6	0.6	0.7	0.8	0.1
Delay (s)	39.8	47.5	44.7	57.7	38.0	72.8	17.5	25.1	23.4	15.0	23.2	18.7
Level of Service	D	D	D	E	D	E	B	C	C	B	C	B
Approach Delay (s)		45.7			51.8			23.3			20.9	
Approach LOS		D			D			C			C	

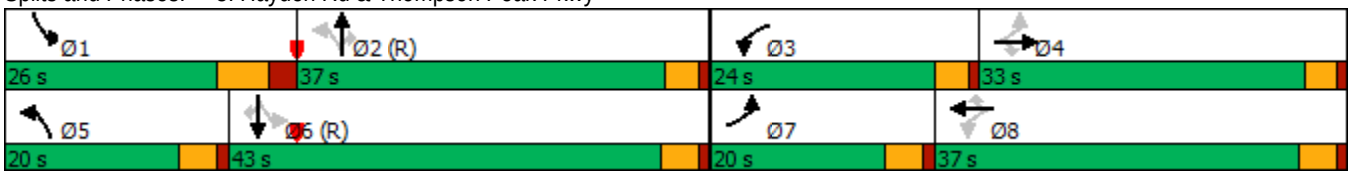
Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

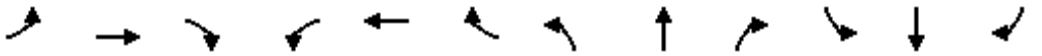
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	100	28	3	0	14	804	7	0	1226	13
Future Volume (vph)	12	1	100	28	3	0	14	804	7	0	1226	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3539	1583		3539	1583
Flt Permitted	0.76	1.00	1.00	0.76	1.00		0.18	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1408	1863	1583	1410	1863		331	3539	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1	111	31	3	0	16	893	8	0	1362	14
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	2	0	0	3
Lane Group Flow (vph)	13	1	75	31	3	0	16	893	6	0	1362	11
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	10.6	10.6	10.6	10.6	10.6		85.4	85.4	85.4		85.4	85.4
Effective Green, g (s)	10.6	10.6	10.6	10.6	10.6		85.4	85.4	85.4		85.4	85.4
Actuated g/C Ratio	0.10	0.10	0.10	0.10	0.10		0.78	0.78	0.78		0.78	0.78
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	135	179	152	135	179		256	2747	1228		2747	1228
v/s Ratio Prot		0.00			0.00			0.25			c0.38	
v/s Ratio Perm	0.01		c0.05	0.02			0.05		0.00			0.01
v/c Ratio	0.10	0.01	0.49	0.23	0.02		0.06	0.33	0.01		0.50	0.01
Uniform Delay, d1	45.3	44.9	47.1	45.9	45.0		2.9	3.7	2.8		4.5	2.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.0	2.5	0.9	0.0		0.5	0.3	0.0		0.6	0.0
Delay (s)	45.6	44.9	49.6	46.8	45.0		3.4	4.0	2.8		5.1	2.8
Level of Service	D	D	D	D	D		A	A	A		A	A
Approach Delay (s)		49.2			46.6			4.0			5.1	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

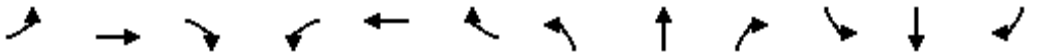
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	85
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	31	413	204	601	0	0	858	446
Future Volume (vph)	0	0	0	34	31	413	204	601	0	0	858	446
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1540	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1540	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	38	34	459	227	668	0	0	953	496
RTOR Reduction (vph)	0	0	0	0	164	185	0	0	0	0	0	293
Lane Group Flow (vph)	0	0	0	38	86	58	227	668	0	0	953	203
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				28.8	28.8	28.8	22.0	29.2			49.2	49.2
Effective Green, g (s)				28.8	28.8	28.8	22.0	29.2			49.2	49.2
Actuated g/C Ratio				0.24	0.24	0.24	0.18	0.24			0.41	0.41
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				823	369	360	324	861			2627	649
v/s Ratio Prot					c0.06		c0.13	c0.19			c0.15	
v/s Ratio Perm				0.01		0.04						0.13
v/c Ratio				0.05	0.23	0.16	0.70	0.78			0.36	0.31
Uniform Delay, d1				35.0	36.7	36.1	45.9	42.3			24.5	24.0
Progression Factor				1.00	1.00	1.00	1.23	0.38			1.00	1.00
Incremental Delay, d2				0.0	0.3	0.2	10.8	4.0			0.4	1.3
Delay (s)				35.1	37.0	36.3	67.3	20.2			24.9	25.2
Level of Service				D	D	D	E	C			C	C
Approach Delay (s)		0.0			36.5			32.1			25.0	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

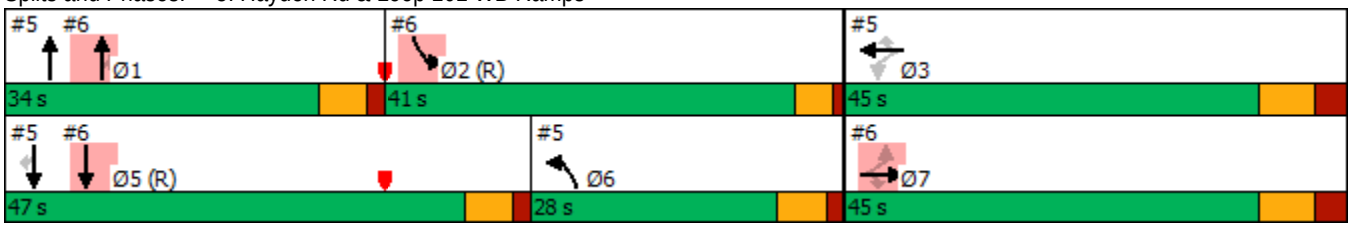
c Critical Lane Group

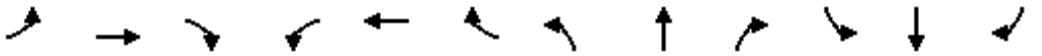
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	337	10	435	0	0	0	0	464	17	559	339	0
Future Volume (vph)	337	10	435	0	0	0	0	464	17	559	339	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.89	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1497	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1497	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	374	11	483	0	0	0	0	516	19	621	377	0
RTOR Reduction (vph)	0	78	213	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	299	211	67	0	0	0	0	516	5	621	377	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	28.8	28.8	28.8					29.2	29.2	43.5	49.2	
Effective Green, g (s)	28.8	28.8	28.8					29.2	29.2	43.5	49.2	
Actuated g/C Ratio	0.24	0.24	0.24					0.24	0.24	0.36	0.41	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	403	359	360					1237	385	1244	1450	
v/s Ratio Prot								c0.10		c0.18	0.11	
v/s Ratio Perm	c0.18	0.14	0.04						0.00			
v/c Ratio	0.74	0.59	0.19					0.42	0.01	0.50	0.26	
Uniform Delay, d1	42.2	40.4	36.3					38.2	34.5	29.8	23.4	
Progression Factor	1.49	1.90	6.85					1.04	1.00	0.78	0.27	
Incremental Delay, d2	4.6	1.6	0.2					0.2	0.0	1.4	0.4	
Delay (s)	67.2	78.1	248.6					39.8	34.5	24.5	6.7	
Level of Service	E	E	F					D	C	C	A	
Approach Delay (s)		129.4			0.0			39.6			17.8	
Approach LOS		F			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	63.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

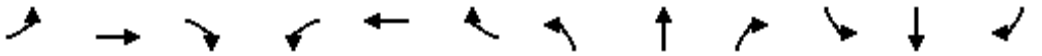
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	436	10	181	621
Future Volume (Veh/h)	0	42	436	10	181	621
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	47	484	11	201	690
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.97					
vC, conflicting volume	1231	242			495	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1169	242			495	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			81	
cM capacity (veh/h)	146	759			1065	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	242	242	11	201	345	345
Volume Left	0	0	0	0	201	0	0
Volume Right	47	0	0	11	0	0	0
cSH	759	1700	1700	1700	1065	1700	1700
Volume to Capacity	0.06	0.14	0.14	0.01	0.19	0.20	0.20
Queue Length 95th (ft)	5	0	0	0	17	0	0
Control Delay (s)	10.1	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.1	0.0			2.1		
Approach LOS	B						

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	58	85	162	0	23	70	342	190	117	449	46
Future Volume (vph)	41	58	85	162	0	23	70	342	190	117	449	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.46	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	855	3539	1583	981	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	64	94	180	0	26	78	380	211	130	499	51
RTOR Reduction (vph)	0	0	84	0	0	23	0	0	78	0	0	19
Lane Group Flow (vph)	0	110	10	180	0	3	78	380	133	130	499	32
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		12.7	12.7	11.7		11.7	75.6	75.6	75.6	75.6	75.6	75.6
Effective Green, g (s)		12.7	12.7	11.7		11.7	75.6	75.6	75.6	75.6	75.6	75.6
Actuated g/C Ratio		0.11	0.11	0.10		0.10	0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		193	167	334		154	538	2229	997	618	2229	997
v/s Ratio Prot		c0.06		c0.05				0.11			c0.14	
v/s Ratio Perm			0.01			0.00	0.09		0.08	0.13		0.02
v/c Ratio		0.57	0.06	0.54		0.02	0.14	0.17	0.13	0.21	0.22	0.03
Uniform Delay, d1		51.1	48.3	51.6		48.9	9.0	9.2	9.0	9.5	9.6	8.4
Progression Factor		1.04	1.56	1.00		1.00	1.34	1.40	3.31	1.30	1.27	70.47
Incremental Delay, d2		3.7	0.1	1.7		0.0	0.6	0.2	0.3	0.7	0.2	0.1
Delay (s)		57.0	75.4	53.3		49.0	12.7	13.0	30.0	13.1	12.3	590.9
Level of Service		E	E	D		D	B	B	C	B	B	F
Approach Delay (s)		65.5			52.7			18.3			55.9	
Approach LOS		E			D			B			E	

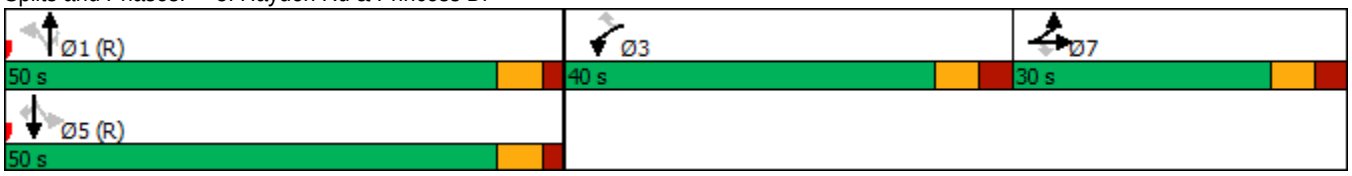
Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

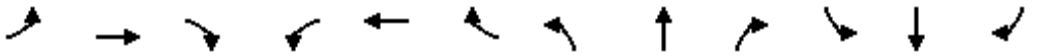
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	19	206	9	86	27	525	346	132	576	18
Future Volume (vph)	8	6	19	206	9	86	27	525	346	132	576	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3199		1681	1692	1583	1770	3539	1583	1770	3523	
Flt Permitted		0.86		0.73	0.72	1.00	0.39	1.00	1.00	0.43	1.00	
Satd. Flow (perm)		2797		1295	1266	1583	727	3539	1583	795	3523	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	7	21	229	10	96	30	583	384	147	640	20
RTOR Reduction (vph)	0	20	0	0	0	80	0	0	110	0	1	0
Lane Group Flow (vph)	0	17	0	119	120	16	30	583	274	147	659	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.1		20.5	20.5	20.5	85.5	85.5	85.5	85.5	85.5	
Effective Green, g (s)		4.1		20.5	20.5	20.5	85.5	85.5	85.5	85.5	85.5	
Actuated g/C Ratio		0.03		0.17	0.17	0.17	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		95		248	246	270	517	2521	1127	566	2510	
v/s Ratio Prot				0.03	c0.03			0.16			c0.19	
v/s Ratio Perm		0.01		0.05	c0.05	0.01	0.04		0.17	0.18		
v/c Ratio		0.18		0.48	0.49	0.06	0.06	0.23	0.24	0.26	0.26	
Uniform Delay, d1		56.3		45.4	45.0	41.7	5.2	5.9	6.0	6.1	6.1	
Progression Factor		1.00		1.00	1.00	1.00	1.64	1.33	6.70	1.03	1.12	
Incremental Delay, d2		0.9		1.5	1.5	0.1	0.2	0.2	0.4	1.1	0.3	
Delay (s)		57.2		46.9	46.5	41.8	8.6	8.1	40.6	7.4	7.1	
Level of Service		E		D	D	D	A	A	D	A	A	
Approach Delay (s)		57.2			45.3			20.6			7.1	
Approach LOS		E			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

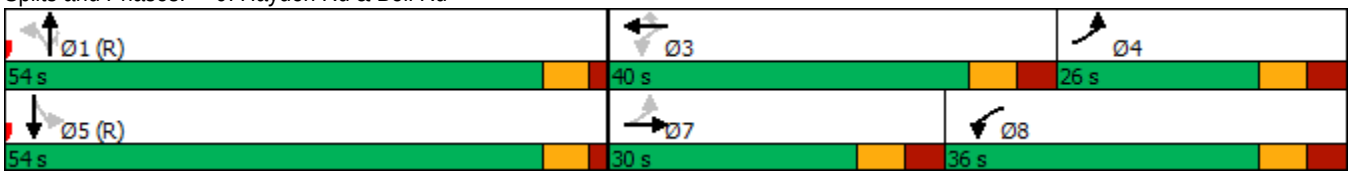
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	26	907	132	44	1957
Future Volume (vph)	94	26	907	132	44	1957
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.27	1.00
Satd. Flow (perm)	1770	1583	3539	1583	508	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	29	1008	147	49	2174
RTOR Reduction (vph)	0	26	0	29	0	0
Lane Group Flow (vph)	104	3	1008	118	49	2174
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	11.9	11.9	96.1	96.1	96.1	96.1
Effective Green, g (s)	11.9	11.9	96.1	96.1	96.1	96.1
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	156	2834	1267	406	2834
v/s Ratio Prot	c0.06		0.28			c0.61
v/s Ratio Perm		0.00		0.07	0.10	
v/c Ratio	0.59	0.02	0.36	0.09	0.12	0.77
Uniform Delay, d1	51.7	48.8	3.3	2.6	2.6	6.2
Progression Factor	1.00	1.00	0.55	0.30	1.00	1.00
Incremental Delay, d2	5.3	0.0	0.3	0.1	0.6	2.1
Delay (s)	57.1	48.8	2.2	0.9	3.2	8.2
Level of Service	E	D	A	A	A	A
Approach Delay (s)	55.3		2.0			8.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	32	993	46	39	2005
Future Volume (vph)	98	32	993	46	39	2005
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.24	1.00
Satd. Flow (perm)	1770	1583	3539	1583	453	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	36	1103	51	43	2228
RTOR Reduction (vph)	0	32	0	10	0	0
Lane Group Flow (vph)	109	4	1103	41	43	2228
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	360	2813
v/s Ratio Prot	c0.06		0.31			c0.63
v/s Ratio Perm		0.00		0.03	0.09	
v/c Ratio	0.59	0.02	0.39	0.03	0.12	0.79
Uniform Delay, d1	51.2	48.2	3.7	2.6	2.8	6.8
Progression Factor	1.00	1.00	1.53	3.11	1.38	1.20
Incremental Delay, d2	4.7	0.1	0.3	0.0	0.4	1.5
Delay (s)	56.0	48.2	5.9	8.1	4.3	9.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		6.0			9.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	95	992	445	136	1940
Future Volume (vph)	439	95	992	445	136	1940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	106	1102	494	151	2156
RTOR Reduction (vph)	0	86	0	273	0	0
Lane Group Flow (vph)	488	20	1102	221	151	2156
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	22.4	22.4	53.6	53.6	25.0	82.6
Effective Green, g (s)	22.4	22.4	53.6	53.6	25.0	82.6
Actuated g/C Ratio	0.19	0.19	0.45	0.45	0.21	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	640	295	1580	707	368	2436
v/s Ratio Prot	c0.14		0.31		0.09	c0.61
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.76	0.07	0.70	0.31	0.41	0.89
Uniform Delay, d1	46.3	40.2	26.7	21.3	41.1	14.9
Progression Factor	1.00	1.00	1.11	4.02	1.05	1.17
Incremental Delay, d2	5.4	0.1	1.9	0.9	2.1	3.3
Delay (s)	51.6	40.3	31.6	86.6	45.0	20.7
Level of Service	D	D	C	F	D	C
Approach Delay (s)	49.6		48.6			22.3
Approach LOS	D		D			C

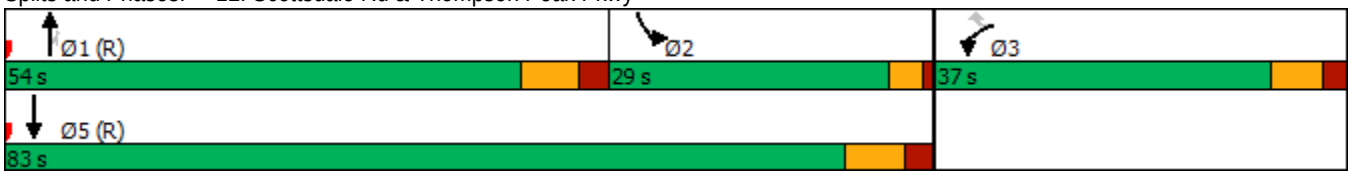
Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	16	1429	163	28	2413
Future Volume (vph)	131	16	1429	163	28	2413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	18	1588	181	31	2681
RTOR Reduction (vph)	0	16	0	30	0	0
Lane Group Flow (vph)	146	2	1588	151	31	2681
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	10.5	10.5	81.5	81.5	10.0	95.5
Effective Green, g (s)	10.5	10.5	81.5	81.5	10.0	95.5
Actuated g/C Ratio	0.09	0.09	0.68	0.68	0.08	0.80
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	138	2403	1075	147	2816
v/s Ratio Prot	c0.04		0.45		0.02	c0.76
v/s Ratio Perm		0.00		0.10		
v/c Ratio	0.49	0.01	0.66	0.14	0.21	0.95
Uniform Delay, d1	52.2	50.0	11.2	6.8	51.3	10.3
Progression Factor	1.00	1.00	2.02	2.23	0.98	0.88
Incremental Delay, d2	1.2	0.0	1.1	0.2	1.8	5.7
Delay (s)	53.4	50.0	23.7	15.4	52.3	14.7
Level of Service	D	D	C	B	D	B
Approach Delay (s)	53.1		22.9			15.1
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

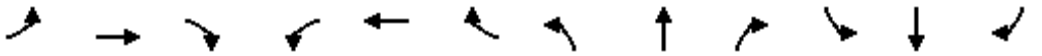
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	510	26	476	296	1139	0	0	1891	642
Future Volume (vph)	0	0	0	510	26	476	296	1139	0	0	1891	642
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1531	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1531	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	567	29	529	329	1266	0	0	2101	713
RTOR Reduction (vph)	0	0	0	0	185	200	0	0	0	0	0	368
Lane Group Flow (vph)	0	0	0	567	98	75	329	1266	0	0	2101	345
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				32.8	32.8	32.8	20.0	40.2			50.2	50.2
Effective Green, g (s)				32.8	32.8	32.8	20.0	40.2			50.2	50.2
Actuated g/C Ratio				0.27	0.27	0.27	0.17	0.34			0.42	0.42
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				938	418	411	572	1703			3155	662
v/s Ratio Prot					0.06		c0.10	c0.25			c0.28	
v/s Ratio Perm				c0.17		0.05						0.22
v/c Ratio				0.60	0.24	0.18	0.58	0.74			0.67	0.52
Uniform Delay, d1				38.0	33.9	33.3	46.1	35.3			28.1	26.0
Progression Factor				1.00	1.00	1.00	1.27	0.48			1.15	2.24
Incremental Delay, d2				1.1	0.3	0.2	3.6	2.5			0.4	1.2
Delay (s)				39.1	34.2	33.6	62.0	19.4			32.9	59.2
Level of Service				D	C	C	E	B			C	E
Approach Delay (s)		0.0			36.5			28.2			39.6	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

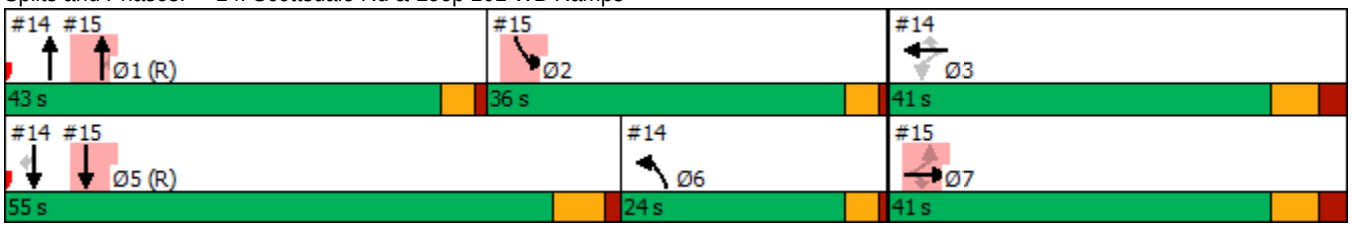
c Critical Lane Group

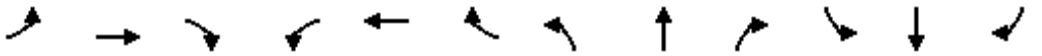
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

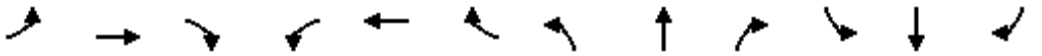




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	676	2	598	0	0	0	0	770	322	734	1699	0
Future Volume (vph)	676	2	598	0	0	0	0	770	322	734	1699	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	751	2	664	0	0	0	0	856	358	816	1888	0
RTOR Reduction (vph)	0	241	241	0	0	0	0	0	238	0	0	0
Lane Group Flow (vph)	751	93	91	0	0	0	0	856	120	816	1888	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	32.8	32.8	32.8					40.2	40.2	32.0	50.2	
Effective Green, g (s)	32.8	32.8	32.8					40.2	40.2	32.0	50.2	
Actuated g/C Ratio	0.27	0.27	0.27					0.34	0.34	0.27	0.42	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	938	411	411					2527	530	915	2127	
v/s Ratio Prot		0.06						0.11		c0.24	c0.37	
v/s Ratio Perm	c0.22		0.06						0.08			
v/c Ratio	0.80	0.23	0.22					0.34	0.23	0.89	0.89	
Uniform Delay, d1	40.6	33.8	33.7					29.9	28.7	42.3	32.3	
Progression Factor	1.00	1.00	1.00					1.45	7.59	0.92	0.43	
Incremental Delay, d2	5.0	0.3	0.3					0.3	0.9	10.3	4.7	
Delay (s)	45.5	34.0	34.0					43.6	218.8	49.0	18.6	
Level of Service	D	C	C					D	F	D	B	
Approach Delay (s)		40.1			0.0			95.3			27.8	
Approach LOS		D			A			F			C	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	423	12	255	17	4	25	121	697	11	40	1628	631
Future Volume (vph)	423	12	255	17	4	25	121	697	11	40	1628	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	470	13	283	19	4	28	134	774	12	44	1809	701
RTOR Reduction (vph)	0	0	148	0	30	0	0	0	9	0	0	333
Lane Group Flow (vph)	470	13	135	19	2	0	134	774	3	44	1809	368
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	29.5	33.2	33.2	4.5	8.2		10.6	26.4	26.4	30.5	46.6	46.6
Effective Green, g (s)	29.5	33.2	33.2	4.5	8.2		10.6	26.4	26.4	30.5	46.6	46.6
Actuated g/C Ratio	0.25	0.28	0.28	0.04	0.07		0.09	0.22	0.22	0.25	0.39	0.39
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	843	1406	437	128	210		303	1118	348	872	1974	614
v/s Ratio Prot	c0.14	0.00		0.01	0.00		c0.04	0.15		0.01	c0.36	
v/s Ratio Perm			c0.09						0.00			0.23
v/c Ratio	0.56	0.01	0.31	0.15	0.01		0.44	0.69	0.01	0.05	0.92	0.60
Uniform Delay, d1	39.5	31.5	34.3	55.9	52.1		51.9	43.1	36.6	33.8	34.9	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.96	1.09	1.00	1.36	1.04	2.62
Incremental Delay, d2	0.8	0.0	0.4	0.5	0.0		4.5	1.8	0.0	0.1	4.5	0.9
Delay (s)	40.4	31.5	34.7	56.4	52.1		54.6	48.8	36.6	46.1	40.9	77.5
Level of Service	D	C	C	E	D		D	D	D	D	D	E
Approach Delay (s)		38.1			53.7			49.5			51.0	
Approach LOS		D			D			D			D	

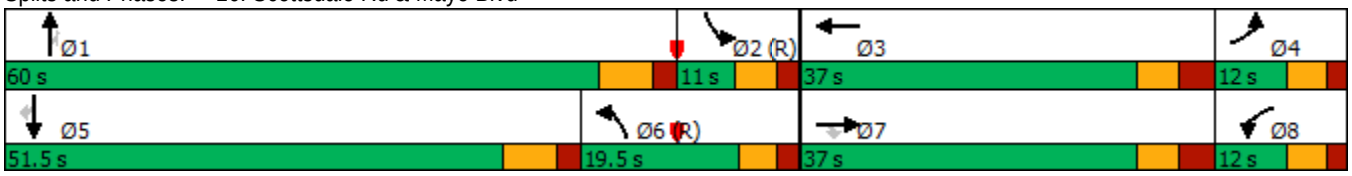
Intersection Summary			
HCM 2000 Control Delay	48.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

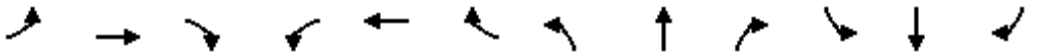
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	4	98	9	4	4	132	784	4	5	1845	126
Future Volume (vph)	83	4	98	9	4	4	132	784	4	5	1845	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.93	1.00	1.00	0.05	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	760	3539	1583	1733	3539	1583	99	5085	1583	584	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	4	109	10	4	4	147	871	4	6	2050	140
RTOR Reduction (vph)	0	0	96	0	0	4	0	0	1	0	0	57
Lane Group Flow (vph)	92	4	13	10	4	0	147	871	3	6	2050	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.8	13.9	13.9	5.7	4.3	4.3	85.2	78.5	78.5	71.3	70.1	70.1
Effective Green, g (s)	20.8	13.9	13.9	5.7	4.3	4.3	85.2	78.5	78.5	71.3	70.1	70.1
Actuated g/C Ratio	0.17	0.12	0.12	0.05	0.04	0.04	0.71	0.65	0.65	0.59	0.58	0.58
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	409	183	82	126	56	203	3326	1035	358	2970	924
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.06	0.17		0.00	0.40	
v/s Ratio Perm	c0.03		0.01	0.00		0.00	c0.46		0.00	0.01		0.05
v/c Ratio	0.41	0.01	0.07	0.12	0.03	0.00	0.72	0.26	0.00	0.02	0.69	0.09
Uniform Delay, d1	43.4	47.0	47.3	54.7	55.8	55.8	28.7	8.7	7.2	9.9	17.4	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.41	1.00	0.50	0.54	0.71
Incremental Delay, d2	1.2	0.0	0.2	0.7	0.1	0.0	11.8	0.2	0.0	0.0	0.7	0.1
Delay (s)	44.6	47.0	47.4	55.4	55.9	55.8	41.0	12.4	7.2	4.9	10.2	7.9
Level of Service	D	D	D	E	E	E	D	B	A	A	B	A
Approach Delay (s)		46.2			55.6			16.5			10.0	
Approach LOS		D			E			B			B	

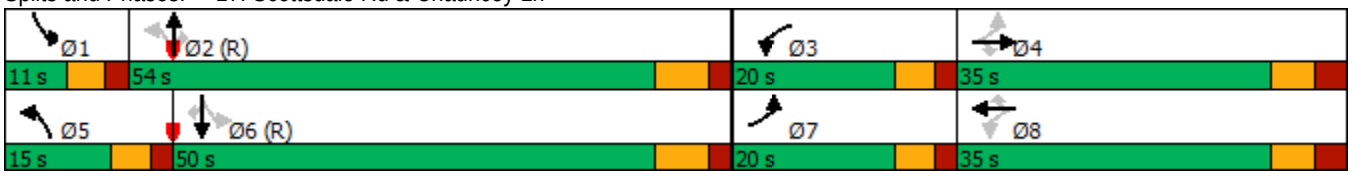
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

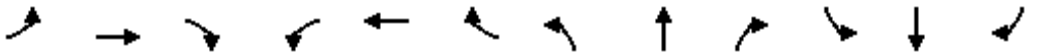
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	28	248	69	9	123	128	766	145	189	1685	73
Future Volume (vph)	39	28	248	69	9	123	128	766	145	189	1685	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3062		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.39	1.00	1.00	0.07	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1398	3062		725	3539	1583	130	5085	1583	558	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	31	276	77	10	137	142	851	161	210	1872	81
RTOR Reduction (vph)	0	217	0	0	0	124	0	0	67	0	0	34
Lane Group Flow (vph)	43	90	0	77	10	13	142	851	94	210	1872	47
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	16.2	11.8		16.2	11.8	11.8	82.8	69.8	69.8	82.8	69.8	69.8
Effective Green, g (s)	16.2	11.8		16.2	11.8	11.8	82.8	69.8	69.8	82.8	69.8	69.8
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.58	0.58	0.69	0.58	0.58
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	202	301		136	348	155	267	2957	920	516	2957	920
v/s Ratio Prot	0.01	0.03		c0.02	0.00		c0.06	0.17		0.04	c0.37	
v/s Ratio Perm	0.02			c0.06		0.01	0.31		0.06	0.24		0.03
v/c Ratio	0.21	0.30		0.57	0.03	0.09	0.53	0.29	0.10	0.41	0.63	0.05
Uniform Delay, d1	46.3	50.3		51.8	48.9	49.2	28.5	12.6	11.2	11.2	16.6	10.8
Progression Factor	1.00	1.00		1.04	1.04	1.47	0.34	1.41	3.39	0.49	0.72	4.40
Incremental Delay, d2	0.5	0.6		5.3	0.0	0.2	7.1	0.2	0.2	1.9	0.8	0.1
Delay (s)	46.8	50.8		58.9	50.8	72.5	16.9	18.0	38.0	7.3	12.8	47.7
Level of Service	D	D		E	D	E	B	B	D	A	B	D
Approach Delay (s)		50.3			66.9			20.7			13.6	
Approach LOS		D			E			C			B	

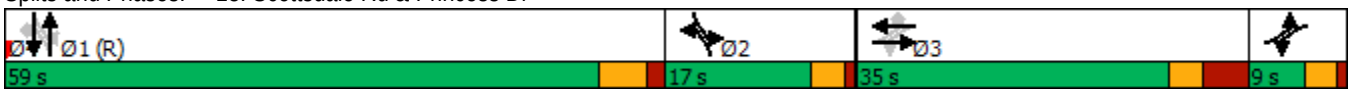
Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

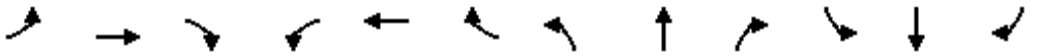
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	0	114	30	0	19	40	963	11	41	1956	24
Future Volume (vph)	61	0	114	30	0	19	40	963	11	41	1956	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1713		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.58		0.05	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)		1465			1023		100	5085	1583	446	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	0	127	33	0	21	44	1070	12	46	2173	27
RTOR Reduction (vph)	0	65	0	0	47	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	130	0	0	7	0	44	1070	8	46	2173	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.5			16.5		86.5	80.5	80.5	86.5	80.5	80.5
Effective Green, g (s)		16.5			16.5		86.5	80.5	80.5	86.5	80.5	80.5
Actuated g/C Ratio		0.14			0.14		0.72	0.67	0.67	0.72	0.67	0.67
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		201			140		155	3411	1061	387	3411	1061
v/s Ratio Prot							c0.01	0.21		0.01	c0.43	
v/s Ratio Perm		c0.09			0.01		0.19		0.01	0.08		0.01
v/c Ratio		0.65			0.05		0.28	0.31	0.01	0.12	0.64	0.02
Uniform Delay, d1		49.0			45.0		20.6	8.2	6.5	6.8	11.4	6.6
Progression Factor		1.00			1.00		1.66	1.15	1.00	1.33	1.53	1.00
Incremental Delay, d2		7.0			0.2		3.5	0.2	0.0	0.5	0.8	0.0
Delay (s)		56.0			45.1		37.7	9.6	6.5	9.6	18.2	6.6
Level of Service		E			D		D	A	A	A	B	A
Approach Delay (s)		56.0			45.1			10.7			17.8	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

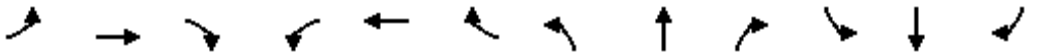
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	1438	399	232	457	204	85	386	138	357	1474	157
Future Volume (vph)	530	1438	399	232	457	204	85	386	138	357	1474	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5012	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5012	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	589	1598	443	258	508	227	94	429	153	397	1638	174
RTOR Reduction (vph)	0	0	97	0	0	66	0	0	116	0	10	0
Lane Group Flow (vph)	589	1598	346	258	508	161	94	429	37	397	1802	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	21.0	40.0	40.0	11.0	30.0	47.7	5.0	29.3	29.3	17.7	42.0	
Effective Green, g (s)	21.0	40.0	40.0	11.0	30.0	47.7	5.0	29.3	29.3	17.7	42.0	
Actuated g/C Ratio	0.18	0.33	0.33	0.09	0.25	0.40	0.04	0.24	0.24	0.15	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	600	1695	527	314	1271	629	143	1241	386	506	1754	
v/s Ratio Prot	c0.17	c0.31		0.08	0.10	0.04	0.03	0.08		c0.12	c0.36	
v/s Ratio Perm			0.22			0.06			0.02			
v/c Ratio	0.98	0.94	0.66	0.82	0.40	0.26	0.66	0.35	0.10	0.78	1.03	
Uniform Delay, d1	49.3	38.9	34.1	53.5	37.5	24.3	56.7	37.4	35.1	49.3	39.0	
Progression Factor	1.00	1.00	1.00	0.94	1.87	0.52	1.00	1.00	1.00	0.87	0.85	
Incremental Delay, d2	31.9	11.9	6.3	13.7	0.8	0.2	10.4	0.8	0.5	6.2	26.3	
Delay (s)	81.2	50.8	40.4	64.3	70.7	12.7	67.1	38.2	35.6	49.0	59.5	
Level of Service	F	D	D	E	E	B	E	D	D	D	E	
Approach Delay (s)		55.9			55.8			41.6			57.6	
Approach LOS		E			E			D			E	

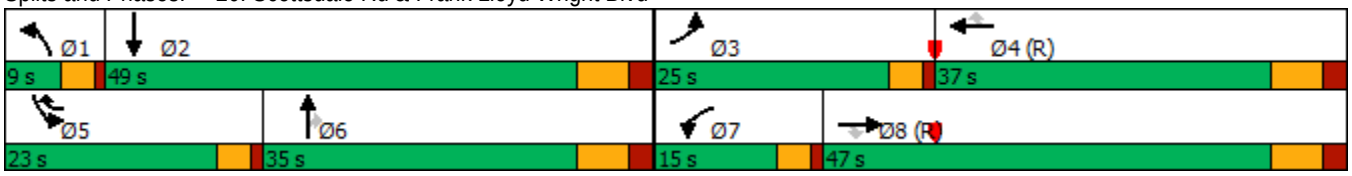
Intersection Summary			
HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

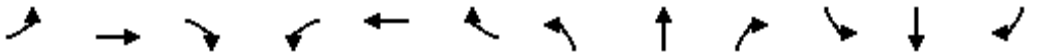
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	458	1237	62	551	998	186	9	288	244	181	558	276
Future Volume (vph)	458	1237	62	551	998	186	9	288	244	181	558	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	509	1374	69	612	1109	207	10	320	271	201	620	307
RTOR Reduction (vph)	0	0	45	0	0	106	0	0	65	0	0	204
Lane Group Flow (vph)	509	1374	24	612	1109	101	10	320	206	201	620	103
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	19.4	42.4	42.4	19.4	42.4	42.4	0.6	22.2	41.6	8.0	29.6	29.6
Effective Green, g (s)	19.4	42.4	42.4	19.4	42.4	42.4	0.6	22.2	41.6	8.0	29.6	29.6
Actuated g/C Ratio	0.16	0.35	0.35	0.16	0.35	0.35	0.00	0.18	0.35	0.07	0.25	0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	555	1796	559	555	1796	559	8	654	641	228	872	390
v/s Ratio Prot	0.15	c0.27		c0.18	0.22		0.01	0.09	0.05	c0.06	c0.18	
v/s Ratio Perm			0.02			0.06			0.08			0.06
v/c Ratio	0.92	0.77	0.04	1.10	0.62	0.18	1.25	0.49	0.32	0.88	0.71	0.26
Uniform Delay, d1	49.5	34.4	25.5	50.3	32.1	26.8	59.7	43.8	28.8	55.5	41.3	36.4
Progression Factor	1.11	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.93	1.52
Incremental Delay, d2	11.5	1.6	0.1	69.4	1.6	0.7	416.4	0.6	0.3	30.0	2.7	0.4
Delay (s)	66.4	32.3	25.6	119.7	33.7	27.5	476.1	44.4	29.1	83.1	41.0	55.8
Level of Service	E	C	C	F	C	C	F	D	C	F	D	E
Approach Delay (s)		41.0			60.3			44.7			52.5	
Approach LOS		D			E			D			D	

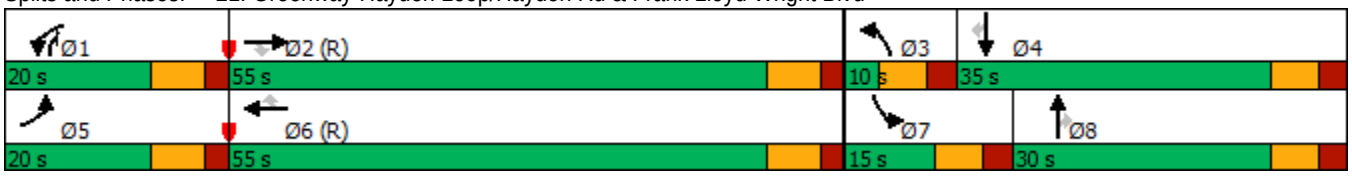
Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

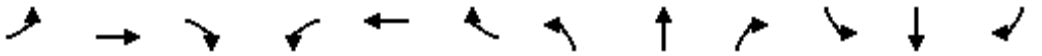
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	323	118	89	240	270	114	971	4	280	1155	284
Future Volume (vph)	173	323	118	89	240	270	114	971	4	280	1155	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	359	131	99	267	300	127	1079	4	311	1283	316
RTOR Reduction (vph)	0	0	54	0	0	52	0	0	0	0	0	103
Lane Group Flow (vph)	192	359	77	99	267	248	127	1083	0	311	1283	213
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	11.5	17.7	30.7	10.1	16.3	34.3	13.0	52.2		18.0	57.2	68.7
Effective Green, g (s)	11.5	17.7	30.7	10.1	16.3	34.3	13.0	52.2		18.0	57.2	68.7
Actuated g/C Ratio	0.10	0.15	0.26	0.08	0.14	0.29	0.11	0.44		0.15	0.48	0.57
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	328	522	457	288	480	505	371	2210		514	2423	959
v/s Ratio Prot	c0.06	c0.10	0.02	0.03	0.08	0.07	0.04	0.21		c0.09	c0.25	0.02
v/s Ratio Perm			0.03			0.08						0.11
v/c Ratio	0.59	0.69	0.17	0.34	0.56	0.49	0.34	0.49		0.61	0.53	0.22
Uniform Delay, d1	52.0	48.5	34.7	51.8	48.5	35.6	49.5	24.3		47.7	22.0	12.6
Progression Factor	1.06	1.39	2.35	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	3.6	0.2	0.7	1.4	0.8	2.5	0.8		5.2	0.8	0.1
Delay (s)	57.4	71.1	81.7	52.5	49.9	36.3	52.0	25.1		52.9	22.8	12.7
Level of Service	E	E	F	D	D	D	D	C		D	C	B
Approach Delay (s)		69.2			44.2			27.9			26.0	
Approach LOS		E			D			C			C	

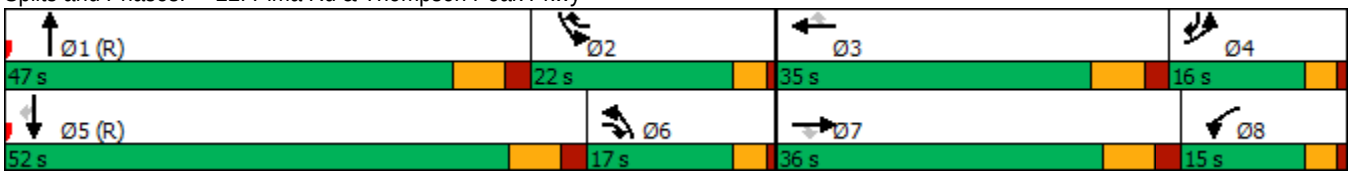
Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

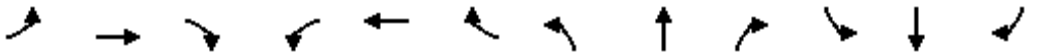
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





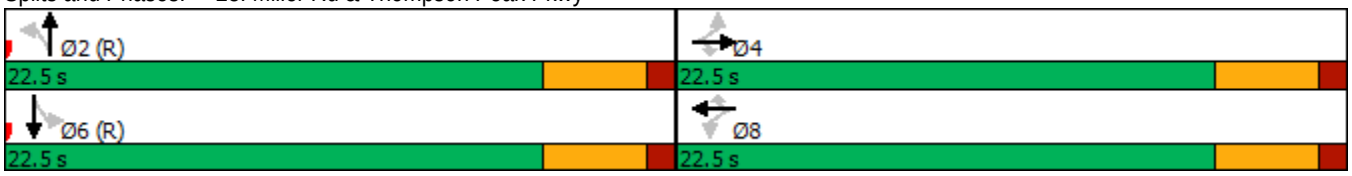
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	563	19	30	117	0	8	0	11	0	0	0
Future Volume (vph)	0	563	19	30	117	0	8	0	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.38	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	706	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	626	21	33	130	0	9	0	12	0	0	0
RTOR Reduction (vph)	0	0	13	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	626	8	33	130	0	9	5	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	282	1415		564	1203				
v/s Ratio Prot		c0.18			0.04			0.00				
v/s Ratio Perm			0.01	0.05			c0.01					
v/c Ratio		0.44	0.01	0.12	0.09		0.02	0.00				
Uniform Delay, d1		9.8	8.1	8.5	8.4		8.2	8.1				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		1.0	0.0	0.8	0.1		0.1	0.0				
Delay (s)		10.8	8.2	9.3	8.5		8.2	8.1				
Level of Service		B	A	A	A		A	A				
Approach Delay (s)		10.8			8.7			8.2			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

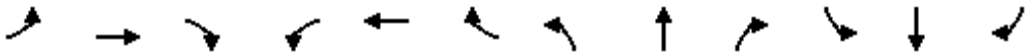
Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy



Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

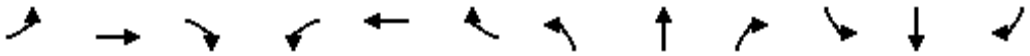
Channelized right turn lanes are not counted.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	11	0	8	118	29	62	0
Future Volume (Veh/h)	0	0	0	0	0	11	0	8	118	29	62	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	12	0	9	131	32	69	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	154	273	69	208	208	74	69			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	273	69	208	208	74	69			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			98		
cM capacity (veh/h)	789	620	994	737	674	987	1532			1443		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	12	0	140	32	69
Volume Left	0	0	0	0	32	0
Volume Right	0	12	0	131	0	0
cSH	1700	987	1700	1700	1443	1700
Volume to Capacity	0.00	0.01	0.00	0.08	0.02	0.04
Queue Length 95th (ft)	0	1	0	0	2	0
Control Delay (s)	0.0	8.7	0.0	0.0	7.6	0.0
Lane LOS	A	A			A	
Approach Delay (s)	0.0	8.7	0.0		2.4	
Approach LOS	A	A				

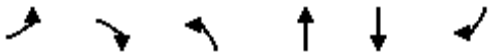
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	24.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	103	45	62	39	0	19	0	11	0	0	0
Future Volume (Veh/h)	0	103	45	62	39	0	19	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	114	50	69	43	0	21	0	12	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	43			164			320	320	139	307	345	43
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	43			164			320	320	139	307	345	43
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			97	100	99	100	100	100
cM capacity (veh/h)	1566			1414			609	568	909	613	550	1027

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	164	69	43	21	12	0	0
Volume Left	0	0	69	0	21	0	0	0
Volume Right	0	50	0	0	0	12	0	0
cSH	1700	1700	1414	1700	609	909	1700	1700
Volume to Capacity	0.00	0.10	0.05	0.03	0.03	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	4	0	3	1	0	0
Control Delay (s)	0.0	0.0	7.7	0.0	11.1	9.0	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		4.7		10.4		0.0	
Approach LOS					B		A	

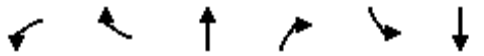
Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	24.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	37	122	1	105	77
Future Volume (Veh/h)	38	37	122	1	105	77
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	41	136	1	117	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					990	
pX, platoon unblocked						
vC, conflicting volume	390	58	203			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390	58	203			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	90			
cM capacity (veh/h)	528	995	1366			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	42	41	136	0	0	58	58	86
Volume Left	42	0	136	0	0	0	0	0
Volume Right	0	41	0	0	0	0	0	86
cSH	528	995	1366	1700	1700	1700	1700	1700
Volume to Capacity	0.08	0.04	0.10	0.00	0.00	0.03	0.03	0.05
Queue Length 95th (ft)	6	3	8	0	0	0	0	0
Control Delay (s)	12.4	8.8	7.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A	A					
Approach Delay (s)	10.6		7.9			0.0		
Approach LOS	B							

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	23.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	58	0	0	148	0
Future Volume (Veh/h)	0	58	0	0	148	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	64	0	0	164	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	328	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	328	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			90	
cM capacity (veh/h)	599	1085			1623	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	64	0	0	164	0
Volume Left	0	0	0	0	164	0
Volume Right	0	64	0	0	0	0
cSH	1700	1085	1700	1700	1623	1700
Volume to Capacity	0.00	0.06	0.00	0.00	0.10	0.00
Queue Length 95th (ft)	0	5	0	0	8	0
Control Delay (s)	0.0	8.5	0.0	0.0	7.5	0.0
Lane LOS	A	A			A	
Approach Delay (s)	8.5		0.0		7.5	
Approach LOS	A					

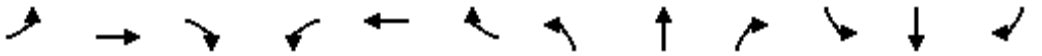
Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	11.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	46	115	122	54	89
Future Volume (Veh/h)	1	46	115	122	54	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	51	128	136	60	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				784		
pX, platoon unblocked						
vC, conflicting volume	384	30	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	384	30	159			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	91			
cM capacity (veh/h)	538	1038	1418			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	52	128	68	68	30	30	99
Volume Left	1	128	0	0	0	0	0
Volume Right	51	0	0	0	0	0	99
cSH	1019	1418	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.09	0.04	0.04	0.02	0.02	0.06
Queue Length 95th (ft)	4	7	0	0	0	0	0
Control Delay (s)	8.7	7.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	8.7	3.8			0.0		
Approach LOS	A						

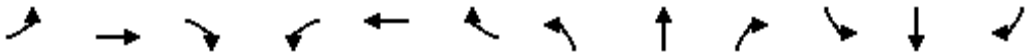
Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	0	20	0	10	9	80	26	0
Future Volume (Veh/h)	0	0	0	65	0	20	0	10	9	80	26	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	72	0	22	0	11	10	89	29	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	240	228	29	223	223	16	29			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	228	29	223	223	16	29			21		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	90	100	98	100			94		
cM capacity (veh/h)	670	634	1046	701	638	1063	1584			1595		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	94	0	21	89	29	0
Volume Left	0	72	0	0	89	0	0
Volume Right	0	22	0	10	0	0	0
cSH	1700	762	1700	1700	1595	1700	1700
Volume to Capacity	0.00	0.12	0.00	0.01	0.06	0.02	0.00
Queue Length 95th (ft)	0	10	0	0	4	0	0
Control Delay (s)	0.0	10.4	0.0	0.0	7.4	0.0	0.0
Lane LOS	A	B			A		
Approach Delay (s)	0.0	10.4	0.0		5.6		
Approach LOS	A	B					

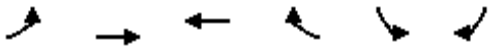
Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	22.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	11	103	140	59	0	42	0	64	0	0	0
Future Volume (Veh/h)	0	11	103	140	59	0	42	0	64	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	12	114	156	66	0	47	0	71	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			126			447	447	69	461	504	66
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			126			447	447	69	461	504	66
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			90	100	93	100	100	100
cM capacity (veh/h)	1536			1460			479	452	994	435	420	998

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	126	156	66	47	71	0	0
Volume Left	0	0	156	0	47	0	0	0
Volume Right	0	114	0	0	0	71	0	0
cSH	1700	1700	1460	1700	479	994	1700	1700
Volume to Capacity	0.00	0.07	0.11	0.04	0.10	0.07	0.00	0.00
Queue Length 95th (ft)	0	0	9	0	8	6	0	0
Control Delay (s)	0.0	0.0	7.8	0.0	13.3	8.9	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		5.5		10.7		0.0	
Approach LOS					B		A	

Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	25.1%	ICU Level of Service		A
Analysis Period (min)	15			



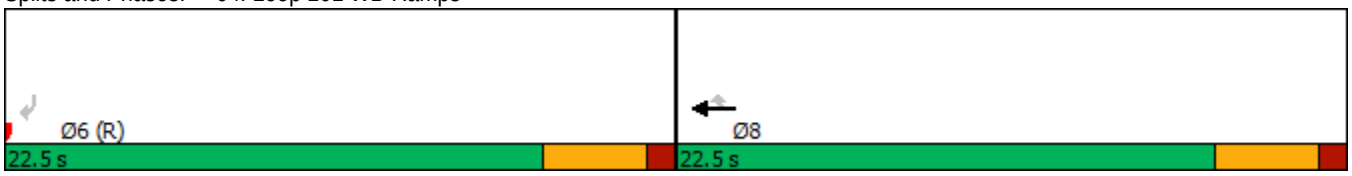
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

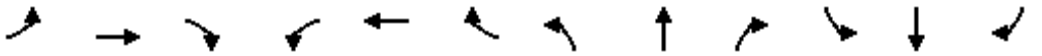
Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	62	35	11	3	68	930	71	4	401	15
Future Volume (vph)	20	16	62	35	11	3	68	930	71	4	401	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1807		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.48	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1393	1641		1305	1807		886	3539	1583	328	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	18	69	39	12	3	76	1033	79	4	446	17
RTOR Reduction (vph)	0	41	0	0	2	0	0	0	27	0	0	9
Lane Group Flow (vph)	22	46	0	39	13	0	76	1033	52	4	446	8
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	656		522	722		410	1639	733	151	1639	733
v/s Ratio Prot		0.03			0.01			c0.29			0.13	
v/s Ratio Perm	0.02			c0.03			0.09		0.03	0.01		0.00
v/c Ratio	0.04	0.07		0.07	0.02		0.19	0.63	0.07	0.03	0.27	0.01
Uniform Delay, d1	17.4	17.6		17.6	17.2		15.0	19.3	14.2	13.9	15.7	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.3	0.0		1.0	1.9	0.2	0.3	0.4	0.0
Delay (s)	17.5	17.8		17.9	17.3		16.0	21.2	14.3	14.2	16.1	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.7			17.7			20.4			16.0	
Approach LOS		B			B			C			B	

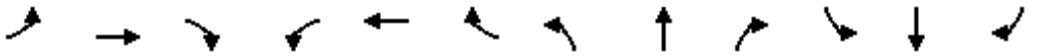
Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





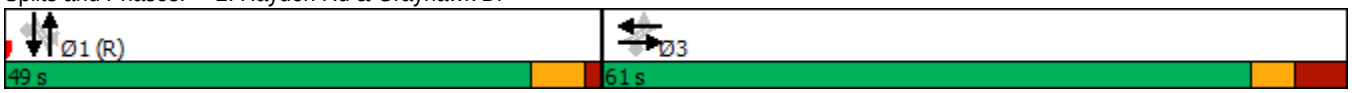
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	8	59	20	6	11	68	1049	33	11	439	34
Future Volume (vph)	32	8	59	20	6	11	68	1049	33	11	439	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1686		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.42	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1388	1863	1583	1400	1686		777	3539	1583	173	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	9	66	22	7	12	76	1166	37	12	488	38
RTOR Reduction (vph)	0	0	34	0	6	0	0	0	23	0	0	23
Lane Group Flow (vph)	36	9	32	22	13	0	76	1166	14	12	488	15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	668	897	762	674	812		303	1383	618	67	1383	618
v/s Ratio Prot		0.00			0.01			c0.33			0.14	
v/s Ratio Perm	c0.03		0.02	0.02			0.10		0.01	0.07		0.01
v/c Ratio	0.05	0.01	0.04	0.03	0.02		0.25	0.84	0.02	0.18	0.35	0.02
Uniform Delay, d1	15.2	14.8	15.1	15.0	14.9		22.6	30.4	20.6	21.9	23.7	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.1	0.0		2.0	6.4	0.1	5.8	0.7	0.1
Delay (s)	15.3	14.9	15.2	15.1	14.9		24.6	36.8	20.7	27.7	24.4	20.7
Level of Service	B	B	B	B	B		C	D	C	C	C	C
Approach Delay (s)		15.2			15.0			35.7			24.2	
Approach LOS		B			B			D			C	

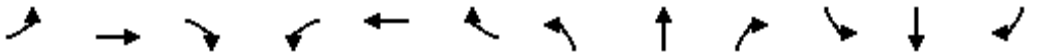
Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	365	238	186	222	145	319	954	379	192	296	54
Future Volume (vph)	64	365	238	186	222	145	319	954	379	192	296	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.60	1.00	1.00	0.24	1.00	1.00	0.50	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	1115	3539	1583	451	3539	1583	930	3539	1583	209	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	71	406	264	207	247	161	354	1060	421	213	329	60
RTOR Reduction (vph)	0	0	216	0	0	122	0	0	178	0	0	37
Lane Group Flow (vph)	71	406	48	207	247	39	354	1060	243	213	329	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	29.0	21.6	21.6	41.1	29.2	29.2	67.2	48.0	48.0	61.6	46.2	46.2
Effective Green, g (s)	29.0	21.6	21.6	41.1	29.2	29.2	67.2	48.0	48.0	61.6	46.2	46.2
Actuated g/C Ratio	0.24	0.18	0.18	0.34	0.24	0.24	0.56	0.40	0.40	0.51	0.39	0.39
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	637	284	330	861	385	655	1415	633	307	1362	609
v/s Ratio Prot	0.01	0.11		c0.08	0.07		0.09	c0.30		c0.09	0.09	
v/s Ratio Perm	0.04		0.03	c0.13		0.02	0.22		0.15	0.27		0.01
v/c Ratio	0.23	0.64	0.17	0.63	0.29	0.10	0.54	0.75	0.38	0.69	0.24	0.04
Uniform Delay, d1	35.9	45.6	41.6	30.3	36.9	35.2	14.7	30.8	25.5	22.0	25.0	23.0
Progression Factor	1.00	1.00	1.00	1.27	1.23	4.48	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.1	0.3	3.5	0.2	0.1	0.9	3.7	1.8	6.6	0.4	0.1
Delay (s)	36.3	47.7	41.9	42.0	45.7	158.0	15.6	34.5	27.3	28.6	25.4	23.1
Level of Service	D	D	D	D	D	F	B	C	C	C	C	C
Approach Delay (s)		44.5			73.9			29.2			26.3	
Approach LOS		D			E			C			C	

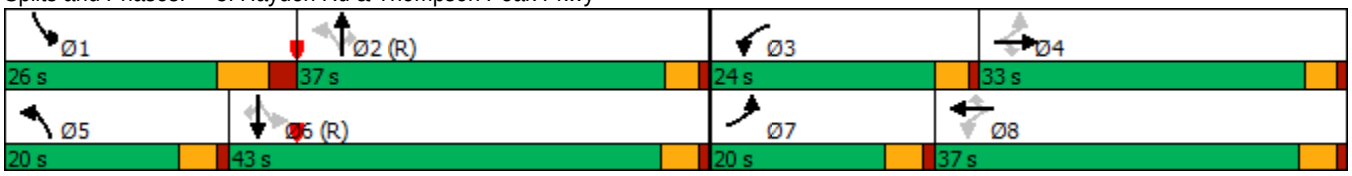
Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

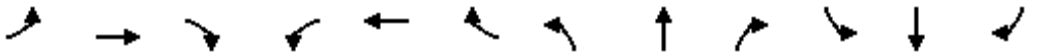
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	3	48	13	1	0	52	1616	21	0	655	19
Future Volume (vph)	25	3	48	13	1	0	52	1616	21	0	655	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3539	1583		3539	1583
Flt Permitted	0.76	1.00	1.00	0.76	1.00		0.38	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1410	1863	1583	1408	1863		699	3539	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	3	53	14	1	0	58	1796	23	0	728	21
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	4	0	0	4
Lane Group Flow (vph)	28	3	3	14	1	0	58	1796	19	0	728	17
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	6.7	6.7	6.7	6.7	6.7		89.3	89.3	89.3		89.3	89.3
Effective Green, g (s)	6.7	6.7	6.7	6.7	6.7		89.3	89.3	89.3		89.3	89.3
Actuated g/C Ratio	0.06	0.06	0.06	0.06	0.06		0.81	0.81	0.81		0.81	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	85	113	96	85	113		567	2873	1285		2873	1285
v/s Ratio Prot		0.00			0.00			c0.51			0.21	
v/s Ratio Perm	c0.02		0.00	0.01			0.08		0.01			0.01
v/c Ratio	0.33	0.03	0.03	0.16	0.01		0.10	0.63	0.01		0.25	0.01
Uniform Delay, d1	49.5	48.6	48.6	49.0	48.5		2.1	4.0	2.0		2.5	2.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.1	0.1	0.9	0.0		0.4	1.0	0.0		0.2	0.0
Delay (s)	51.8	48.7	48.7	49.9	48.6		2.5	5.0	2.0		2.7	2.0
Level of Service	D	D	D	D	D		A	A	A		A	A
Approach Delay (s)		49.8			49.8			4.9			2.6	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

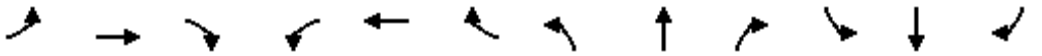
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	85
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	136	721	628	956	0	0	724	267
Future Volume (vph)	0	0	0	76	136	721	628	956	0	0	724	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1586	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1586	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	84	151	801	698	1062	0	0	804	297
RTOR Reduction (vph)	0	0	0	0	69	329	0	0	0	0	0	191
Lane Group Flow (vph)	0	0	0	84	418	136	698	1062	0	0	804	106
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				35.0	35.0	35.0	22.0	30.0			43.0	43.0
Effective Green, g (s)				35.0	35.0	35.0	22.0	30.0			43.0	43.0
Actuated g/C Ratio				0.29	0.29	0.29	0.18	0.25			0.36	0.36
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1001	462	438	324	884			2296	567
v/s Ratio Prot					c0.26		c0.39	c0.30			c0.13	
v/s Ratio Perm				0.02		0.09						0.07
v/c Ratio				0.08	0.91	0.31	2.15	1.20			0.35	0.19
Uniform Delay, d1				30.9	40.9	33.1	49.0	45.0			28.2	26.5
Progression Factor				1.00	1.00	1.00	1.03	0.68			1.00	1.00
Incremental Delay, d2				0.0	21.0	0.4	524.7	96.5			0.4	0.7
Delay (s)				30.9	61.9	33.5	575.4	127.1			28.7	27.2
Level of Service				C	E	C	F	F			C	C
Approach Delay (s)		0.0			46.6			304.9			28.3	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	158.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

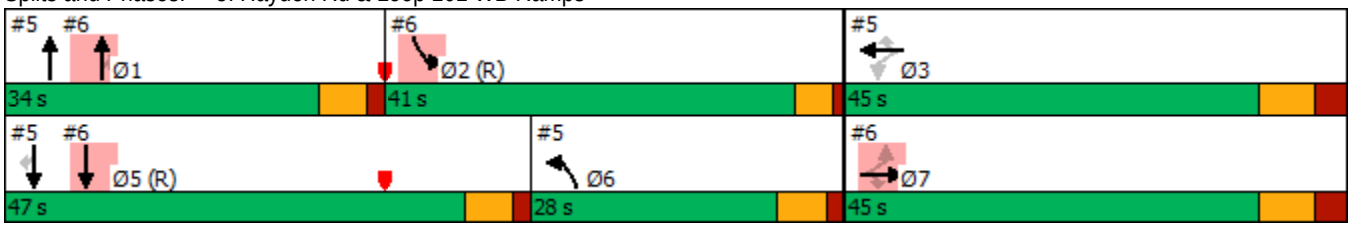
c Critical Lane Group

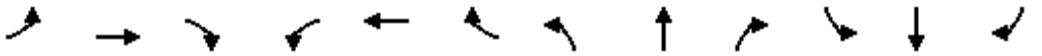
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	526	5	156	0	0	0	0	1095	54	481	334	0
Future Volume (vph)	526	5	156	0	0	0	0	1095	54	481	334	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1607	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1607	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	584	6	173	0	0	0	0	1217	60	534	371	0
RTOR Reduction (vph)	0	2	111	0	0	0	0	0	45	0	0	0
Lane Group Flow (vph)	304	301	46	0	0	0	0	1217	15	534	371	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	35.0	35.0	35.0					30.0	30.0	36.5	43.0	
Effective Green, g (s)	35.0	35.0	35.0					30.0	30.0	36.5	43.0	
Actuated g/C Ratio	0.29	0.29	0.29					0.25	0.25	0.30	0.36	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	490	468	438					1271	395	1044	1268	
v/s Ratio Prot								c0.24		c0.16	0.10	
v/s Ratio Perm	0.18	0.19	0.03						0.01			
v/c Ratio	0.62	0.64	0.10					0.96	0.04	0.51	0.29	
Uniform Delay, d1	36.8	37.1	31.0					44.4	34.1	34.4	27.6	
Progression Factor	1.33	1.33	3.45					0.91	1.00	0.81	0.31	
Incremental Delay, d2	1.8	2.2	0.1					15.7	0.0	1.7	0.6	
Delay (s)	50.6	51.4	107.3					55.9	34.1	29.8	9.2	
Level of Service	D	D	F					E	C	C	A	
Approach Delay (s)		62.5			0.0			54.9			21.3	
Approach LOS		E			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

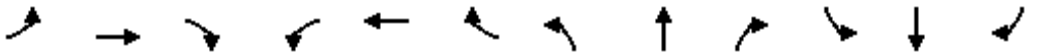
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	244	900	5	33	476
Future Volume (Veh/h)	3	244	900	5	33	476
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	271	1000	6	37	529
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.94					
vC, conflicting volume	1338	500			1006	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1233	500			1006	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	48			95	
cM capacity (veh/h)	150	516			684	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	274	500	500	6	37	264	264
Volume Left	3	0	0	0	37	0	0
Volume Right	271	0	0	6	0	0	0
cSH	503	1700	1700	1700	684	1700	1700
Volume to Capacity	0.54	0.29	0.29	0.00	0.05	0.16	0.16
Queue Length 95th (ft)	81	0	0	0	4	0	0
Control Delay (s)	20.4	0.0	0.0	0.0	10.6	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	20.4	0.0			0.7		
Approach LOS	C						

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	18	63	217	0	135	127	754	142	11	408	61
Future Volume (vph)	32	18	63	217	0	135	127	754	142	11	408	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1805	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.49	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)		1805	1583	3433		1583	907	3539	1583	562	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	20	70	241	0	150	141	838	158	12	453	68
RTOR Reduction (vph)	0	0	65	0	0	133	0	0	56	0	0	24
Lane Group Flow (vph)	0	56	5	241	0	17	141	838	102	12	453	44
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		9.1	9.1	13.8		13.8	77.1	77.1	77.1	77.1	77.1	77.1
Effective Green, g (s)		9.1	9.1	13.8		13.8	77.1	77.1	77.1	77.1	77.1	77.1
Actuated g/C Ratio		0.08	0.08	0.12		0.12	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	120	394		182	582	2273	1017	361	2273	1017
v/s Ratio Prot		c0.03		c0.07				c0.24			0.13	
v/s Ratio Perm			0.00			0.01	0.16		0.06	0.02		0.03
v/c Ratio		0.41	0.04	0.61		0.09	0.24	0.37	0.10	0.03	0.20	0.04
Uniform Delay, d1		52.9	51.4	50.5		47.5	9.1	10.0	8.2	7.8	8.8	7.9
Progression Factor		1.32	3.12	1.00		1.00	1.20	1.17	2.32	2.14	2.13	10.54
Incremental Delay, d2		2.0	0.1	2.8		0.2	0.9	0.4	0.2	0.2	0.2	0.1
Delay (s)		71.7	160.8	53.4		47.7	11.8	12.2	19.2	16.9	18.9	83.2
Level of Service		E	F	D		D	B	B	B	B	B	F
Approach Delay (s)		121.2			51.2			13.1			27.1	
Approach LOS		F			D			B			C	

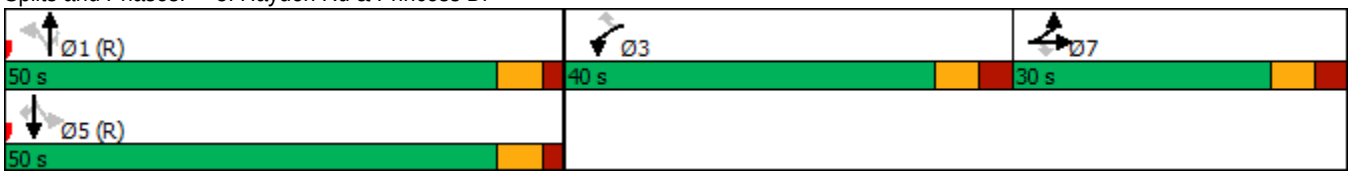
Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

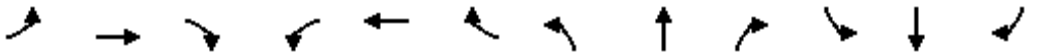
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1	19	419	0	107	5	954	236	108	609	9
Future Volume (vph)	11	1	19	419	0	107	5	954	236	108	609	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3156		1681	1681	1583	1770	3539	1583	1770	3531	
Flt Permitted		0.88		0.73	0.73	1.00	0.37	1.00	1.00	0.22	1.00	
Satd. Flow (perm)		2815		1299	1299	1583	681	3539	1583	415	3531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	1	21	466	0	119	6	1060	262	120	677	10
RTOR Reduction (vph)	0	20	0	0	0	90	0	0	94	0	0	0
Lane Group Flow (vph)	0	14	0	233	233	29	6	1060	168	120	687	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.0		29.2	29.2	29.2	76.8	76.8	76.8	76.8	76.8	
Effective Green, g (s)		4.0		29.2	29.2	29.2	76.8	76.8	76.8	76.8	76.8	
Actuated g/C Ratio		0.03		0.24	0.24	0.24	0.64	0.64	0.64	0.64	0.64	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		93		370	370	385	435	2264	1013	265	2259	
v/s Ratio Prot				c0.09	0.09			c0.30			0.19	
v/s Ratio Perm		0.00		c0.06	0.06	0.02	0.01		0.11	0.29		
v/c Ratio		0.15		0.63	0.63	0.08	0.01	0.47	0.17	0.45	0.30	
Uniform Delay, d1		56.3		39.8	40.6	35.0	7.8	11.1	8.7	10.9	9.7	
Progression Factor		1.00		1.00	1.00	1.00	1.46	1.28	3.46	1.19	1.25	
Incremental Delay, d2		0.7		3.3	3.3	0.1	0.0	0.4	0.2	5.4	0.3	
Delay (s)		57.1		43.1	43.9	35.1	11.5	14.6	30.3	18.5	12.4	
Level of Service		E		D	D	D	B	B	C	B	B	
Approach Delay (s)		57.1			41.8			17.7			13.3	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

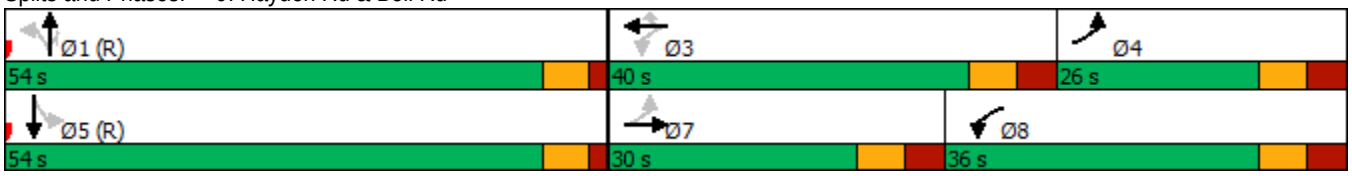
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	54	1836	93	17	943
Future Volume (vph)	113	54	1836	93	17	943
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1770	1583	3539	1583	126	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	60	2040	103	19	1048
RTOR Reduction (vph)	0	28	0	13	0	0
Lane Group Flow (vph)	126	32	2040	90	19	1048
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.8	12.8	95.2	95.2	95.2	95.2
Effective Green, g (s)	12.8	12.8	95.2	95.2	95.2	95.2
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	188	168	2807	1255	99	2807
v/s Ratio Prot	c0.07		c0.58			0.30
v/s Ratio Perm		0.02		0.06	0.15	
v/c Ratio	0.67	0.19	0.73	0.07	0.19	0.37
Uniform Delay, d1	51.6	48.9	6.1	2.7	3.0	3.6
Progression Factor	1.00	1.00	0.85	0.77	1.00	1.00
Incremental Delay, d2	9.0	0.6	1.2	0.1	4.3	0.4
Delay (s)	60.6	49.4	6.3	2.2	7.3	4.0
Level of Service	E	D	A	A	A	A
Approach Delay (s)	57.0		6.1			4.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	109	59	1846	109	52	972
Future Volume (vph)	109	59	1846	109	52	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1770	1583	3539	1583	122	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	66	2051	121	58	1080
RTOR Reduction (vph)	0	25	0	20	0	0
Lane Group Flow (vph)	121	41	2051	101	58	1080
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.2	13.2	94.8	94.8	94.8	94.8
Effective Green, g (s)	13.2	13.2	94.8	94.8	94.8	94.8
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	174	2795	1250	96	2795
v/s Ratio Prot	c0.07		c0.58			0.31
v/s Ratio Perm		0.03		0.06	0.48	
v/c Ratio	0.62	0.24	0.73	0.08	0.60	0.39
Uniform Delay, d1	51.0	48.8	6.3	2.8	5.1	3.8
Progression Factor	1.00	1.00	2.42	3.25	1.29	0.85
Incremental Delay, d2	6.1	0.7	0.5	0.0	23.6	0.4
Delay (s)	57.1	49.5	15.7	9.2	30.2	3.6
Level of Service	E	D	B	A	C	A
Approach Delay (s)	54.4		15.4			5.0
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	534	181	1557	381	127	1104
Future Volume (vph)	534	181	1557	381	127	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	201	1730	423	141	1227
RTOR Reduction (vph)	0	158	0	246	0	0
Lane Group Flow (vph)	593	43	1730	177	141	1227
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.8	25.8	50.2	50.2	25.0	79.2
Effective Green, g (s)	25.8	25.8	50.2	50.2	25.0	79.2
Actuated g/C Ratio	0.22	0.22	0.42	0.42	0.21	0.66
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	340	1480	662	368	2335
v/s Ratio Prot	c0.17		c0.49		0.08	c0.35
v/s Ratio Perm		0.03		0.11		
v/c Ratio	0.80	0.13	1.17	0.27	0.38	0.53
Uniform Delay, d1	44.7	38.0	34.9	22.9	40.9	10.6
Progression Factor	1.00	1.00	1.25	4.88	0.88	0.76
Incremental Delay, d2	6.3	0.2	79.5	0.4	2.9	0.8
Delay (s)	51.0	38.2	123.3	112.0	39.0	8.9
Level of Service	D	D	F	F	D	A
Approach Delay (s)	47.8		121.1			12.0
Approach LOS	D		F			B

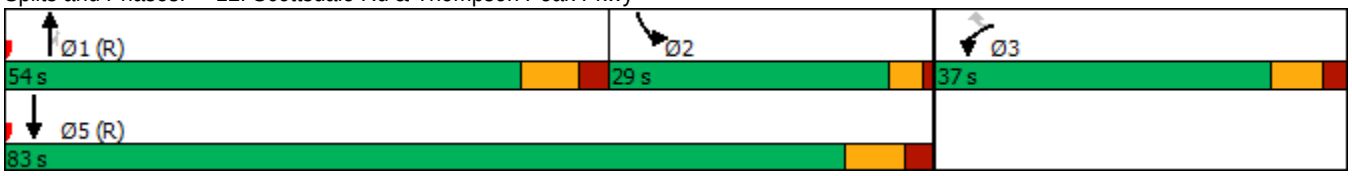
Intersection Summary			
HCM 2000 Control Delay	73.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	168	37	1923	146	28	1637
Future Volume (vph)	168	37	1923	146	28	1637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	187	41	2137	162	31	1819
RTOR Reduction (vph)	0	37	0	21	0	0
Lane Group Flow (vph)	187	4	2137	141	31	1819
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	11.9	11.9	80.1	80.1	10.0	94.1
Effective Green, g (s)	11.9	11.9	80.1	80.1	10.0	94.1
Actuated g/C Ratio	0.10	0.10	0.67	0.67	0.08	0.78
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	340	156	2362	1056	147	2775
v/s Ratio Prot	c0.05		c0.60		0.02	c0.51
v/s Ratio Perm		0.00		0.09		
v/c Ratio	0.55	0.03	0.90	0.13	0.21	0.66
Uniform Delay, d1	51.5	48.8	16.7	7.3	51.3	5.8
Progression Factor	1.00	1.00	1.87	2.20	0.90	0.43
Incremental Delay, d2	1.9	0.1	2.8	0.1	2.7	1.0
Delay (s)	53.4	48.9	34.2	16.1	49.0	3.5
Level of Service	D	D	C	B	D	A
Approach Delay (s)	52.6		33.0			4.3
Approach LOS	D		C			A

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

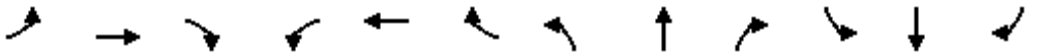
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	120	
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Future Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.91	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1616	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1616	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	644	163	591	767	1727	0	0	1340	742
RTOR Reduction (vph)	0	0	0	0	43	269	0	0	0	0	0	188
Lane Group Flow (vph)	0	0	0	644	345	97	767	1727	0	0	1340	554
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				31.9	31.9	31.9	20.0	41.1			51.1	51.1
Effective Green, g (s)				31.9	31.9	31.9	20.0	41.1			51.1	51.1
Actuated g/C Ratio				0.27	0.27	0.27	0.17	0.34			0.43	0.43
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				912	429	399	572	1741			3212	674
v/s Ratio Prot					c0.21		c0.22	c0.34			0.18	
v/s Ratio Perm				0.19		0.06						c0.35
v/c Ratio				0.71	0.81	0.24	1.34	0.99			0.42	0.82
Uniform Delay, d1				39.8	41.1	34.6	50.0	39.3			24.1	30.4
Progression Factor				1.00	1.00	1.00	1.02	0.36			1.14	1.24
Incremental Delay, d2				2.5	10.5	0.3	161.5	16.1			0.3	8.9
Delay (s)				42.3	51.7	34.9	212.3	30.4			27.8	46.7
Level of Service				D	D	C	F	C			C	D
Approach Delay (s)		0.0			43.0			86.4			34.5	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	58.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

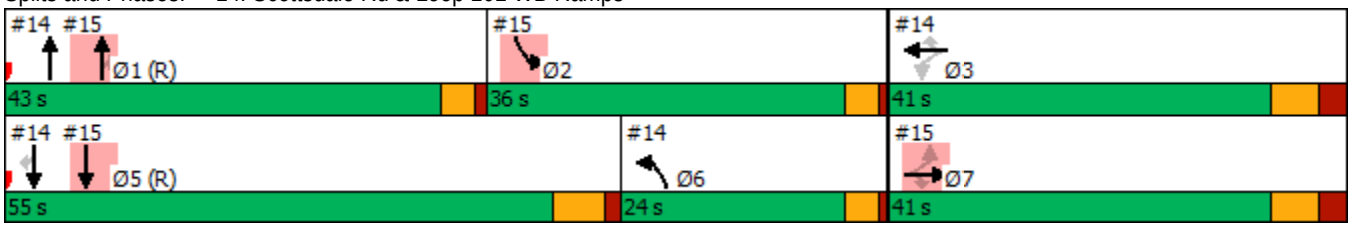
c Critical Lane Group

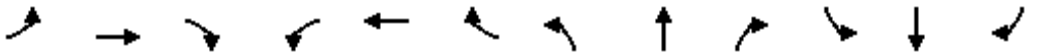
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	100	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

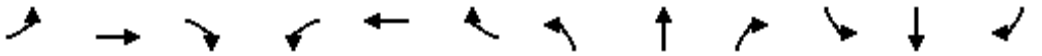




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Future Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	573	0	684	0	0	0	0	1934	582	558	1527	0
RTOR Reduction (vph)	0	250	250	0	0	0	0	0	227	0	0	0
Lane Group Flow (vph)	573	92	92	0	0	0	0	1934	355	558	1527	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	31.9	31.9	31.9					41.1	41.1	32.0	51.1	
Effective Green, g (s)	31.9	31.9	31.9					41.1	41.1	32.0	51.1	
Actuated g/C Ratio	0.27	0.27	0.27					0.34	0.34	0.27	0.43	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	912	399	399					2583	542	915	2165	
v/s Ratio Prot		0.06						c0.26		c0.16	c0.30	
v/s Ratio Perm	c0.17		0.06						0.22			
v/c Ratio	0.63	0.23	0.23					0.75	0.65	0.61	0.71	
Uniform Delay, d1	38.8	34.5	34.5					34.9	33.4	38.5	28.3	
Progression Factor	1.00	1.00	1.00					1.11	1.67	1.08	0.57	
Incremental Delay, d2	1.4	0.3	0.3					1.2	3.5	2.7	1.8	
Delay (s)	40.2	34.8	34.8					40.0	59.4	44.4	17.9	
Level of Service	D	C	C					D	E	D	B	
Approach Delay (s)		37.2			0.0			44.5			25.0	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Future Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	720	10	196	12	14	23	386	1808	12	11	1386	798
RTOR Reduction (vph)	0	0	131	0	21	0	0	0	7	0	0	503
Lane Group Flow (vph)	720	10	65	12	16	0	386	1808	5	11	1386	295
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	32.4	39.6	39.6	1.3	8.5		9.6	52.3	52.3	1.4	44.4	44.4
Effective Green, g (s)	32.4	39.6	39.6	1.3	8.5		9.6	52.3	52.3	1.4	44.4	44.4
Actuated g/C Ratio	0.27	0.33	0.33	0.01	0.07		0.08	0.44	0.44	0.01	0.37	0.37
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	926	1678	522	37	227		274	2216	689	40	1881	585
v/s Ratio Prot	c0.21	0.00		0.00	0.00		c0.11	c0.36		0.00	0.27	
v/s Ratio Perm			c0.04						0.00			0.19
v/c Ratio	0.78	0.01	0.12	0.32	0.07		1.41	0.82	0.01	0.28	0.74	0.50
Uniform Delay, d1	40.5	27.0	28.1	58.9	52.1		55.2	29.6	19.2	58.8	32.7	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.90	1.08	1.00	1.29	1.11	8.17
Incremental Delay, d2	4.2	0.0	0.1	5.1	0.1		200.7	2.0	0.0	12.5	1.2	0.5
Delay (s)	44.6	27.0	28.2	64.0	52.2		250.2	33.9	19.2	88.3	37.6	239.8
Level of Service	D	C	C	E	D		F	C	B	F	D	F
Approach Delay (s)		41.0			55.1			71.7			111.4	
Approach LOS		D			E			E			F	

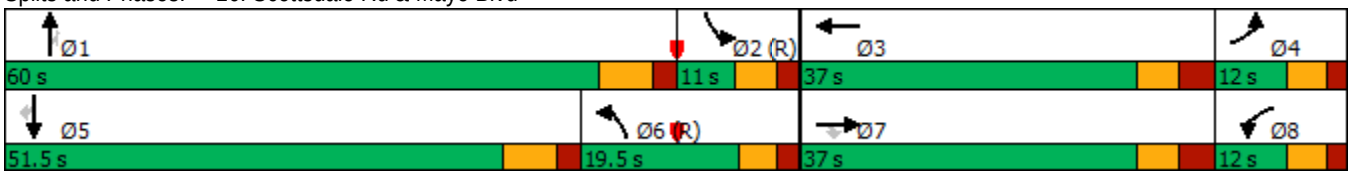
Intersection Summary			
HCM 2000 Control Delay	82.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

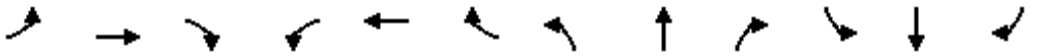
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1	123	14	4	4	144	1942	6	9	1547	87
Future Volume (vph)	122	1	123	14	4	4	144	1942	6	9	1547	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	768	3539	1583	1774	3539	1583	145	5085	1583	114	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	1	137	16	4	4	160	2158	7	10	1719	97
RTOR Reduction (vph)	0	0	119	0	0	4	0	0	3	0	0	44
Lane Group Flow (vph)	136	1	18	16	4	0	160	2158	4	10	1719	53
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.3	15.9	15.9	7.1	4.2	4.2	81.7	74.9	74.9	66.8	65.5	65.5
Effective Green, g (s)	24.3	15.9	15.9	7.1	4.2	4.2	81.7	74.9	74.9	66.8	65.5	65.5
Actuated g/C Ratio	0.20	0.13	0.13	0.06	0.04	0.04	0.68	0.62	0.62	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	468	209	104	123	55	243	3173	988	81	2775	864
v/s Ratio Prot	c0.06	0.00		0.00	0.00		c0.06	c0.42		0.00	0.34	
v/s Ratio Perm	c0.04		0.01	0.01		0.00	0.39		0.00	0.07		0.03
v/c Ratio	0.49	0.00	0.09	0.15	0.03	0.00	0.66	0.68	0.00	0.12	0.62	0.06
Uniform Delay, d1	41.5	45.2	45.7	53.6	55.9	55.9	18.4	14.7	8.5	13.4	18.7	12.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.60	1.00	0.68	0.63	1.79
Incremental Delay, d2	1.4	0.0	0.2	0.7	0.1	0.0	4.8	0.9	0.0	0.6	0.9	0.1
Delay (s)	42.8	45.2	45.9	54.3	56.0	55.9	29.3	24.5	8.5	9.7	12.6	23.0
Level of Service	D	D	D	D	E	E	C	C	A	A	B	C
Approach Delay (s)		44.4			54.8			24.8			13.1	
Approach LOS		D			D			C			B	

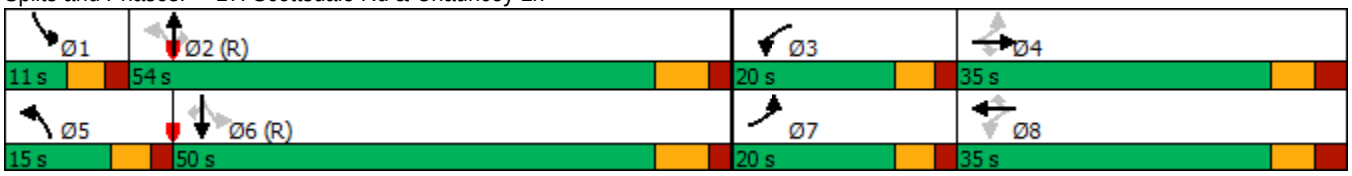
Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

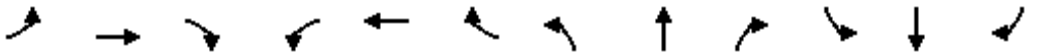
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Future Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3035		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.45	1.00	1.00	0.09	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1355	3035		835	3539	1583	174	5085	1583	111	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	14	268	141	43	211	278	2009	109	126	1663	77
RTOR Reduction (vph)	0	206	0	0	0	190	0	0	48	0	0	34
Lane Group Flow (vph)	60	76	0	141	43	21	278	2009	61	126	1663	43
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	19.1	12.0		19.1	12.0	12.0	79.9	66.9	66.9	79.9	66.9	66.9
Effective Green, g (s)	19.1	12.0		19.1	12.0	12.0	79.9	66.9	66.9	79.9	66.9	66.9
Actuated g/C Ratio	0.16	0.10		0.16	0.10	0.10	0.67	0.56	0.56	0.67	0.56	0.56
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	303		188	353	158	288	2834	882	253	2834	882
v/s Ratio Prot	0.01	0.03		c0.04	0.01		c0.10	0.40		0.05	0.33	
v/s Ratio Perm	0.02			c0.07		0.01	c0.54		0.04	0.28		0.03
v/c Ratio	0.25	0.25		0.75	0.12	0.13	0.97	0.71	0.07	0.50	0.59	0.05
Uniform Delay, d1	44.4	49.8		49.4	49.2	49.3	30.8	19.4	12.2	32.5	17.5	12.1
Progression Factor	1.00	1.00		1.02	0.99	1.34	0.75	1.54	4.16	0.65	0.74	4.94
Incremental Delay, d2	0.5	0.4		15.4	0.2	0.4	36.6	1.1	0.1	5.8	0.8	0.1
Delay (s)	44.9	50.3		65.7	48.7	66.4	59.6	31.0	51.0	27.1	13.6	59.8
Level of Service	D	D		E	D	E	E	C	D	C	B	E
Approach Delay (s)		49.3			64.2			35.2			16.4	
Approach LOS		D			E			D			B	

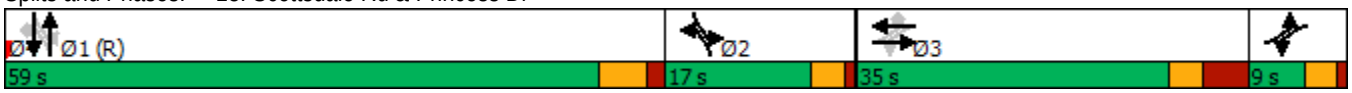
Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

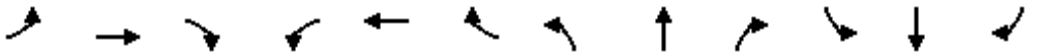
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Future Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1672			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.61		0.07	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1384			1087		125	5085	1583	98	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	2	132	102	9	63	119	2271	29	62	1976	91
RTOR Reduction (vph)	0	59	0	0	19	0	0	0	11	0	0	33
Lane Group Flow (vph)	0	147	0	0	155	0	119	2271	18	62	1976	58
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.9			20.9		82.1	76.1	76.1	82.1	76.1	76.1
Effective Green, g (s)		20.9			20.9		82.1	76.1	76.1	82.1	76.1	76.1
Actuated g/C Ratio		0.17			0.17		0.68	0.63	0.63	0.68	0.63	0.63
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		241			189		167	3224	1003	150	3224	1003
v/s Ratio Prot							c0.04	0.45		0.02	0.39	
v/s Ratio Perm		0.11			c0.14		c0.45		0.01	0.26		0.04
v/c Ratio		0.61			0.82		0.71	0.70	0.02	0.41	0.61	0.06
Uniform Delay, d1		45.8			47.7		29.7	14.5	8.1	32.0	13.1	8.3
Progression Factor		1.00			1.00		1.75	1.75	1.00	0.76	1.37	2.96
Incremental Delay, d2		4.5			23.9		2.4	0.1	0.0	7.0	0.7	0.1
Delay (s)		50.3			71.6		54.4	25.5	8.1	31.4	18.7	24.8
Level of Service		D			E		D	C	A	C	B	C
Approach Delay (s)		50.3			71.6			26.7			19.3	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

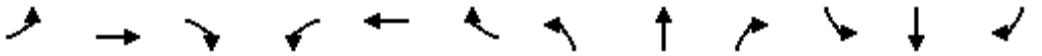
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Future Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4889	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4889	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	302	664	231	218	1588	524	551	1668	266	399	1370	474
RTOR Reduction (vph)	0	0	96	0	0	61	0	0	138	0	52	0
Lane Group Flow (vph)	302	664	135	218	1588	463	551	1668	128	399	1792	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	15.8	40.3	40.3	10.7	35.2	53.1	5.0	29.1	29.1	17.9	42.0	
Effective Green, g (s)	15.8	40.3	40.3	10.7	35.2	53.1	5.0	29.1	29.1	17.9	42.0	
Actuated g/C Ratio	0.13	0.34	0.34	0.09	0.29	0.44	0.04	0.24	0.24	0.15	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	452	1707	531	306	1491	700	143	1233	383	512	1711	
v/s Ratio Prot	c0.09	0.13		0.06	c0.31	0.10	c0.16	c0.33		0.12	c0.37	
v/s Ratio Perm			0.09			0.19			0.08			
v/c Ratio	0.67	0.39	0.25	0.71	1.07	0.66	3.85	1.35	0.33	0.78	1.05	
Uniform Delay, d1	49.6	30.4	28.9	53.2	42.4	26.4	57.5	45.5	37.5	49.1	39.0	
Progression Factor	1.00	1.00	1.00	0.91	1.58	1.19	1.00	1.00	1.00	0.88	0.88	
Incremental Delay, d2	3.7	0.7	1.1	2.0	33.6	0.6	1300.7	164.2	2.3	6.0	33.3	
Delay (s)	53.3	31.1	30.1	50.3	100.7	32.0	1358.2	209.6	39.8	49.1	67.5	
Level of Service	D	C	C	D	F	C	F	F	D	D	E	
Approach Delay (s)		36.5			80.5			446.1			64.2	
Approach LOS		D			F			F			E	

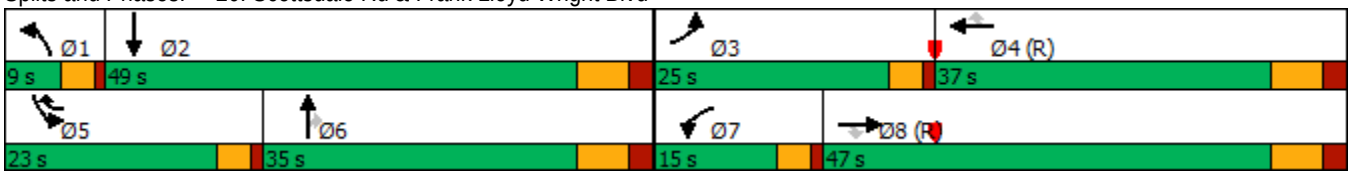
Intersection Summary			
HCM 2000 Control Delay	179.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

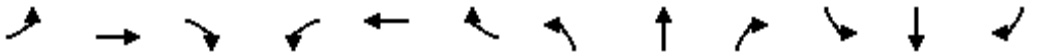
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	135
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Future Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	419	1202	62	388	1801	371	87	477	602	270	598	614
RTOR Reduction (vph)	0	0	37	0	0	98	0	0	70	0	0	171
Lane Group Flow (vph)	419	1202	25	388	1801	273	87	477	532	270	598	443
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Effective Green, g (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Actuated g/C Ratio	0.11	0.40	0.40	0.11	0.40	0.40	0.02	0.19	0.30	0.07	0.23	0.23
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	2034	633	371	2034	633	44	678	567	228	825	369
v/s Ratio Prot	c0.12	0.24		0.11	c0.35		0.05	0.13	0.10	c0.08	0.17	
v/s Ratio Perm			0.02			0.17			0.23			c0.28
v/c Ratio	1.13	0.59	0.04	1.05	0.89	0.43	1.98	0.70	0.94	1.18	0.72	1.20
Uniform Delay, d1	53.5	28.3	21.9	53.5	33.4	26.1	58.5	45.3	40.9	56.0	42.4	46.0
Progression Factor	1.02	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	1.04	1.18
Incremental Delay, d2	85.1	1.2	0.1	59.2	6.1	2.1	511.0	3.3	23.3	117.6	3.1	112.9
Delay (s)	139.8	26.6	22.1	112.7	39.6	28.2	569.5	48.6	64.2	163.8	47.4	167.4
Level of Service	F	C	C	F	D	C	F	D	E	F	D	F
Approach Delay (s)		54.6			49.0			95.5			118.3	
Approach LOS		D			D			F			F	

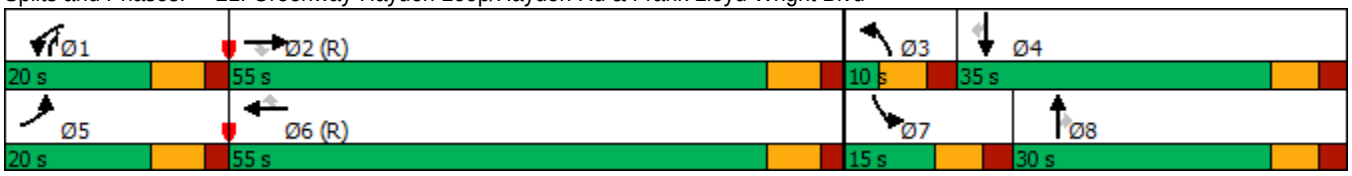
Intersection Summary			
HCM 2000 Control Delay	73.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

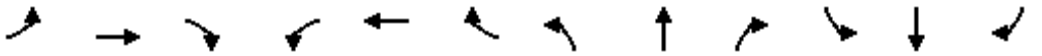
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	414	331	122	82	198	343	204	1403	4	311	910	197
Future Volume (vph)	414	331	122	82	198	343	204	1403	4	311	910	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	460	368	136	91	220	381	227	1559	4	346	1011	219
RTOR Reduction (vph)	0	0	60	0	0	53	0	0	0	0	0	92
Lane Group Flow (vph)	460	368	76	91	220	328	227	1563	0	346	1011	127
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	25.3	24.1	37.1	16.5	15.3	33.3	13.0	39.4		18.0	44.4	69.7
Effective Green, g (s)	25.3	24.1	37.1	16.5	15.3	33.3	13.0	39.4		18.0	44.4	69.7
Actuated g/C Ratio	0.21	0.20	0.31	0.14	0.13	0.28	0.11	0.33		0.15	0.37	0.58
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	723	710	542	472	451	492	371	1668		514	1881	972
v/s Ratio Prot	c0.13	0.10	0.02	0.03	0.06	c0.10	0.07	c0.31		c0.10	0.20	0.03
v/s Ratio Perm			0.03			0.11						0.05
v/c Ratio	0.64	0.52	0.14	0.19	0.49	0.67	0.61	0.94		0.67	0.54	0.13
Uniform Delay, d1	43.2	42.8	29.9	45.8	48.7	38.4	51.1	39.1		48.2	29.7	11.4
Progression Factor	0.78	1.33	2.44	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.6	0.1	0.2	0.8	3.4	7.3	11.4		6.9	1.1	0.1
Delay (s)	35.2	57.6	73.3	46.1	49.5	41.9	58.4	50.5		55.1	30.8	11.5
Level of Service	D	E	E	D	D	D	E	D		E	C	B
Approach Delay (s)		49.1			44.8			51.5			33.5	
Approach LOS		D			D			D			C	

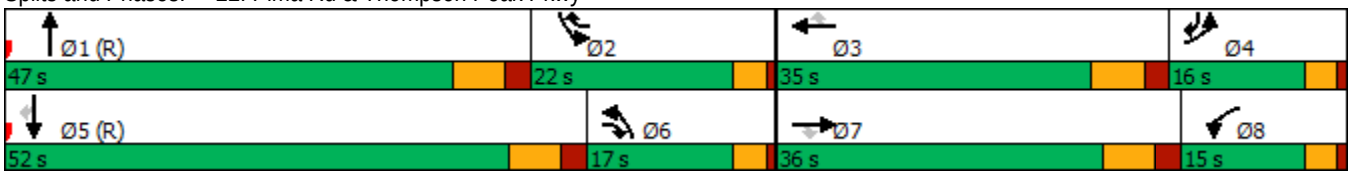
Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

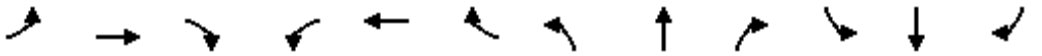
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





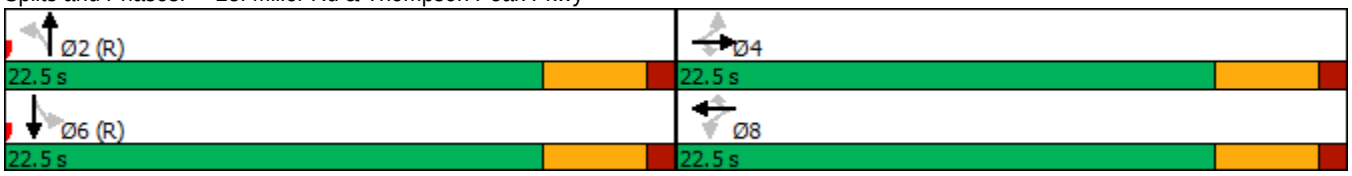
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	498	9	14	136	0	26	0	33	0	0	0
Future Volume (vph)	0	498	9	14	136	0	26	0	33	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.43	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	796	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	553	10	16	151	0	29	0	37	0	0	0
RTOR Reduction (vph)	0	0	6	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	553	4	16	151	0	29	15	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	318	1415		564	1203				
v/s Ratio Prot		c0.16			0.04			0.00				
v/s Ratio Perm			0.00	0.02			c0.02					
v/c Ratio		0.39	0.01	0.05	0.11		0.05	0.01				
Uniform Delay, d1		9.6	8.1	8.3	8.5		8.3	8.1				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		0.8	0.0	0.3	0.2		0.2	0.0				
Delay (s)		10.4	8.1	8.6	8.6		8.4	8.2				
Level of Service		B	A	A	A		A	A				
Approach Delay (s)		10.4			8.6			8.3			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

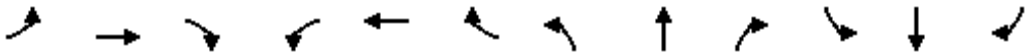
Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy



Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

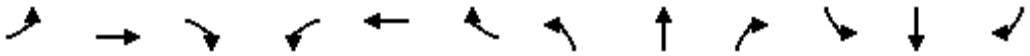
Channelized right turn lanes are not counted.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	33	0	4	56	14	193	0
Future Volume (Veh/h)	0	0	0	0	0	33	0	4	56	14	193	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	37	0	4	62	16	214	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	287	312	214	281	281	35	214			66		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	287	312	214	281	281	35	214			66		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	96	100			99		
cM capacity (veh/h)	636	597	826	666	621	1038	1356			1536		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	37	0	66	16	214
Volume Left	0	0	0	0	16	0
Volume Right	0	37	0	62	0	0
cSH	1700	1038	1700	1700	1536	1700
Volume to Capacity	0.00	0.04	0.00	0.04	0.01	0.13
Queue Length 95th (ft)	0	3	0	0	1	0
Control Delay (s)	0.0	8.6	0.0	0.0	7.4	0.0
Lane LOS	A	A			A	
Approach Delay (s)	0.0	8.6	0.0		0.5	
Approach LOS	A	A				

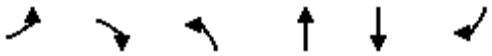
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	20.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	49	21	37	122	0	58	0	35	0	0	0
Future Volume (Veh/h)	0	49	21	37	122	0	58	0	35	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	54	23	41	136	0	64	0	39	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	136			77			284	284	66	311	295	136
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	136			77			284	284	66	311	295	136
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			90	100	96	100	100	100
cM capacity (veh/h)	1448			1522			655	609	998	604	600	913

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	77	41	136	64	39	0	0
Volume Left	0	0	41	0	64	0	0	0
Volume Right	0	23	0	0	0	39	0	0
cSH	1700	1700	1522	1700	655	998	1700	1700
Volume to Capacity	0.00	0.05	0.03	0.08	0.10	0.04	0.00	0.00
Queue Length 95th (ft)	0	0	2	0	8	3	0	0
Control Delay (s)	0.0	0.0	7.4	0.0	11.1	8.8	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		1.7		10.2		0.0	
Approach LOS					B		A	

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	18.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	114	58	2	50	36
Future Volume (Veh/h)	120	114	58	2	50	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	133	127	64	2	56	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					990	
pX, platoon unblocked						
vC, conflicting volume	185	28	96			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	185	28	96			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	88	96			
cM capacity (veh/h)	753	1041	1496			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	133	127	64	1	1	28	28	40
Volume Left	133	0	64	0	0	0	0	0
Volume Right	0	127	0	0	0	0	0	40
cSH	753	1041	1496	1700	1700	1700	1700	1700
Volume to Capacity	0.18	0.12	0.04	0.00	0.00	0.02	0.02	0.02
Queue Length 95th (ft)	16	10	3	0	0	0	0	0
Control Delay (s)	10.8	8.9	7.5	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A	A					
Approach Delay (s)	9.9		7.3			0.0		
Approach LOS	A							

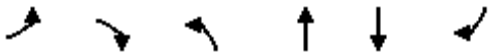
Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	23.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	180	0	0	70	0
Future Volume (Veh/h)	0	180	0	0	70	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	200	0	0	78	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	156	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			95	
cM capacity (veh/h)	795	1085			1623	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	200	0	0	78	0
Volume Left	0	0	0	0	78	0
Volume Right	0	200	0	0	0	0
cSH	1700	1085	1700	1700	1623	1700
Volume to Capacity	0.00	0.18	0.00	0.00	0.05	0.00
Queue Length 95th (ft)	0	17	0	0	4	0
Control Delay (s)	0.0	9.1	0.0	0.0	7.3	0.0
Lane LOS	A	A			A	
Approach Delay (s)	9.1		0.0		7.3	
Approach LOS	A					

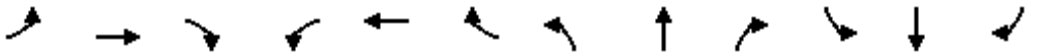
Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	144	54	58	122	42
Future Volume (Veh/h)	2	144	54	58	122	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	160	60	64	136	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				784		
pX, platoon unblocked						
vC, conflicting volume	288	68	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	68	183			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	96			
cM capacity (veh/h)	650	981	1389			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	162	60	32	32	68	68	47
Volume Left	2	60	0	0	0	0	0
Volume Right	160	0	0	0	0	0	47
cSH	975	1389	1700	1700	1700	1700	1700
Volume to Capacity	0.17	0.04	0.02	0.02	0.04	0.04	0.03
Queue Length 95th (ft)	15	3	0	0	0	0	0
Control Delay (s)	9.4	7.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	9.4	3.7			0.0		
Approach LOS	A						

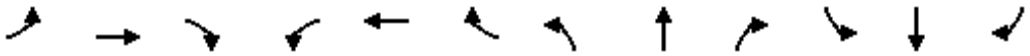
Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	187	0	62	0	31	6	38	20	0
Future Volume (Veh/h)	0	0	0	187	0	62	0	31	6	38	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	208	0	69	0	34	7	42	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	209	147	22	144	144	38	22			41		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	209	147	22	144	144	38	22			41		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	74	100	93	100			97		
cM capacity (veh/h)	684	724	1055	809	728	1035	1593			1568		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	277	0	41	42	22	0
Volume Left	0	208	0	0	42	0	0
Volume Right	0	69	0	7	0	0	0
cSH	1700	855	1700	1700	1568	1700	1700
Volume to Capacity	0.00	0.32	0.00	0.02	0.03	0.01	0.00
Queue Length 95th (ft)	0	35	0	0	2	0	0
Control Delay (s)	0.0	11.2	0.0	0.0	7.4	0.0	0.0
Lane LOS	A	B			A		
Approach Delay (s)	0.0	11.2	0.0		4.8		
Approach LOS	A	B					

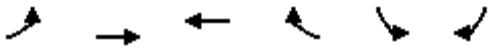
Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	29.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	35	49	67	28	0	131	0	199	0	0	0
Future Volume (Veh/h)	0	35	49	67	28	0	131	0	199	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	39	54	74	31	0	146	0	221	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	31			93			245	245	66	439	272	31
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31			93			245	245	66	439	272	31
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			79	100	78	100	100	100
cM capacity (veh/h)	1582			1501			682	625	998	396	603	1043

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	93	74	31	146	221	0	0
Volume Left	0	0	74	0	146	0	0	0
Volume Right	0	54	0	0	0	221	0	0
cSH	1700	1700	1501	1700	682	998	1700	1700
Volume to Capacity	0.00	0.05	0.05	0.02	0.21	0.22	0.00	0.00
Queue Length 95th (ft)	0	0	4	0	20	21	0	0
Control Delay (s)	0.0	0.0	7.5	0.0	11.7	9.6	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		5.3		10.5		0.0	
Approach LOS					B		A	

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	29.4%	ICU Level of Service		A
Analysis Period (min)	15			



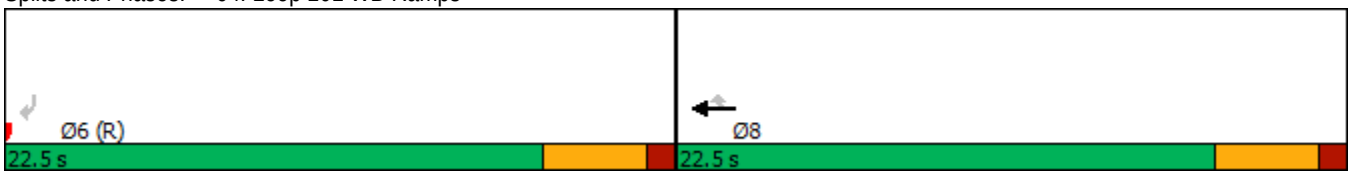
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

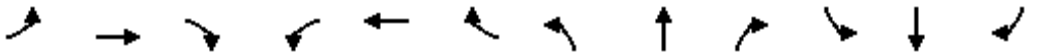
Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	11	60	62	12	2	59	513	16	3	582	32
Future Volume (vph)	26	11	60	62	12	2	59	513	16	3	582	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1825		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.35	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1393	1626		1314	1825		655	3539	1583	738	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	12	67	69	13	2	66	570	18	3	647	36
RTOR Reduction (vph)	0	40	0	0	1	0	0	0	10	0	0	19
Lane Group Flow (vph)	29	39	0	69	14	0	66	570	8	3	647	17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	650		525	730		303	1639	733	341	1639	733
v/s Ratio Prot		0.02			0.01			0.16			c0.18	
v/s Ratio Perm	0.02			c0.05			0.10		0.01	0.00		0.01
v/c Ratio	0.05	0.06		0.13	0.02		0.22	0.35	0.01	0.01	0.39	0.02
Uniform Delay, d1	17.5	17.5		18.0	17.2		15.2	16.3	13.8	13.7	16.8	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.5	0.0		1.6	0.6	0.0	0.0	0.7	0.1
Delay (s)	17.6	17.7		18.6	17.3		16.9	16.9	13.8	13.8	17.5	13.9
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		17.7			18.3			16.8			17.3	
Approach LOS		B			B			B			B	

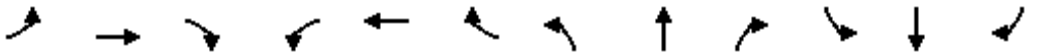
Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





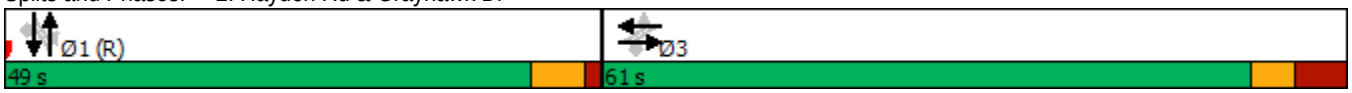
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	90	45	8	18	35	536	9	3	685	34
Future Volume (vph)	30	2	90	45	8	18	35	536	9	3	685	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1670		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.25	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1375	1863	1583	1409	1670		469	3539	1583	644	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	2	100	50	9	20	39	596	10	3	761	38
RTOR Reduction (vph)	0	0	42	0	10	0	0	0	6	0	0	23
Lane Group Flow (vph)	33	2	58	50	19	0	39	596	4	3	761	15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	662	897	762	678	804		183	1383	618	251	1383	618
v/s Ratio Prot		0.00			0.01			0.17			c0.22	
v/s Ratio Perm	0.02		c0.04	0.04			0.08		0.00	0.00		0.01
v/c Ratio	0.05	0.00	0.08	0.07	0.02		0.21	0.43	0.01	0.01	0.55	0.02
Uniform Delay, d1	15.1	14.8	15.3	15.3	14.9		22.3	24.5	20.5	20.5	26.0	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.2	0.1		2.6	1.0	0.0	0.1	1.6	0.1
Delay (s)	15.3	14.8	15.5	15.5	15.0		24.9	25.5	20.5	20.6	27.6	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.4			15.3			25.4			27.2	
Approach LOS		B			B			C			C	

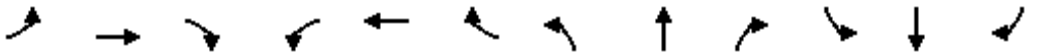
Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	269	317	323	274	88	147	443	264	206	580	44
Future Volume (vph)	29	269	317	323	274	88	147	443	264	206	580	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.57	1.00	1.00	0.32	1.00	1.00	0.36	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1055	3539	1583	602	3539	1583	672	3539	1583	663	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	299	352	359	304	98	163	492	293	229	644	49
RTOR Reduction (vph)	0	0	293	0	0	71	0	0	174	0	0	27
Lane Group Flow (vph)	32	299	59	359	304	27	163	492	119	229	644	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.5	18.9	18.9	42.1	33.0	33.0	59.6	48.9	48.9	67.2	53.7	53.7
Effective Green, g (s)	23.5	18.9	18.9	42.1	33.0	33.0	59.6	48.9	48.9	67.2	53.7	53.7
Actuated g/C Ratio	0.20	0.16	0.16	0.35	0.28	0.28	0.50	0.41	0.41	0.56	0.45	0.45
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	557	249	402	973	435	431	1442	645	495	1583	708
v/s Ratio Prot	0.01	0.08		c0.15	0.09		0.03	0.14		c0.05	c0.18	
v/s Ratio Perm	0.02		0.04	c0.17		0.02	0.15		0.08	c0.21		0.01
v/c Ratio	0.14	0.54	0.24	0.89	0.31	0.06	0.38	0.34	0.19	0.46	0.41	0.03
Uniform Delay, d1	39.5	46.5	44.2	32.4	34.5	32.1	16.9	24.5	22.8	14.3	22.4	18.6
Progression Factor	1.00	1.00	1.00	1.14	1.10	2.27	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.0	0.5	20.9	0.2	0.1	0.6	0.6	0.6	0.7	0.8	0.1
Delay (s)	39.8	47.5	44.7	57.7	38.0	72.8	17.5	25.1	23.4	15.0	23.2	18.7
Level of Service	D	D	D	E	D	E	B	C	C	B	C	B
Approach Delay (s)		45.7			51.8			23.3			20.9	
Approach LOS		D			D			C			C	

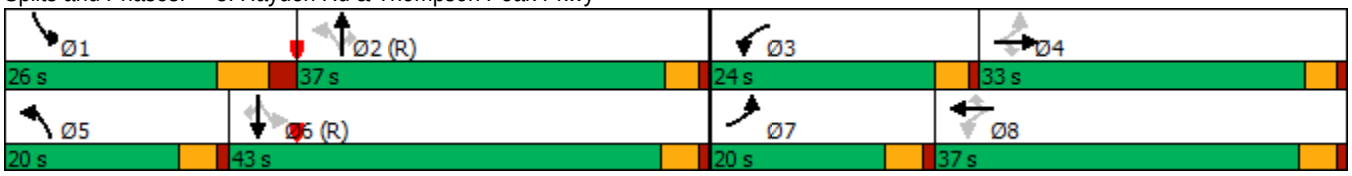
Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

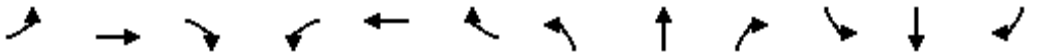
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	100	28	3	0	14	804	7	0	1226	13
Future Volume (vph)	12	1	100	28	3	0	14	804	7	0	1226	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3539	1583		3539	1583
Flt Permitted	0.76	1.00	1.00	0.76	1.00		0.18	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1408	1863	1583	1410	1863		331	3539	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1	111	31	3	0	16	893	8	0	1362	14
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	2	0	0	3
Lane Group Flow (vph)	13	1	75	31	3	0	16	893	6	0	1362	11
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	10.6	10.6	10.6	10.6	10.6		85.4	85.4	85.4		85.4	85.4
Effective Green, g (s)	10.6	10.6	10.6	10.6	10.6		85.4	85.4	85.4		85.4	85.4
Actuated g/C Ratio	0.10	0.10	0.10	0.10	0.10		0.78	0.78	0.78		0.78	0.78
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	135	179	152	135	179		256	2747	1228		2747	1228
v/s Ratio Prot		0.00			0.00			0.25			c0.38	
v/s Ratio Perm	0.01		c0.05	0.02			0.05		0.00			0.01
v/c Ratio	0.10	0.01	0.49	0.23	0.02		0.06	0.33	0.01		0.50	0.01
Uniform Delay, d1	45.3	44.9	47.1	45.9	45.0		2.9	3.7	2.8		4.5	2.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.0	2.5	0.9	0.0		0.5	0.3	0.0		0.6	0.0
Delay (s)	45.6	44.9	49.6	46.8	45.0		3.4	4.0	2.8		5.1	2.8
Level of Service	D	D	D	D	D		A	A	A		A	A
Approach Delay (s)		49.2			46.6			4.0			5.1	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

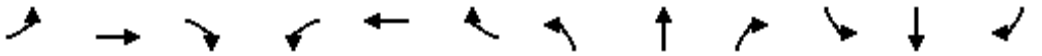
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	85
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	31	413	204	601	0	0	858	446
Future Volume (vph)	0	0	0	34	31	413	204	601	0	0	858	446
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1540	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1540	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	38	34	459	227	668	0	0	953	496
RTOR Reduction (vph)	0	0	0	0	162	182	0	0	0	0	0	282
Lane Group Flow (vph)	0	0	0	38	88	61	227	668	0	0	953	214
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				30.1	30.1	30.1	18.1	32.3			51.8	51.8
Effective Green, g (s)				30.1	30.1	30.1	18.1	32.3			51.8	51.8
Actuated g/C Ratio				0.25	0.25	0.25	0.15	0.27			0.43	0.43
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				861	386	377	266	952			2766	683
v/s Ratio Prot					c0.06		c0.13	c0.19			c0.15	
v/s Ratio Perm				0.01		0.04						0.14
v/c Ratio				0.04	0.23	0.16	0.85	0.70			0.34	0.31
Uniform Delay, d1				34.1	35.7	35.1	49.7	39.5			22.8	22.4
Progression Factor				1.00	1.00	1.00	1.21	0.38			1.00	1.00
Incremental Delay, d2				0.0	0.3	0.2	26.4	2.2			0.3	1.2
Delay (s)				34.1	36.0	35.3	86.3	17.1			23.1	23.6
Level of Service				C	D	D	F	B			C	C
Approach Delay (s)		0.0			35.6			34.7			23.3	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

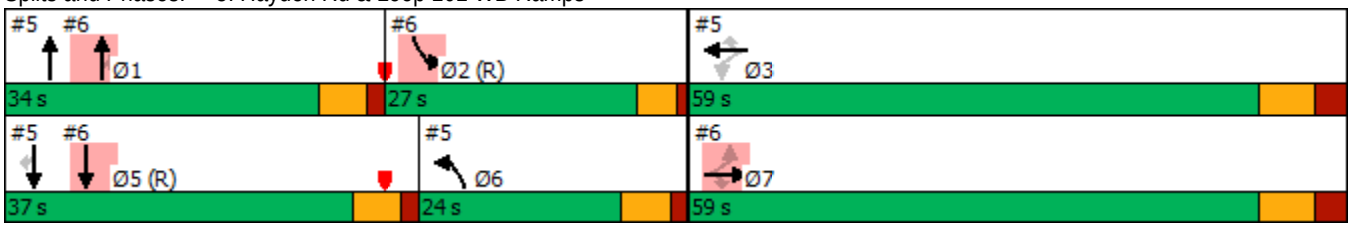
c Critical Lane Group

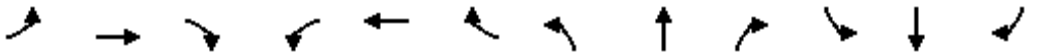
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	37	24	59
Maximum Split (%)	28.3%	22.5%	49.2%	30.8%	20.0%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	3	27
End Time (s)	0	27	86	3	27	86
Yield/Force Off (s)	114	22.5	78	117	21	78
Yield/Force Off 170(s)	104	22.5	52	107	21	52
Local Start Time (s)	86	0	27	86	3	27
Local Yield (s)	114	22.5	78	117	21	78
Local Yield 170(s)	104	22.5	52	107	21	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	337	10	435	0	0	0	0	464	17	559	339	0
Future Volume (vph)	337	10	435	0	0	0	0	464	17	559	339	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.89	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1497	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1497	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	374	11	483	0	0	0	0	516	19	621	377	0
RTOR Reduction (vph)	0	92	210	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	299	197	70	0	0	0	0	516	5	621	377	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	30.1	30.1	30.1					32.3	32.3	39.1	51.8	
Effective Green, g (s)	30.1	30.1	30.1					32.3	32.3	39.1	51.8	
Actuated g/C Ratio	0.25	0.25	0.25					0.27	0.27	0.33	0.43	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	421	375	377					1368	426	1118	1527	
v/s Ratio Prot								c0.10		c0.18	0.11	
v/s Ratio Perm	c0.18	0.13	0.05						0.00			
v/c Ratio	0.71	0.52	0.19					0.38	0.01	0.56	0.25	
Uniform Delay, d1	41.0	38.8	35.3					35.7	32.2	33.3	21.7	
Progression Factor	1.19	1.70	6.39					1.01	1.00	0.76	0.28	
Incremental Delay, d2	3.5	0.8	0.2					0.2	0.0	1.9	0.4	
Delay (s)	52.5	66.9	226.0					36.0	32.2	27.1	6.5	
Level of Service	D	E	F					D	C	C	A	
Approach Delay (s)		113.3			0.0			35.9			19.3	
Approach LOS		F			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	57.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

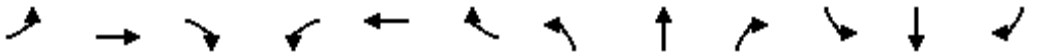
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	436	10	181	621
Future Volume (Veh/h)	0	42	436	10	181	621
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	47	484	11	201	690
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.97					
vC, conflicting volume	1231	242			495	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1174	242			495	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			81	
cM capacity (veh/h)	145	759			1065	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	242	242	11	201	345	345
Volume Left	0	0	0	0	201	0	0
Volume Right	47	0	0	11	0	0	0
cSH	759	1700	1700	1700	1065	1700	1700
Volume to Capacity	0.06	0.14	0.14	0.01	0.19	0.20	0.20
Queue Length 95th (ft)	5	0	0	0	17	0	0
Control Delay (s)	10.1	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	10.1	0.0			2.1		
Approach LOS	B						

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	58	85	162	0	23	70	342	190	117	449	46
Future Volume (vph)	41	58	85	162	0	23	70	342	190	117	449	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.46	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	855	3539	1583	981	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	64	94	180	0	26	78	380	211	130	499	51
RTOR Reduction (vph)	0	0	84	0	0	23	0	0	78	0	0	19
Lane Group Flow (vph)	0	110	10	180	0	3	78	380	133	130	499	32
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		12.7	12.7	11.7		11.7	75.6	75.6	75.6	75.6	75.6	75.6
Effective Green, g (s)		12.7	12.7	11.7		11.7	75.6	75.6	75.6	75.6	75.6	75.6
Actuated g/C Ratio		0.11	0.11	0.10		0.10	0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		193	167	334		154	538	2229	997	618	2229	997
v/s Ratio Prot		c0.06		c0.05				0.11			c0.14	
v/s Ratio Perm			0.01			0.00	0.09		0.08	0.13		0.02
v/c Ratio		0.57	0.06	0.54		0.02	0.14	0.17	0.13	0.21	0.22	0.03
Uniform Delay, d1		51.1	48.3	51.6		48.9	9.0	9.2	9.0	9.5	9.6	8.4
Progression Factor		1.04	1.56	1.00		1.00	1.34	1.40	3.31	0.81	0.80	12.18
Incremental Delay, d2		3.7	0.1	1.7		0.0	0.6	0.2	0.3	0.7	0.2	0.1
Delay (s)		57.0	75.4	53.3		49.0	12.7	13.0	30.0	8.4	7.9	102.2
Level of Service		E	E	D		D	B	B	C	A	A	F
Approach Delay (s)		65.5			52.7			18.3			15.1	
Approach LOS		E			D			B			B	

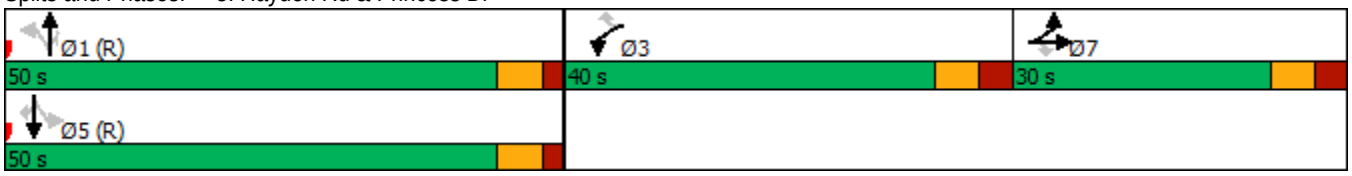
Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	19	206	9	86	27	525	346	132	576	18
Future Volume (vph)	8	6	19	206	9	86	27	525	346	132	576	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3199		1681	1692	1583	1770	3539	1583	1770	3523	
Flt Permitted		0.86		0.73	0.72	1.00	0.39	1.00	1.00	0.43	1.00	
Satd. Flow (perm)		2797		1295	1266	1583	727	3539	1583	795	3523	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	7	21	229	10	96	30	583	384	147	640	20
RTOR Reduction (vph)	0	20	0	0	0	80	0	0	110	0	1	0
Lane Group Flow (vph)	0	17	0	119	120	16	30	583	274	147	659	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.1		20.5	20.5	20.5	85.5	85.5	85.5	85.5	85.5	
Effective Green, g (s)		4.1		20.5	20.5	20.5	85.5	85.5	85.5	85.5	85.5	
Actuated g/C Ratio		0.03		0.17	0.17	0.17	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		95		248	246	270	517	2521	1127	566	2510	
v/s Ratio Prot				0.03	c0.03			0.16			c0.19	
v/s Ratio Perm		0.01		0.05	c0.05	0.01	0.04		0.17	0.18		
v/c Ratio		0.18		0.48	0.49	0.06	0.06	0.23	0.24	0.26	0.26	
Uniform Delay, d1		56.3		45.4	45.0	41.7	5.2	5.9	6.0	6.1	6.1	
Progression Factor		1.00		1.00	1.00	1.00	1.64	1.33	6.70	1.30	1.28	
Incremental Delay, d2		0.9		1.5	1.5	0.1	0.2	0.2	0.4	1.1	0.3	
Delay (s)		57.2		46.9	46.5	41.8	8.6	8.1	40.6	9.0	8.1	
Level of Service		E		D	D	D	A	A	D	A	A	
Approach Delay (s)		57.2			45.3			20.6			8.2	
Approach LOS		E			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

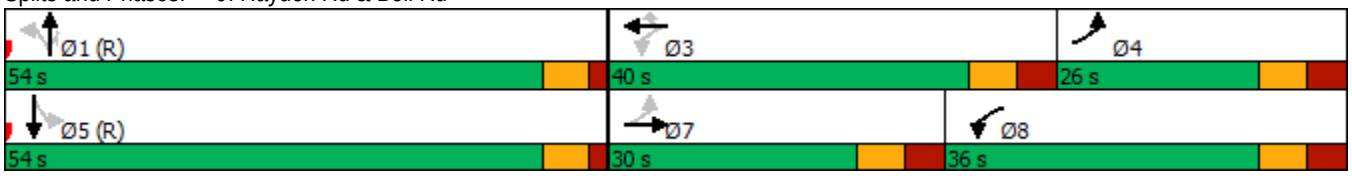
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	26	907	132	44	1957
Future Volume (vph)	94	26	907	132	44	1957
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.27	1.00
Satd. Flow (perm)	1770	1583	3539	1583	508	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	29	1008	147	49	2174
RTOR Reduction (vph)	0	26	0	29	0	0
Lane Group Flow (vph)	104	3	1008	118	49	2174
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	11.9	11.9	96.1	96.1	96.1	96.1
Effective Green, g (s)	11.9	11.9	96.1	96.1	96.1	96.1
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	156	2834	1267	406	2834
v/s Ratio Prot	c0.06		0.28			c0.61
v/s Ratio Perm		0.00		0.07	0.10	
v/c Ratio	0.59	0.02	0.36	0.09	0.12	0.77
Uniform Delay, d1	51.7	48.8	3.3	2.6	2.6	6.2
Progression Factor	1.00	1.00	0.55	0.30	1.00	1.00
Incremental Delay, d2	5.3	0.0	0.3	0.1	0.6	2.1
Delay (s)	57.1	48.8	2.2	0.9	3.2	8.2
Level of Service	E	D	A	A	A	A
Approach Delay (s)	55.3		2.0			8.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	32	993	46	39	2005
Future Volume (vph)	98	32	993	46	39	2005
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.24	1.00
Satd. Flow (perm)	1770	1583	3539	1583	453	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	36	1103	51	43	2228
RTOR Reduction (vph)	0	32	0	10	0	0
Lane Group Flow (vph)	109	4	1103	41	43	2228
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	360	2813
v/s Ratio Prot	c0.06		0.31			c0.63
v/s Ratio Perm		0.00		0.03	0.09	
v/c Ratio	0.59	0.02	0.39	0.03	0.12	0.79
Uniform Delay, d1	51.2	48.2	3.7	2.6	2.8	6.8
Progression Factor	1.00	1.00	1.53	3.11	1.38	1.20
Incremental Delay, d2	4.7	0.1	0.3	0.0	0.4	1.5
Delay (s)	56.0	48.2	5.9	8.1	4.3	9.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		6.0			9.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	95	992	445	136	1940
Future Volume (vph)	439	95	992	445	136	1940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	106	1102	494	151	2156
RTOR Reduction (vph)	0	86	0	273	0	0
Lane Group Flow (vph)	488	20	1102	221	151	2156
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	22.4	22.4	53.6	53.6	25.0	82.6
Effective Green, g (s)	22.4	22.4	53.6	53.6	25.0	82.6
Actuated g/C Ratio	0.19	0.19	0.45	0.45	0.21	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	640	295	1580	707	368	2436
v/s Ratio Prot	c0.14		0.31		0.09	c0.61
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.76	0.07	0.70	0.31	0.41	0.89
Uniform Delay, d1	46.3	40.2	26.7	21.3	41.1	14.9
Progression Factor	1.00	1.00	1.11	4.02	1.05	1.17
Incremental Delay, d2	5.4	0.1	1.9	0.9	2.1	3.3
Delay (s)	51.6	40.3	31.6	86.6	45.0	20.7
Level of Service	D	D	C	F	D	C
Approach Delay (s)	49.6		48.6			22.3
Approach LOS	D		D			C

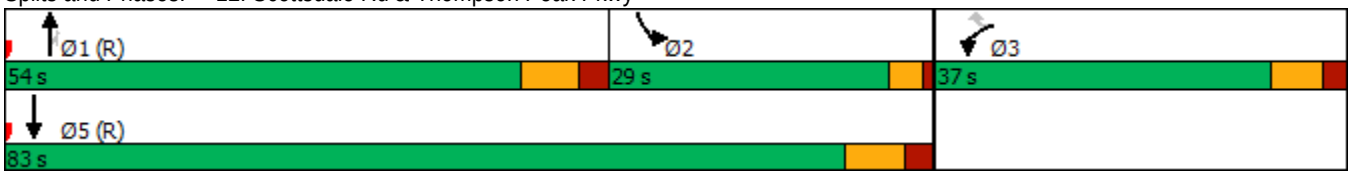
Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	16	1429	163	28	2413
Future Volume (vph)	131	16	1429	163	28	2413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	18	1588	181	31	2681
RTOR Reduction (vph)	0	16	0	30	0	0
Lane Group Flow (vph)	146	2	1588	151	31	2681
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	10.5	10.5	81.5	81.5	10.0	95.5
Effective Green, g (s)	10.5	10.5	81.5	81.5	10.0	95.5
Actuated g/C Ratio	0.09	0.09	0.68	0.68	0.08	0.80
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	138	2403	1075	147	2816
v/s Ratio Prot	c0.04		0.45		0.02	c0.76
v/s Ratio Perm		0.00		0.10		
v/c Ratio	0.49	0.01	0.66	0.14	0.21	0.95
Uniform Delay, d1	52.2	50.0	11.2	6.8	51.3	10.3
Progression Factor	1.00	1.00	2.02	2.23	0.98	0.88
Incremental Delay, d2	1.2	0.0	1.1	0.2	1.8	5.7
Delay (s)	53.4	50.0	23.7	15.4	52.3	14.7
Level of Service	D	D	C	B	D	B
Approach Delay (s)	53.1		22.9			15.1
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

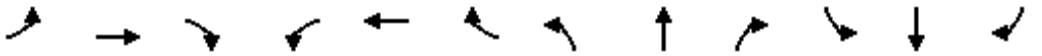
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	510	26	476	296	1139	0	0	1891	642
Future Volume (vph)	0	0	0	510	26	476	296	1139	0	0	1891	642
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1531	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1531	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	567	29	529	329	1266	0	0	2101	713
RTOR Reduction (vph)	0	0	0	0	185	200	0	0	0	0	0	368
Lane Group Flow (vph)	0	0	0	567	98	75	329	1266	0	0	2101	345
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				32.8	32.8	32.8	20.0	40.2			50.2	50.2
Effective Green, g (s)				32.8	32.8	32.8	20.0	40.2			50.2	50.2
Actuated g/C Ratio				0.27	0.27	0.27	0.17	0.34			0.42	0.42
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				938	418	411	572	1703			3155	662
v/s Ratio Prot					0.06		c0.10	c0.25			c0.28	
v/s Ratio Perm				c0.17		0.05						0.22
v/c Ratio				0.60	0.24	0.18	0.58	0.74			0.67	0.52
Uniform Delay, d1				38.0	33.9	33.3	46.1	35.3			28.1	26.0
Progression Factor				1.00	1.00	1.00	1.27	0.48			1.15	2.24
Incremental Delay, d2				1.1	0.3	0.2	3.6	2.5			0.4	1.2
Delay (s)				39.1	34.2	33.6	62.0	19.4			32.9	59.2
Level of Service				D	C	C	E	B			C	E
Approach Delay (s)		0.0			36.5			28.2			39.6	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

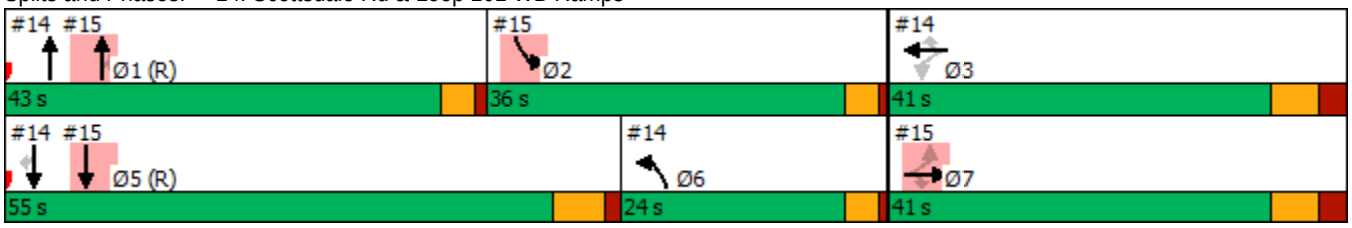
c Critical Lane Group

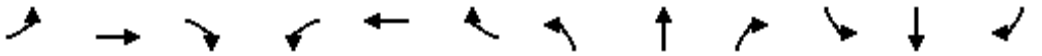
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

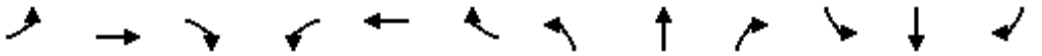




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	676	2	598	0	0	0	0	770	322	734	1699	0
Future Volume (vph)	676	2	598	0	0	0	0	770	322	734	1699	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	751	2	664	0	0	0	0	856	358	816	1888	0
RTOR Reduction (vph)	0	241	241	0	0	0	0	0	238	0	0	0
Lane Group Flow (vph)	751	93	91	0	0	0	0	856	120	816	1888	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	32.8	32.8	32.8					40.2	40.2	32.0	50.2	
Effective Green, g (s)	32.8	32.8	32.8					40.2	40.2	32.0	50.2	
Actuated g/C Ratio	0.27	0.27	0.27					0.34	0.34	0.27	0.42	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	938	411	411					2527	530	915	2127	
v/s Ratio Prot		0.06						0.11		c0.24	c0.37	
v/s Ratio Perm	c0.22		0.06						0.08			
v/c Ratio	0.80	0.23	0.22					0.34	0.23	0.89	0.89	
Uniform Delay, d1	40.6	33.8	33.7					29.9	28.7	42.3	32.3	
Progression Factor	1.00	1.00	1.00					1.45	7.59	0.92	0.43	
Incremental Delay, d2	5.0	0.3	0.3					0.3	0.9	10.3	4.7	
Delay (s)	45.5	34.0	34.0					43.6	218.8	49.0	18.6	
Level of Service	D	C	C					D	F	D	B	
Approach Delay (s)		40.1			0.0			95.3			27.8	
Approach LOS		D			A			F			C	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	423	12	255	17	4	25	121	697	11	40	1628	631
Future Volume (vph)	423	12	255	17	4	25	121	697	11	40	1628	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	470	13	283	19	4	28	134	774	12	44	1809	701
RTOR Reduction (vph)	0	0	148	0	30	0	0	0	9	0	0	333
Lane Group Flow (vph)	470	13	135	19	2	0	134	774	3	44	1809	368
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	29.5	33.2	33.2	4.5	8.2		10.6	26.4	26.4	30.5	46.6	46.6
Effective Green, g (s)	29.5	33.2	33.2	4.5	8.2		10.6	26.4	26.4	30.5	46.6	46.6
Actuated g/C Ratio	0.25	0.28	0.28	0.04	0.07		0.09	0.22	0.22	0.25	0.39	0.39
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	843	1406	437	128	210		303	1118	348	872	1974	614
v/s Ratio Prot	c0.14	0.00		0.01	0.00		c0.04	0.15		0.01	c0.36	
v/s Ratio Perm			c0.09						0.00			0.23
v/c Ratio	0.56	0.01	0.31	0.15	0.01		0.44	0.69	0.01	0.05	0.92	0.60
Uniform Delay, d1	39.5	31.5	34.3	55.9	52.1		51.9	43.1	36.6	33.8	34.9	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.97	1.09	1.00	1.36	1.04	2.62
Incremental Delay, d2	0.8	0.0	0.4	0.5	0.0		4.5	1.8	0.0	0.1	4.5	0.9
Delay (s)	40.4	31.5	34.7	56.4	52.1		54.7	48.9	36.6	46.1	40.9	77.5
Level of Service	D	C	C	E	D		D	D	D	D	D	E
Approach Delay (s)		38.1			53.7			49.6			51.0	
Approach LOS		D			D			D			D	

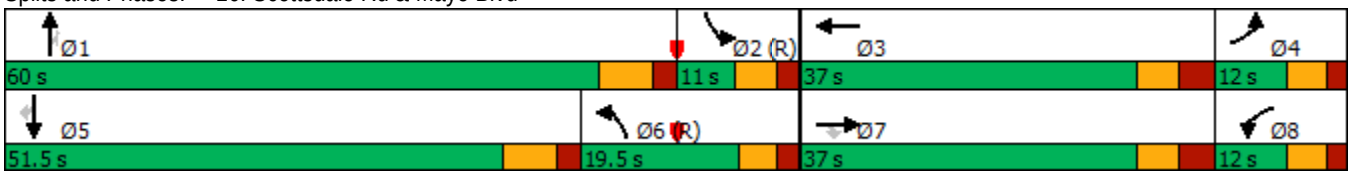
Intersection Summary			
HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

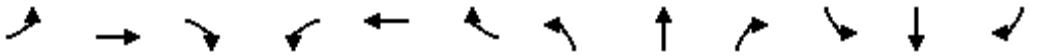
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	4	98	9	4	4	132	784	4	5	1845	126
Future Volume (vph)	83	4	98	9	4	4	132	784	4	5	1845	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.93	1.00	1.00	0.05	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	760	3539	1583	1733	3539	1583	99	5085	1583	584	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	4	109	10	4	4	147	871	4	6	2050	140
RTOR Reduction (vph)	0	0	96	0	0	4	0	0	1	0	0	57
Lane Group Flow (vph)	92	4	13	10	4	0	147	871	3	6	2050	83
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.8	13.9	13.9	5.7	4.3	4.3	85.2	78.5	78.5	71.3	70.1	70.1
Effective Green, g (s)	20.8	13.9	13.9	5.7	4.3	4.3	85.2	78.5	78.5	71.3	70.1	70.1
Actuated g/C Ratio	0.17	0.12	0.12	0.05	0.04	0.04	0.71	0.65	0.65	0.59	0.58	0.58
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	409	183	82	126	56	203	3326	1035	358	2970	924
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.06	0.17		0.00	0.40	
v/s Ratio Perm	c0.03		0.01	0.00		0.00	c0.46		0.00	0.01		0.05
v/c Ratio	0.41	0.01	0.07	0.12	0.03	0.00	0.72	0.26	0.00	0.02	0.69	0.09
Uniform Delay, d1	43.4	47.0	47.3	54.7	55.8	55.8	28.7	8.7	7.2	9.9	17.4	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.41	1.00	0.50	0.54	0.71
Incremental Delay, d2	1.2	0.0	0.2	0.7	0.1	0.0	11.8	0.2	0.0	0.0	0.7	0.1
Delay (s)	44.6	47.0	47.4	55.4	55.9	55.8	41.2	12.4	7.2	4.9	10.2	7.9
Level of Service	D	D	D	E	E	E	D	B	A	A	B	A
Approach Delay (s)		46.2			55.6			16.5			10.0	
Approach LOS		D			E			B			B	

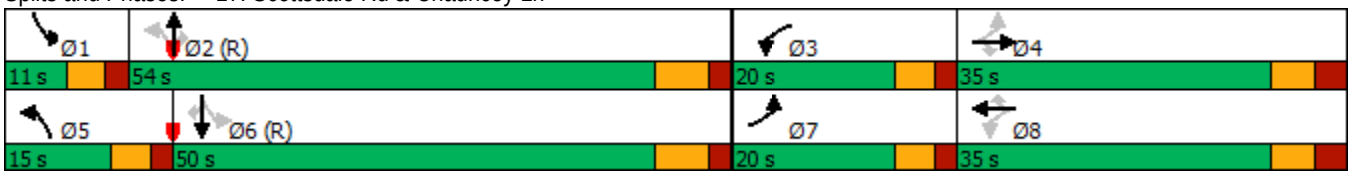
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

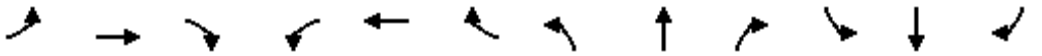
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	28	248	69	9	123	128	766	145	189	1685	73
Future Volume (vph)	39	28	248	69	9	123	128	766	145	189	1685	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3062		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.39	1.00	1.00	0.07	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1398	3062		725	3539	1583	130	5085	1583	558	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	31	276	77	10	137	142	851	161	210	1872	81
RTOR Reduction (vph)	0	217	0	0	0	124	0	0	67	0	0	34
Lane Group Flow (vph)	43	90	0	77	10	13	142	851	94	210	1872	47
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	16.2	11.8		16.2	11.8	11.8	82.8	69.8	69.8	82.8	69.8	69.8
Effective Green, g (s)	16.2	11.8		16.2	11.8	11.8	82.8	69.8	69.8	82.8	69.8	69.8
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.58	0.58	0.69	0.58	0.58
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	202	301		136	348	155	267	2957	920	516	2957	920
v/s Ratio Prot	0.01	0.03		c0.02	0.00		c0.06	0.17		0.04	c0.37	
v/s Ratio Perm	0.02			c0.06		0.01	0.31		0.06	0.24		0.03
v/c Ratio	0.21	0.30		0.57	0.03	0.09	0.53	0.29	0.10	0.41	0.63	0.05
Uniform Delay, d1	46.3	50.3		51.8	48.9	49.2	28.5	12.6	11.2	11.2	16.6	10.8
Progression Factor	1.00	1.00		1.02	0.99	1.49	0.34	1.41	3.39	0.49	0.72	4.40
Incremental Delay, d2	0.5	0.6		5.3	0.0	0.2	7.1	0.2	0.2	1.9	0.8	0.1
Delay (s)	46.8	50.8		57.9	48.5	73.3	16.9	18.0	38.0	7.3	12.8	47.7
Level of Service	D	D		E	D	E	B	B	D	A	B	D
Approach Delay (s)		50.3			66.9			20.7			13.6	
Approach LOS		D			E			C			B	

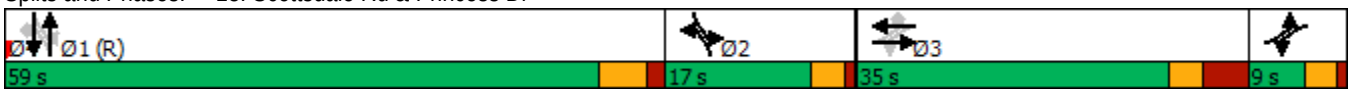
Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

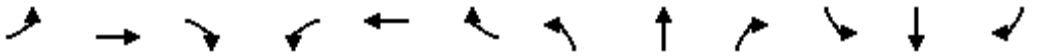
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	0	114	30	0	19	40	963	11	41	1956	24
Future Volume (vph)	61	0	114	30	0	19	40	963	11	41	1956	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1713		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.58		0.05	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)		1465			1023		100	5085	1583	446	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	0	127	33	0	21	44	1070	12	46	2173	27
RTOR Reduction (vph)	0	65	0	0	47	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	130	0	0	7	0	44	1070	8	46	2173	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.5			16.5		86.5	80.5	80.5	86.5	80.5	80.5
Effective Green, g (s)		16.5			16.5		86.5	80.5	80.5	86.5	80.5	80.5
Actuated g/C Ratio		0.14			0.14		0.72	0.67	0.67	0.72	0.67	0.67
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		201			140		155	3411	1061	387	3411	1061
v/s Ratio Prot							c0.01	0.21		0.01	c0.43	
v/s Ratio Perm		c0.09			0.01		0.19		0.01	0.08		0.01
v/c Ratio		0.65			0.05		0.28	0.31	0.01	0.12	0.64	0.02
Uniform Delay, d1		49.0			45.0		20.6	8.2	6.5	6.8	11.4	6.6
Progression Factor		1.00			1.00		1.66	1.15	1.00	1.33	1.53	1.00
Incremental Delay, d2		7.0			0.2		3.5	0.2	0.0	0.5	0.8	0.0
Delay (s)		56.0			45.1		37.7	9.6	6.5	9.6	18.2	6.6
Level of Service		E			D		D	A	A	A	B	A
Approach Delay (s)		56.0			45.1			10.7			17.8	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

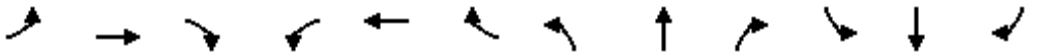
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	1438	399	232	457	204	85	386	138	357	1474	157
Future Volume (vph)	530	1438	399	232	457	204	85	386	138	357	1474	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5012	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5012	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	589	1598	443	258	508	227	94	429	153	397	1638	174
RTOR Reduction (vph)	0	0	97	0	0	66	0	0	116	0	10	0
Lane Group Flow (vph)	589	1598	346	258	508	161	94	429	37	397	1802	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	21.0	40.0	40.0	11.0	30.0	47.7	5.0	29.3	29.3	17.7	42.0	
Effective Green, g (s)	21.0	40.0	40.0	11.0	30.0	47.7	5.0	29.3	29.3	17.7	42.0	
Actuated g/C Ratio	0.18	0.33	0.33	0.09	0.25	0.40	0.04	0.24	0.24	0.15	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	600	1695	527	314	1271	629	143	1241	386	506	1754	
v/s Ratio Prot	c0.17	c0.31		0.08	0.10	0.04	0.03	0.08		c0.12	c0.36	
v/s Ratio Perm			0.22			0.06			0.02			
v/c Ratio	0.98	0.94	0.66	0.82	0.40	0.26	0.66	0.35	0.10	0.78	1.03	
Uniform Delay, d1	49.3	38.9	34.1	53.5	37.5	24.3	56.7	37.4	35.1	49.3	39.0	
Progression Factor	1.00	1.00	1.00	0.94	1.86	0.51	1.00	1.00	1.00	0.87	0.85	
Incremental Delay, d2	31.9	11.9	6.3	13.7	0.8	0.2	10.4	0.8	0.5	6.2	26.3	
Delay (s)	81.2	50.8	40.4	64.3	70.5	12.4	67.1	38.2	35.6	49.0	59.5	
Level of Service	F	D	D	E	E	B	E	D	D	D	E	
Approach Delay (s)		55.9			55.6			41.6			57.6	
Approach LOS		E			E			D			E	

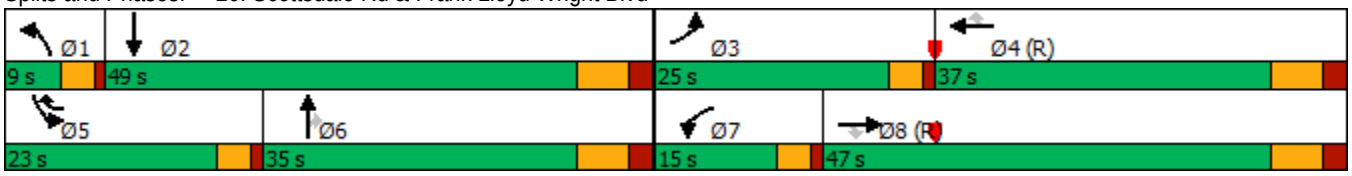
Intersection Summary			
HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

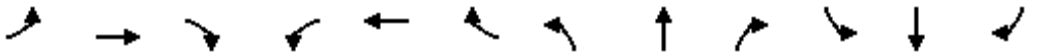
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

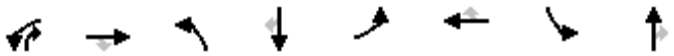




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	458	1237	62	551	998	186	9	288	244	181	558	276
Future Volume (vph)	458	1237	62	551	998	186	9	288	244	181	558	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	509	1374	69	612	1109	207	10	320	271	201	620	307
RTOR Reduction (vph)	0	0	45	0	0	106	0	0	65	0	0	204
Lane Group Flow (vph)	509	1374	24	612	1109	101	10	320	206	201	620	103
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	19.4	42.4	42.4	19.4	42.4	42.4	0.6	22.2	41.6	8.0	29.6	29.6
Effective Green, g (s)	19.4	42.4	42.4	19.4	42.4	42.4	0.6	22.2	41.6	8.0	29.6	29.6
Actuated g/C Ratio	0.16	0.35	0.35	0.16	0.35	0.35	0.00	0.18	0.35	0.07	0.25	0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	555	1796	559	555	1796	559	8	654	641	228	872	390
v/s Ratio Prot	0.15	c0.27		c0.18	0.22		0.01	0.09	0.05	c0.06	c0.18	
v/s Ratio Perm			0.02			0.06			0.08			0.06
v/c Ratio	0.92	0.77	0.04	1.10	0.62	0.18	1.25	0.49	0.32	0.88	0.71	0.26
Uniform Delay, d1	49.5	34.4	25.5	50.3	32.1	26.8	59.7	43.8	28.8	55.5	41.3	36.4
Progression Factor	1.11	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.99	1.60
Incremental Delay, d2	11.5	1.6	0.1	69.4	1.6	0.7	416.4	0.6	0.3	30.0	2.7	0.4
Delay (s)	66.4	32.3	25.6	119.7	33.7	27.5	476.1	44.4	29.1	81.4	43.5	58.6
Level of Service	E	C	C	F	C	C	F	D	C	F	D	E
Approach Delay (s)		41.0			60.3			44.7			54.4	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

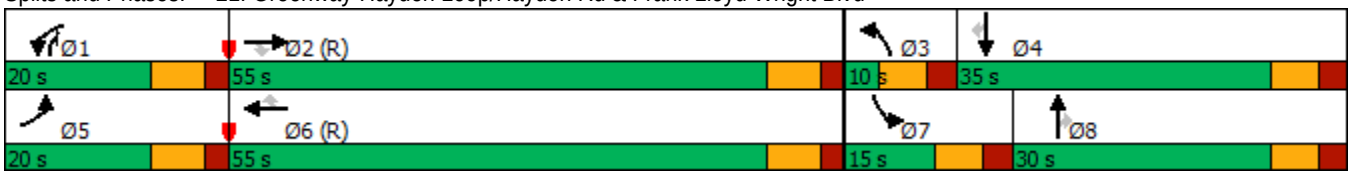
c Critical Lane Group

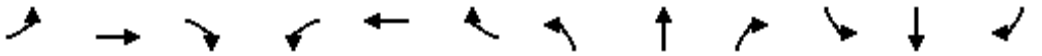


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	323	118	89	240	270	114	971	4	280	1155	284
Future Volume (vph)	173	323	118	89	240	270	114	971	4	280	1155	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	359	131	99	267	300	127	1079	4	311	1283	316
RTOR Reduction (vph)	0	0	54	0	0	52	0	0	0	0	0	103
Lane Group Flow (vph)	192	359	77	99	267	248	127	1083	0	311	1283	213
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	11.5	17.7	30.7	10.1	16.3	34.3	13.0	52.2		18.0	57.2	68.7
Effective Green, g (s)	11.5	17.7	30.7	10.1	16.3	34.3	13.0	52.2		18.0	57.2	68.7
Actuated g/C Ratio	0.10	0.15	0.26	0.08	0.14	0.29	0.11	0.44		0.15	0.48	0.57
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	328	522	457	288	480	505	371	2210		514	2423	959
v/s Ratio Prot	c0.06	c0.10	0.02	0.03	0.08	0.07	0.04	0.21		c0.09	c0.25	0.02
v/s Ratio Perm			0.03			0.08						0.11
v/c Ratio	0.59	0.69	0.17	0.34	0.56	0.49	0.34	0.49		0.61	0.53	0.22
Uniform Delay, d1	52.0	48.5	34.7	51.8	48.5	35.6	49.5	24.3		47.7	22.0	12.6
Progression Factor	1.06	1.39	2.35	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	3.6	0.2	0.7	1.4	0.8	2.5	0.8		5.2	0.8	0.1
Delay (s)	57.4	71.1	81.7	52.5	49.9	36.3	52.0	25.1		52.9	22.8	12.7
Level of Service	E	E	F	D	D	D	D	C		D	C	B
Approach Delay (s)		69.2			44.2			27.9			26.0	
Approach LOS		E			D			C			C	

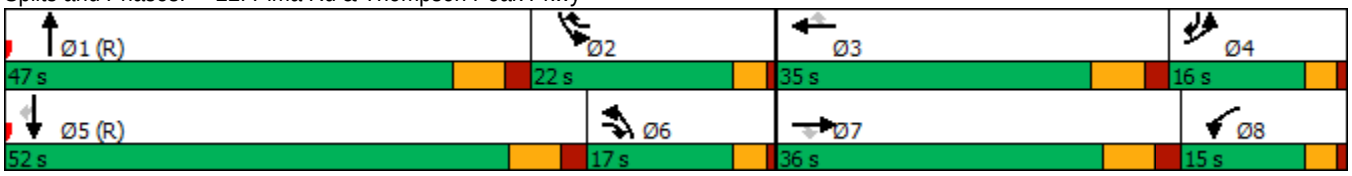
Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

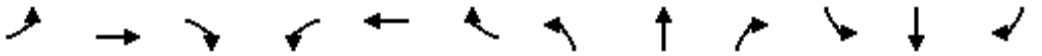
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





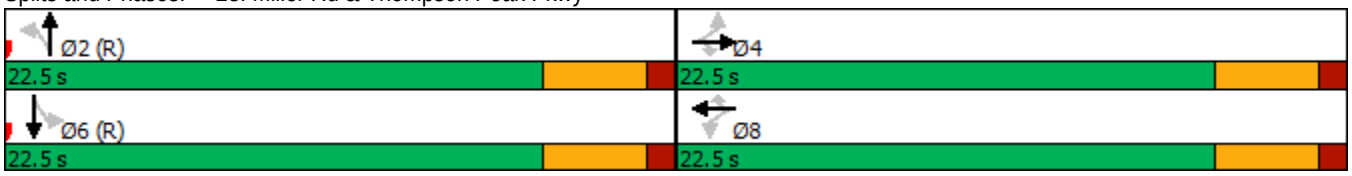
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	563	19	30	117	0	8	0	11	0	0	0
Future Volume (vph)	0	563	19	30	117	0	8	0	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.38	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	706	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	626	21	33	130	0	9	0	12	0	0	0
RTOR Reduction (vph)	0	0	13	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	626	8	33	130	0	9	5	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	282	1415		564	1203				
v/s Ratio Prot		c0.18			0.04			0.00				
v/s Ratio Perm			0.01	0.05			c0.01					
v/c Ratio		0.44	0.01	0.12	0.09		0.02	0.00				
Uniform Delay, d1		9.8	8.1	8.5	8.4		8.2	8.1				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		1.0	0.0	0.8	0.1		0.1	0.0				
Delay (s)		10.8	8.2	9.3	8.5		8.2	8.1				
Level of Service		B	A	A	A		A	A				
Approach Delay (s)		10.8			8.7			8.2			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

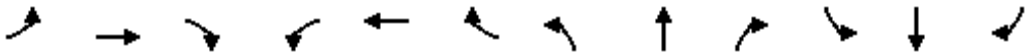
Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy



Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

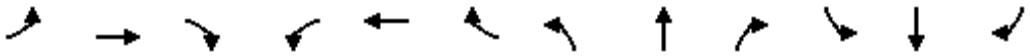
Channelized right turn lanes are not counted.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	11	0	8	118	29	62	0
Future Volume (Veh/h)	0	0	0	0	0	11	0	8	118	29	62	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	12	0	9	131	32	69	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	154	273	69	208	208	74	69			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	273	69	208	208	74	69			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			98		
cM capacity (veh/h)	789	620	994	737	674	987	1532			1443		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	12	0	140	32	69
Volume Left	0	0	0	0	32	0
Volume Right	0	12	0	131	0	0
cSH	1700	987	1700	1700	1443	1700
Volume to Capacity	0.00	0.01	0.00	0.08	0.02	0.04
Queue Length 95th (ft)	0	1	0	0	2	0
Control Delay (s)	0.0	8.7	0.0	0.0	7.6	0.0
Lane LOS	A	A			A	
Approach Delay (s)	0.0	8.7	0.0		2.4	
Approach LOS	A	A				

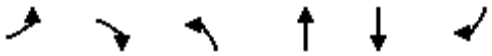
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	24.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	103	45	62	39	0	19	0	11	0	0	0
Future Volume (Veh/h)	0	103	45	62	39	0	19	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	114	50	69	43	0	21	0	12	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	43			164			320	320	139	307	345	43
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	43			164			320	320	139	307	345	43
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			97	100	99	100	100	100
cM capacity (veh/h)	1566			1414			609	568	909	613	550	1027

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	164	69	43	21	12	0	0
Volume Left	0	0	69	0	21	0	0	0
Volume Right	0	50	0	0	0	12	0	0
cSH	1700	1700	1414	1700	609	909	1700	1700
Volume to Capacity	0.00	0.10	0.05	0.03	0.03	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	4	0	3	1	0	0
Control Delay (s)	0.0	0.0	7.7	0.0	11.1	9.0	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		4.7		10.4		0.0	
Approach LOS					B		A	

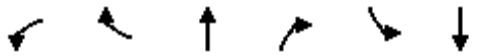
Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	24.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	37	122	1	105	77
Future Volume (Veh/h)	38	37	122	1	105	77
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	41	136	1	117	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					990	
pX, platoon unblocked						
vC, conflicting volume	390	58	203			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390	58	203			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	90			
cM capacity (veh/h)	528	995	1366			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	42	41	136	0	0	58	58	86
Volume Left	42	0	136	0	0	0	0	0
Volume Right	0	41	0	0	0	0	0	86
cSH	528	995	1366	1700	1700	1700	1700	1700
Volume to Capacity	0.08	0.04	0.10	0.00	0.00	0.03	0.03	0.05
Queue Length 95th (ft)	6	3	8	0	0	0	0	0
Control Delay (s)	12.4	8.8	7.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A	A					
Approach Delay (s)	10.6		7.9			0.0		
Approach LOS	B							

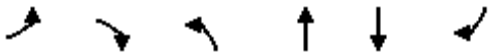
Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	23.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	58	0	0	148	0
Future Volume (Veh/h)	0	58	0	0	148	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	64	0	0	164	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	328	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	328	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			90	
cM capacity (veh/h)	599	1085			1623	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	64	0	0	164	0
Volume Left	0	0	0	0	164	0
Volume Right	0	64	0	0	0	0
cSH	1700	1085	1700	1700	1623	1700
Volume to Capacity	0.00	0.06	0.00	0.00	0.10	0.00
Queue Length 95th (ft)	0	5	0	0	8	0
Control Delay (s)	0.0	8.5	0.0	0.0	7.5	0.0
Lane LOS	A	A			A	
Approach Delay (s)	8.5		0.0		7.5	
Approach LOS	A					

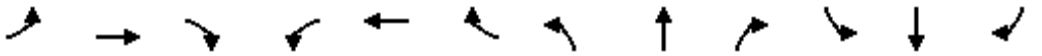
Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	11.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	46	115	122	54	89
Future Volume (Veh/h)	0	46	115	122	54	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	51	128	136	60	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				733		
pX, platoon unblocked						
vC, conflicting volume	384	30	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	384	30	159			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	91			
cM capacity (veh/h)	538	1038	1418			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	51	128	68	68	30	30	99
Volume Left	0	128	0	0	0	0	0
Volume Right	51	0	0	0	0	0	99
cSH	1038	1418	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.09	0.04	0.04	0.02	0.02	0.06
Queue Length 95th (ft)	4	7	0	0	0	0	0
Control Delay (s)	8.6	7.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	8.6	3.8			0.0		
Approach LOS	A						

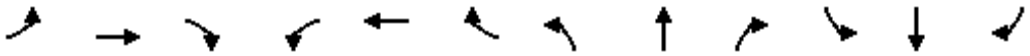
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	0	20	0	10	9	80	26	0
Future Volume (Veh/h)	0	0	0	65	0	20	0	10	9	80	26	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	72	0	22	0	11	10	89	29	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	240	228	29	223	223	16	29			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240	228	29	223	223	16	29			21		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	90	100	98	100			94		
cM capacity (veh/h)	670	634	1046	701	638	1063	1584			1595		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	94	0	21	89	29	0
Volume Left	0	72	0	0	89	0	0
Volume Right	0	22	0	10	0	0	0
cSH	1700	762	1700	1700	1595	1700	1700
Volume to Capacity	0.00	0.12	0.00	0.01	0.06	0.02	0.00
Queue Length 95th (ft)	0	10	0	0	4	0	0
Control Delay (s)	0.0	10.4	0.0	0.0	7.4	0.0	0.0
Lane LOS	A	B			A		
Approach Delay (s)	0.0	10.4	0.0		5.6		
Approach LOS	A	B					

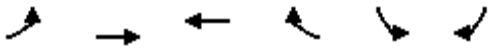
Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	22.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	11	103	140	59	0	42	0	64	0	0	0
Future Volume (Veh/h)	0	11	103	140	59	0	42	0	64	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	12	114	156	66	0	47	0	71	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66			126			447	447	69	461	504	66
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66			126			447	447	69	461	504	66
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			90	100	93	100	100	100
cM capacity (veh/h)	1536			1460			479	452	994	435	420	998

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	126	156	66	47	71	0	0
Volume Left	0	0	156	0	47	0	0	0
Volume Right	0	114	0	0	0	71	0	0
cSH	1700	1700	1460	1700	479	994	1700	1700
Volume to Capacity	0.00	0.07	0.11	0.04	0.10	0.07	0.00	0.00
Queue Length 95th (ft)	0	0	9	0	8	6	0	0
Control Delay (s)	0.0	0.0	7.8	0.0	13.3	8.9	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		5.5		10.7		0.0	
Approach LOS					B		A	

Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	25.1%	ICU Level of Service		A
Analysis Period (min)	15			



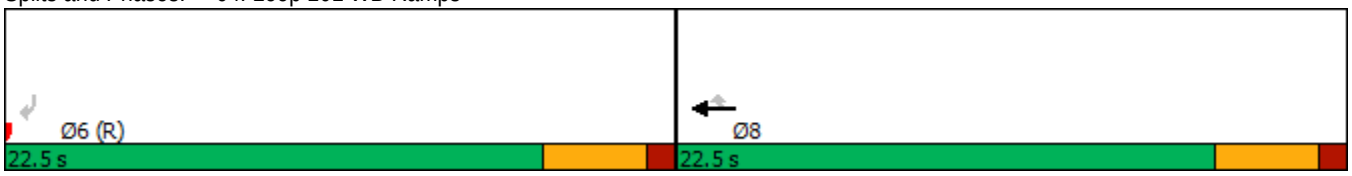
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

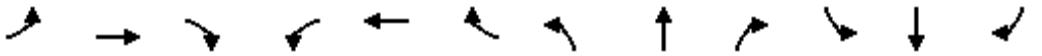
Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	62	35	11	3	68	930	71	4	401	15
Future Volume (vph)	20	16	62	35	11	3	68	930	71	4	401	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1807		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.48	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1393	1641		1305	1807		886	3539	1583	328	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	18	69	39	12	3	76	1033	79	4	446	17
RTOR Reduction (vph)	0	41	0	0	2	0	0	0	27	0	0	9
Lane Group Flow (vph)	22	46	0	39	13	0	76	1033	52	4	446	8
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	656		522	722		410	1639	733	151	1639	733
v/s Ratio Prot		0.03			0.01			c0.29			0.13	
v/s Ratio Perm	0.02			c0.03			0.09		0.03	0.01		0.00
v/c Ratio	0.04	0.07		0.07	0.02		0.19	0.63	0.07	0.03	0.27	0.01
Uniform Delay, d1	17.4	17.6		17.6	17.2		15.0	19.3	14.2	13.9	15.7	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.3	0.0		1.0	1.9	0.2	0.3	0.4	0.0
Delay (s)	17.5	17.8		17.9	17.3		16.0	21.2	14.3	14.2	16.1	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.7			17.7			20.4			16.0	
Approach LOS		B			B			C			B	

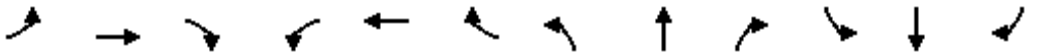
Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





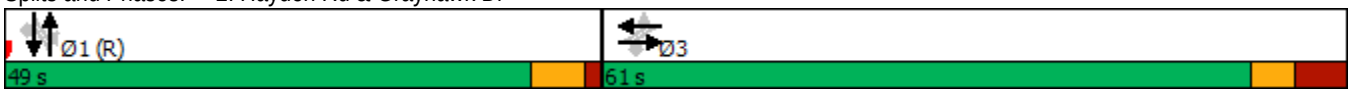
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	8	59	20	6	11	68	1049	33	11	439	34
Future Volume (vph)	32	8	59	20	6	11	68	1049	33	11	439	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1686		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.42	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1388	1863	1583	1400	1686		777	3539	1583	173	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	9	66	22	7	12	76	1166	37	12	488	38
RTOR Reduction (vph)	0	0	34	0	6	0	0	0	23	0	0	23
Lane Group Flow (vph)	36	9	32	22	13	0	76	1166	14	12	488	15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	668	897	762	674	812		303	1383	618	67	1383	618
v/s Ratio Prot		0.00			0.01			c0.33			0.14	
v/s Ratio Perm	c0.03		0.02	0.02			0.10		0.01	0.07		0.01
v/c Ratio	0.05	0.01	0.04	0.03	0.02		0.25	0.84	0.02	0.18	0.35	0.02
Uniform Delay, d1	15.2	14.8	15.1	15.0	14.9		22.6	30.4	20.6	21.9	23.7	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.1	0.0		2.0	6.4	0.1	5.8	0.7	0.1
Delay (s)	15.3	14.9	15.2	15.1	14.9		24.6	36.8	20.7	27.7	24.4	20.7
Level of Service	B	B	B	B	B		C	D	C	C	C	C
Approach Delay (s)		15.2			15.0			35.7			24.2	
Approach LOS		B			B			D			C	

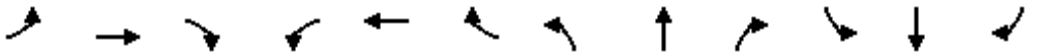
Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	365	238	186	222	145	319	954	379	192	296	54
Future Volume (vph)	64	365	238	186	222	145	319	954	379	192	296	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.60	1.00	1.00	0.24	1.00	1.00	0.50	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	1115	3539	1583	451	3539	1583	930	3539	1583	209	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	71	406	264	207	247	161	354	1060	421	213	329	60
RTOR Reduction (vph)	0	0	216	0	0	122	0	0	178	0	0	37
Lane Group Flow (vph)	71	406	48	207	247	39	354	1060	243	213	329	23
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	29.0	21.6	21.6	41.1	29.2	29.2	67.2	48.0	48.0	61.6	46.2	46.2
Effective Green, g (s)	29.0	21.6	21.6	41.1	29.2	29.2	67.2	48.0	48.0	61.6	46.2	46.2
Actuated g/C Ratio	0.24	0.18	0.18	0.34	0.24	0.24	0.56	0.40	0.40	0.51	0.39	0.39
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	637	284	330	861	385	655	1415	633	307	1362	609
v/s Ratio Prot	0.01	0.11		c0.08	0.07		0.09	c0.30		c0.09	0.09	
v/s Ratio Perm	0.04		0.03	c0.13		0.02	0.22		0.15	0.27		0.01
v/c Ratio	0.23	0.64	0.17	0.63	0.29	0.10	0.54	0.75	0.38	0.69	0.24	0.04
Uniform Delay, d1	35.9	45.6	41.6	30.3	36.9	35.2	14.7	30.8	25.5	22.0	25.0	23.0
Progression Factor	1.00	1.00	1.00	1.27	1.23	4.48	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.1	0.3	3.5	0.2	0.1	0.9	3.7	1.8	6.6	0.4	0.1
Delay (s)	36.3	47.7	41.9	42.0	45.7	158.0	15.6	34.5	27.3	28.6	25.4	23.1
Level of Service	D	D	D	D	D	F	B	C	C	C	C	C
Approach Delay (s)		44.5			73.9			29.2			26.3	
Approach LOS		D			E			C			C	

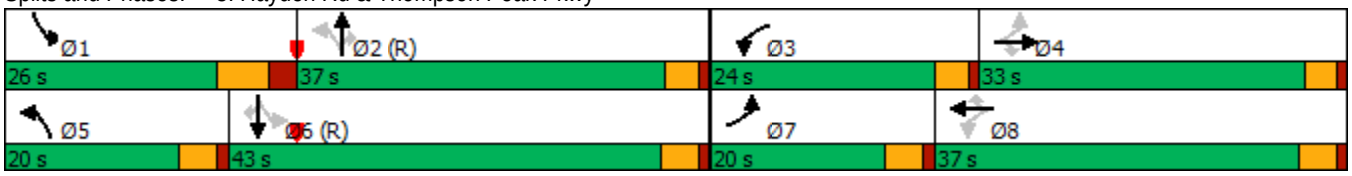
Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

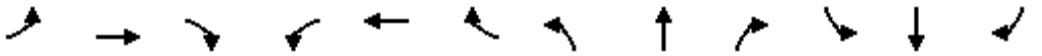
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	3	48	13	1	0	52	1616	21	0	655	19
Future Volume (vph)	25	3	48	13	1	0	52	1616	21	0	655	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863		1770	3539	1583		3539	1583
Flt Permitted	0.76	1.00	1.00	0.76	1.00		0.38	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1410	1863	1583	1408	1863		699	3539	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	3	53	14	1	0	58	1796	23	0	728	21
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	4	0	0	4
Lane Group Flow (vph)	28	3	3	14	1	0	58	1796	19	0	728	17
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	6.7	6.7	6.7	6.7	6.7		89.3	89.3	89.3		89.3	89.3
Effective Green, g (s)	6.7	6.7	6.7	6.7	6.7		89.3	89.3	89.3		89.3	89.3
Actuated g/C Ratio	0.06	0.06	0.06	0.06	0.06		0.81	0.81	0.81		0.81	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	85	113	96	85	113		567	2873	1285		2873	1285
v/s Ratio Prot		0.00			0.00			c0.51			0.21	
v/s Ratio Perm	c0.02		0.00	0.01			0.08		0.01			0.01
v/c Ratio	0.33	0.03	0.03	0.16	0.01		0.10	0.63	0.01		0.25	0.01
Uniform Delay, d1	49.5	48.6	48.6	49.0	48.5		2.1	4.0	2.0		2.5	2.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.1	0.1	0.9	0.0		0.4	1.0	0.0		0.2	0.0
Delay (s)	51.8	48.7	48.7	49.9	48.6		2.5	5.0	2.0		2.7	2.0
Level of Service	D	D	D	D	D		A	A	A		A	A
Approach Delay (s)		49.8			49.8			4.9			2.6	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

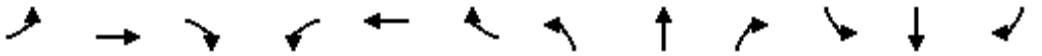
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	85
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	136	721	628	956	0	0	724	267
Future Volume (vph)	0	0	0	76	136	721	628	956	0	0	724	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1586	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1586	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	84	151	801	698	1062	0	0	804	297
RTOR Reduction (vph)	0	0	0	0	78	288	0	0	0	0	0	191
Lane Group Flow (vph)	0	0	0	84	409	177	698	1062	0	0	804	106
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				39.2	39.2	39.2	18.0	39.8			42.8	42.8
Effective Green, g (s)				39.2	39.2	39.2	18.0	39.8			42.8	42.8
Actuated g/C Ratio				0.33	0.33	0.33	0.15	0.33			0.36	0.36
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1121	518	491	265	1173			2285	564
v/s Ratio Prot					c0.26		c0.39	c0.30			0.13	
v/s Ratio Perm				0.02		0.12						0.07
v/c Ratio				0.07	0.79	0.36	2.63	0.91			0.35	0.19
Uniform Delay, d1				27.9	36.7	30.8	51.0	38.3			28.4	26.6
Progression Factor				1.00	1.00	1.00	0.94	0.63			1.00	1.00
Incremental Delay, d2				0.0	7.8	0.5	743.7	8.1			0.4	0.7
Delay (s)				27.9	44.5	31.3	791.7	32.1			28.8	27.4
Level of Service				C	D	C	F	C			C	C
Approach Delay (s)		0.0			37.2			333.3			28.4	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	168.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

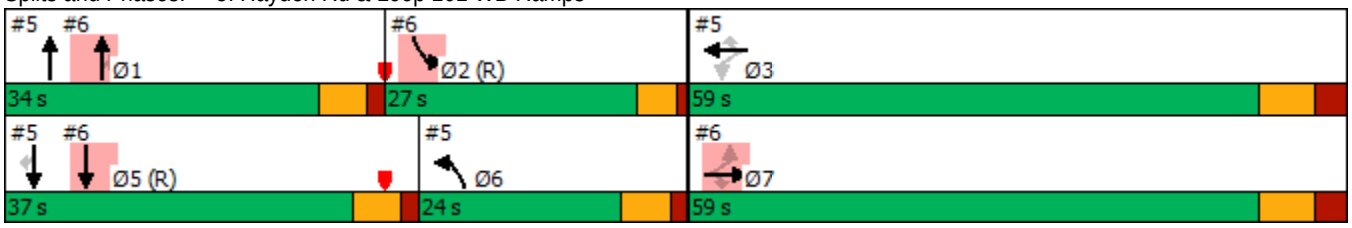
c Critical Lane Group

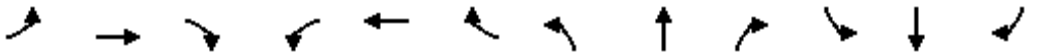
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	37	24	59
Maximum Split (%)	28.3%	22.5%	49.2%	30.8%	20.0%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	3	27
End Time (s)	0	27	86	3	27	86
Yield/Force Off (s)	114	22.5	78	117	21	78
Yield/Force Off 170(s)	104	22.5	52	107	21	52
Local Start Time (s)	86	0	27	86	3	27
Local Yield (s)	114	22.5	78	117	21	78
Local Yield 170(s)	104	22.5	52	107	21	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	526	5	156	0	0	0	0	1095	54	481	334	0
Future Volume (vph)	526	5	156	0	0	0	0	1095	54	481	334	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1607	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1607	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	584	6	173	0	0	0	0	1217	60	534	371	0
RTOR Reduction (vph)	0	2	105	0	0	0	0	0	40	0	0	0
Lane Group Flow (vph)	304	301	51	0	0	0	0	1217	20	534	371	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	39.2	39.2	39.2					39.8	39.8	22.5	42.8	
Effective Green, g (s)	39.2	39.2	39.2					39.8	39.8	22.5	42.8	
Actuated g/C Ratio	0.33	0.33	0.33					0.33	0.33	0.19	0.36	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	549	524	491					1686	525	643	1262	
v/s Ratio Prot								c0.24		c0.16	0.10	
v/s Ratio Perm	0.18	0.19	0.03						0.01			
v/c Ratio	0.55	0.57	0.10					0.72	0.04	0.83	0.29	
Uniform Delay, d1	33.2	33.5	28.2					35.2	27.1	46.9	27.7	
Progression Factor	1.20	1.19	4.26					0.89	3.12	0.79	0.31	
Incremental Delay, d2	0.9	1.1	0.1					1.5	0.0	11.5	0.6	
Delay (s)	40.6	41.1	120.1					32.8	84.7	48.4	9.2	
Level of Service	D	D	F					C	F	D	A	
Approach Delay (s)		57.0			0.0			35.2			32.3	
Approach LOS		E			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

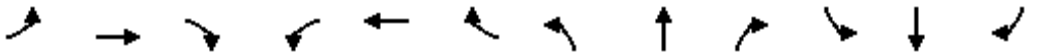
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	244	900	5	33	476
Future Volume (Veh/h)	3	244	900	5	33	476
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	271	1000	6	37	529
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.94					
vC, conflicting volume	1338	500			1006	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1233	500			1006	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	48			95	
cM capacity (veh/h)	150	516			684	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	274	500	500	6	37	264	264
Volume Left	3	0	0	0	37	0	0
Volume Right	271	0	0	6	0	0	0
cSH	503	1700	1700	1700	684	1700	1700
Volume to Capacity	0.54	0.29	0.29	0.00	0.05	0.16	0.16
Queue Length 95th (ft)	81	0	0	0	4	0	0
Control Delay (s)	20.4	0.0	0.0	0.0	10.6	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	20.4	0.0			0.7		
Approach LOS	C						

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	18	63	217	0	135	127	754	142	11	408	61
Future Volume (vph)	32	18	63	217	0	135	127	754	142	11	408	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1805	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.49	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)		1805	1583	3433		1583	907	3539	1583	562	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	20	70	241	0	150	141	838	158	12	453	68
RTOR Reduction (vph)	0	0	65	0	0	133	0	0	56	0	0	24
Lane Group Flow (vph)	0	56	5	241	0	17	141	838	102	12	453	44
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		9.1	9.1	13.8		13.8	77.1	77.1	77.1	77.1	77.1	77.1
Effective Green, g (s)		9.1	9.1	13.8		13.8	77.1	77.1	77.1	77.1	77.1	77.1
Actuated g/C Ratio		0.08	0.08	0.12		0.12	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	120	394		182	582	2273	1017	361	2273	1017
v/s Ratio Prot		c0.03		c0.07				c0.24			0.13	
v/s Ratio Perm			0.00			0.01	0.16		0.06	0.02		0.03
v/c Ratio		0.41	0.04	0.61		0.09	0.24	0.37	0.10	0.03	0.20	0.04
Uniform Delay, d1		52.9	51.4	50.5		47.5	9.1	10.0	8.2	7.8	8.8	7.9
Progression Factor		1.32	3.12	1.00		1.00	1.20	1.17	2.32	1.78	1.47	7.48
Incremental Delay, d2		2.0	0.1	2.8		0.2	0.9	0.4	0.2	0.2	0.2	0.1
Delay (s)		71.7	160.8	53.4		47.7	11.8	12.2	19.2	14.1	13.2	59.1
Level of Service		E	F	D		D	B	B	B	B	B	E
Approach Delay (s)		121.2			51.2			13.1			19.0	
Approach LOS		F			D			B			B	

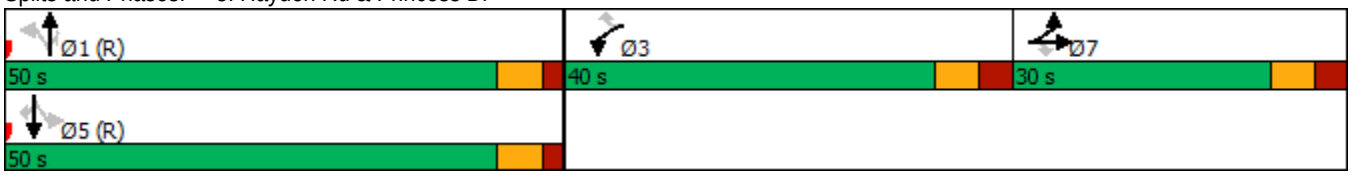
Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

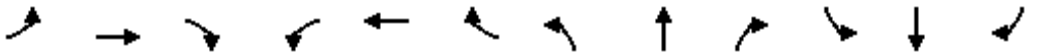
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr

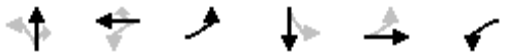




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1	19	419	0	107	5	954	236	108	609	9
Future Volume (vph)	11	1	19	419	0	107	5	954	236	108	609	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3156		1681	1681	1583	1770	3539	1583	1770	3531	
Flt Permitted		0.88		0.73	0.73	1.00	0.37	1.00	1.00	0.22	1.00	
Satd. Flow (perm)		2815		1299	1299	1583	681	3539	1583	415	3531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	1	21	466	0	119	6	1060	262	120	677	10
RTOR Reduction (vph)	0	20	0	0	0	90	0	0	94	0	0	0
Lane Group Flow (vph)	0	14	0	233	233	29	6	1060	168	120	687	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.0		29.2	29.2	29.2	76.8	76.8	76.8	76.8	76.8	
Effective Green, g (s)		4.0		29.2	29.2	29.2	76.8	76.8	76.8	76.8	76.8	
Actuated g/C Ratio		0.03		0.24	0.24	0.24	0.64	0.64	0.64	0.64	0.64	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		93		370	370	385	435	2264	1013	265	2259	
v/s Ratio Prot				c0.09	0.09			c0.30			0.19	
v/s Ratio Perm		0.00		c0.06	0.06	0.02	0.01		0.11	0.29		
v/c Ratio		0.15		0.63	0.63	0.08	0.01	0.47	0.17	0.45	0.30	
Uniform Delay, d1		56.3		39.8	40.6	35.0	7.8	11.1	8.7	10.9	9.7	
Progression Factor		1.00		1.00	1.00	1.00	1.46	1.28	3.46	1.47	1.51	
Incremental Delay, d2		0.7		3.3	3.3	0.1	0.0	0.4	0.2	5.4	0.3	
Delay (s)		57.1		43.1	43.9	35.1	11.5	14.6	30.3	21.6	14.9	
Level of Service		E		D	D	D	B	B	C	C	B	
Approach Delay (s)		57.1			41.8			17.7			15.9	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

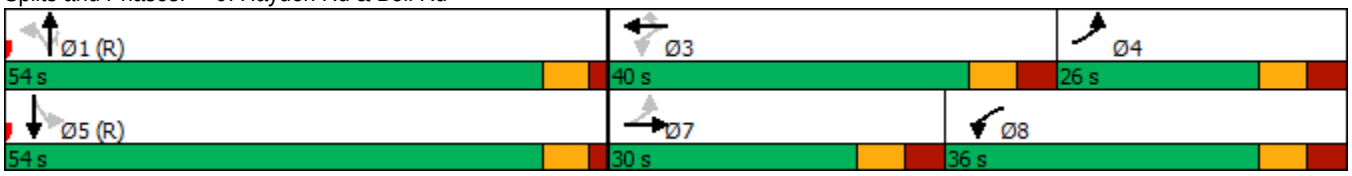
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	54	1836	93	17	943
Future Volume (vph)	113	54	1836	93	17	943
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1770	1583	3539	1583	126	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	60	2040	103	19	1048
RTOR Reduction (vph)	0	28	0	13	0	0
Lane Group Flow (vph)	126	32	2040	90	19	1048
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.8	12.8	95.2	95.2	95.2	95.2
Effective Green, g (s)	12.8	12.8	95.2	95.2	95.2	95.2
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	188	168	2807	1255	99	2807
v/s Ratio Prot	c0.07		c0.58			0.30
v/s Ratio Perm		0.02		0.06	0.15	
v/c Ratio	0.67	0.19	0.73	0.07	0.19	0.37
Uniform Delay, d1	51.6	48.9	6.1	2.7	3.0	3.6
Progression Factor	1.00	1.00	0.85	0.77	1.00	1.00
Incremental Delay, d2	9.0	0.6	1.2	0.1	4.3	0.4
Delay (s)	60.6	49.4	6.3	2.2	7.3	4.0
Level of Service	E	D	A	A	A	A
Approach Delay (s)	57.0		6.1			4.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	109	59	1846	109	52	972
Future Volume (vph)	109	59	1846	109	52	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1770	1583	3539	1583	122	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	66	2051	121	58	1080
RTOR Reduction (vph)	0	25	0	20	0	0
Lane Group Flow (vph)	121	41	2051	101	58	1080
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.2	13.2	94.8	94.8	94.8	94.8
Effective Green, g (s)	13.2	13.2	94.8	94.8	94.8	94.8
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	174	2795	1250	96	2795
v/s Ratio Prot	c0.07		c0.58			0.31
v/s Ratio Perm		0.03		0.06	0.48	
v/c Ratio	0.62	0.24	0.73	0.08	0.60	0.39
Uniform Delay, d1	51.0	48.8	6.3	2.8	5.1	3.8
Progression Factor	1.00	1.00	2.42	3.25	1.29	0.85
Incremental Delay, d2	6.1	0.7	0.5	0.0	23.6	0.4
Delay (s)	57.1	49.5	15.7	9.2	30.2	3.6
Level of Service	E	D	B	A	C	A
Approach Delay (s)	54.4		15.4			5.0
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	534	181	1557	381	127	1104
Future Volume (vph)	534	181	1557	381	127	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	201	1730	423	141	1227
RTOR Reduction (vph)	0	158	0	246	0	0
Lane Group Flow (vph)	593	43	1730	177	141	1227
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.8	25.8	50.2	50.2	25.0	79.2
Effective Green, g (s)	25.8	25.8	50.2	50.2	25.0	79.2
Actuated g/C Ratio	0.22	0.22	0.42	0.42	0.21	0.66
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	340	1480	662	368	2335
v/s Ratio Prot	c0.17		c0.49		0.08	c0.35
v/s Ratio Perm		0.03		0.11		
v/c Ratio	0.80	0.13	1.17	0.27	0.38	0.53
Uniform Delay, d1	44.7	38.0	34.9	22.9	40.9	10.6
Progression Factor	1.00	1.00	1.25	4.88	0.88	0.76
Incremental Delay, d2	6.3	0.2	79.5	0.4	2.9	0.8
Delay (s)	51.0	38.2	123.3	112.0	39.0	8.9
Level of Service	D	D	F	F	D	A
Approach Delay (s)	47.8		121.1			12.0
Approach LOS	D		F			B

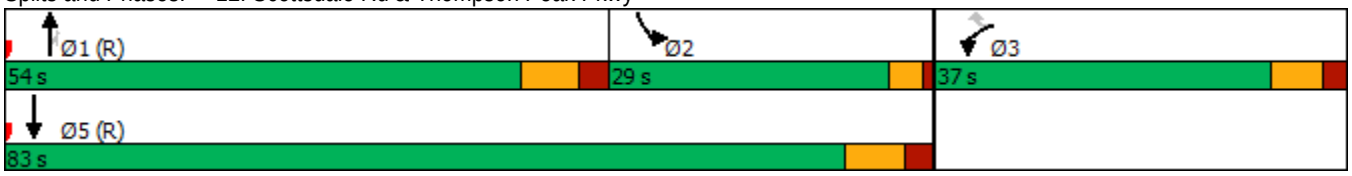
Intersection Summary			
HCM 2000 Control Delay	73.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	168	37	1923	146	28	1637
Future Volume (vph)	168	37	1923	146	28	1637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	187	41	2137	162	31	1819
RTOR Reduction (vph)	0	37	0	21	0	0
Lane Group Flow (vph)	187	4	2137	141	31	1819
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	11.9	11.9	80.1	80.1	10.0	94.1
Effective Green, g (s)	11.9	11.9	80.1	80.1	10.0	94.1
Actuated g/C Ratio	0.10	0.10	0.67	0.67	0.08	0.78
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	340	156	2362	1056	147	2775
v/s Ratio Prot	c0.05		c0.60		0.02	c0.51
v/s Ratio Perm		0.00		0.09		
v/c Ratio	0.55	0.03	0.90	0.13	0.21	0.66
Uniform Delay, d1	51.5	48.8	16.7	7.3	51.3	5.8
Progression Factor	1.00	1.00	1.87	2.20	0.90	0.43
Incremental Delay, d2	1.9	0.1	2.8	0.1	2.7	1.0
Delay (s)	53.4	48.9	34.2	16.1	49.0	3.5
Level of Service	D	D	C	B	D	A
Approach Delay (s)	52.6		33.0			4.3
Approach LOS	D		C			A

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

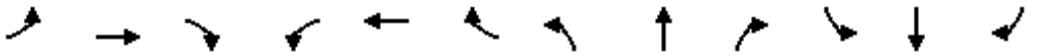
c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	120	
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Future Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.91	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1616	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1616	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	644	163	591	767	1727	0	0	1340	742
RTOR Reduction (vph)	0	0	0	0	43	269	0	0	0	0	0	188
Lane Group Flow (vph)	0	0	0	644	345	97	767	1727	0	0	1340	554
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				31.9	31.9	31.9	20.0	41.1			51.1	51.1
Effective Green, g (s)				31.9	31.9	31.9	20.0	41.1			51.1	51.1
Actuated g/C Ratio				0.27	0.27	0.27	0.17	0.34			0.43	0.43
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				912	429	399	572	1741			3212	674
v/s Ratio Prot					c0.21		c0.22	c0.34			0.18	
v/s Ratio Perm				0.19		0.06						c0.35
v/c Ratio				0.71	0.81	0.24	1.34	0.99			0.42	0.82
Uniform Delay, d1				39.8	41.1	34.6	50.0	39.3			24.1	30.4
Progression Factor				1.00	1.00	1.00	1.02	0.36			1.14	1.24
Incremental Delay, d2				2.5	10.5	0.3	161.5	16.1			0.3	8.9
Delay (s)				42.3	51.7	34.9	212.3	30.4			27.8	46.7
Level of Service				D	D	C	F	C			C	D
Approach Delay (s)		0.0			43.0			86.4			34.5	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	58.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

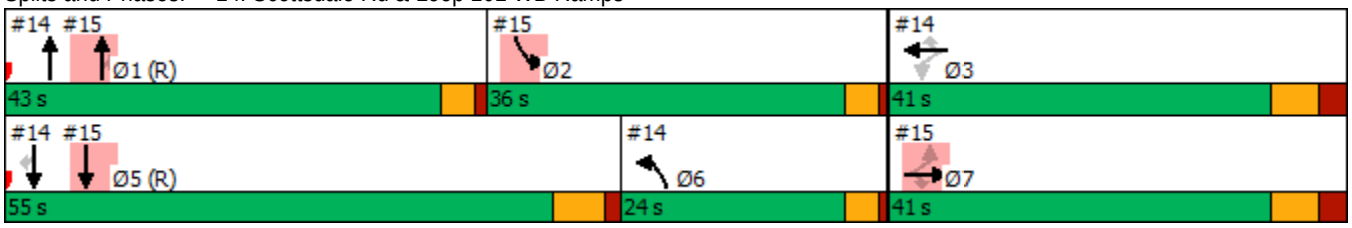
c Critical Lane Group

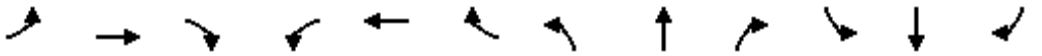
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	100	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

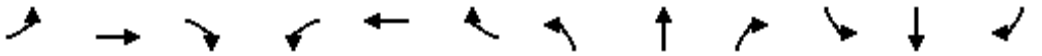




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Future Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	573	0	684	0	0	0	0	1934	582	558	1527	0
RTOR Reduction (vph)	0	250	250	0	0	0	0	0	227	0	0	0
Lane Group Flow (vph)	573	92	92	0	0	0	0	1934	355	558	1527	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	31.9	31.9	31.9					41.1	41.1	32.0	51.1	
Effective Green, g (s)	31.9	31.9	31.9					41.1	41.1	32.0	51.1	
Actuated g/C Ratio	0.27	0.27	0.27					0.34	0.34	0.27	0.43	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	912	399	399					2583	542	915	2165	
v/s Ratio Prot		0.06						c0.26		c0.16	c0.30	
v/s Ratio Perm	c0.17		0.06						0.22			
v/c Ratio	0.63	0.23	0.23					0.75	0.65	0.61	0.71	
Uniform Delay, d1	38.8	34.5	34.5					34.9	33.4	38.5	28.3	
Progression Factor	1.00	1.00	1.00					1.11	1.67	1.08	0.57	
Incremental Delay, d2	1.4	0.3	0.3					1.2	3.5	2.7	1.8	
Delay (s)	40.2	34.8	34.8					40.0	59.4	44.4	17.9	
Level of Service	D	C	C					D	E	D	B	
Approach Delay (s)		37.2			0.0			44.5			25.0	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Future Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	720	10	196	12	14	23	386	1808	12	11	1386	798
RTOR Reduction (vph)	0	0	131	0	21	0	0	0	7	0	0	503
Lane Group Flow (vph)	720	10	65	12	16	0	386	1808	5	11	1386	295
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	32.4	39.6	39.6	1.3	8.5		9.6	52.3	52.3	1.4	44.4	44.4
Effective Green, g (s)	32.4	39.6	39.6	1.3	8.5		9.6	52.3	52.3	1.4	44.4	44.4
Actuated g/C Ratio	0.27	0.33	0.33	0.01	0.07		0.08	0.44	0.44	0.01	0.37	0.37
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	926	1678	522	37	227		274	2216	689	40	1881	585
v/s Ratio Prot	c0.21	0.00		0.00	0.00		c0.11	c0.36		0.00	0.27	
v/s Ratio Perm			c0.04						0.00			0.19
v/c Ratio	0.78	0.01	0.12	0.32	0.07		1.41	0.82	0.01	0.28	0.74	0.50
Uniform Delay, d1	40.5	27.0	28.1	58.9	52.1		55.2	29.6	19.2	58.8	32.7	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.90	1.08	1.00	1.29	1.11	8.17
Incremental Delay, d2	4.2	0.0	0.1	5.1	0.1		200.7	2.0	0.0	12.5	1.2	0.5
Delay (s)	44.6	27.0	28.2	64.0	52.2		250.1	33.9	19.2	88.3	37.6	239.8
Level of Service	D	C	C	E	D		F	C	B	F	D	F
Approach Delay (s)		41.0			55.1			71.7			111.4	
Approach LOS		D			E			E			F	

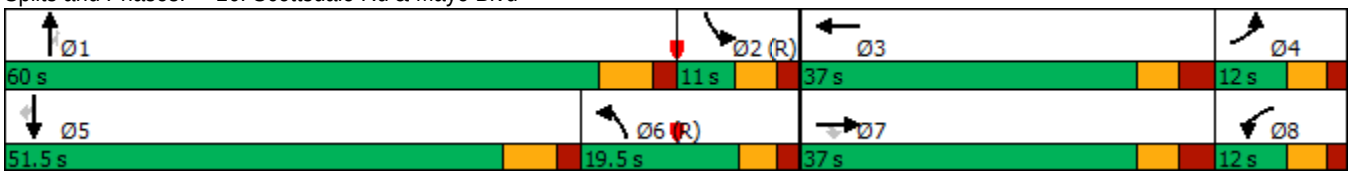
Intersection Summary			
HCM 2000 Control Delay	82.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

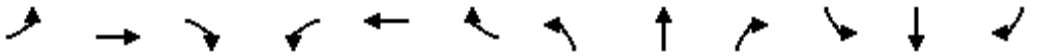
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1	123	14	4	4	144	1942	6	9	1547	87
Future Volume (vph)	122	1	123	14	4	4	144	1942	6	9	1547	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	768	3539	1583	1774	3539	1583	145	5085	1583	114	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	1	137	16	4	4	160	2158	7	10	1719	97
RTOR Reduction (vph)	0	0	119	0	0	4	0	0	3	0	0	44
Lane Group Flow (vph)	136	1	18	16	4	0	160	2158	4	10	1719	53
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.3	15.9	15.9	7.1	4.2	4.2	81.7	74.9	74.9	66.8	65.5	65.5
Effective Green, g (s)	24.3	15.9	15.9	7.1	4.2	4.2	81.7	74.9	74.9	66.8	65.5	65.5
Actuated g/C Ratio	0.20	0.13	0.13	0.06	0.04	0.04	0.68	0.62	0.62	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	468	209	104	123	55	243	3173	988	81	2775	864
v/s Ratio Prot	c0.06	0.00		0.00	0.00		c0.06	c0.42		0.00	0.34	
v/s Ratio Perm	c0.04		0.01	0.01		0.00	0.39		0.00	0.07		0.03
v/c Ratio	0.49	0.00	0.09	0.15	0.03	0.00	0.66	0.68	0.00	0.12	0.62	0.06
Uniform Delay, d1	41.5	45.2	45.7	53.6	55.9	55.9	18.4	14.7	8.5	13.4	18.7	12.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.60	1.00	0.68	0.63	1.79
Incremental Delay, d2	1.4	0.0	0.2	0.7	0.1	0.0	4.8	0.9	0.0	0.6	0.9	0.1
Delay (s)	42.8	45.2	45.9	54.3	56.0	55.9	29.3	24.5	8.5	9.7	12.6	23.0
Level of Service	D	D	D	D	E	E	C	C	A	A	B	C
Approach Delay (s)		44.4			54.8			24.8			13.1	
Approach LOS		D			D			C			B	

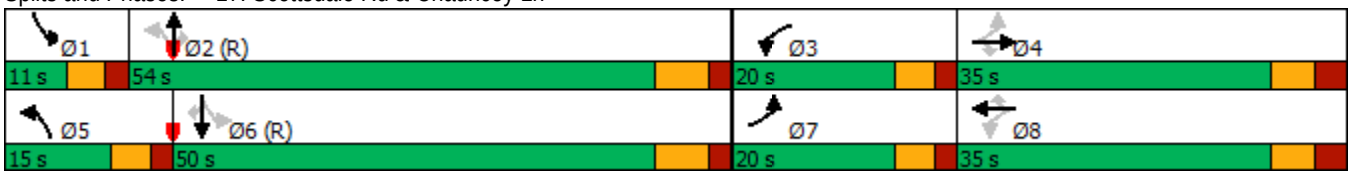
Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

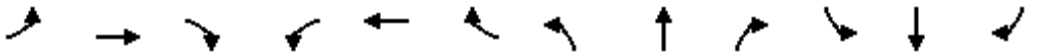
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Future Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3035		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.45	1.00	1.00	0.09	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1355	3035		835	3539	1583	174	5085	1583	111	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	14	268	141	43	211	278	2009	109	126	1663	77
RTOR Reduction (vph)	0	206	0	0	0	190	0	0	48	0	0	34
Lane Group Flow (vph)	60	76	0	141	43	21	278	2009	61	126	1663	43
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	19.1	12.0		19.1	12.0	12.0	79.9	66.9	66.9	79.9	66.9	66.9
Effective Green, g (s)	19.1	12.0		19.1	12.0	12.0	79.9	66.9	66.9	79.9	66.9	66.9
Actuated g/C Ratio	0.16	0.10		0.16	0.10	0.10	0.67	0.56	0.56	0.67	0.56	0.56
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	303		188	353	158	288	2834	882	253	2834	882
v/s Ratio Prot	0.01	0.03		c0.04	0.01		c0.10	0.40		0.05	0.33	
v/s Ratio Perm	0.02			c0.07		0.01	c0.54		0.04	0.28		0.03
v/c Ratio	0.25	0.25		0.75	0.12	0.13	0.97	0.71	0.07	0.50	0.59	0.05
Uniform Delay, d1	44.4	49.8		49.4	49.2	49.3	30.8	19.4	12.2	32.5	17.5	12.1
Progression Factor	1.00	1.00		0.99	0.94	1.27	0.75	1.54	4.16	0.65	0.74	4.94
Incremental Delay, d2	0.5	0.4		15.4	0.2	0.4	36.6	1.1	0.1	5.8	0.8	0.1
Delay (s)	44.9	50.3		64.2	46.6	62.9	59.6	31.0	51.0	27.1	13.6	59.8
Level of Service	D	D		E	D	E	E	C	D	C	B	E
Approach Delay (s)		49.3			61.6			35.2			16.4	
Approach LOS		D			E			D			B	

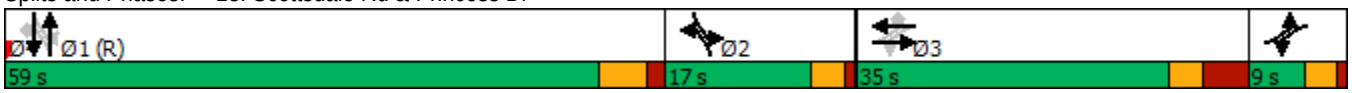
Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

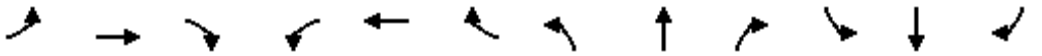
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Future Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1672			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.61		0.07	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1384			1087		125	5085	1583	98	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	2	132	102	9	63	119	2271	29	62	1976	91
RTOR Reduction (vph)	0	59	0	0	19	0	0	0	11	0	0	33
Lane Group Flow (vph)	0	147	0	0	155	0	119	2271	18	62	1976	58
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.9			20.9		82.1	76.1	76.1	82.1	76.1	76.1
Effective Green, g (s)		20.9			20.9		82.1	76.1	76.1	82.1	76.1	76.1
Actuated g/C Ratio		0.17			0.17		0.68	0.63	0.63	0.68	0.63	0.63
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		241			189		167	3224	1003	150	3224	1003
v/s Ratio Prot							c0.04	0.45		0.02	0.39	
v/s Ratio Perm		0.11			c0.14		c0.45		0.01	0.26		0.04
v/c Ratio		0.61			0.82		0.71	0.70	0.02	0.41	0.61	0.06
Uniform Delay, d1		45.8			47.7		29.7	14.5	8.1	32.0	13.1	8.3
Progression Factor		1.00			1.00		1.75	1.75	1.00	0.76	1.37	2.96
Incremental Delay, d2		4.5			23.9		2.4	0.1	0.0	7.0	0.7	0.1
Delay (s)		50.3			71.6		54.4	25.5	8.1	31.3	18.7	24.8
Level of Service		D			E		D	C	A	C	B	C
Approach Delay (s)		50.3			71.6			26.7			19.3	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

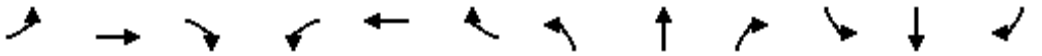
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Future Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4889	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4889	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	302	664	231	218	1588	524	551	1668	266	399	1370	474
RTOR Reduction (vph)	0	0	96	0	0	61	0	0	138	0	52	0
Lane Group Flow (vph)	302	664	135	218	1588	463	551	1668	128	399	1792	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	15.8	40.3	40.3	10.7	35.2	53.1	5.0	29.1	29.1	17.9	42.0	
Effective Green, g (s)	15.8	40.3	40.3	10.7	35.2	53.1	5.0	29.1	29.1	17.9	42.0	
Actuated g/C Ratio	0.13	0.34	0.34	0.09	0.29	0.44	0.04	0.24	0.24	0.15	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	452	1707	531	306	1491	700	143	1233	383	512	1711	
v/s Ratio Prot	c0.09	0.13		0.06	c0.31	0.10	c0.16	c0.33		0.12	c0.37	
v/s Ratio Perm			0.09			0.19			0.08			
v/c Ratio	0.67	0.39	0.25	0.71	1.07	0.66	3.85	1.35	0.33	0.78	1.05	
Uniform Delay, d1	49.6	30.4	28.9	53.2	42.4	26.4	57.5	45.5	37.5	49.1	39.0	
Progression Factor	1.00	1.00	1.00	0.91	1.58	1.19	1.00	1.00	1.00	0.88	0.88	
Incremental Delay, d2	3.7	0.7	1.1	2.0	33.6	0.6	1300.7	164.2	2.3	6.0	33.3	
Delay (s)	53.3	31.1	30.1	50.3	100.7	32.0	1358.2	209.6	39.8	49.1	67.5	
Level of Service	D	C	C	D	F	C	F	F	D	D	E	
Approach Delay (s)		36.5			80.5			446.1			64.2	
Approach LOS		D			F			F			E	

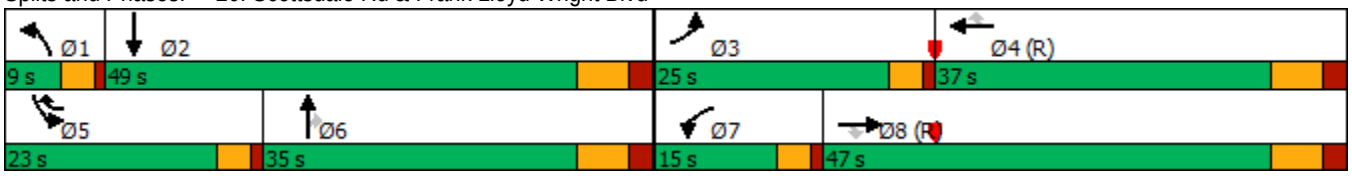
Intersection Summary			
HCM 2000 Control Delay	179.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

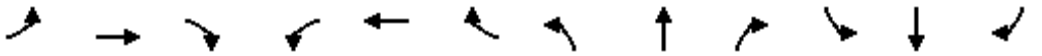
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	135
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Future Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	419	1202	62	388	1801	371	87	477	602	270	598	614
RTOR Reduction (vph)	0	0	37	0	0	98	0	0	70	0	0	171
Lane Group Flow (vph)	419	1202	25	388	1801	273	87	477	532	270	598	443
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Effective Green, g (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Actuated g/C Ratio	0.11	0.40	0.40	0.11	0.40	0.40	0.02	0.19	0.30	0.07	0.23	0.23
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	2034	633	371	2034	633	44	678	567	228	825	369
v/s Ratio Prot	c0.12	0.24		0.11	c0.35		0.05	0.13	0.10	c0.08	0.17	
v/s Ratio Perm			0.02			0.17			0.23			c0.28
v/c Ratio	1.13	0.59	0.04	1.05	0.89	0.43	1.98	0.70	0.94	1.18	0.72	1.20
Uniform Delay, d1	53.5	28.3	21.9	53.5	33.4	26.1	58.5	45.3	40.9	56.0	42.4	46.0
Progression Factor	1.02	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.84	1.09	1.23
Incremental Delay, d2	85.1	1.2	0.1	59.2	6.1	2.1	511.0	3.3	23.3	117.6	3.1	112.9
Delay (s)	139.8	26.6	22.1	112.7	39.6	28.2	569.5	48.6	64.2	164.7	49.4	169.6
Level of Service	F	C	C	F	D	C	F	D	E	F	D	F
Approach Delay (s)		54.6			49.0			95.5			120.2	
Approach LOS		D			D			F			F	

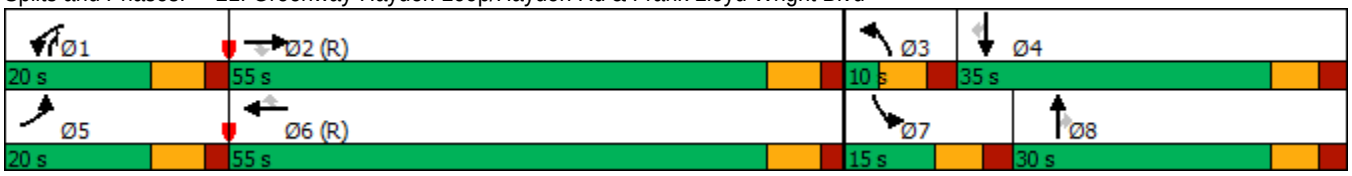
Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

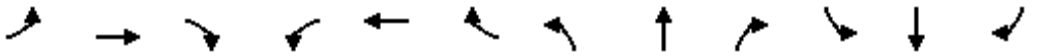
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	414	331	122	82	198	343	204	1403	4	311	910	197
Future Volume (vph)	414	331	122	82	198	343	204	1403	4	311	910	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	460	368	136	91	220	381	227	1559	4	346	1011	219
RTOR Reduction (vph)	0	0	60	0	0	53	0	0	0	0	0	92
Lane Group Flow (vph)	460	368	76	91	220	328	227	1563	0	346	1011	127
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	25.3	24.1	37.1	16.5	15.3	33.3	13.0	39.4		18.0	44.4	69.7
Effective Green, g (s)	25.3	24.1	37.1	16.5	15.3	33.3	13.0	39.4		18.0	44.4	69.7
Actuated g/C Ratio	0.21	0.20	0.31	0.14	0.13	0.28	0.11	0.33		0.15	0.37	0.58
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	723	710	542	472	451	492	371	1668		514	1881	972
v/s Ratio Prot	c0.13	0.10	0.02	0.03	0.06	c0.10	0.07	c0.31		c0.10	0.20	0.03
v/s Ratio Perm			0.03			0.11						0.05
v/c Ratio	0.64	0.52	0.14	0.19	0.49	0.67	0.61	0.94		0.67	0.54	0.13
Uniform Delay, d1	43.2	42.8	29.9	45.8	48.7	38.4	51.1	39.1		48.2	29.7	11.4
Progression Factor	0.78	1.33	2.44	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.6	0.1	0.2	0.8	3.4	7.3	11.4		6.9	1.1	0.1
Delay (s)	35.2	57.6	73.3	46.1	49.5	41.9	58.4	50.5		55.1	30.8	11.5
Level of Service	D	E	E	D	D	D	E	D		E	C	B
Approach Delay (s)		49.1			44.8			51.5			33.5	
Approach LOS		D			D			D			C	

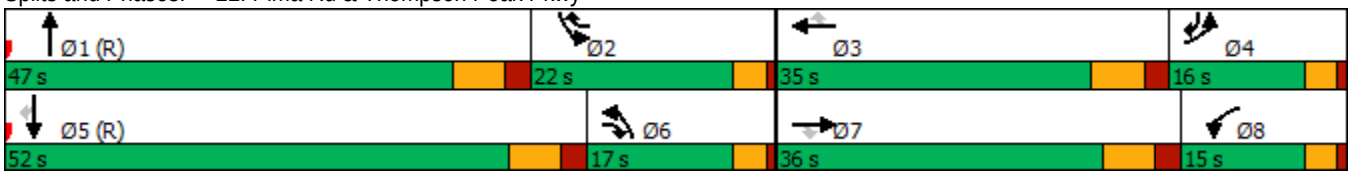
Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

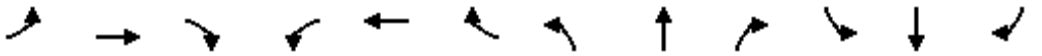
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





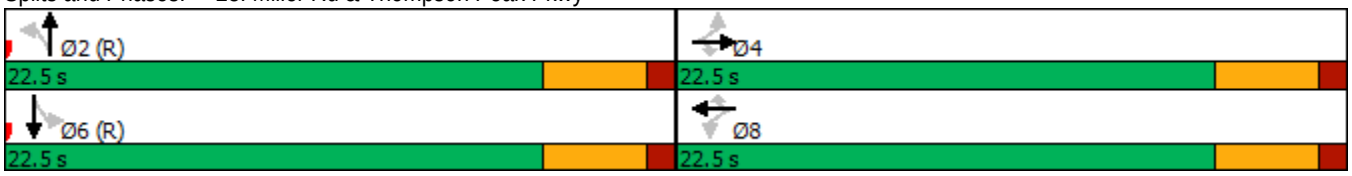
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	498	9	14	136	0	26	0	33	0	0	0
Future Volume (vph)	0	498	9	14	136	0	26	0	33	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.43	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	796	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	553	10	16	151	0	29	0	37	0	0	0
RTOR Reduction (vph)	0	0	6	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	553	4	16	151	0	29	15	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	318	1415		564	1203				
v/s Ratio Prot		c0.16			0.04			0.00				
v/s Ratio Perm			0.00	0.02			c0.02					
v/c Ratio		0.39	0.01	0.05	0.11		0.05	0.01				
Uniform Delay, d1		9.6	8.1	8.3	8.5		8.3	8.1				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		0.8	0.0	0.3	0.2		0.2	0.0				
Delay (s)		10.4	8.1	8.6	8.6		8.4	8.2				
Level of Service		B	A	A	A		A	A				
Approach Delay (s)		10.4			8.6			8.3			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

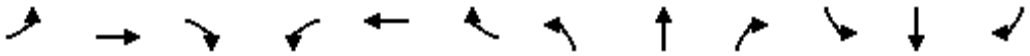
Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy



Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

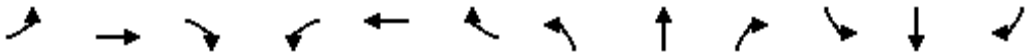
Channelized right turn lanes are not counted.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	33	0	4	56	14	193	0
Future Volume (Veh/h)	0	0	0	0	0	33	0	4	56	14	193	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	37	0	4	62	16	214	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	287	312	214	281	281	35	214			66		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	287	312	214	281	281	35	214			66		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	96	100			99		
cM capacity (veh/h)	636	597	826	666	621	1038	1356			1536		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	37	0	66	16	214
Volume Left	0	0	0	0	16	0
Volume Right	0	37	0	62	0	0
cSH	1700	1038	1700	1700	1536	1700
Volume to Capacity	0.00	0.04	0.00	0.04	0.01	0.13
Queue Length 95th (ft)	0	3	0	0	1	0
Control Delay (s)	0.0	8.6	0.0	0.0	7.4	0.0
Lane LOS	A	A			A	
Approach Delay (s)	0.0	8.6	0.0		0.5	
Approach LOS	A	A				

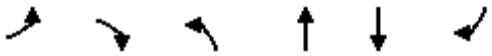
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	20.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	49	21	37	122	0	58	0	35	0	0	0
Future Volume (Veh/h)	0	49	21	37	122	0	58	0	35	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	54	23	41	136	0	64	0	39	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	136			77			284	284	66	311	295	136
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	136			77			284	284	66	311	295	136
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			90	100	96	100	100	100
cM capacity (veh/h)	1448			1522			655	609	998	604	600	913

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	77	41	136	64	39	0	0
Volume Left	0	0	41	0	64	0	0	0
Volume Right	0	23	0	0	0	39	0	0
cSH	1700	1700	1522	1700	655	998	1700	1700
Volume to Capacity	0.00	0.05	0.03	0.08	0.10	0.04	0.00	0.00
Queue Length 95th (ft)	0	0	2	0	8	3	0	0
Control Delay (s)	0.0	0.0	7.4	0.0	11.1	8.8	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		1.7		10.2		0.0	
Approach LOS					B		A	

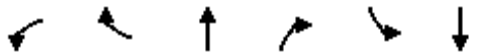
Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	18.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	120	114	58	2	50	36
Future Volume (Veh/h)	120	114	58	2	50	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	133	127	64	2	56	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					990	
pX, platoon unblocked						
vC, conflicting volume	185	28	96			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	185	28	96			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	88	96			
cM capacity (veh/h)	753	1041	1496			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	133	127	64	1	1	28	28	40
Volume Left	133	0	64	0	0	0	0	0
Volume Right	0	127	0	0	0	0	0	40
cSH	753	1041	1496	1700	1700	1700	1700	1700
Volume to Capacity	0.18	0.12	0.04	0.00	0.00	0.02	0.02	0.02
Queue Length 95th (ft)	16	10	3	0	0	0	0	0
Control Delay (s)	10.8	8.9	7.5	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A	A					
Approach Delay (s)	9.9		7.3			0.0		
Approach LOS	A							

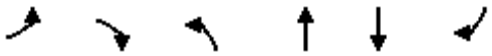
Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	23.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	180	0	0	70	0
Future Volume (Veh/h)	0	180	0	0	70	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	200	0	0	78	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	156	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			95	
cM capacity (veh/h)	795	1085			1623	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	200	0	0	78	0
Volume Left	0	0	0	0	78	0
Volume Right	0	200	0	0	0	0
cSH	1700	1085	1700	1700	1623	1700
Volume to Capacity	0.00	0.18	0.00	0.00	0.05	0.00
Queue Length 95th (ft)	0	17	0	0	4	0
Control Delay (s)	0.0	9.1	0.0	0.0	7.3	0.0
Lane LOS	A	A			A	
Approach Delay (s)	9.1		0.0		7.3	
Approach LOS	A					

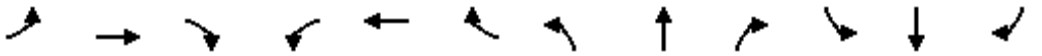
Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	144	54	58	122	42
Future Volume (Veh/h)	2	144	54	58	122	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	160	60	64	136	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				733		
pX, platoon unblocked						
vC, conflicting volume	288	68	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	68	183			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	96			
cM capacity (veh/h)	650	981	1389			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	162	60	32	32	68	68	47
Volume Left	2	60	0	0	0	0	0
Volume Right	160	0	0	0	0	0	47
cSH	975	1389	1700	1700	1700	1700	1700
Volume to Capacity	0.17	0.04	0.02	0.02	0.04	0.04	0.03
Queue Length 95th (ft)	15	3	0	0	0	0	0
Control Delay (s)	9.4	7.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	9.4	3.7			0.0		
Approach LOS	A						

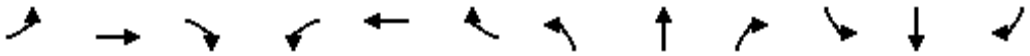
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	187	0	62	0	31	6	38	20	0
Future Volume (Veh/h)	0	0	0	187	0	62	0	31	6	38	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	208	0	69	0	34	7	42	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	209	147	22	144	144	38	22			41		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	209	147	22	144	144	38	22			41		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	74	100	93	100			97		
cM capacity (veh/h)	684	724	1055	809	728	1035	1593			1568		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	0	277	0	41	42	22	0
Volume Left	0	208	0	0	42	0	0
Volume Right	0	69	0	7	0	0	0
cSH	1700	855	1700	1700	1568	1700	1700
Volume to Capacity	0.00	0.32	0.00	0.02	0.03	0.01	0.00
Queue Length 95th (ft)	0	35	0	0	2	0	0
Control Delay (s)	0.0	11.2	0.0	0.0	7.4	0.0	0.0
Lane LOS	A	B			A		
Approach Delay (s)	0.0	11.2	0.0		4.8		
Approach LOS	A	B					

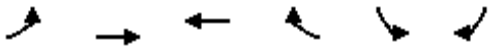
Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	29.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	35	49	67	28	0	131	0	199	0	0	0
Future Volume (Veh/h)	0	35	49	67	28	0	131	0	199	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	39	54	74	31	0	146	0	221	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	31			93			245	245	66	439	272	31
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31			93			245	245	66	439	272	31
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			79	100	78	100	100	100
cM capacity (veh/h)	1582			1501			682	625	998	396	603	1043

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	93	74	31	146	221	0	0
Volume Left	0	0	74	0	146	0	0	0
Volume Right	0	54	0	0	0	221	0	0
cSH	1700	1700	1501	1700	682	998	1700	1700
Volume to Capacity	0.00	0.05	0.05	0.02	0.21	0.22	0.00	0.00
Queue Length 95th (ft)	0	0	4	0	20	21	0	0
Control Delay (s)	0.0	0.0	7.5	0.0	11.7	9.6	0.0	0.0
Lane LOS			A		B	A	A	A
Approach Delay (s)	0.0		5.3		10.5		0.0	
Approach LOS					B		A	

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	29.4%	ICU Level of Service		A
Analysis Period (min)	15			



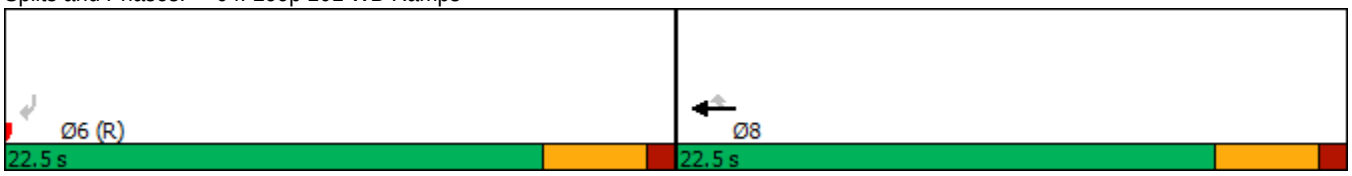
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

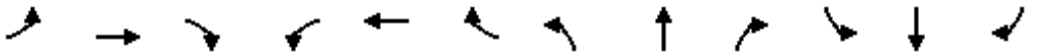
Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps



APPENDIX J

2030 PEAK HOUR TRAFFIC ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	13	70	73	14	3	69	618	19	4	712	38
Future Volume (vph)	30	13	70	73	14	3	69	618	19	4	712	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1819		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.28	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1388	1626		1299	1819		517	3539	1583	615	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	14	78	81	16	3	77	687	21	4	791	42
RTOR Reduction (vph)	0	47	0	0	2	0	0	0	11	0	0	23
Lane Group Flow (vph)	33	45	0	81	17	0	77	687	10	4	791	19
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	555	650		519	727		239	1639	733	284	1639	733
v/s Ratio Prot		0.03			0.01			0.19			c0.22	
v/s Ratio Perm	0.02			c0.06			0.15		0.01	0.01		0.01
v/c Ratio	0.06	0.07		0.16	0.02		0.32	0.42	0.01	0.01	0.48	0.03
Uniform Delay, d1	17.5	17.6		18.2	17.3		16.1	17.0	13.8	13.8	17.6	13.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.6	0.1		3.5	0.8	0.0	0.1	1.0	0.1
Delay (s)	17.7	17.8		18.9	17.3		19.6	17.8	13.8	13.9	18.7	13.9
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		17.8			18.6			17.9			18.4	
Approach LOS		B			B			B			B	

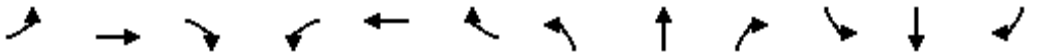
Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





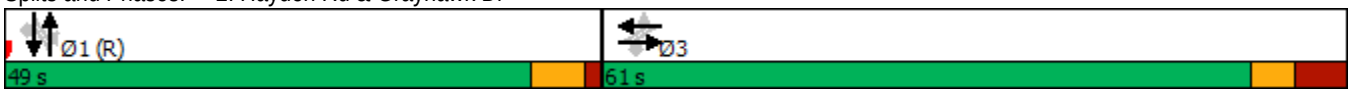
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	3	105	53	9	21	41	645	10	4	833	40
Future Volume (vph)	35	3	105	53	9	21	41	645	10	4	833	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1668		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.17	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	1370	1863	1583	1408	1668		322	3539	1583	513	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	3	117	59	10	23	46	717	11	4	926	44
RTOR Reduction (vph)	0	0	23	0	12	0	0	0	7	0	0	27
Lane Group Flow (vph)	39	3	94	59	21	0	46	717	4	4	926	17
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	660	897	762	678	803		125	1383	618	200	1383	618
v/s Ratio Prot		0.00			0.01			0.20			c0.26	
v/s Ratio Perm	0.03		c0.06	0.04			0.14		0.00	0.01		0.01
v/c Ratio	0.06	0.00	0.12	0.09	0.03		0.37	0.52	0.01	0.02	0.67	0.03
Uniform Delay, d1	15.2	14.8	15.7	15.4	15.0		23.8	25.6	20.5	20.6	27.6	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.3	0.3	0.1		8.2	1.4	0.0	0.2	2.6	0.1
Delay (s)	15.4	14.8	16.0	15.7	15.0		32.0	27.0	20.5	20.7	30.2	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.8			15.4			27.2			29.8	
Approach LOS		B			B			C			C	

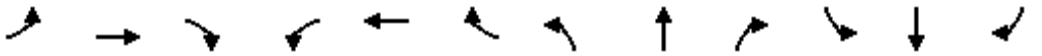
Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	347	426	469	365	103	202	533	357	240	701	60
Future Volume (vph)	37	347	426	469	365	103	202	533	357	240	701	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.51	1.00	1.00	0.29	1.00	1.00	0.25	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	956	3539	1583	540	3539	1583	469	3539	1583	498	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	386	473	521	406	114	224	592	397	267	779	67
RTOR Reduction (vph)	0	0	243	0	0	79	0	0	259	0	0	41
Lane Group Flow (vph)	41	386	230	521	406	35	224	592	138	267	779	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	30.0	23.9	23.9	47.4	36.8	36.8	54.6	41.7	41.7	61.6	46.2	46.2
Effective Green, g (s)	30.0	23.9	23.9	47.4	36.8	36.8	54.6	41.7	41.7	61.6	46.2	46.2
Actuated g/C Ratio	0.25	0.20	0.20	0.39	0.31	0.31	0.46	0.35	0.35	0.51	0.39	0.39
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	280	704	315	418	1085	485	353	1229	550	418	1362	609
v/s Ratio Prot	0.01	0.11		c0.21	0.11		0.07	0.17		c0.08	c0.22	
v/s Ratio Perm	0.03		0.14	c0.28		0.02	0.22		0.09	c0.25		0.02
v/c Ratio	0.15	0.55	0.73	1.25	0.37	0.07	0.63	0.48	0.25	0.64	0.57	0.04
Uniform Delay, d1	34.6	43.2	45.0	31.4	32.6	29.5	21.4	30.7	28.0	18.6	29.1	23.1
Progression Factor	1.00	1.00	1.00	1.14	1.08	2.28	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.9	8.2	128.3	0.2	0.1	3.7	1.4	1.1	3.2	1.7	0.1
Delay (s)	34.8	44.1	53.2	164.1	35.4	67.4	25.1	32.0	29.1	21.8	30.9	23.2
Level of Service	C	D	D	F	D	E	C	C	C	C	C	C
Approach Delay (s)		48.4			103.3			29.8			28.2	
Approach LOS		D			F			C			C	

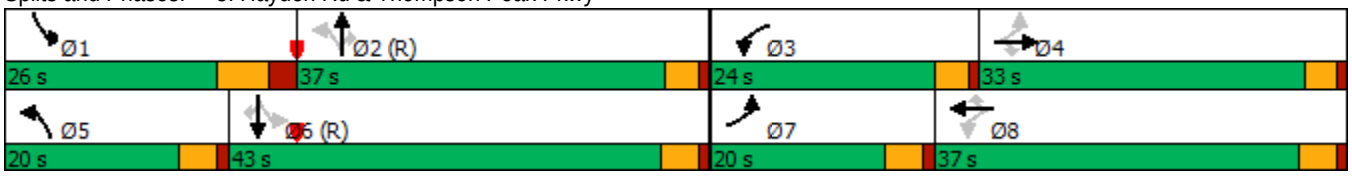
Intersection Summary			
HCM 2000 Control Delay	51.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

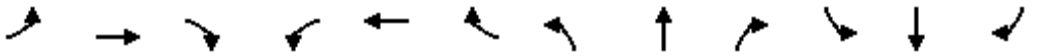
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	76	202	49	43	18	182	1054	125	49	1556	39
Future Volume (vph)	63	76	202	49	43	18	182	1054	125	49	1556	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.73	1.00	1.00	0.70	1.00	1.00	0.09	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	1352	1863	1583	1308	1863	1583	164	3539	1583	388	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	84	224	54	48	20	202	1171	139	54	1729	43
RTOR Reduction (vph)	0	0	33	0	0	16	0	0	43	0	0	12
Lane Group Flow (vph)	70	84	191	54	48	4	202	1171	96	54	1729	31
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	19.7	19.7	19.7	19.7	19.7	19.7	76.3	76.3	76.3	76.3	76.3	76.3
Effective Green, g (s)	19.7	19.7	19.7	19.7	19.7	19.7	76.3	76.3	76.3	76.3	76.3	76.3
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.18	0.69	0.69	0.69	0.69	0.69	0.69
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	333	283	234	333	283	113	2454	1098	269	2454	1098
v/s Ratio Prot		0.05			0.03			0.33			0.49	
v/s Ratio Perm	0.05		c0.12	0.04		0.00	c1.23		0.06	0.14		0.02
v/c Ratio	0.29	0.25	0.68	0.23	0.14	0.01	1.79	0.48	0.09	0.20	0.70	0.03
Uniform Delay, d1	39.1	38.8	42.2	38.7	38.0	37.1	16.9	7.7	5.5	6.0	10.1	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.4	6.2	0.5	0.2	0.0	387.5	0.7	0.2	1.7	1.7	0.0
Delay (s)	39.8	39.2	48.4	39.2	38.2	37.2	404.3	8.4	5.7	7.7	11.8	5.3
Level of Service	D	D	D	D	D	D	F	A	A	A	B	A
Approach Delay (s)		44.8			38.5			61.0			11.5	
Approach LOS		D			D			E			B	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

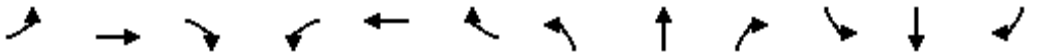
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	133	15	518	200	930	0	0	1253	558
Future Volume (vph)	0	0	0	133	15	518	200	930	0	0	1253	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.95			0.86	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1519	1504	3433	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1519	1504	3433	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	148	17	576	222	1033	0	0	1392	620
RTOR Reduction (vph)	0	0	0	0	192	200	0	0	0	0	0	410
Lane Group Flow (vph)	0	0	0	148	107	94	222	1033	0	0	1392	210
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				38.3	38.3	38.3	21.0	40.7			40.7	40.7
Effective Green, g (s)				38.3	38.3	38.3	21.0	40.7			40.7	40.7
Actuated g/C Ratio				0.32	0.32	0.32	0.18	0.34			0.34	0.34
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1095	484	480	600	1200			2173	536
v/s Ratio Prot					c0.07		c0.06	c0.29			0.22	
v/s Ratio Perm				0.04		0.06						0.13
v/c Ratio				0.14	0.22	0.20	0.37	0.86			0.64	0.39
Uniform Delay, d1				29.1	29.9	29.7	43.7	37.0			33.5	30.2
Progression Factor				1.00	1.00	1.00	1.01	0.45			1.00	1.00
Incremental Delay, d2				0.1	0.2	0.2	1.6	5.9			1.5	2.2
Delay (s)				29.1	30.2	29.9	45.6	22.4			34.9	32.4
Level of Service				C	C	C	D	C			C	C
Approach Delay (s)		0.0			29.8			26.5			34.1	
Approach LOS		A			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

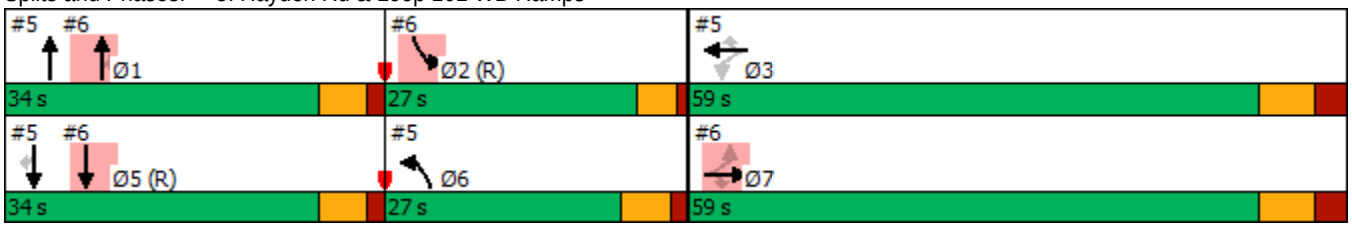
c Critical Lane Group

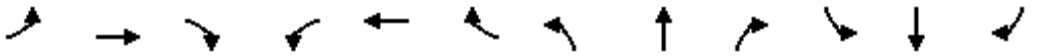
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	34	27	59
Maximum Split (%)	28.3%	22.5%	49.2%	28.3%	22.5%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	0	27
End Time (s)	0	27	86	0	27	86
Yield/Force Off (s)	114	22.5	78	114	21	78
Yield/Force Off 170(s)	104	22.5	52	104	21	52
Local Start Time (s)	86	0	27	86	0	27
Local Yield (s)	114	22.5	78	114	21	78
Local Yield 170(s)	104	22.5	52	104	21	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	100	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

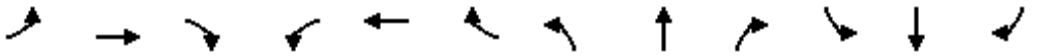




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	0	579	0	0	0	0	691	59	696	696	0
Future Volume (vph)	433	0	579	0	0	0	0	691	59	696	696	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.89	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1485	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1485	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	481	0	643	0	0	0	0	768	66	773	773	0
RTOR Reduction (vph)	0	110	245	0	0	0	0	0	44	0	0	0
Lane Group Flow (vph)	390	264	115	0	0	0	0	768	22	773	773	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	38.3	38.3	38.3					40.7	40.7	22.5	40.7	
Effective Green, g (s)	38.3	38.3	38.3					40.7	40.7	22.5	40.7	
Actuated g/C Ratio	0.32	0.32	0.32					0.34	0.34	0.19	0.34	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	536	473	480					1724	536	643	1200	
v/s Ratio Prot								0.15		c0.23	c0.22	
v/s Ratio Perm	c0.23	0.18	0.08						0.01			
v/c Ratio	0.73	0.56	0.24					0.45	0.04	1.20	0.64	
Uniform Delay, d1	36.2	33.8	30.1					30.9	26.6	48.8	33.5	
Progression Factor	1.37	1.97	8.60					1.48	8.55	0.78	0.43	
Incremental Delay, d2	2.2	0.6	0.1					0.2	0.0	103.0	2.2	
Delay (s)	51.9	67.3	259.0					45.7	227.1	140.9	16.7	
Level of Service	D	E	F					D	F	F	B	
Approach Delay (s)		123.3			0.0			60.1			78.8	
Approach LOS		F			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	88.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	57	74	10	28	72	131	573	50	302	784	185
Future Volume (vph)	119	57	74	10	28	72	131	573	50	302	784	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.58	1.00	1.00	0.30	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1373	1863	1583	1073	1863	1583	564	3539	1583	408	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	63	82	11	31	80	146	637	56	336	871	206
RTOR Reduction (vph)	0	0	61	0	0	43	0	0	30	0	0	98
Lane Group Flow (vph)	132	63	21	11	31	37	146	637	26	336	871	108
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	29.0	18.5	31.0	41.5	26.5	55.0	49.0	36.5	55.0	69.5	52.5	63.0
Effective Green, g (s)	29.0	18.5	31.0	41.5	26.5	55.0	49.0	36.5	55.0	69.5	52.5	63.0
Actuated g/C Ratio	0.24	0.15	0.26	0.35	0.22	0.46	0.41	0.30	0.46	0.58	0.44	0.52
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	366	287	468	478	411	784	355	1076	784	559	1548	890
v/s Ratio Prot	c0.03	0.03	0.00	0.00	c0.02	0.01	0.04	0.18	0.01	c0.14	0.25	0.01
v/s Ratio Perm	c0.06		0.01	0.00		0.01	0.12		0.01	c0.21		0.06
v/c Ratio	0.36	0.22	0.05	0.02	0.08	0.05	0.41	0.59	0.03	0.60	0.56	0.12
Uniform Delay, d1	37.3	44.4	33.4	25.9	37.0	18.0	22.9	35.4	17.9	15.8	25.2	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.40	1.08	0.42	0.93	1.00	0.65
Incremental Delay, d2	2.7	1.8	0.2	0.1	0.4	0.1	3.4	2.3	0.1	4.0	1.2	0.2
Delay (s)	40.0	46.2	33.6	26.0	37.4	18.1	35.4	40.6	7.6	18.6	26.4	9.6
Level of Service	D	D	C	C	D	B	D	D	A	B	C	A
Approach Delay (s)		39.5			23.7			37.5			22.1	
Approach LOS		D			C			D			C	

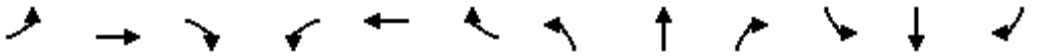
Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	33	41	23	23	17	57	15	31
Maximum Split (%)	27.5%	34.2%	19.2%	19.2%	14.2%	47.5%	12.5%	25.8%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	87	0	41	64	87	104	41	56
End Time (s)	0	41	64	87	104	41	56	87
Yield/Force Off (s)	115.5	36.5	59.5	82.5	99.5	36.5	51.5	82.5
Yield/Force Off 170(s)	115.5	25.5	48.5	71.5	99.5	25.5	51.5	71.5
Local Start Time (s)	87	0	41	64	87	104	41	56
Local Yield (s)	115.5	36.5	59.5	82.5	99.5	36.5	51.5	82.5
Local Yield 170(s)	115.5	25.5	48.5	71.5	99.5	25.5	51.5	71.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	68	99	189	0	62	81	593	222	154	636	54
Future Volume (vph)	48	68	99	189	0	62	81	593	222	154	636	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.35	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	654	3539	1583	696	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	76	110	210	0	69	90	659	247	171	707	60
RTOR Reduction (vph)	0	0	97	0	0	62	0	0	96	0	0	23
Lane Group Flow (vph)	0	129	13	210	0	7	90	659	151	171	707	37
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		13.8	13.8	12.7		12.7	73.5	73.5	73.5	73.5	73.5	73.5
Effective Green, g (s)		13.8	13.8	12.7		12.7	73.5	73.5	73.5	73.5	73.5	73.5
Actuated g/C Ratio		0.12	0.12	0.11		0.11	0.61	0.61	0.61	0.61	0.61	0.61
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		209	182	363		167	400	2167	969	426	2167	969
v/s Ratio Prot		c0.07		c0.06				0.19			0.20	
v/s Ratio Perm			0.01			0.00	0.14		0.10	c0.25		0.02
v/c Ratio		0.62	0.07	0.58		0.04	0.23	0.30	0.16	0.40	0.33	0.04
Uniform Delay, d1		50.6	47.4	51.1		48.2	10.4	11.1	10.0	11.9	11.3	9.2
Progression Factor		1.00	1.00	1.00		1.00	1.11	1.12	2.35	2.47	2.55	22.51
Incremental Delay, d2		5.3	0.2	2.2		0.1	1.3	0.3	0.3	2.4	0.3	0.1
Delay (s)		55.9	47.5	53.3		48.3	12.9	12.8	23.8	32.0	29.1	207.7
Level of Service		E	D	D		D	B	B	C	C	C	F
Approach Delay (s)		52.1			52.1			15.5			41.0	
Approach LOS		D			D			B			D	

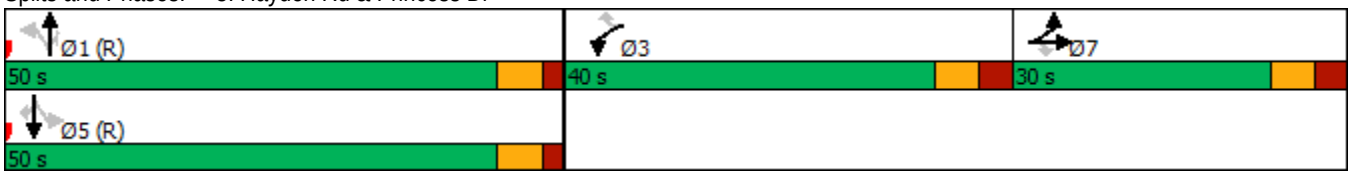
Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

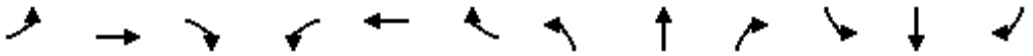
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	23	240	10	124	31	784	403	168	769	21
Future Volume (vph)	9	8	23	240	10	124	31	784	403	168	769	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3197		1681	1692	1583	1770	3539	1583	1770	3525	
Flt Permitted		0.80		0.73	0.71	1.00	0.30	1.00	1.00	0.30	1.00	
Satd. Flow (perm)		2598		1285	1254	1583	559	3539	1583	564	3525	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	9	26	267	11	138	34	871	448	187	854	23
RTOR Reduction (vph)	0	25	0	0	0	114	0	0	131	0	1	0
Lane Group Flow (vph)	0	20	0	139	139	24	34	871	317	187	876	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		5.4		21.2	21.2	21.2	84.8	84.8	84.8	84.8	84.8	
Effective Green, g (s)		5.4		21.2	21.2	21.2	84.8	84.8	84.8	84.8	84.8	
Actuated g/C Ratio		0.05		0.18	0.18	0.18	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		116		252	250	279	395	2500	1118	398	2491	
v/s Ratio Prot				0.04	c0.04			0.25			0.25	
v/s Ratio Perm		0.01		0.06	c0.06	0.02	0.06		0.20	c0.33		
v/c Ratio		0.17		0.55	0.56	0.09	0.09	0.35	0.28	0.47	0.35	
Uniform Delay, d1		55.2		45.6	45.1	41.3	5.5	6.8	6.5	7.7	6.9	
Progression Factor		1.00		1.00	1.00	1.00	1.66	1.56	8.31	1.05	0.99	
Incremental Delay, d2		0.7		2.6	2.7	0.1	0.2	0.1	0.2	3.8	0.4	
Delay (s)		55.9		48.2	47.8	41.4	9.3	10.8	53.8	11.9	7.2	
Level of Service		E		D	D	D	A	B	D	B	A	
Approach Delay (s)		55.9			45.8			25.0			8.0	
Approach LOS		E			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

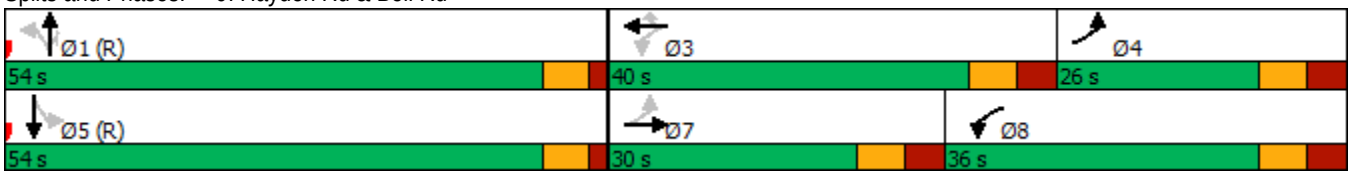
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	30	1095	154	51	2321
Future Volume (vph)	110	30	1095	154	51	2321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.21	1.00
Satd. Flow (perm)	1770	1583	3539	1583	395	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	33	1217	171	57	2579
RTOR Reduction (vph)	0	30	0	35	0	0
Lane Group Flow (vph)	122	3	1217	136	57	2579
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.7	12.7	95.3	95.3	95.3	95.3
Effective Green, g (s)	12.7	12.7	95.3	95.3	95.3	95.3
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	187	167	2810	1257	313	2810
v/s Ratio Prot	c0.07		0.34			c0.73
v/s Ratio Perm		0.00		0.09	0.14	
v/c Ratio	0.65	0.02	0.43	0.11	0.18	0.92
Uniform Delay, d1	51.5	48.1	3.9	2.8	3.0	9.4
Progression Factor	1.00	1.00	0.76	0.70	1.00	1.00
Incremental Delay, d2	7.9	0.1	0.4	0.2	1.3	6.1
Delay (s)	59.4	48.1	3.4	2.1	4.2	15.5
Level of Service	E	D	A	A	A	B
Approach Delay (s)	57.0		3.2			15.3
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	38	1197	54	45	2378
Future Volume (vph)	114	38	1197	54	45	2378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.18	1.00
Satd. Flow (perm)	1770	1583	3539	1583	342	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	42	1330	60	50	2642
RTOR Reduction (vph)	0	37	0	13	0	0
Lane Group Flow (vph)	127	5	1330	47	50	2642
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.5	13.5	94.5	94.5	94.5	94.5
Effective Green, g (s)	13.5	13.5	94.5	94.5	94.5	94.5
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	178	2786	1246	269	2786
v/s Ratio Prot	c0.07		0.38			c0.75
v/s Ratio Perm		0.00		0.03	0.15	
v/c Ratio	0.64	0.03	0.48	0.04	0.19	0.95
Uniform Delay, d1	50.9	47.4	4.3	2.8	3.2	10.7
Progression Factor	1.00	1.00	1.19	1.16	1.36	1.25
Incremental Delay, d2	6.6	0.1	0.5	0.0	0.6	4.2
Delay (s)	57.5	47.5	5.6	3.3	5.0	17.6
Level of Service	E	D	A	A	A	B
Approach Delay (s)	55.0		5.5			17.3
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

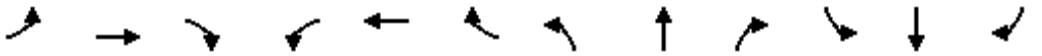
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	152	46	540	76	110	27	1195	538	126	2334	452
Future Volume (vph)	258	152	46	540	76	110	27	1195	538	126	2334	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	147	5085	1583	253	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	287	169	51	600	84	122	30	1328	598	140	2593	502
RTOR Reduction (vph)	0	0	46	0	0	59	0	0	88	0	0	151
Lane Group Flow (vph)	287	169	5	600	84	63	30	1328	510	140	2593	351
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	2		1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	11.2	12.0	12.0	26.8	30.1	37.1	50.7	50.7	77.5	65.7	61.7	72.9
Effective Green, g (s)	11.2	12.0	12.0	26.8	30.1	37.1	50.7	50.7	77.5	65.7	61.7	72.9
Actuated g/C Ratio	0.09	0.10	0.10	0.22	0.25	0.31	0.42	0.42	0.65	0.55	0.51	0.61
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	320	353	158	766	887	489	62	2148	1022	227	2614	961
v/s Ratio Prot	0.08	c0.05		c0.17	0.02	0.01		0.26	0.11	0.04	c0.51	0.03
v/s Ratio Perm			0.00			0.03	0.20		0.21	0.30		0.19
v/c Ratio	0.90	0.48	0.03	0.78	0.09	0.13	0.48	0.62	0.50	0.62	0.99	0.37
Uniform Delay, d1	53.8	51.0	48.8	43.9	34.5	29.8	25.2	27.1	11.1	34.1	28.9	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.30	1.20	1.99	1.23	1.18	1.99
Incremental Delay, d2	25.9	1.0	0.1	5.3	0.0	0.1	16.3	0.9	0.2	7.1	11.7	0.1
Delay (s)	79.7	52.1	48.8	49.1	34.5	29.9	49.1	33.3	22.4	49.2	45.9	23.8
Level of Service	E	D	D	D	C	C	D	C	C	D	D	C
Approach Delay (s)		67.4			44.7			30.2			42.6	
Approach LOS		E			D			C			D	

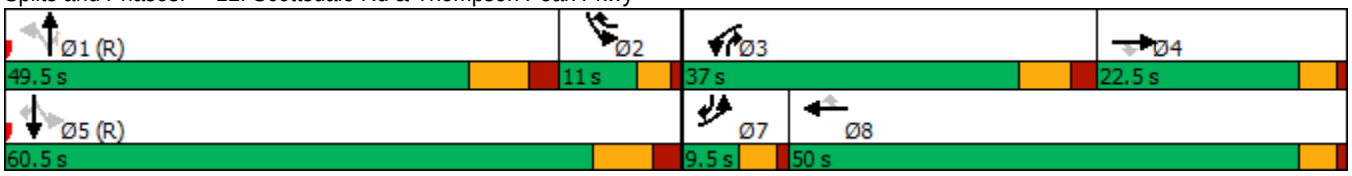
Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

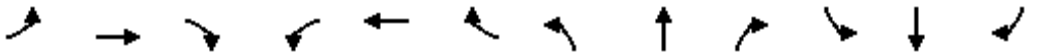
c Critical Lane Group

Phase Number	1	2	3	4	5	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None
Maximum Split (s)	49.5	11	37	22.5	60.5	9.5	50
Maximum Split (%)	41.3%	9.2%	30.8%	18.8%	50.4%	7.9%	41.7%
Minimum Split (s)	40	9	37	22.5	40	9.5	22.5
Yellow Time (s)	5.3	3	4.6	3.5	5.3	3.5	3.5
All-Red Time (s)	2.7	1	2.4	1	2.7	1	1
Minimum Initial (s)	20	5	6	5	20	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7		7
Flash Dont Walk (s)	25		23	11	25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
End Time (s)	49.5	60.5	97.5	0	60.5	70	0
Yield/Force Off (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Yield/Force Off 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5
Local Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
Local Yield (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Local Yield 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	95	28	213	47	34	17	1734	218	47	2947	298
Future Volume (vph)	307	95	28	213	47	34	17	1734	218	47	2947	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	113	5085	1583	112	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	106	31	237	52	38	19	1927	242	52	3274	331
RTOR Reduction (vph)	0	0	28	0	0	33	0	0	72	0	0	100
Lane Group Flow (vph)	341	106	3	237	52	5	19	1927	170	52	3274	231
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		6	1		2	5	
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	8.7	9.9	9.9	13.6	17.3	17.3	73.0	65.8	65.8	74.5	66.3	66.3
Effective Green, g (s)	8.7	9.9	9.9	13.6	17.3	17.3	73.0	65.8	65.8	74.5	66.3	66.3
Actuated g/C Ratio	0.07	0.08	0.08	0.11	0.14	0.14	0.61	0.55	0.55	0.62	0.55	0.55
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	248	291	130	389	510	228	168	2788	868	182	2809	874
v/s Ratio Prot	c0.10	c0.03		c0.07	0.01		0.01	0.38		c0.02	c0.64	
v/s Ratio Perm			0.00			0.00	0.06		0.11	0.16		0.15
v/c Ratio	1.38	0.36	0.02	0.61	0.10	0.02	0.11	0.69	0.20	0.29	1.17	0.26
Uniform Delay, d1	55.6	52.1	50.6	50.7	44.6	44.1	49.8	19.7	13.7	30.7	26.9	14.1
Progression Factor	1.00	1.00	1.00	0.89	0.85	1.00	2.05	2.40	4.57	1.34	1.36	2.19
Incremental Delay, d2	192.1	0.8	0.1	2.7	0.1	0.0	0.2	0.8	0.3	2.2	76.9	0.4
Delay (s)	247.8	52.9	50.7	47.9	37.9	44.1	102.1	48.1	63.0	43.4	113.4	31.2
Level of Service	F	D	D	D	D	D	F	D	E	D	F	C
Approach Delay (s)		191.8			45.9			50.2			105.0	
Approach LOS		F			D			D			F	

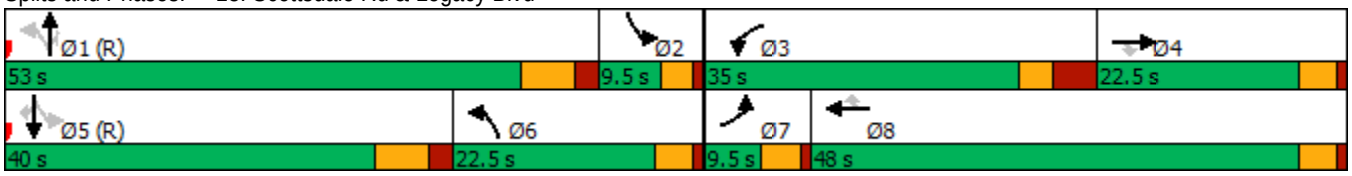
Intersection Summary			
HCM 2000 Control Delay	90.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

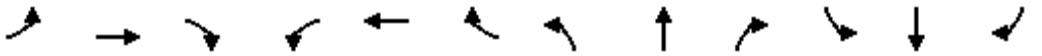
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	53	9.5	35	22.5	40	22.5	9.5	48
Maximum Split (%)	44.2%	7.9%	29.2%	18.8%	33.3%	18.8%	7.9%	40.0%
Minimum Split (s)	30	9	35	22.5	30	22.5	9.5	22.5
Yellow Time (s)	4.9	3	3	3.5	4.9	3.5	3.5	3.5
All-Red Time (s)	2.1	1	4	1	2.1	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7	7		7
Flash Dont Walk (s)	16		21	11	16	11		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
End Time (s)	53	62.5	97.5	0	40	62.5	72	0
Yield/Force Off (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Yield/Force Off 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5
Local Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
Local Yield (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Local Yield 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	655	8	563	431	1432	0	0	2418	756
Future Volume (vph)	0	0	0	655	8	563	431	1432	0	0	2418	756
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1512	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1512	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	728	9	626	479	1591	0	0	2687	840
RTOR Reduction (vph)	0	0	0	0	220	229	0	0	0	0	0	396
Lane Group Flow (vph)	0	0	0	728	96	90	479	1591	0	0	2687	444
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Effective Green, g (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Actuated g/C Ratio				0.28	0.28	0.28	0.21	0.32			0.37	0.37
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				972	428	426	715	1652			2766	580
v/s Ratio Prot					0.06		c0.14	0.31			c0.36	
v/s Ratio Perm				c0.21		0.06						0.28
v/c Ratio				0.75	0.22	0.21	0.67	0.96			0.97	0.77
Uniform Delay, d1				39.1	32.9	32.8	43.7	39.8			37.4	33.5
Progression Factor				1.06	1.78	1.94	1.19	0.38			1.16	2.45
Incremental Delay, d2				3.0	0.3	0.2	3.7	12.2			1.8	0.9
Delay (s)				44.6	58.7	63.7	55.9	27.4			45.2	82.8
Level of Service				D	E	E	E	C			D	F
Approach Delay (s)		0.0			52.3			34.0			54.1	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

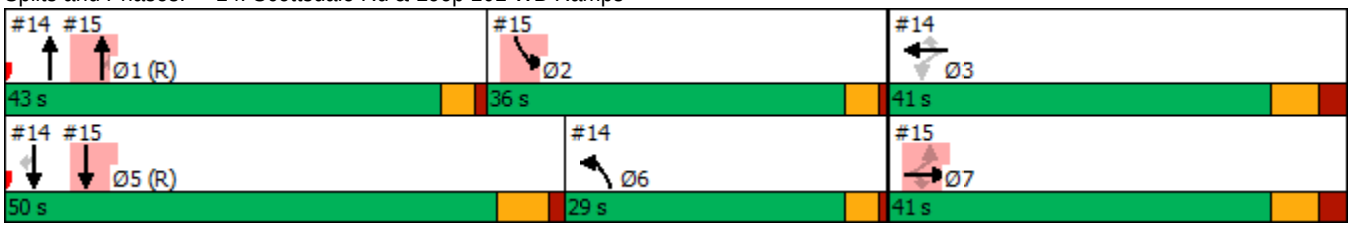
c Critical Lane Group

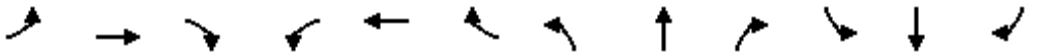
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	50	29	41
Maximum Split (%)	35.8%	30.0%	34.2%	41.7%	24.2%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	50	79
End Time (s)	43	79	0	50	79	0
Yield/Force Off (s)	39	75	113	44	75	113
Yield/Force Off 170(s)	39	75	105	36	75	85
Local Start Time (s)	0	43	79	0	50	79
Local Yield (s)	39	75	113	44	75	113
Local Yield 170(s)	39	75	105	36	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	130	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

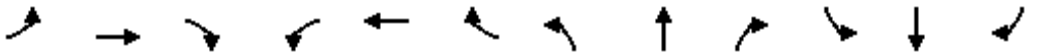




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	774	3	840	0	0	0	0	1102	416	862	2249	0
Future Volume (vph)	774	3	840	0	0	0	0	1102	416	862	2249	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	860	3	933	0	0	0	0	1224	462	958	2499	0
RTOR Reduction (vph)	0	301	301	0	0	0	0	0	294	0	0	0
Lane Group Flow (vph)	860	169	165	0	0	0	0	1224	168	958	2499	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Effective Green, g (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.32	0.32	0.27	0.37	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	972	426	426					2451	514	915	1864	
v/s Ratio Prot		0.11						0.16		c0.28	c0.49	
v/s Ratio Perm	c0.25		0.11						0.11			
v/c Ratio	0.88	0.40	0.39					0.50	0.33	1.05	1.34	
Uniform Delay, d1	41.1	34.7	34.6					32.6	30.6	44.0	38.0	
Progression Factor	1.00	1.00	1.00					1.36	5.29	0.86	0.53	
Incremental Delay, d2	9.7	0.6	0.6					0.6	1.4	32.4	154.8	
Delay (s)	50.8	35.3	35.2					45.1	163.2	70.2	175.0	
Level of Service	D	D	D					D	F	E	F	
Approach Delay (s)		42.7			0.0			77.4			145.9	
Approach LOS		D			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	102.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	466	119	303	62	63	172	145	940	97	316	2050	725
Future Volume (vph)	466	119	303	62	63	172	145	940	97	316	2050	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3151		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3151		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	518	132	337	69	70	191	161	1044	108	351	2278	806
RTOR Reduction (vph)	0	0	183	0	148	0	0	0	76	0	0	266
Lane Group Flow (vph)	518	132	154	69	113	0	161	1044	32	351	2278	540
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7		8	3		6	1		2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	23.4	23.0	23.0	12.6	12.2		17.4	35.8	35.8	23.2	41.9	65.3
Effective Green, g (s)	23.4	23.0	23.0	12.6	12.2		17.4	35.8	35.8	23.2	41.9	65.3
Actuated g/C Ratio	0.19	0.19	0.19	0.10	0.10		0.14	0.30	0.30	0.19	0.35	0.54
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	669	974	303	360	320		497	1517	472	663	1775	933
v/s Ratio Prot	c0.15	0.03		0.02	0.04		0.05	0.21		c0.10	c0.45	0.11
v/s Ratio Perm			c0.10						0.02			0.23
v/c Ratio	0.77	0.14	0.51	0.19	0.35		0.32	0.69	0.07	0.53	1.28	0.58
Uniform Delay, d1	45.8	40.2	43.4	49.0	50.2		46.0	37.2	30.2	43.5	39.0	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.99	1.08	5.50	1.36	1.02	1.84
Incremental Delay, d2	5.6	0.1	1.3	0.3	0.7		1.6	1.3	0.1	0.3	127.9	0.1
Delay (s)	51.4	40.3	44.8	49.3	50.9		47.0	41.4	165.9	59.4	167.6	33.7
Level of Service	D	D	D	D	D		D	D	F	E	F	C
Approach Delay (s)		47.6			50.6			52.3			125.1	
Approach LOS		D			D			D			F	

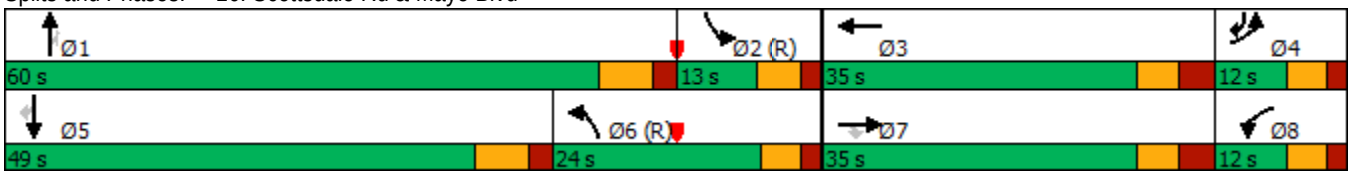
Intersection Summary			
HCM 2000 Control Delay	92.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

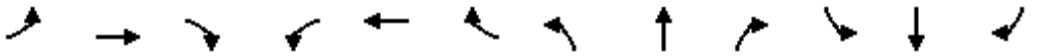
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	13	35	12	49	24	35	12
Maximum Split (%)	50.0%	10.8%	29.2%	10.0%	40.8%	20.0%	29.2%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	13	48	60	109	13	48
End Time (s)	0	13	48	60	109	13	48	60
Yield/Force Off (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Yield/Force Off 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5
Local Start Time (s)	60	0	13	48	60	109	13	48
Local Yield (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Local Yield 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	5	114	10	5	5	154	1105	5	6	2296	147
Future Volume (vph)	96	5	114	10	5	5	154	1105	5	6	2296	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.38	1.00	1.00	0.75	1.00	1.00	0.06	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	702	3539	1583	1404	3539	1583	104	5085	1583	403	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	6	127	11	6	6	171	1228	6	7	2551	163
RTOR Reduction (vph)	0	0	110	0	0	6	0	0	2	0	0	61
Lane Group Flow (vph)	107	6	17	11	6	0	171	1228	4	7	2551	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.0	16.1	16.1	6.9	5.5	5.5	83.0	76.3	76.3	67.1	65.9	65.9
Effective Green, g (s)	23.0	16.1	16.1	6.9	5.5	5.5	83.0	76.3	76.3	67.1	65.9	65.9
Actuated g/C Ratio	0.19	0.13	0.13	0.06	0.05	0.05	0.69	0.64	0.64	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	241	474	212	85	162	72	232	3233	1006	239	2792	869
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.07	0.24		0.00	c0.50	
v/s Ratio Perm	c0.04		0.01	0.01		0.00	0.44		0.00	0.02		0.06
v/c Ratio	0.44	0.01	0.08	0.13	0.04	0.00	0.74	0.38	0.00	0.03	0.91	0.12
Uniform Delay, d1	41.9	45.1	45.5	53.6	54.7	54.6	34.8	10.5	8.0	11.7	24.5	13.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.46	1.00	0.59	0.75	0.70
Incremental Delay, d2	1.3	0.0	0.2	0.7	0.1	0.0	10.8	0.3	0.0	0.0	0.6	0.0
Delay (s)	43.2	45.1	45.6	54.3	54.8	54.7	44.6	15.6	8.0	6.9	19.1	9.2
Level of Service	D	D	D	D	D	D	D	B	A	A	B	A
Approach Delay (s)		44.5			54.5			19.1			18.4	
Approach LOS		D			D			B			B	

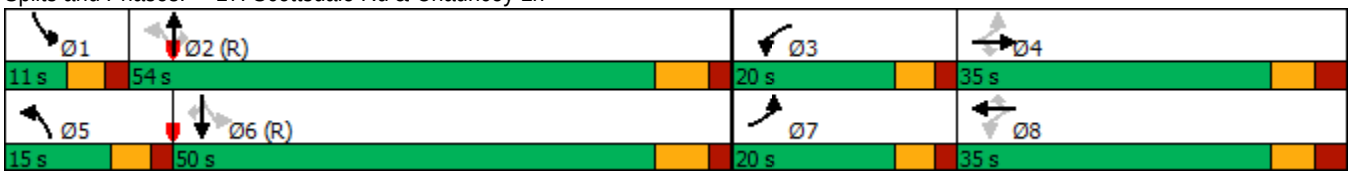
Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

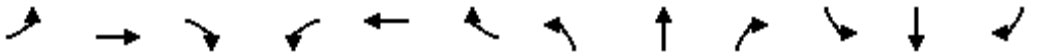
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	33	289	138	10	188	149	1039	260	271	2059	85
Future Volume (vph)	45	33	289	138	10	188	149	1039	260	271	2059	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.33	1.00	1.00	0.06	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1397	3063		623	3539	1583	115	5085	1583	361	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	37	321	153	11	209	166	1154	289	301	2288	94
RTOR Reduction (vph)	0	191	0	0	0	184	0	0	133	0	0	43
Lane Group Flow (vph)	50	167	0	153	11	25	166	1154	156	301	2288	51
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	21.3	14.2		21.3	14.2	14.2	77.7	64.7	64.7	77.7	64.7	64.7
Effective Green, g (s)	21.3	14.2		21.3	14.2	14.2	77.7	64.7	64.7	77.7	64.7	64.7
Actuated g/C Ratio	0.18	0.12		0.18	0.12	0.12	0.65	0.54	0.54	0.65	0.54	0.54
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	270	362		178	418	187	253	2741	853	386	2741	853
v/s Ratio Prot	0.01	0.05		c0.05	0.00		0.07	0.23		c0.08	c0.45	
v/s Ratio Perm	0.02			c0.10		0.02	0.35		0.10	0.42		0.03
v/c Ratio	0.19	0.46		0.86	0.03	0.13	0.66	0.42	0.18	0.78	0.83	0.06
Uniform Delay, d1	42.1	49.3		50.2	46.8	47.4	39.4	16.5	14.1	24.7	23.2	13.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.59	1.46	5.51	0.58	0.90	4.00
Incremental Delay, d2	0.3	0.9		31.4	0.0	0.3	11.5	0.4	0.4	8.2	1.7	0.1
Delay (s)	42.4	50.3		81.6	46.8	47.7	34.6	24.5	78.3	22.6	22.6	52.7
Level of Service	D	D		F	D	D	C	C	E	C	C	D
Approach Delay (s)		49.3			61.6			35.2			23.7	
Approach LOS		D			E			D			C	

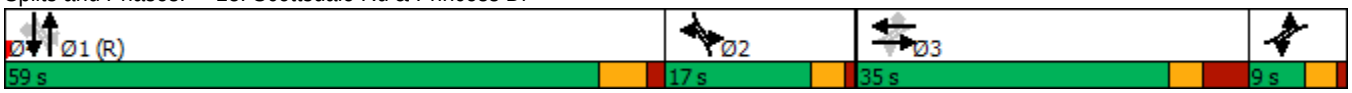
Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

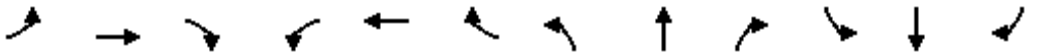
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	0	133	35	0	23	46	1359	13	48	2434	28
Future Volume (vph)	71	0	133	35	0	23	46	1359	13	48	2434	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.87			0.56		0.05	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)		1477			994		95	5085	1583	251	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	0	148	39	0	26	51	1510	14	53	2704	31
RTOR Reduction (vph)	0	63	0	0	54	0	0	0	5	0	0	11
Lane Group Flow (vph)	0	164	0	0	11	0	51	1510	9	53	2704	20
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		18.6			18.6		84.4	78.4	78.4	84.4	78.4	78.4
Effective Green, g (s)		18.6			18.6		84.4	78.4	78.4	84.4	78.4	78.4
Actuated g/C Ratio		0.16			0.16		0.70	0.65	0.65	0.70	0.65	0.65
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		228			154		150	3322	1034	252	3322	1034
v/s Ratio Prot							c0.02	0.30		0.01	c0.53	
v/s Ratio Perm		c0.11			0.01		0.22		0.01	0.14		0.01
v/c Ratio		0.72			0.07		0.34	0.45	0.01	0.21	0.81	0.02
Uniform Delay, d1		48.2			43.3		35.0	10.3	7.3	11.7	15.4	7.3
Progression Factor		1.00			1.00		1.48	1.15	1.00	1.12	1.25	1.00
Incremental Delay, d2		10.3			0.2		0.6	0.0	0.0	1.2	1.4	0.0
Delay (s)		58.5			43.5		52.2	11.8	7.3	14.3	20.7	7.3
Level of Service		E			D		D	B	A	B	C	A
Approach Delay (s)		58.5			43.5			13.1			20.4	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

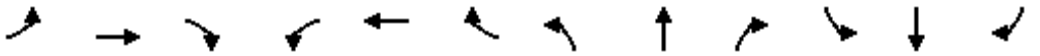
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	679	1702	466	277	544	272	99	591	189	434	1815	223
Future Volume (vph)	679	1702	466	277	544	272	99	591	189	434	1815	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5002	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5002	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	754	1891	518	308	604	302	110	657	210	482	2017	248
RTOR Reduction (vph)	0	0	43	0	0	55	0	0	43	0	12	0
Lane Group Flow (vph)	754	1891	475	308	604	247	110	657	167	482	2253	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	7.0	39.0	48.6	5.0	37.0	47.0	9.6	44.0	49.0	10.0	44.4	
Effective Green, g (s)	7.0	39.0	48.6	5.0	37.0	47.0	9.6	44.0	49.0	10.0	44.4	
Actuated g/C Ratio	0.06	0.32	0.41	0.04	0.31	0.39	0.08	0.37	0.41	0.08	0.37	
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	1652	641	143	1567	620	274	1864	646	286	1850	
v/s Ratio Prot	c0.22	c0.37	0.06	0.09	0.12	0.03	0.03	0.13	0.01	c0.14	c0.45	
v/s Ratio Perm			0.24			0.12			0.09			
v/c Ratio	3.77	1.14	0.74	2.15	0.39	0.40	0.40	0.35	0.26	1.69	1.22	
Uniform Delay, d1	56.5	40.5	30.3	57.5	32.6	26.3	52.5	27.6	23.5	55.0	37.8	
Progression Factor	1.00	1.00	1.00	0.99	1.62	0.84	1.00	1.00	1.00	0.95	0.74	
Incremental Delay, d2	1258.6	72.8	4.6	536.5	0.5	0.3	1.0	0.5	0.2	317.2	101.1	
Delay (s)	1315.1	113.3	34.9	593.6	53.3	22.3	53.4	28.2	23.7	369.4	128.9	
Level of Service	F	F	C	F	D	C	D	C	C	F	F	
Approach Delay (s)		387.0			182.7			30.0			171.1	
Approach LOS		F			F			C			F	

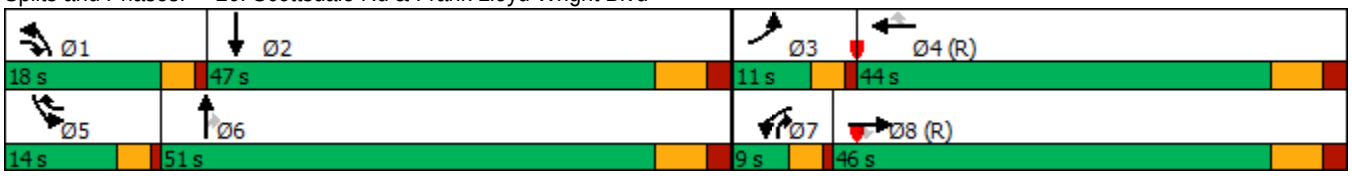
Intersection Summary			
HCM 2000 Control Delay	240.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

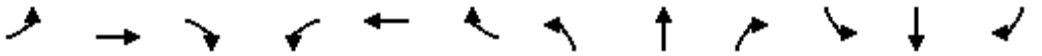
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	18	47	11	44	14	51	9	46
Maximum Split (%)	15.0%	39.2%	9.2%	36.7%	11.7%	42.5%	7.5%	38.3%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	44	62	109	0	44	58	109	118
End Time (s)	62	109	0	44	58	109	118	44
Yield/Force Off (s)	58	102	116	37	54	102	114	37
Yield/Force Off 170(s)	58	81	116	15	54	81	114	15
Local Start Time (s)	44	62	109	0	44	58	109	118
Local Yield (s)	58	102	116	37	54	102	114	37
Local Yield 170(s)	58	81	116	15	54	81	114	15

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	586	1459	75	643	1186	265	23	407	284	242	698	339
Future Volume (vph)	586	1459	75	643	1186	265	23	407	284	242	698	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	651	1621	83	714	1318	294	26	452	316	269	776	377
RTOR Reduction (vph)	0	0	51	0	0	56	0	0	67	0	0	62
Lane Group Flow (vph)	651	1621	32	714	1318	238	26	452	249	269	776	315
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	16.5	43.6	46.8	16.5	43.6	52.6	3.2	22.9	39.4	9.0	28.7	45.2
Effective Green, g (s)	16.5	43.6	46.8	16.5	43.6	52.6	3.2	22.9	39.4	9.0	28.7	45.2
Actuated g/C Ratio	0.14	0.36	0.39	0.14	0.36	0.44	0.03	0.19	0.33	0.08	0.24	0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	472	1847	709	472	1847	786	47	675	612	257	846	688
v/s Ratio Prot	0.19	c0.32	0.00	c0.21	0.26	0.02	0.01	0.13	0.06	c0.08	c0.22	0.06
v/s Ratio Perm			0.02			0.13			0.10			0.14
v/c Ratio	1.38	0.88	0.05	1.51	0.71	0.30	0.55	0.67	0.41	1.05	0.92	0.46
Uniform Delay, d1	51.8	35.7	22.7	51.8	32.8	21.8	57.7	45.0	31.2	55.5	44.5	28.2
Progression Factor	0.94	1.33	2.67	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.85	1.35
Incremental Delay, d2	171.9	0.6	0.0	241.5	2.4	0.2	13.3	2.5	0.4	68.2	14.3	0.5
Delay (s)	220.8	48.1	60.8	293.2	35.2	22.0	71.0	47.6	31.7	122.7	52.3	38.4
Level of Service	F	D	E	F	D	C	E	D	C	F	D	D
Approach Delay (s)		96.3			112.7			42.0			61.9	
Approach LOS		F			F			D			E	

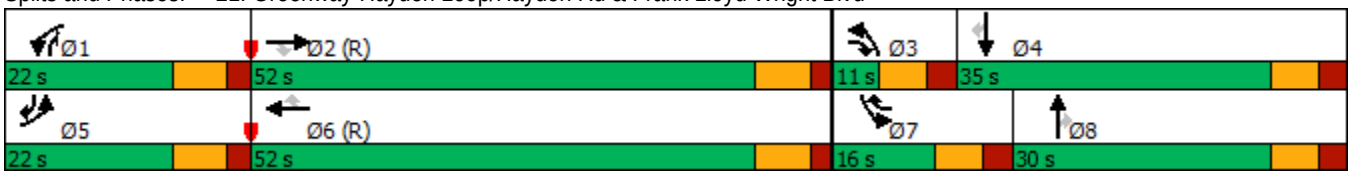
Intersection Summary			
HCM 2000 Control Delay	88.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

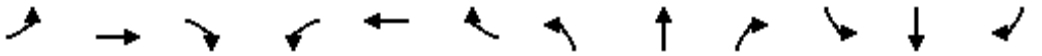
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	52	11	35	22	52	16	30
Maximum Split (%)	18.3%	43.3%	9.2%	29.2%	18.3%	43.3%	13.3%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	98	0	52	63	98	0	52	68
End Time (s)	0	52	63	98	0	52	68	98
Yield/Force Off (s)	113	45	56	91	113	45	61	91
Yield/Force Off 170(s)	113	28	56	67	113	28	61	67
Local Start Time (s)	98	0	52	63	98	0	52	68
Local Yield (s)	113	45	56	91	113	45	61	91
Local Yield 170(s)	113	28	56	67	113	28	61	67

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	426	138	108	360	316	133	1149	6	327	1376	388
Future Volume (vph)	237	426	138	108	360	316	133	1149	6	327	1376	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5081		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5081		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	263	473	153	120	400	351	148	1277	7	363	1529	431
RTOR Reduction (vph)	0	0	52	0	0	50	0	1	0	0	0	61
Lane Group Flow (vph)	263	473	101	120	400	301	148	1283	0	363	1529	370
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	14.8	21.8	34.8	12.7	19.7	37.7	13.0	45.5		18.0	50.5	65.3
Effective Green, g (s)	14.8	21.8	34.8	12.7	19.7	37.7	13.0	45.5		18.0	50.5	65.3
Actuated g/C Ratio	0.12	0.18	0.29	0.11	0.16	0.31	0.11	0.38		0.15	0.42	0.54
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	423	642	511	363	580	550	371	1926		514	2139	914
v/s Ratio Prot	c0.08	c0.13	0.02	0.03	0.11	0.08	0.04	0.25		c0.11	c0.30	0.05
v/s Ratio Perm			0.04			0.11						0.18
v/c Ratio	0.62	0.74	0.20	0.33	0.69	0.55	0.40	0.67		0.71	0.71	0.40
Uniform Delay, d1	49.9	46.4	32.1	49.7	47.3	34.1	49.9	30.9		48.5	28.8	16.0
Progression Factor	0.88	1.42	2.22	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	3.9	0.2	0.5	3.4	1.1	3.2	1.8		7.9	2.1	0.3
Delay (s)	46.6	69.9	71.3	50.2	50.7	35.2	53.0	32.8		56.4	30.9	16.3
Level of Service	D	E	E	D	D	D	D	C		E	C	B
Approach Delay (s)		63.3			44.4			34.9			32.2	
Approach LOS		E			D			C			C	

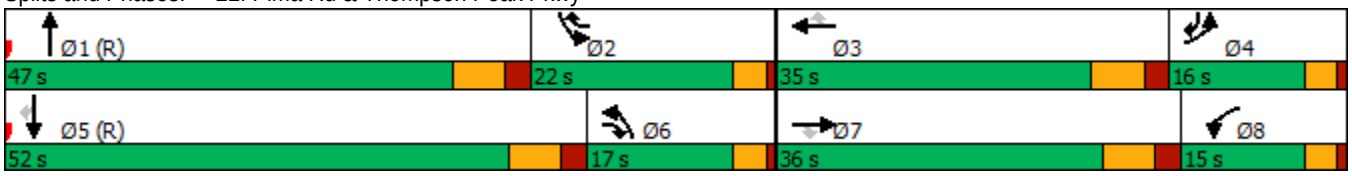
Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

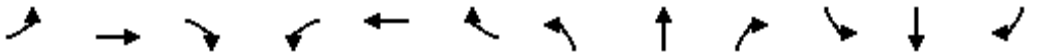
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





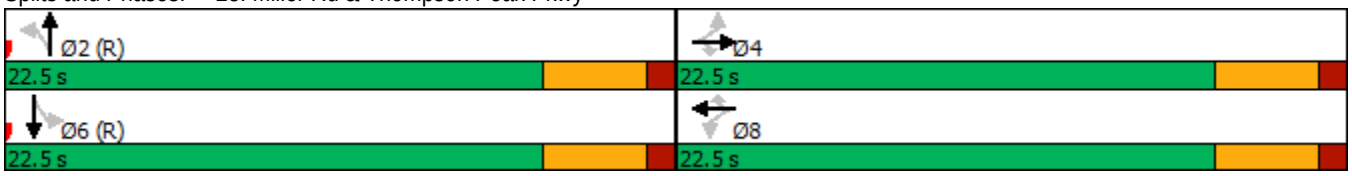
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	731	85	61	195	0	55	0	31	0	0	0
Future Volume (vph)	0	731	85	61	195	0	55	0	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.27	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	504	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	812	94	68	217	0	61	0	34	0	0	0
RTOR Reduction (vph)	0	0	56	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	812	38	68	217	0	61	14	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	201	1415		564	1203				
v/s Ratio Prot		c0.23			0.06			0.00				
v/s Ratio Perm			0.02	0.14			c0.04					
v/c Ratio		0.57	0.06	0.34	0.15		0.11	0.01				
Uniform Delay, d1		10.5	8.3	9.4	8.6		8.5	8.1				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		1.7	0.2	4.5	0.2		0.4	0.0				
Delay (s)		12.2	8.5	13.9	8.9		8.9	8.2				
Level of Service		B	A	B	A		A	A				
Approach Delay (s)		11.8			10.1			8.6			0.0	
Approach LOS		B			B			A			A	

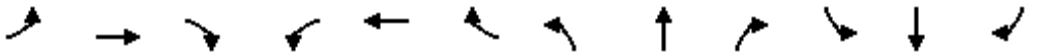
Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy





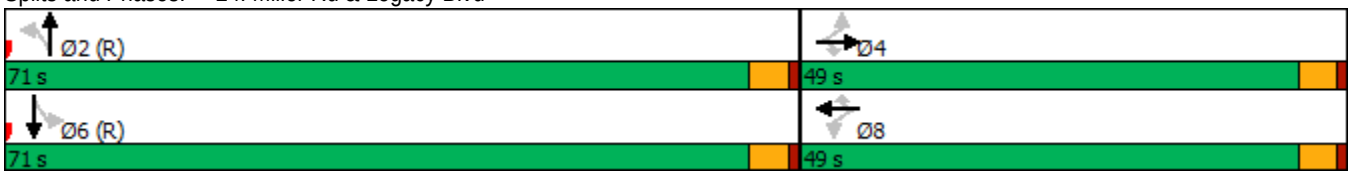
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	196	80	81	162	70	56	54	49	27	84	56
Future Volume (vph)	51	196	80	81	162	70	56	54	49	27	84	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1730		1770	1751	
Flt Permitted	0.64	1.00	1.00	0.61	1.00	1.00	0.65	1.00		0.68	1.00	
Satd. Flow (perm)	1189	3539	1583	1130	3539	1583	1217	1730		1273	1751	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	218	89	90	180	78	62	60	54	30	93	62
RTOR Reduction (vph)	0	0	56	0	0	49	0	24	0	0	20	0
Lane Group Flow (vph)	57	218	33	90	180	29	62	90	0	30	135	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	44.5	44.5	44.5	44.5	44.5	44.5	66.5	66.5		66.5	66.5	
Effective Green, g (s)	44.5	44.5	44.5	44.5	44.5	44.5	66.5	66.5		66.5	66.5	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.55	0.55		0.55	0.55	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	440	1312	587	419	1312	587	674	958		705	970	
v/s Ratio Prot		0.06			0.05			0.05			c0.08	
v/s Ratio Perm	0.05		0.02	c0.08		0.02	0.05			0.02		
v/c Ratio	0.13	0.17	0.06	0.21	0.14	0.05	0.09	0.09		0.04	0.14	
Uniform Delay, d1	24.9	25.3	24.3	25.8	25.0	24.2	12.6	12.6		12.2	12.9	
Progression Factor	0.55	0.60	0.66	1.00	1.00	1.00	1.02	1.03		1.00	1.00	
Incremental Delay, d2	0.6	0.3	0.2	1.2	0.2	0.2	0.3	0.2		0.1	0.3	
Delay (s)	14.4	15.3	16.2	27.0	25.2	24.4	13.1	13.2		12.3	13.2	
Level of Service	B	B	B	C	C	C	B	B		B	B	
Approach Delay (s)		15.4			25.5			13.1			13.1	
Approach LOS		B			C			B			B	

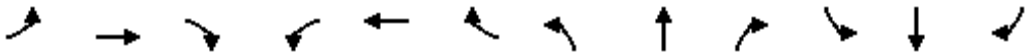
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	71	49	71	49
Maximum Split (%)	59.2%	40.8%	59.2%	40.8%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	0	71
End Time (s)	71	0	71	0
Yield/Force Off (s)	66.5	115.5	66.5	115.5
Yield/Force Off 170(s)	55.5	104.5	55.5	104.5
Local Start Time (s)	0	71	0	71
Local Yield (s)	66.5	115.5	66.5	115.5
Local Yield 170(s)	55.5	104.5	55.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 24: Miller Rd & Legacy Blvd

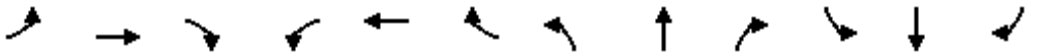




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	0	10	0	79	22	12	80	0
Future Volume (Veh/h)	0	0	0	17	0	10	0	79	22	12	80	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	19	0	11	0	88	24	13	89	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11			0			82	49	0	112	44	6
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			0			82	49	0	112	44	6
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	89	98	98	89	100
cM capacity (veh/h)	1607			1622			816	832	1084	761	838	1076

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	19	0	11	0	112	13	89
Volume Left	0	0	0	19	0	0	0	0	13	0
Volume Right	0	0	0	0	0	11	0	24	0	0
cSH	1700	1700	1700	1622	1700	1700	1700	876	761	838
Volume to Capacity	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.13	0.02	0.11
Queue Length 95th (ft)	0	0	0	1	0	0	0	11	1	9
Control Delay (s)	0.0	0.0	0.0	7.2	0.0	0.0	0.0	9.7	9.8	9.8
Lane LOS				A			A	A	A	A
Approach Delay (s)	0.0			4.6			9.7		9.8	
Approach LOS							A		A	

Intersection Summary				
Average Delay	9.1			
Intersection Capacity Utilization	17.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	19	73	41	13	4	76	1150	83	5	518	18
Future Volume (vph)	24	19	73	41	13	4	76	1150	83	5	518	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1801		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.69	1.00		0.39	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1389	1641		1287	1801		731	3539	1583	180	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	21	81	46	14	4	84	1278	92	6	576	20
RTOR Reduction (vph)	0	49	0	0	2	0	0	0	26	0	0	11
Lane Group Flow (vph)	27	53	0	46	16	0	84	1278	66	6	576	9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	555	656		514	720		338	1639	733	83	1639	733
v/s Ratio Prot		0.03			0.01			c0.36			0.16	
v/s Ratio Perm	0.02			c0.04			0.11		0.04	0.03		0.01
v/c Ratio	0.05	0.08		0.09	0.02		0.25	0.78	0.09	0.07	0.35	0.01
Uniform Delay, d1	17.4	17.7		17.7	17.2		15.5	21.4	14.3	14.2	16.4	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.3	0.1		1.8	3.7	0.2	1.7	0.6	0.0
Delay (s)	17.6	17.9		18.1	17.3		17.2	25.2	14.5	15.8	16.9	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.9			17.9			24.0			16.8	
Approach LOS		B			B			C			B	

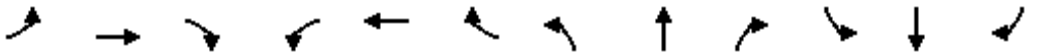
Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





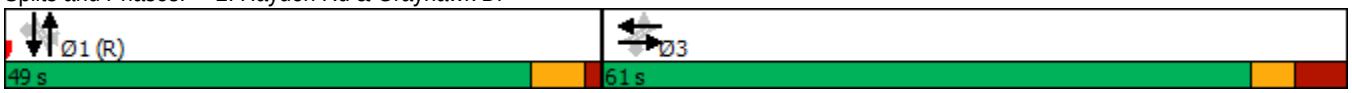
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	9	69	24	8	13	79	1288	39	13	562	40
Future Volume (vph)	38	9	69	24	8	13	79	1288	39	13	562	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.75	1.00		0.33	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1383	1863	1583	1399	1693		612	3539	1583	173	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	10	77	27	9	14	88	1431	43	14	624	44
RTOR Reduction (vph)	0	0	40	0	4	0	0	0	26	0	0	27
Lane Group Flow (vph)	42	10	37	27	19	0	88	1431	17	14	624	17
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	666	897	762	674	815		239	1383	618	67	1383	618
v/s Ratio Prot		0.01			0.01			c0.40			0.18	
v/s Ratio Perm	c0.03		0.02	0.02			0.14		0.01	0.08		0.01
v/c Ratio	0.06	0.01	0.05	0.04	0.02		0.37	1.03	0.03	0.21	0.45	0.03
Uniform Delay, d1	15.2	14.8	15.1	15.1	14.9		23.8	33.5	20.6	22.2	24.8	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.1	0.1		4.3	33.6	0.1	7.0	1.1	0.1
Delay (s)	15.4	14.9	15.2	15.2	15.0		28.2	67.1	20.7	29.2	25.8	20.7
Level of Service	B	B	B	B	B		C	E	C	C	C	C
Approach Delay (s)		15.3			15.1			63.7			25.6	
Approach LOS		B			B			E			C	

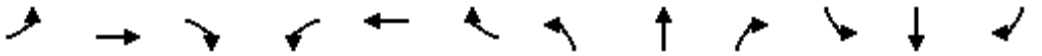
Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	540	343	337	352	169	482	1169	594	224	384	74
Future Volume (vph)	82	540	343	337	352	169	482	1169	594	224	384	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.52	1.00	1.00	0.15	1.00	1.00	0.43	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	970	3539	1583	271	3539	1583	792	3539	1583	194	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	600	381	374	391	188	536	1299	660	249	427	82
RTOR Reduction (vph)	0	0	296	0	0	131	0	0	243	0	0	56
Lane Group Flow (vph)	91	600	85	374	391	57	536	1299	417	249	427	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	35.9	26.7	26.7	50.2	36.5	36.5	55.5	37.7	37.7	55.1	38.5	38.5
Effective Green, g (s)	35.9	26.7	26.7	50.2	36.5	36.5	55.5	37.7	37.7	55.1	38.5	38.5
Actuated g/C Ratio	0.30	0.22	0.22	0.42	0.30	0.30	0.46	0.31	0.31	0.46	0.32	0.32
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	351	787	352	363	1076	481	511	1111	497	307	1135	507
v/s Ratio Prot	0.02	0.17		c0.17	0.11		c0.16	c0.37		0.11	0.12	
v/s Ratio Perm	0.06		0.05	c0.26		0.04	0.33		0.26	0.26		0.02
v/c Ratio	0.26	0.76	0.24	1.03	0.36	0.12	1.05	1.17	0.84	0.81	0.38	0.05
Uniform Delay, d1	31.1	43.7	38.3	34.0	32.7	30.1	28.3	41.1	38.3	31.5	31.5	28.1
Progression Factor	1.00	1.00	1.00	1.09	1.25	3.92	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	4.4	0.4	52.4	0.2	0.1	53.2	86.1	15.6	14.9	1.0	0.2
Delay (s)	31.5	48.1	38.7	89.6	40.9	118.3	81.5	127.2	53.9	46.5	32.4	28.3
Level of Service	C	D	D	F	D	F	F	F	D	D	C	C
Approach Delay (s)		43.3			75.3			98.0			36.6	
Approach LOS		D			E			F			D	

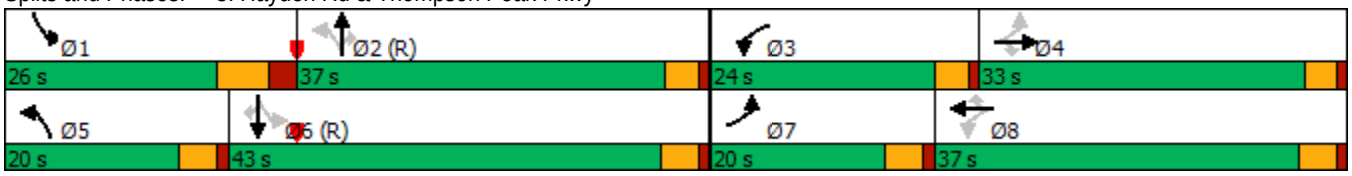
Intersection Summary			
HCM 2000 Control Delay	74.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

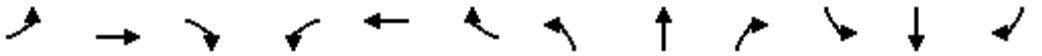
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	88	298	169	101	60	273	2130	98	34	986	88
Future Volume (vph)	76	88	298	169	101	60	273	2130	98	34	986	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.68	1.00	1.00	0.69	1.00	1.00	0.21	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1276	1863	1583	1292	1863	1583	390	3539	1583	111	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	98	331	188	112	67	303	2367	109	38	1096	98
RTOR Reduction (vph)	0	0	38	0	0	30	0	0	24	0	0	30
Lane Group Flow (vph)	84	98	293	188	112	37	303	2367	85	38	1096	68
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	28.7	28.7	28.7	28.7	28.7	28.7	67.3	67.3	67.3	67.3	67.3	67.3
Effective Green, g (s)	28.7	28.7	28.7	28.7	28.7	28.7	67.3	67.3	67.3	67.3	67.3	67.3
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.26	0.61	0.61	0.61	0.61	0.61	0.61
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	332	486	413	337	486	413	238	2165	968	67	2165	968
v/s Ratio Prot		0.05			0.06			0.67			0.31	
v/s Ratio Perm	0.07		c0.18	0.15		0.02	c0.78		0.05	0.34		0.04
v/c Ratio	0.25	0.20	0.71	0.56	0.23	0.09	1.27	1.09	0.09	0.57	0.51	0.07
Uniform Delay, d1	32.2	31.7	36.9	35.2	32.0	30.8	21.4	21.4	8.8	12.7	12.0	8.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	5.5	2.0	0.2	0.1	151.5	50.1	0.2	30.4	0.8	0.1
Delay (s)	32.6	31.9	42.3	37.2	32.2	30.9	172.8	71.5	8.9	43.1	12.9	8.8
Level of Service	C	C	D	D	C	C	F	E	A	D	B	A
Approach Delay (s)		38.8			34.5			80.1			13.5	
Approach LOS		D			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		

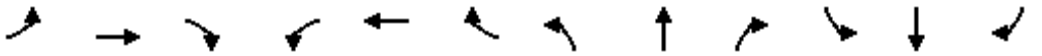
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	125
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	198	160	912	844	1582	0	0	1217	462
Future Volume (vph)	0	0	0	198	160	912	844	1582	0	0	1217	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.95			0.86	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1581	1504	3433	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1581	1504	3433	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	220	178	1013	938	1758	0	0	1352	513
RTOR Reduction (vph)	0	0	0	0	78	285	0	0	0	0	0	331
Lane Group Flow (vph)	0	0	0	220	536	292	938	1758	0	0	1352	182
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				46.9	46.9	46.9	21.0	32.1			32.1	32.1
Effective Green, g (s)				46.9	46.9	46.9	21.0	32.1			32.1	32.1
Actuated g/C Ratio				0.39	0.39	0.39	0.18	0.27			0.27	0.27
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1341	617	587	600	946			1714	423
v/s Ratio Prot					c0.34		c0.27	c0.50			0.21	
v/s Ratio Perm				0.06		0.19						0.11
v/c Ratio				0.16	0.87	0.50	1.56	1.86			0.79	0.43
Uniform Delay, d1				23.8	33.7	27.6	49.5	44.0			40.8	36.4
Progression Factor				1.00	1.00	1.00	0.75	0.72			1.00	1.00
Incremental Delay, d2				0.1	12.4	0.7	254.2	386.6			3.8	3.2
Delay (s)				23.8	46.1	28.3	291.5	418.3			44.6	39.5
Level of Service				C	D	C	F	F			D	D
Approach Delay (s)		0.0			35.4			374.2			43.2	
Approach LOS		A			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	190.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

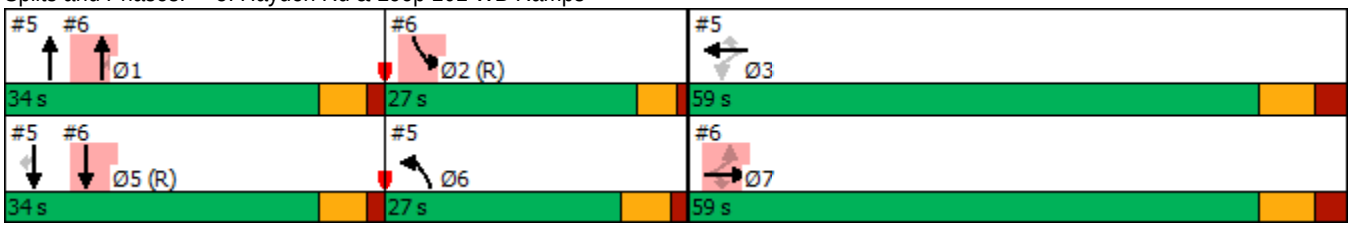
c Critical Lane Group

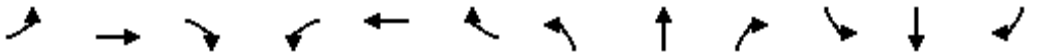
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	34	27	59
Maximum Split (%)	28.3%	22.5%	49.2%	28.3%	22.5%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	0	27
End Time (s)	0	27	86	0	27	86
Yield/Force Off (s)	114	22.5	78	114	21	78
Yield/Force Off 170(s)	104	22.5	52	104	21	52
Local Start Time (s)	86	0	27	86	0	27
Local Yield (s)	114	22.5	78	114	21	78
Local Yield 170(s)	104	22.5	52	104	21	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	130	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

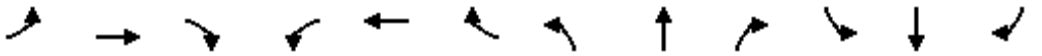




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	707	0	257	0	0	0	0	1763	213	653	779	0
Future Volume (vph)	707	0	257	0	0	0	0	1763	213	653	779	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1603	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1603	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	786	0	286	0	0	0	0	1959	237	726	866	0
RTOR Reduction (vph)	0	50	157	0	0	0	0	0	108	0	0	0
Lane Group Flow (vph)	409	356	100	0	0	0	0	1959	129	726	866	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	46.9	46.9	46.9					32.1	32.1	22.5	32.1	
Effective Green, g (s)	46.9	46.9	46.9					32.1	32.1	22.5	32.1	
Actuated g/C Ratio	0.39	0.39	0.39					0.27	0.27	0.19	0.27	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	656	626	587					1360	423	643	946	
v/s Ratio Prot								c0.39		c0.21	0.24	
v/s Ratio Perm	c0.24	0.22	0.07						0.08			
v/c Ratio	0.62	0.57	0.17					1.44	0.31	1.13	0.92	
Uniform Delay, d1	29.4	28.6	23.9					44.0	35.1	48.8	42.6	
Progression Factor	1.26	1.35	4.03					1.06	1.34	0.69	0.61	
Incremental Delay, d2	0.5	0.3	0.0					200.4	0.2	72.1	11.3	
Delay (s)	37.7	39.0	96.1					246.9	47.2	105.7	37.1	
Level of Service	D	D	F					F	D	F	D	
Approach Delay (s)		52.2			0.0			225.4			68.4	
Approach LOS		D			A			F			E	

Intersection Summary			
HCM 2000 Control Delay	135.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	68	260	45	69	377	200	1200	22	76	697	294
Future Volume (vph)	353	68	260	45	69	377	200	1200	22	76	697	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.71	1.00	1.00	0.69	1.00	1.00	0.23	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1317	1863	1583	1282	1863	1583	426	3539	1583	152	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	392	76	289	50	77	419	222	1333	24	84	774	327
RTOR Reduction (vph)	0	0	205	0	0	40	0	0	10	0	0	146
Lane Group Flow (vph)	392	76	84	50	77	379	222	1333	14	84	774	181
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	35.5	18.0	34.9	36.5	18.5	33.0	68.4	51.5	69.5	63.6	49.1	66.6
Effective Green, g (s)	35.5	18.0	34.9	36.5	18.5	33.0	68.4	51.5	69.5	63.6	49.1	66.6
Actuated g/C Ratio	0.30	0.15	0.29	0.30	0.15	0.28	0.57	0.43	0.58	0.53	0.41	0.55
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	455	279	519	463	287	494	432	1518	976	276	1448	937
v/s Ratio Prot	c0.13	0.04	0.02	0.02	0.04	c0.09	c0.07	c0.38	0.00	0.04	0.22	0.03
v/s Ratio Perm	0.13		0.03	0.02		0.15	0.22		0.01	0.12		0.09
v/c Ratio	0.86	0.27	0.16	0.11	0.27	0.77	0.51	0.88	0.01	0.30	0.53	0.19
Uniform Delay, d1	38.5	45.2	31.7	29.9	44.8	40.0	14.9	31.4	10.7	20.5	26.8	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.73	1.10	5.83	0.94	0.88	7.57
Incremental Delay, d2	18.9	2.4	0.7	0.5	2.3	10.9	3.7	6.5	0.0	1.8	0.9	0.3
Delay (s)	57.4	47.6	32.3	30.4	47.1	50.9	29.3	40.8	62.5	21.0	24.5	101.0
Level of Service	E	D	C	C	D	D	C	D	E	C	C	F
Approach Delay (s)		46.9			48.5			39.5			45.4	
Approach LOS		D			D			D			D	

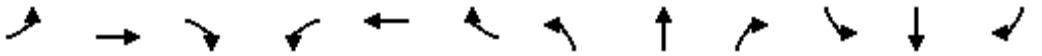
Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	19	56	22.5	22.5	21.4	53.6	22	23
Maximum Split (%)	15.8%	46.7%	18.8%	18.8%	17.8%	44.7%	18.3%	19.2%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	98.6	117.6	53.6	76.1	98.6	0	53.6	75.6
End Time (s)	117.6	53.6	76.1	98.6	0	53.6	75.6	98.6
Yield/Force Off (s)	113.1	49.1	71.6	94.1	115.5	49.1	71.1	94.1
Yield/Force Off 170(s)	113.1	38.1	60.6	83.1	115.5	38.1	71.1	83.1
Local Start Time (s)	98.6	117.6	53.6	76.1	98.6	0	53.6	75.6
Local Yield (s)	113.1	49.1	71.6	94.1	115.5	49.1	71.1	94.1
Local Yield 170(s)	113.1	38.1	60.6	83.1	115.5	38.1	71.1	83.1

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	21	74	253	0	212	148	1162	165	69	846	71
Future Volume (vph)	38	21	74	253	0	212	148	1162	165	69	846	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1804	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.26	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)		1804	1583	3433		1583	479	3539	1583	281	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	23	82	281	0	236	164	1291	183	77	940	79
RTOR Reduction (vph)	0	0	75	0	0	206	0	0	51	0	0	30
Lane Group Flow (vph)	0	65	7	281	0	30	164	1291	132	77	940	49
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		10.6	10.6	15.4		15.4	74.0	74.0	74.0	74.0	74.0	74.0
Effective Green, g (s)		10.6	10.6	15.4		15.4	74.0	74.0	74.0	74.0	74.0	74.0
Actuated g/C Ratio		0.09	0.09	0.13		0.13	0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		159	139	440		203	295	2182	976	173	2182	976
v/s Ratio Prot		c0.04		c0.08				c0.36			0.27	
v/s Ratio Perm			0.00			0.02	0.34		0.08	0.27		0.03
v/c Ratio		0.41	0.05	0.64		0.15	0.56	0.59	0.14	0.45	0.43	0.05
Uniform Delay, d1		51.7	50.1	49.7		46.5	13.4	13.9	9.6	12.2	12.0	9.1
Progression Factor		1.00	1.00	1.00		1.00	0.94	0.98	1.54	2.06	2.31	8.13
Incremental Delay, d2		1.7	0.2	3.0		0.3	5.8	0.9	0.2	7.2	0.6	0.1
Delay (s)		53.4	50.3	52.7		46.8	18.4	14.6	15.0	32.3	28.3	74.1
Level of Service		D	D	D		D	B	B	B	C	C	E
Approach Delay (s)		51.7			50.0			15.0			31.9	
Approach LOS		D			D			B			C	

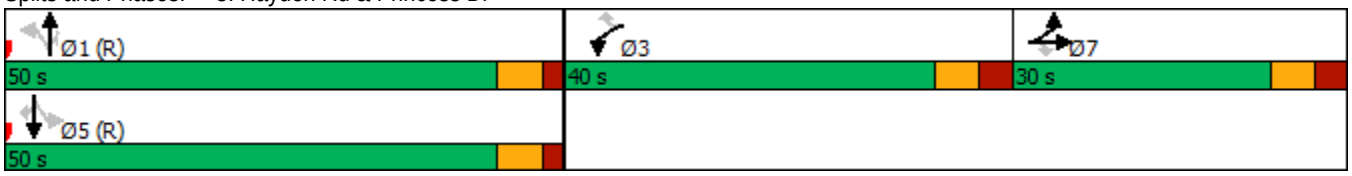
Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

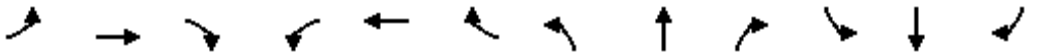
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1	23	488	0	164	6	1356	276	171	1035	10
Future Volume (vph)	13	1	23	488	0	164	6	1356	276	171	1035	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3534	
Flt Permitted		0.78		0.73	0.73	1.00	0.19	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		2511		1290	1290	1583	352	3539	1583	196	3534	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1	26	542	0	182	7	1507	307	190	1150	11
RTOR Reduction (vph)	0	25	0	0	0	135	0	0	88	0	0	0
Lane Group Flow (vph)	0	16	0	271	271	47	7	1507	219	190	1161	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		5.4		30.8	30.8	30.8	75.2	75.2	75.2	75.2	75.2	
Effective Green, g (s)		5.4		30.8	30.8	30.8	75.2	75.2	75.2	75.2	75.2	
Actuated g/C Ratio		0.05		0.26	0.26	0.26	0.63	0.63	0.63	0.63	0.63	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		112		387	387	406	220	2217	992	122	2214	
v/s Ratio Prot				c0.10	0.10			0.43			0.33	
v/s Ratio Perm		0.01		c0.08	0.08	0.03	0.02		0.14	c0.97		
v/c Ratio		0.14		0.70	0.70	0.12	0.03	0.68	0.22	1.56	0.52	
Uniform Delay, d1		55.1		39.4	40.4	34.2	8.5	14.6	9.7	22.4	12.5	
Progression Factor		1.00		1.00	1.00	1.00	1.16	1.01	1.45	0.74	0.48	
Incremental Delay, d2		0.6		5.6	5.6	0.1	0.1	0.6	0.2	285.1	0.8	
Delay (s)		55.7		45.0	46.0	34.3	10.0	15.4	14.3	301.6	6.8	
Level of Service		E		D	D	C	A	B	B	F	A	
Approach Delay (s)		55.7			42.7			15.2			48.3	
Approach LOS		E			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

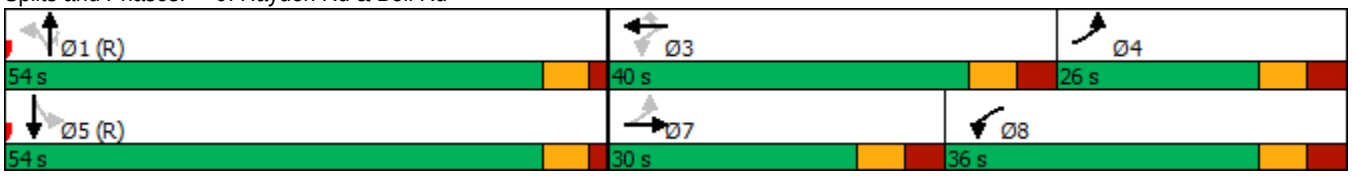
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	63	2265	109	20	1219
Future Volume (vph)	132	63	2265	109	20	1219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	79	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	70	2517	121	22	1354
RTOR Reduction (vph)	0	12	0	13	0	0
Lane Group Flow (vph)	147	58	2517	108	22	1354
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.6	13.6	94.4	94.4	94.4	94.4
Effective Green, g (s)	13.6	13.6	94.4	94.4	94.4	94.4
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	179	2784	1245	62	2784
v/s Ratio Prot	c0.08		c0.71			0.38
v/s Ratio Perm		0.04		0.07	0.28	
v/c Ratio	0.73	0.33	0.90	0.09	0.35	0.49
Uniform Delay, d1	51.5	49.0	9.5	2.9	3.8	4.4
Progression Factor	1.00	1.00	1.17	1.33	1.00	1.00
Incremental Delay, d2	13.1	1.1	2.5	0.1	15.2	0.6
Delay (s)	64.5	50.1	13.6	4.0	19.0	5.0
Level of Service	E	D	B	A	B	A
Approach Delay (s)	59.9		13.1			5.3
Approach LOS	E		B			A

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	128	69	2276	128	60	1253
Future Volume (vph)	128	69	2276	128	60	1253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	79	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	77	2529	142	67	1392
RTOR Reduction (vph)	0	10	0	20	0	0
Lane Group Flow (vph)	142	67	2529	122	67	1392
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	14.2	14.2	93.8	93.8	93.8	93.8
Effective Green, g (s)	14.2	14.2	93.8	93.8	93.8	93.8
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	187	2766	1237	61	2766
v/s Ratio Prot	c0.08		0.71			0.39
v/s Ratio Perm		0.04		0.08	c0.84	
v/c Ratio	0.68	0.36	0.91	0.10	1.10	0.50
Uniform Delay, d1	50.7	48.7	10.0	3.1	13.1	4.7
Progression Factor	1.00	1.00	1.94	1.39	1.40	0.84
Incremental Delay, d2	8.5	1.2	0.6	0.0	137.3	0.6
Delay (s)	59.2	49.9	20.0	4.3	155.7	4.6
Level of Service	E	D	C	A	F	A
Approach Delay (s)	55.9		19.2			11.5
Approach LOS	E		B			B

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

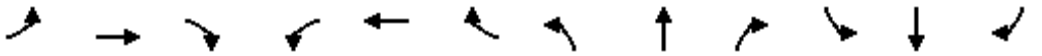
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	156	71	669	235	205	92	1945	497	157	1397	366
Future Volume (vph)	533	156	71	669	235	205	92	1945	497	157	1397	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	171	5085	1583	130	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	173	79	743	261	228	102	2161	552	174	1552	407
RTOR Reduction (vph)	0	0	72	0	0	54	0	0	76	0	0	186
Lane Group Flow (vph)	592	173	7	743	261	174	102	2161	476	174	1552	221
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	2		1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	5.0	11.2	11.2	29.2	37.9	44.9	49.1	49.1	78.3	64.1	60.1	65.1
Effective Green, g (s)	5.0	11.2	11.2	29.2	37.9	44.9	49.1	49.1	78.3	64.1	60.1	65.1
Actuated g/C Ratio	0.04	0.09	0.09	0.24	0.32	0.37	0.41	0.41	0.65	0.53	0.50	0.54
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	330	147	835	1117	592	69	2080	1032	165	2546	858
v/s Ratio Prot	c0.17	c0.05		c0.22	0.07	0.02		0.42	0.11	c0.06	0.31	0.01
v/s Ratio Perm			0.00			0.09	c0.60		0.19	0.50		0.13
v/c Ratio	4.14	0.52	0.05	0.89	0.23	0.29	1.48	1.04	0.46	1.05	0.61	0.26
Uniform Delay, d1	57.5	51.9	49.6	43.8	30.3	26.4	35.5	35.5	10.4	50.8	21.5	14.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.35	1.32	1.83	1.14	1.13	2.32
Incremental Delay, d2	1429.3	1.5	0.1	11.4	0.1	0.3	222.2	19.4	0.0	83.4	1.0	0.2
Delay (s)	1486.8	53.4	49.7	55.3	30.4	26.7	270.2	66.3	19.0	141.4	25.5	34.1
Level of Service	F	D	D	E	C	C	F	E	B	F	C	C
Approach Delay (s)		1058.5			44.7			64.4			36.6	
Approach LOS		F			D			E			D	

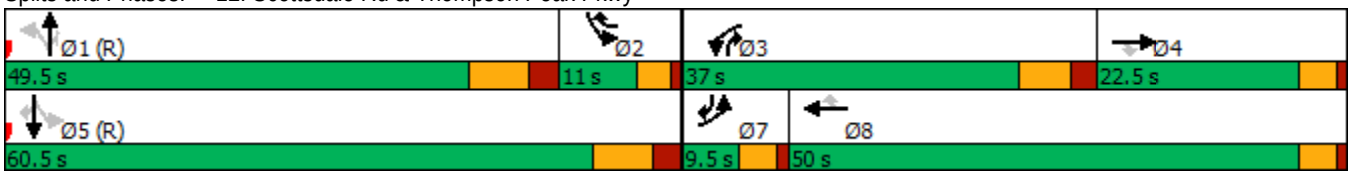
Intersection Summary			
HCM 2000 Control Delay	171.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

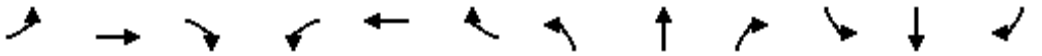
c Critical Lane Group

Phase Number	1	2	3	4	5	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None
Maximum Split (s)	49.5	11	37	22.5	60.5	9.5	50
Maximum Split (%)	41.3%	9.2%	30.8%	18.8%	50.4%	7.9%	41.7%
Minimum Split (s)	40	9	37	22.5	40	9.5	22.5
Yellow Time (s)	5.3	3	4.6	3.5	5.3	3.5	3.5
All-Red Time (s)	2.7	1	2.4	1	2.7	1	1
Minimum Initial (s)	20	5	6	5	20	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7		7
Flash Dont Walk (s)	25		23	11	25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
End Time (s)	49.5	60.5	97.5	0	60.5	70	0
Yield/Force Off (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Yield/Force Off 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5
Local Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
Local Yield (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Local Yield 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	104	37	319	148	91	56	2469	275	58	2110	348
Future Volume (vph)	366	104	37	319	148	91	56	2469	275	58	2110	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.06	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	119	5085	1583	134	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	116	41	354	164	101	62	2743	306	64	2344	387
RTOR Reduction (vph)	0	0	38	0	0	80	0	0	74	0	0	120
Lane Group Flow (vph)	407	116	3	354	164	21	62	2743	232	64	2344	267
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		6	1		2	5	
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	5.0	9.3	9.3	17.7	24.5	24.5	77.0	64.1	64.1	62.0	55.6	55.6
Effective Green, g (s)	5.0	9.3	9.3	17.7	24.5	24.5	77.0	64.1	64.1	62.0	55.6	55.6
Actuated g/C Ratio	0.04	0.08	0.08	0.15	0.20	0.20	0.64	0.53	0.53	0.52	0.46	0.46
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	274	122	506	722	323	274	2716	845	156	2356	733
v/s Ratio Prot	c0.12	c0.03		c0.10	0.05		0.03	c0.54		c0.02	0.46	
v/s Ratio Perm			0.00			0.01	0.12		0.15	0.19		0.17
v/c Ratio	2.85	0.42	0.03	0.70	0.23	0.06	0.23	1.01	0.27	0.41	0.99	0.36
Uniform Delay, d1	57.5	52.8	51.2	48.6	39.8	38.5	41.1	28.0	15.3	51.8	32.1	20.8
Progression Factor	1.00	1.00	1.00	0.97	0.93	1.00	1.47	2.04	3.50	1.06	1.29	1.81
Incremental Delay, d2	849.7	1.1	0.1	4.2	0.2	0.1	0.0	7.9	0.1	6.5	15.7	1.2
Delay (s)	907.2	53.8	51.3	51.3	37.2	38.6	60.4	65.0	53.4	61.2	56.9	38.7
Level of Service	F	D	D	D	D	D	E	E	D	E	E	D
Approach Delay (s)		669.5			45.5			63.8			54.5	
Approach LOS		F			D			E			D	

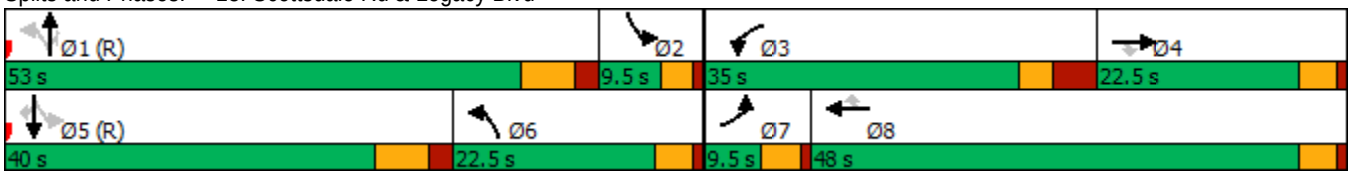
Intersection Summary			
HCM 2000 Control Delay	106.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

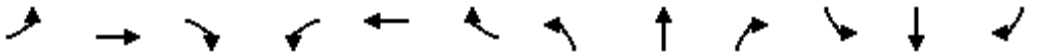
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	53	9.5	35	22.5	40	22.5	9.5	48
Maximum Split (%)	44.2%	7.9%	29.2%	18.8%	33.3%	18.8%	7.9%	40.0%
Minimum Split (s)	30	9	35	22.5	30	22.5	9.5	22.5
Yellow Time (s)	4.9	3	3	3.5	4.9	3.5	3.5	3.5
All-Red Time (s)	2.1	1	4	1	2.1	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7	7		7
Flash Dont Walk (s)	16		21	11	16	11		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
End Time (s)	53	62.5	97.5	0	40	62.5	72	0
Yield/Force Off (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Yield/Force Off 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5
Local Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
Local Yield (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Local Yield 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	748	103	620	1099	2199	0	0	1770	779
Future Volume (vph)	0	0	0	748	103	620	1099	2199	0	0	1770	779
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1578	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1578	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	831	114	689	1221	2443	0	0	1967	866
RTOR Reduction (vph)	0	0	0	0	78	283	0	0	0	0	0	237
Lane Group Flow (vph)	0	0	0	831	332	110	1221	2443	0	0	1967	629
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				33.7	33.7	33.7	25.0	39.3			44.3	44.3
Effective Green, g (s)				33.7	33.7	33.7	25.0	39.3			44.3	44.3
Actuated g/C Ratio				0.28	0.28	0.28	0.21	0.33			0.37	0.37
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				964	443	422	715	1665			2784	584
v/s Ratio Prot					0.21		c0.36	c0.48			0.26	
v/s Ratio Perm				c0.24		0.07						c0.40
v/c Ratio				0.86	0.75	0.26	1.71	1.47			0.71	1.08
Uniform Delay, d1				40.9	39.3	33.5	47.5	40.4			32.3	37.9
Progression Factor				0.99	0.99	4.23	0.88	0.61			1.26	1.47
Incremental Delay, d2				0.8	0.6	0.0	319.0	210.6			0.7	48.9
Delay (s)				41.3	39.5	141.7	360.6	235.0			41.6	104.8
Level of Service				D	D	F	F	F			D	F
Approach Delay (s)		0.0			65.0			276.9			60.9	
Approach LOS		A			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	159.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		

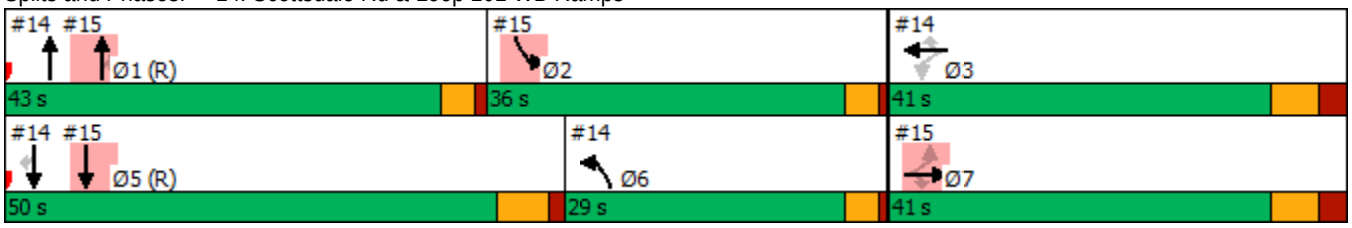
c Critical Lane Group

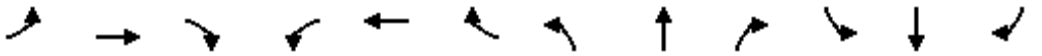
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	50	29	41
Maximum Split (%)	35.8%	30.0%	34.2%	41.7%	24.2%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	50	79
End Time (s)	43	79	0	50	79	0
Yield/Force Off (s)	39	75	113	44	75	113
Yield/Force Off 170(s)	39	75	105	36	75	85
Local Start Time (s)	0	43	79	0	50	79
Local Yield (s)	39	75	113	44	75	113
Local Yield 170(s)	39	75	105	36	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	150	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

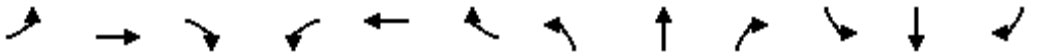




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	617	0	949	0	0	0	0	2696	778	604	2018	0
Future Volume (vph)	617	0	949	0	0	0	0	2696	778	604	2018	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	686	0	1054	0	0	0	0	2996	864	671	2242	0
RTOR Reduction (vph)	0	302	302	0	0	0	0	0	223	0	0	0
Lane Group Flow (vph)	686	225	225	0	0	0	0	2996	641	671	2242	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	33.7	33.7	33.7					39.3	39.3	32.0	44.3	
Effective Green, g (s)	33.7	33.7	33.7					39.3	39.3	32.0	44.3	
Actuated g/C Ratio	0.28	0.28	0.28					0.33	0.33	0.27	0.37	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	964	422	422					2470	518	915	1877	
v/s Ratio Prot		0.15						0.40		c0.20	c0.44	
v/s Ratio Perm	c0.20		0.15						0.40			
v/c Ratio	0.71	0.53	0.53					1.21	1.24	0.73	1.19	
Uniform Delay, d1	38.8	36.5	36.5					40.4	40.4	40.1	37.9	
Progression Factor	1.00	1.00	1.00					1.10	1.23	0.98	0.58	
Incremental Delay, d2	2.5	1.3	1.3					96.2	108.2	3.6	91.3	
Delay (s)	41.3	37.8	37.8					140.8	157.8	43.0	113.2	
Level of Service	D	D	D					F	F	D	F	
Approach Delay (s)		39.2			0.0			144.6			97.0	
Approach LOS		D			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	106.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	742	139	214	177	194	539	415	2229	136	430	1711	808
Future Volume (vph)	742	139	214	177	194	539	415	2229	136	430	1711	808
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3149		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3149		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	824	154	238	197	216	599	461	2477	151	478	1901	898
RTOR Reduction (vph)	0	0	181	0	100	0	0	0	78	0	0	143
Lane Group Flow (vph)	824	154	57	197	715	0	461	2477	73	478	1901	755
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7		8	3		6	1		2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	6.5	14.2	14.2	20.3	28.0		18.5	53.0	53.0	7.1	41.9	48.4
Effective Green, g (s)	6.5	14.2	14.2	20.3	28.0		18.5	53.0	53.0	7.1	41.9	48.4
Actuated g/C Ratio	0.05	0.12	0.12	0.17	0.23		0.15	0.44	0.44	0.06	0.35	0.40
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	601	187	580	734		529	2245	699	203	1775	711
v/s Ratio Prot	c0.24	0.03		0.06	c0.23		c0.13	c0.49		c0.14	0.37	0.06
v/s Ratio Perm			0.04						0.05			0.42
v/c Ratio	4.45	0.26	0.31	0.34	1.28dr		0.87	1.10	0.10	2.35	1.07	1.06
Uniform Delay, d1	56.8	48.1	48.4	43.9	45.6		49.6	33.5	19.6	56.5	39.0	35.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.15	1.34	2.98	1.26	1.05	1.10
Incremental Delay, d2	1566.8	0.2	0.9	0.4	26.8		10.8	50.9	0.0	611.0	33.3	31.2
Delay (s)	1623.5	48.3	49.3	44.3	72.4		67.8	95.8	58.5	682.2	74.1	70.7
Level of Service	F	D	D	D	E		E	F	E	F	E	E
Approach Delay (s)		1115.9			67.0			89.8			161.9	
Approach LOS		F			E			F			F	

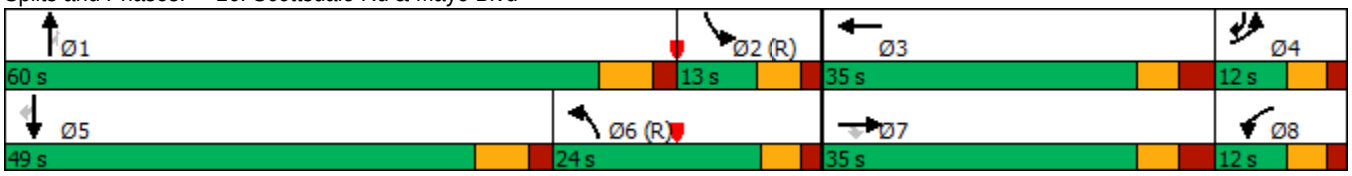
Intersection Summary			
HCM 2000 Control Delay	259.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	120.4%	ICU Level of Service	H
Analysis Period (min)	15		

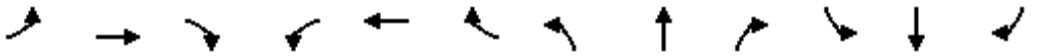
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	13	35	12	49	24	35	12
Maximum Split (%)	50.0%	10.8%	29.2%	10.0%	40.8%	20.0%	29.2%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	13	48	60	109	13	48
End Time (s)	0	13	48	60	109	13	48	60
Yield/Force Off (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Yield/Force Off 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5
Local Start Time (s)	60	0	13	48	60	109	13	48
Local Yield (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Local Yield 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1	144	16	5	5	168	2627	8	10	2169	101
Future Volume (vph)	143	1	144	16	5	5	168	2627	8	10	2169	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.37	1.00	1.00	0.76	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	695	3539	1583	1410	3539	1583	109	5085	1583	118	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	1	160	18	6	6	187	2919	9	11	2410	112
RTOR Reduction (vph)	0	0	139	0	0	6	0	0	3	0	0	53
Lane Group Flow (vph)	159	1	21	18	6	0	187	2919	6	11	2410	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.4	15.9	15.9	8.4	5.4	5.4	81.6	74.8	74.8	64.4	63.1	63.1
Effective Green, g (s)	24.4	15.9	15.9	8.4	5.4	5.4	81.6	74.8	74.8	64.4	63.1	63.1
Actuated g/C Ratio	0.20	0.13	0.13	0.07	0.05	0.05	0.68	0.62	0.62	0.54	0.53	0.53
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	262	468	209	107	159	71	254	3169	986	81	2673	832
v/s Ratio Prot	c0.07	0.00		0.00	0.00		c0.08	c0.57		0.00	0.47	
v/s Ratio Perm	c0.06		0.01	0.01		0.00	0.42		0.00	0.07		0.04
v/c Ratio	0.61	0.00	0.10	0.17	0.04	0.00	0.74	0.92	0.01	0.14	0.90	0.07
Uniform Delay, d1	42.0	45.2	45.8	52.4	54.8	54.7	34.6	20.0	8.5	22.6	25.7	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.77	2.54	1.00	0.80	0.79	1.24
Incremental Delay, d2	3.9	0.0	0.2	0.7	0.1	0.0	1.0	0.6	0.0	0.4	2.7	0.1
Delay (s)	45.9	45.2	46.0	53.2	54.9	54.8	27.5	51.4	8.5	18.5	22.9	17.5
Level of Service	D	D	D	D	D	D	C	D	A	B	C	B
Approach Delay (s)		46.0			53.8			49.8			22.6	
Approach LOS		D			D			D			C	

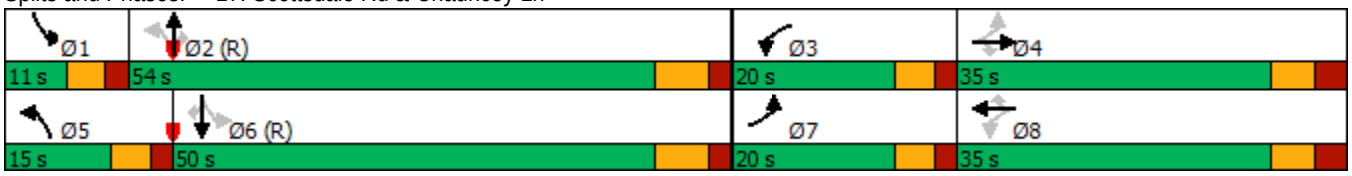
Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

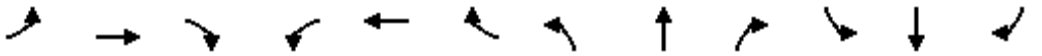
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	15	282	324	45	355	292	2338	250	215	2027	80
Future Volume (vph)	63	15	282	324	45	355	292	2338	250	215	2027	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3036		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.72	1.00		0.44	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1346	3036		826	3539	1583	141	5085	1583	141	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	17	313	360	50	394	324	2598	278	239	2252	89
RTOR Reduction (vph)	0	172	0	0	0	213	0	0	97	0	0	50
Lane Group Flow (vph)	70	158	0	360	50	181	324	2598	181	239	2252	39
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	33.0	19.1		33.0	19.1	19.1	66.0	53.0	53.0	66.0	53.0	53.0
Effective Green, g (s)	33.0	19.1		33.0	19.1	19.1	66.0	53.0	53.0	66.0	53.0	53.0
Actuated g/C Ratio	0.28	0.16		0.28	0.16	0.16	0.55	0.44	0.44	0.55	0.44	0.44
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	419	483		336	563	251	254	2245	699	254	2245	699
v/s Ratio Prot	0.02	0.05		c0.12	0.01		c0.14	0.51		0.10	0.44	
v/s Ratio Perm	0.03			c0.17		0.11	c0.56		0.11	0.42		0.02
v/c Ratio	0.17	0.33		1.07	0.09	0.72	1.28	1.16	0.26	0.94	1.00	0.06
Uniform Delay, d1	33.3	44.8		43.6	43.0	47.9	50.1	33.5	21.1	49.7	33.5	19.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.98	1.36	2.59	0.57	0.72	4.36
Incremental Delay, d2	0.2	0.4		69.4	0.1	9.8	132.5	72.4	0.2	29.9	15.0	0.1
Delay (s)	33.5	45.2		113.0	43.1	57.7	181.7	118.0	55.0	58.3	39.2	83.8
Level of Service	C	D		F	D	E	F	F	D	E	D	F
Approach Delay (s)		43.1			81.6			119.0			42.6	
Approach LOS		D			F			F			D	

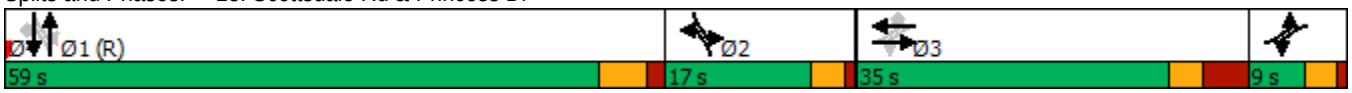
Intersection Summary			
HCM 2000 Control Delay	82.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

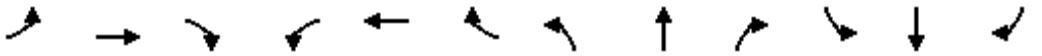
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	3	139	108	9	66	125	2748	30	65	2531	95
Future Volume (vph)	76	3	139	108	9	66	125	2748	30	65	2531	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.60		0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1372			1058		102	5085	1583	102	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	3	154	120	10	73	139	3053	33	72	2812	106
RTOR Reduction (vph)	0	57	0	0	18	0	0	0	13	0	0	29
Lane Group Flow (vph)	0	184	0	0	185	0	139	3053	20	72	2812	77
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		24.2			24.2		78.8	72.8	72.8	78.8	72.8	72.8
Effective Green, g (s)		24.2			24.2		78.8	72.8	72.8	78.8	72.8	72.8
Actuated g/C Ratio		0.20			0.20		0.66	0.61	0.61	0.66	0.61	0.61
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		276			213		150	3084	960	150	3084	960
v/s Ratio Prot							c0.05	c0.60		0.02	0.55	
v/s Ratio Perm		0.13			c0.18		0.56		0.01	0.29		0.05
v/c Ratio		0.67			0.87		0.93	0.99	0.02	0.48	0.91	0.08
Uniform Delay, d1		44.2			46.4		48.1	23.2	9.4	52.3	20.8	9.8
Progression Factor		1.00			1.00		1.41	1.31	1.00	0.77	1.11	2.03
Incremental Delay, d2		6.0			29.8		10.4	3.1	0.0	4.2	2.2	0.1
Delay (s)		50.2			76.2		78.2	33.5	9.4	44.6	25.2	19.9
Level of Service		D			E		E	C	A	D	C	B
Approach Delay (s)		50.2			76.2			35.2			25.5	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

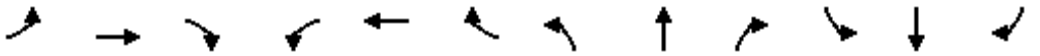
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	410	728	243	260	1713	610	579	1963	313	473	1728	612
Future Volume (vph)	410	728	243	260	1713	610	579	1963	313	473	1728	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4886	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4886	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	456	809	270	289	1903	678	643	2181	348	526	1920	680
RTOR Reduction (vph)	0	0	41	0	0	44	0	0	43	0	53	0
Lane Group Flow (vph)	456	809	229	289	1903	634	643	2181	305	526	2547	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	7.0	39.0	53.0	5.0	37.0	47.0	14.0	44.0	49.0	10.0	40.0	
Effective Green, g (s)	7.0	39.0	53.0	5.0	37.0	47.0	14.0	44.0	49.0	10.0	40.0	
Actuated g/C Ratio	0.06	0.32	0.44	0.04	0.31	0.39	0.12	0.37	0.41	0.08	0.33	
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	1652	699	143	1567	620	400	1864	646	286	1628	
v/s Ratio Prot	c0.13	0.16	0.04	0.08	c0.37	0.09	c0.19	c0.43	0.02	0.15	c0.52	
v/s Ratio Perm			0.11			0.32			0.17			
v/c Ratio	2.28	0.49	0.33	2.02	1.21	1.02	1.61	1.17	0.47	1.84	1.56	
Uniform Delay, d1	56.5	32.5	21.9	57.5	41.5	36.5	53.0	38.0	26.0	55.0	40.0	
Progression Factor	1.00	1.00	1.00	1.01	1.37	1.04	1.00	1.00	1.00	0.99	0.68	
Incremental Delay, d2	591.6	1.0	0.3	461.7	97.1	17.0	284.8	82.7	0.5	383.8	255.3	
Delay (s)	648.1	33.6	22.1	519.7	154.0	54.7	337.8	120.7	26.6	438.4	282.4	
Level of Service	F	C	C	F	F	D	F	F	C	F	F	
Approach Delay (s)		214.1			167.4			154.4			308.7	
Approach LOS		F			F			F			F	

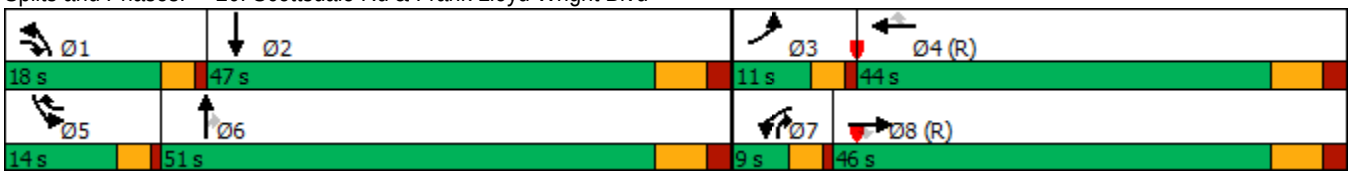
Intersection Summary			
HCM 2000 Control Delay	211.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	126.7%	ICU Level of Service	H
Analysis Period (min)	15		

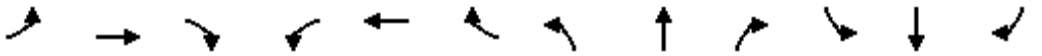
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	18	47	11	44	14	51	9	46
Maximum Split (%)	15.0%	39.2%	9.2%	36.7%	11.7%	42.5%	7.5%	38.3%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	44	62	109	0	44	58	109	118
End Time (s)	62	109	0	44	58	109	118	44
Yield/Force Off (s)	58	102	116	37	54	102	114	37
Yield/Force Off 170(s)	58	81	116	15	54	81	114	15
Local Start Time (s)	44	62	109	0	44	58	109	118
Local Yield (s)	58	102	116	37	54	102	114	37
Local Yield 170(s)	58	81	116	15	54	81	114	15

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	505	1307	73	407	1928	467	114	602	633	380	779	723
Future Volume (vph)	505	1307	73	407	1928	467	114	602	633	380	779	723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	561	1452	81	452	2142	519	127	669	703	422	866	803
RTOR Reduction (vph)	0	0	48	0	0	55	0	0	68	0	0	64
Lane Group Flow (vph)	561	1452	33	452	2142	464	127	669	635	422	866	739
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	15.0	45.0	49.0	15.0	45.0	54.0	4.0	23.0	38.0	9.0	28.0	43.0
Effective Green, g (s)	15.0	45.0	49.0	15.0	45.0	54.0	4.0	23.0	38.0	9.0	28.0	43.0
Actuated g/C Ratio	0.12	0.38	0.41	0.12	0.38	0.45	0.03	0.19	0.32	0.08	0.23	0.36
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	1906	738	429	1906	804	59	678	593	257	825	659
v/s Ratio Prot	c0.16	0.29	0.00	0.13	c0.42	0.04	0.07	0.19	0.13	c0.12	0.24	c0.14
v/s Ratio Perm			0.02			0.25			0.27			0.33
v/c Ratio	1.31	0.76	0.04	1.05	1.12	0.58	2.15	0.99	1.07	1.64	1.05	1.12
Uniform Delay, d1	52.5	32.8	21.4	52.5	37.5	24.5	58.0	48.3	41.0	55.5	46.0	38.5
Progression Factor	0.91	0.92	2.51	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.19
Incremental Delay, d2	149.5	2.0	0.0	58.3	63.3	1.0	570.4	30.9	57.2	304.5	43.9	72.0
Delay (s)	197.2	32.3	53.6	110.8	100.8	25.5	628.4	79.3	98.2	360.2	84.2	117.9
Level of Service	F	C	D	F	F	C	F	E	F	F	F	F
Approach Delay (s)		77.3			89.7			134.7			152.9	
Approach LOS		E			F			F			F	

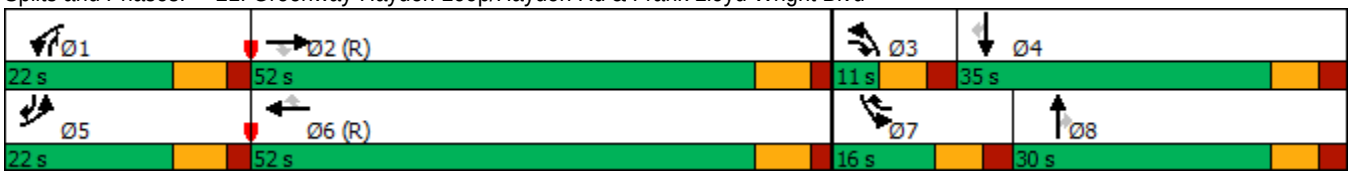
Intersection Summary			
HCM 2000 Control Delay	109.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

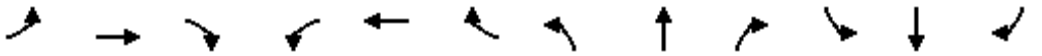
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	52	11	35	22	52	16	30
Maximum Split (%)	18.3%	43.3%	9.2%	29.2%	18.3%	43.3%	13.3%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	98	0	52	63	98	0	52	68
End Time (s)	0	52	63	98	0	52	68	98
Yield/Force Off (s)	113	45	56	91	113	45	61	91
Yield/Force Off 170(s)	113	28	56	67	113	28	61	67
Local Start Time (s)	98	0	52	63	98	0	52	68
Local Yield (s)	113	45	56	91	113	45	61	91
Local Yield 170(s)	113	28	56	67	113	28	61	67

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	595	540	143	99	351	401	238	1685	11	363	1092	322
Future Volume (vph)	595	540	143	99	351	401	238	1685	11	363	1092	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5080		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5080		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	661	600	159	110	390	446	264	1872	12	403	1213	358
RTOR Reduction (vph)	0	0	50	0	0	50	0	1	0	0	0	43
Lane Group Flow (vph)	661	600	109	110	390	396	264	1883	0	403	1213	315
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	20.5	25.6	38.6	14.4	19.5	37.5	13.0	40.0		18.0	45.0	65.5
Effective Green, g (s)	20.5	25.6	38.6	14.4	19.5	37.5	13.0	40.0		18.0	45.0	65.5
Actuated g/C Ratio	0.17	0.21	0.32	0.12	0.16	0.31	0.11	0.33		0.15	0.38	0.55
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	586	754	561	411	575	547	371	1693		514	1906	916
v/s Ratio Prot	c0.19	c0.17	0.02	0.03	0.11	c0.11	0.08	c0.37		c0.12	0.24	0.06
v/s Ratio Perm			0.05			0.14						0.14
v/c Ratio	1.13	0.80	0.20	0.27	0.68	0.72	0.71	1.11		0.78	0.64	0.34
Uniform Delay, d1	49.8	44.7	29.5	48.0	47.3	36.6	51.7	40.0		49.1	30.8	15.2
Progression Factor	0.83	1.39	1.96	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	70.5	3.5	0.1	0.4	3.2	4.7	11.0	59.5		11.4	1.6	0.2
Delay (s)	111.7	65.7	57.9	48.4	50.5	41.4	62.7	99.5		60.5	32.4	15.5
Level of Service	F	E	E	D	D	D	E	F		E	C	B
Approach Delay (s)		86.2			45.9			95.0			35.1	
Approach LOS		F			D			F			D	

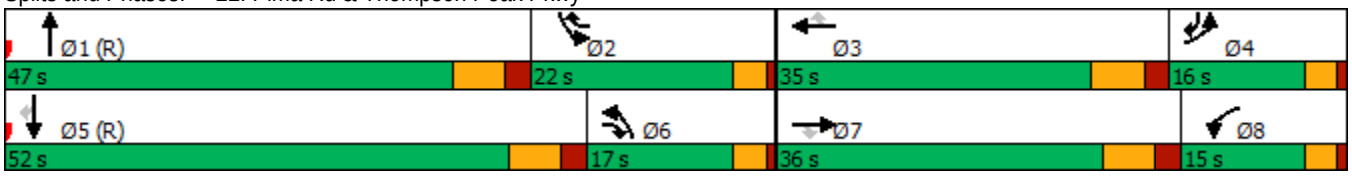
Intersection Summary			
HCM 2000 Control Delay	67.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

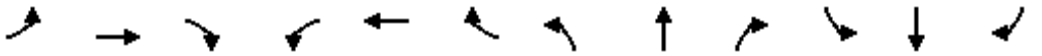
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





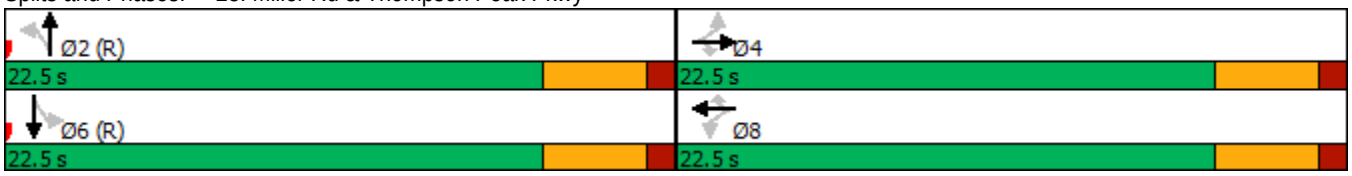
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	701	109	74	310	0	149	0	107	0	0	0
Future Volume (vph)	0	701	109	74	310	0	149	0	107	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.29	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	537	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	779	121	82	344	0	166	0	119	0	0	0
RTOR Reduction (vph)	0	0	73	0	0	0	0	49	0	0	0	0
Lane Group Flow (vph)	0	779	48	82	344	0	166	70	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	214	1415		564	1203				
v/s Ratio Prot		c0.22			0.10			0.02				
v/s Ratio Perm			0.03	0.15			c0.12					
v/c Ratio		0.55	0.08	0.38	0.24		0.29	0.06				
Uniform Delay, d1		10.4	8.4	9.6	9.0		9.2	8.3				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		1.5	0.2	5.1	0.4		1.3	0.1				
Delay (s)		11.9	8.6	14.7	9.4		10.5	8.4				
Level of Service		B	A	B	A		B	A				
Approach Delay (s)		11.5			10.4			9.6			0.0	
Approach LOS		B			B			A			A	

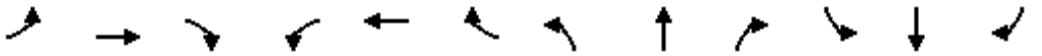
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy





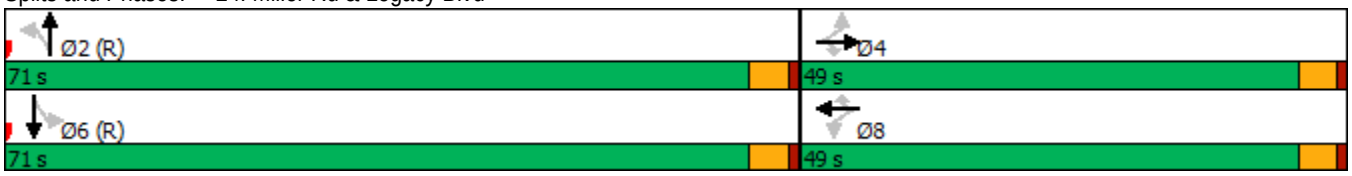
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	330	136	117	270	34	158	173	157	79	142	70
Future Volume (vph)	70	330	136	117	270	34	158	173	157	79	142	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1730		1770	1770	
Flt Permitted	0.53	1.00	1.00	0.48	1.00	1.00	0.58	1.00		0.47	1.00	
Satd. Flow (perm)	994	3539	1583	891	3539	1583	1078	1730		873	1770	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	367	151	130	300	38	176	192	174	88	158	78
RTOR Reduction (vph)	0	0	95	0	0	24	0	27	0	0	15	0
Lane Group Flow (vph)	78	367	56	130	300	14	176	339	0	88	221	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	44.5	44.5	44.5	44.5	44.5	44.5	66.5	66.5		66.5	66.5	
Effective Green, g (s)	44.5	44.5	44.5	44.5	44.5	44.5	66.5	66.5		66.5	66.5	
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.55	0.55		0.55	0.55	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	368	1312	587	330	1312	587	597	958		483	980	
v/s Ratio Prot		0.10			0.08			c0.20			0.12	
v/s Ratio Perm	0.08		0.04	c0.15		0.01	0.16			0.10		
v/c Ratio	0.21	0.28	0.10	0.39	0.23	0.02	0.29	0.35		0.18	0.23	
Uniform Delay, d1	25.8	26.5	24.6	27.8	26.0	24.0	14.3	14.8		13.3	13.6	
Progression Factor	0.57	0.59	0.45	1.00	1.00	1.00	1.03	1.03		1.00	1.00	
Incremental Delay, d2	1.3	0.5	0.3	3.5	0.4	0.1	1.3	1.0		0.8	0.5	
Delay (s)	15.9	16.3	11.3	31.3	26.4	24.0	16.0	16.3		14.1	14.2	
Level of Service	B	B	B	C	C	C	B	B		B	B	
Approach Delay (s)		15.0			27.5			16.2			14.1	
Approach LOS		B			C			B			B	

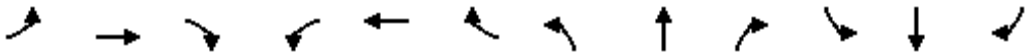
Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	71	49	71	49
Maximum Split (%)	59.2%	40.8%	59.2%	40.8%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	0	71
End Time (s)	71	0	71	0
Yield/Force Off (s)	66.5	115.5	66.5	115.5
Yield/Force Off 170(s)	55.5	104.5	55.5	104.5
Local Start Time (s)	0	71	0	71
Local Yield (s)	66.5	115.5	66.5	115.5
Local Yield 170(s)	55.5	104.5	55.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 24: Miller Rd & Legacy Blvd

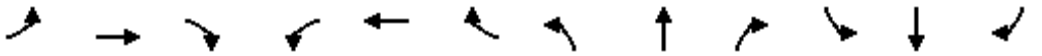




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	0	31	0	148	38	22	178	0
Future Volume (Veh/h)	0	0	0	52	0	31	0	148	38	22	178	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	58	0	34	0	164	42	24	198	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	34			0			215	150	0	257	133	17
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	34			0			215	150	0	257	133	17
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			100	77	96	95	73	100
cM capacity (veh/h)	1576			1622			556	714	1084	520	730	1058

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	58	0	34	0	206	24	198
Volume Left	0	0	0	58	0	0	0	0	24	0
Volume Right	0	0	0	0	0	34	0	42	0	0
cSH	1700	1700	1700	1622	1700	1700	1700	768	520	730
Volume to Capacity	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.27	0.05	0.27
Queue Length 95th (ft)	0	0	0	3	0	0	0	27	4	27
Control Delay (s)	0.0	0.0	0.0	7.3	0.0	0.0	0.0	11.4	12.3	11.8
Lane LOS				A			A	B	B	B
Approach Delay (s)	0.0			4.6			11.4		11.8	
Approach LOS							B		B	

Intersection Summary				
Average Delay	10.4			
Intersection Capacity Utilization	26.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	13	70	73	14	3	69	635	19	4	748	38
Future Volume (vph)	30	13	70	73	14	3	69	635	19	4	748	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1819		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.26	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	1388	1626		1299	1819		482	3539	1583	596	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	14	78	81	16	3	77	706	21	4	831	42
RTOR Reduction (vph)	0	47	0	0	2	0	0	0	11	0	0	23
Lane Group Flow (vph)	33	45	0	81	17	0	77	706	10	4	831	19
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	555	650		519	727		223	1639	733	276	1639	733
v/s Ratio Prot		0.03			0.01			0.20			c0.23	
v/s Ratio Perm	0.02			c0.06			0.16		0.01	0.01		0.01
v/c Ratio	0.06	0.07		0.16	0.02		0.35	0.43	0.01	0.01	0.51	0.03
Uniform Delay, d1	17.5	17.6		18.2	17.3		16.3	17.1	13.8	13.8	17.9	13.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.6	0.1		4.2	0.8	0.0	0.1	1.1	0.1
Delay (s)	17.7	17.8		18.9	17.3		20.5	17.9	13.8	13.9	19.0	13.9
Level of Service	B	B		B	B		C	B	B	B	B	B
Approach Delay (s)		17.8			18.6			18.1			18.7	
Approach LOS		B			B			B			B	

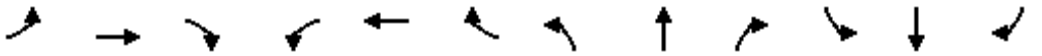
Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





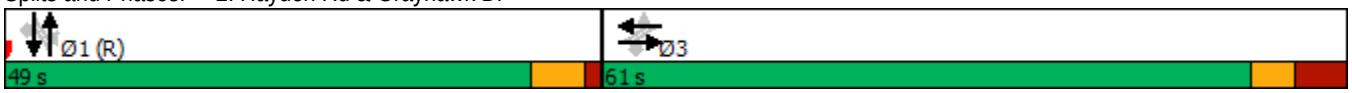
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	3	105	53	9	21	41	662	10	4	869	40
Future Volume (vph)	35	3	105	53	9	21	41	662	10	4	869	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1668		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.16	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	1370	1863	1583	1408	1668		291	3539	1583	494	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	3	117	59	10	23	46	736	11	4	966	44
RTOR Reduction (vph)	0	0	20	0	12	0	0	0	7	0	0	27
Lane Group Flow (vph)	39	3	97	59	21	0	46	736	4	4	966	17
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	660	897	762	678	803		113	1383	618	193	1383	618
v/s Ratio Prot		0.00			0.01			0.21			c0.27	
v/s Ratio Perm	0.03		c0.06	0.04			0.16		0.00	0.01		0.01
v/c Ratio	0.06	0.00	0.13	0.09	0.03		0.41	0.53	0.01	0.02	0.70	0.03
Uniform Delay, d1	15.2	14.8	15.7	15.4	15.0		24.3	25.8	20.5	20.6	28.1	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.3	0.3	0.1		10.5	1.5	0.0	0.2	3.0	0.1
Delay (s)	15.4	14.8	16.1	15.7	15.0		34.8	27.2	20.5	20.8	31.0	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.9			15.4			27.6			30.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	370	503	557	412	103	223	543	405	240	729	68
Future Volume (vph)	44	370	503	557	412	103	223	543	405	240	729	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.49	1.00	1.00	0.31	1.00	1.00	0.20	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	909	3539	1583	575	3539	1583	367	3539	1583	437	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	411	559	619	458	114	248	603	450	267	810	76
RTOR Reduction (vph)	0	0	226	0	0	75	0	0	279	0	0	50
Lane Group Flow (vph)	49	411	333	619	458	39	248	603	171	267	810	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.5	28.2	28.2	51.7	40.9	40.9	51.0	36.8	36.8	56.6	40.6	40.6
Effective Green, g (s)	34.5	28.2	28.2	51.7	40.9	40.9	51.0	36.8	36.8	56.6	40.6	40.6
Actuated g/C Ratio	0.29	0.23	0.23	0.43	0.34	0.34	0.42	0.31	0.31	0.47	0.34	0.34
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	306	831	372	446	1206	539	321	1085	485	383	1197	535
v/s Ratio Prot	0.01	0.12		c0.23	0.13		0.09	0.17		c0.09	0.23	
v/s Ratio Perm	0.04		0.21	c0.37		0.02	c0.24		0.11	c0.24		0.02
v/c Ratio	0.16	0.49	0.90	1.39	0.38	0.07	0.77	0.56	0.35	0.70	0.68	0.05
Uniform Delay, d1	31.3	39.7	44.5	29.2	29.9	26.7	24.8	34.8	32.3	21.8	34.1	26.7
Progression Factor	1.00	1.00	1.00	1.16	1.07	1.97	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.5	23.0	186.4	0.2	0.1	11.0	2.1	2.0	5.5	3.1	0.2
Delay (s)	31.6	40.2	67.5	220.1	32.2	52.7	35.7	36.8	34.3	27.2	37.2	26.9
Level of Service	C	D	E	F	C	D	D	D	C	C	D	C
Approach Delay (s)		54.8			131.8			35.8			34.2	
Approach LOS		D			F			D			C	

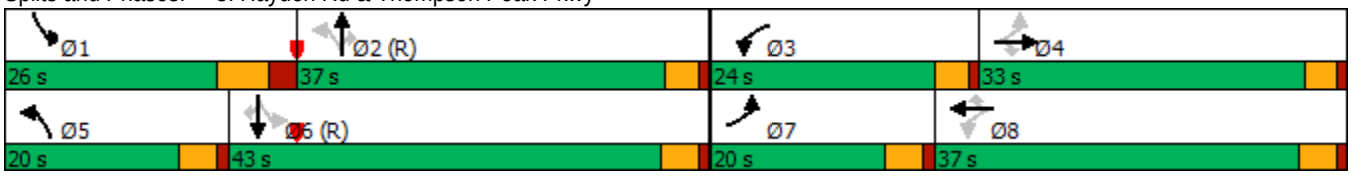
Intersection Summary			
HCM 2000 Control Delay	64.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

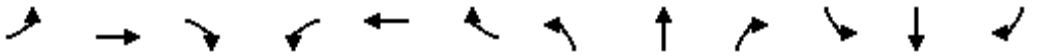
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





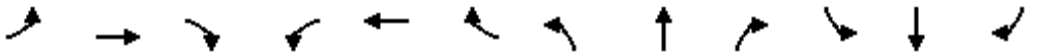
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	98	333	113	74	18	299	1108	147	49	1708	80
Future Volume (veh/h)	89	98	333	113	74	18	299	1108	147	49	1708	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	109	370	126	82	20	332	1231	163	54	1898	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	258	498	245	465	207	836	3163	982	199	2000	621
Arrive On Green	0.04	0.07	0.07	0.08	0.13	0.13	0.24	0.62	0.62	0.03	0.39	0.39
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	99	109	370	126	82	20	332	1231	163	54	1898	89
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	3.4	3.5	5.1	7.6	2.5	1.3	9.7	14.5	5.2	2.4	43.2	3.3
Cycle Q Clear(g_c), s	3.4	3.5	5.1	7.6	2.5	1.3	9.7	14.5	5.2	2.4	43.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	258	498	245	465	207	836	3163	982	199	2000	621
V/C Ratio(X)	0.65	0.42	0.74	0.51	0.18	0.10	0.40	0.39	0.17	0.27	0.95	0.14
Avail Cap(c_a), veh/h	331	548	628	396	874	390	836	3163	982	367	2000	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.41	0.41	0.41	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	53.3	17.4	44.6	46.4	45.9	38.2	11.4	9.7	25.8	35.3	13.9
Incr Delay (d2), s/veh	4.6	1.1	3.6	1.7	0.2	0.2	0.1	0.1	0.1	0.7	11.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.6	6.3	3.5	1.1	0.5	4.1	5.3	1.8	1.0	19.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	54.4	21.0	46.2	46.6	46.1	38.3	11.6	9.8	26.5	46.6	14.4
LnGrp LOS	E	D	C	D	D	D	D	B	A	C	D	B
Approach Vol, veh/h		578			228			1726			2041	
Approach Delay, s/veh		34.1			46.4			16.6			44.7	
Approach LOS		C			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	81.3	16.8	13.2	36.0	54.0	9.8	20.2
Change Period (Y+Rc), s	4.5	* 7	* 7	4.5	* 7	* 7	4.5	4.5
Max Green Setting (Gmax), s	15.5	* 43	* 20	18.5	* 12	* 47	11.5	29.5
Max Q Clear Time (g_c+I1), s	4.4	16.5	9.6	7.1	11.7	45.2	5.4	4.5
Green Ext Time (p_c), s	0.1	11.1	0.2	1.6	0.0	1.6	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Future Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.95			0.86	1.00
Frt				1.00	0.88	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1553	1504	3433	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1553	1504	3433	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	148	86	820	359	1383	0	0	1637	654
RTOR Reduction (vph)	0	0	0	0	147	284	0	0	0	0	0	399
Lane Group Flow (vph)	0	0	0	148	316	159	359	1383	0	0	1637	255
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				43.0	43.0	43.0	21.0	36.0			36.0	36.0
Effective Green, g (s)				43.0	43.0	43.0	21.0	36.0			36.0	36.0
Actuated g/C Ratio				0.36	0.36	0.36	0.18	0.30			0.30	0.30
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1230	556	538	600	1061			1922	474
v/s Ratio Prot					c0.20		c0.10	c0.39			0.26	
v/s Ratio Perm				0.04		0.11						0.16
v/c Ratio				0.12	0.57	0.30	0.60	1.30			0.85	0.54
Uniform Delay, d1				25.8	31.0	27.6	45.6	42.0			39.5	35.1
Progression Factor				1.00	1.00	1.00	0.92	0.55			0.99	1.00
Incremental Delay, d2				0.0	1.3	0.3	3.2	141.7			5.0	4.3
Delay (s)				25.9	32.4	27.9	45.0	164.8			44.2	39.4
Level of Service				C	C	C	D	F			D	D
Approach Delay (s)		0.0			29.6			140.1			42.8	
Approach LOS		A			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	73.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

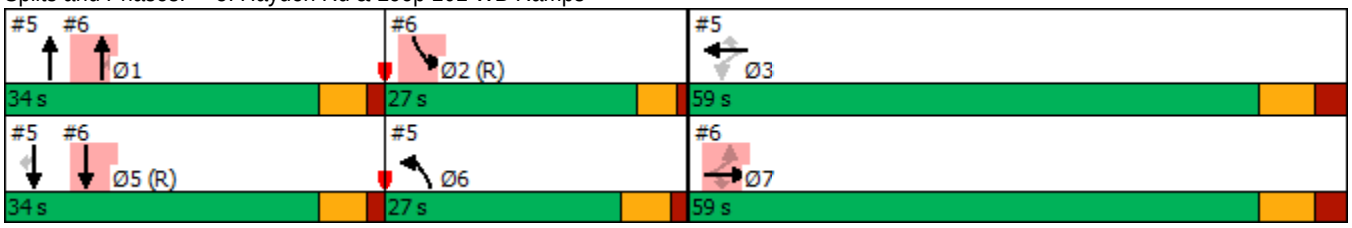
c Critical Lane Group

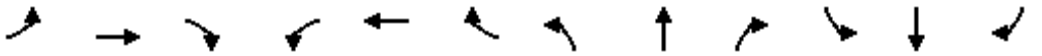
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	34	27	59
Maximum Split (%)	28.3%	22.5%	49.2%	28.3%	22.5%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	0	27
End Time (s)	0	27	86	0	27	86
Yield/Force Off (s)	114	22.5	78	114	21	78
Yield/Force Off 170(s)	104	22.5	52	104	21	52
Local Start Time (s)	86	0	27	86	0	27
Local Yield (s)	114	22.5	78	114	21	78
Local Yield 170(s)	104	22.5	52	104	21	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	130	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

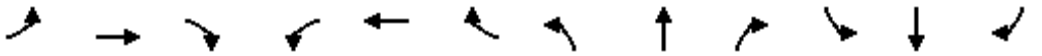




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Future Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.93	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1533	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1533	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	672	11	643	0	0	0	0	1063	66	909	883	0
RTOR Reduction (vph)	0	33	272	0	0	0	0	0	46	0	0	0
Lane Group Flow (vph)	457	412	152	0	0	0	0	1063	20	909	883	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	43.0	43.0	43.0					36.0	36.0	22.5	36.0	
Effective Green, g (s)	43.0	43.0	43.0					36.0	36.0	22.5	36.0	
Actuated g/C Ratio	0.36	0.36	0.36					0.30	0.30	0.19	0.30	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	602	549	538					1525	474	643	1061	
v/s Ratio Prot								0.21		c0.26	c0.25	
v/s Ratio Perm	c0.27	0.27	0.10						0.01			
v/c Ratio	0.76	0.75	0.28					0.70	0.04	1.41	0.83	
Uniform Delay, d1	33.9	33.8	27.5					37.2	29.8	48.8	39.2	
Progression Factor	1.50	1.58	9.50					1.39	8.06	0.67	0.56	
Incremental Delay, d2	2.2	2.3	0.1					1.0	0.0	191.6	4.7	
Delay (s)	52.9	55.7	261.2					52.7	240.1	224.4	26.7	
Level of Service	D	E	F					D	F	F	C	
Approach Delay (s)		120.4			0.0			63.6			127.0	
Approach LOS		F			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	108.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	57	83	10	28	72	149	821	50	302	868	200
Future Volume (vph)	137	57	83	10	28	72	149	821	50	302	868	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.57	1.00	1.00	0.23	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	1373	1863	1583	1068	1863	1583	427	3539	1583	207	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	152	63	92	11	31	80	166	912	56	336	964	222
RTOR Reduction (vph)	0	0	68	0	0	46	0	0	29	0	0	103
Lane Group Flow (vph)	152	63	24	11	31	34	166	912	27	336	964	119
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	29.2	18.1	31.0	40.6	25.0	50.5	53.3	40.4	58.4	70.4	53.0	64.1
Effective Green, g (s)	29.2	18.1	31.0	40.6	25.0	50.5	53.3	40.4	58.4	70.4	53.0	64.1
Actuated g/C Ratio	0.24	0.15	0.26	0.34	0.21	0.42	0.44	0.34	0.49	0.59	0.44	0.53
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	370	281	468	466	388	725	334	1191	829	453	1563	904
v/s Ratio Prot	c0.04	0.03	0.01	0.00	c0.02	0.01	0.05	0.26	0.00	c0.16	0.27	0.01
v/s Ratio Perm	c0.06		0.01	0.00		0.01	0.17		0.01	c0.28		0.06
v/c Ratio	0.41	0.22	0.05	0.02	0.08	0.05	0.50	0.77	0.03	0.74	0.62	0.13
Uniform Delay, d1	37.6	44.8	33.4	26.5	38.2	20.5	21.0	35.6	16.1	28.3	25.7	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.56	1.04	0.58	0.84	1.01	0.69
Incremental Delay, d2	3.3	1.8	0.2	0.1	0.4	0.1	4.9	4.4	0.1	7.4	1.3	0.2
Delay (s)	40.9	46.6	33.6	26.6	38.6	20.6	37.5	41.6	9.4	31.3	27.3	9.9
Level of Service	D	D	C	C	D	C	D	D	A	C	C	A
Approach Delay (s)		39.9			25.8			39.4			25.7	
Approach LOS		D			C			D			C	

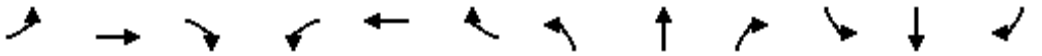
Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	30	44.9	22.5	22.6	17.4	57.5	15.6	29.5
Maximum Split (%)	25.0%	37.4%	18.8%	18.8%	14.5%	47.9%	13.0%	24.6%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	90	0	44.9	67.4	90	107.4	44.9	60.5
End Time (s)	0	44.9	67.4	90	107.4	44.9	60.5	90
Yield/Force Off (s)	115.5	40.4	62.9	85.5	102.9	40.4	56	85.5
Yield/Force Off 170(s)	115.5	29.4	51.9	74.5	102.9	29.4	56	74.5
Local Start Time (s)	90	0	44.9	67.4	90	107.4	44.9	60.5
Local Yield (s)	115.5	40.4	62.9	85.5	102.9	40.4	56	85.5
Local Yield 170(s)	115.5	29.4	51.9	74.5	102.9	29.4	56	74.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	68	102	189	0	62	83	859	222	154	729	54
Future Volume (vph)	48	68	102	189	0	62	83	859	222	154	729	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.31	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	570	3539	1583	468	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	76	113	210	0	69	92	954	247	171	810	60
RTOR Reduction (vph)	0	0	100	0	0	62	0	0	94	0	0	23
Lane Group Flow (vph)	0	129	13	210	0	7	92	954	153	171	810	37
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		13.8	13.8	12.7		12.7	73.5	73.5	73.5	73.5	73.5	73.5
Effective Green, g (s)		13.8	13.8	12.7		12.7	73.5	73.5	73.5	73.5	73.5	73.5
Actuated g/C Ratio		0.12	0.12	0.11		0.11	0.61	0.61	0.61	0.61	0.61	0.61
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		209	182	363		167	349	2167	969	286	2167	969
v/s Ratio Prot		c0.07		c0.06				0.27			0.23	
v/s Ratio Perm			0.01			0.00	0.16		0.10	c0.37		0.02
v/c Ratio		0.62	0.07	0.58		0.04	0.26	0.44	0.16	0.60	0.37	0.04
Uniform Delay, d1		50.6	47.4	51.1		48.2	10.7	12.3	10.0	14.2	11.7	9.2
Progression Factor		1.00	1.00	1.00		1.00	1.07	1.03	1.97	2.61	2.87	25.03
Incremental Delay, d2		5.3	0.2	2.2		0.1	1.7	0.6	0.3	7.4	0.4	0.1
Delay (s)		55.9	47.5	53.3		48.3	13.2	13.3	20.0	44.6	33.9	230.9
Level of Service		E	D	D		D	B	B	B	D	C	F
Approach Delay (s)		52.0			52.1			14.6			47.0	
Approach LOS		D			D			B			D	

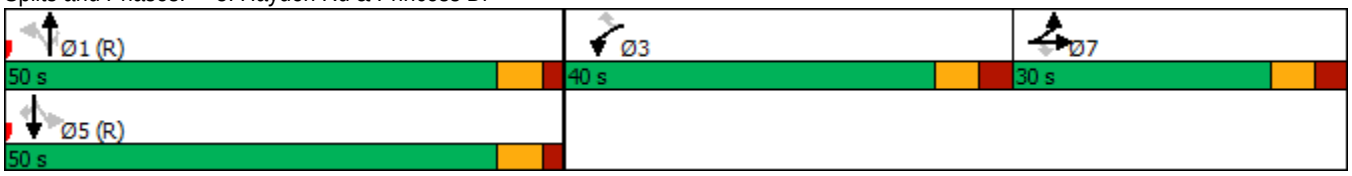
Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

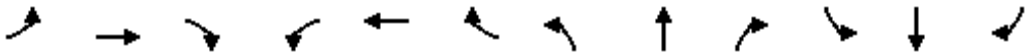
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	23	240	10	154	31	1021	403	185	848	21
Future Volume (vph)	9	8	23	240	10	154	31	1021	403	185	848	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3197		1681	1692	1583	1770	3539	1583	1770	3527	
Flt Permitted		0.81		0.73	0.71	1.00	0.27	1.00	1.00	0.22	1.00	
Satd. Flow (perm)		2603		1285	1254	1583	501	3539	1583	403	3527	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	9	26	267	11	171	34	1134	448	206	942	23
RTOR Reduction (vph)	0	25	0	0	0	141	0	0	132	0	1	0
Lane Group Flow (vph)	0	20	0	139	139	30	34	1134	316	206	964	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		5.4		21.4	21.4	21.4	84.6	84.6	84.6	84.6	84.6	
Effective Green, g (s)		5.4		21.4	21.4	21.4	84.6	84.6	84.6	84.6	84.6	
Actuated g/C Ratio		0.05		0.18	0.18	0.18	0.70	0.70	0.70	0.70	0.70	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		117		255	252	282	353	2494	1116	284	2486	
v/s Ratio Prot				0.04	c0.04			0.32			0.27	
v/s Ratio Perm		0.01		0.06	c0.06	0.02	0.07		0.20	c0.51		
v/c Ratio		0.17		0.55	0.55	0.11	0.10	0.45	0.28	0.73	0.39	
Uniform Delay, d1		55.1		45.4	44.9	41.3	5.6	7.7	6.5	10.7	7.2	
Progression Factor		1.00		1.00	1.00	1.00	1.56	1.70	7.21	0.99	0.62	
Incremental Delay, d2		0.7		2.4	2.6	0.2	0.0	0.1	0.1	14.4	0.4	
Delay (s)		55.9		47.8	47.5	41.5	8.8	13.1	47.1	25.0	4.9	
Level of Service		E		D	D	D	A	B	D	C	A	
Approach Delay (s)		55.9			45.3			22.5			8.4	
Approach LOS		E			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

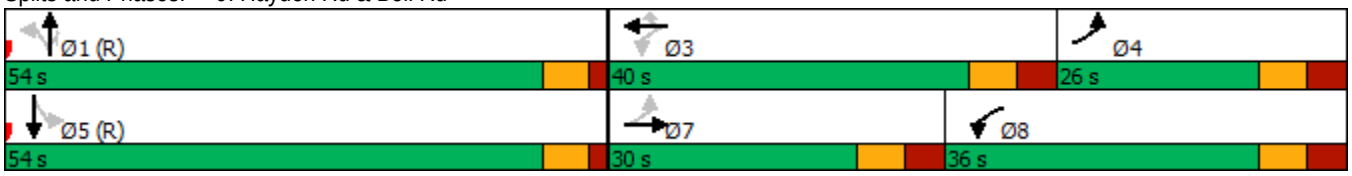
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	30	1148	154	51	2426
Future Volume (vph)	110	30	1148	154	51	2426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.20	1.00
Satd. Flow (perm)	1770	1583	3539	1583	368	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	33	1276	171	57	2696
RTOR Reduction (vph)	0	30	0	35	0	0
Lane Group Flow (vph)	122	3	1276	136	57	2696
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.7	12.7	95.3	95.3	95.3	95.3
Effective Green, g (s)	12.7	12.7	95.3	95.3	95.3	95.3
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	187	167	2810	1257	292	2810
v/s Ratio Prot	c0.07		0.36			c0.76
v/s Ratio Perm		0.00		0.09	0.15	
v/c Ratio	0.65	0.02	0.45	0.11	0.20	0.96
Uniform Delay, d1	51.5	48.1	4.0	2.8	3.0	10.7
Progression Factor	1.00	1.00	0.40	0.14	1.00	1.00
Incremental Delay, d2	7.9	0.1	0.5	0.2	1.5	9.8
Delay (s)	59.4	48.1	2.1	0.6	4.5	20.5
Level of Service	E	D	A	A	A	C
Approach Delay (s)	57.0		1.9			20.2
Approach LOS	E		A			C

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	38	1250	54	45	2483
Future Volume (vph)	114	38	1250	54	45	2483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.17	1.00
Satd. Flow (perm)	1770	1583	3539	1583	318	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	42	1389	60	50	2759
RTOR Reduction (vph)	0	37	0	13	0	0
Lane Group Flow (vph)	127	5	1389	47	50	2759
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.5	13.5	94.5	94.5	94.5	94.5
Effective Green, g (s)	13.5	13.5	94.5	94.5	94.5	94.5
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	178	2786	1246	250	2786
v/s Ratio Prot	c0.07		0.39			c0.78
v/s Ratio Perm		0.00		0.03	0.16	
v/c Ratio	0.64	0.03	0.50	0.04	0.20	0.99
Uniform Delay, d1	50.9	47.4	4.5	2.8	3.2	12.3
Progression Factor	1.00	1.00	1.45	1.26	1.36	1.25
Incremental Delay, d2	6.6	0.1	0.3	0.0	0.6	7.9
Delay (s)	57.5	47.5	6.8	3.5	5.0	23.3
Level of Service	E	D	A	A	A	C
Approach Delay (s)	55.0		6.6			23.0
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

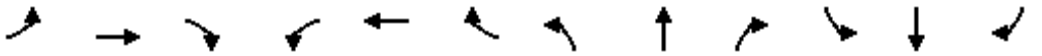
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Future Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	157	5085	1583	227	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	287	300	77	600	134	150	58	1359	599	206	2644	502
RTOR Reduction (vph)	0	0	67	0	0	53	0	0	33	0	0	177
Lane Group Flow (vph)	287	300	10	600	134	97	58	1359	566	206	2644	325
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	2		1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	5.0	15.1	15.1	26.8	39.4	46.4	47.6	47.6	74.4	62.6	58.6	63.6
Effective Green, g (s)	5.0	15.1	15.1	26.8	39.4	46.4	47.6	47.6	74.4	62.6	58.6	63.6
Actuated g/C Ratio	0.04	0.13	0.13	0.22	0.33	0.39	0.40	0.40	0.62	0.52	0.49	0.53
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	445	199	766	1161	612	62	2017	981	208	2483	838
v/s Ratio Prot	c0.08	c0.08		c0.17	0.04	0.01		0.27	0.13	c0.06	c0.52	0.02
v/s Ratio Perm			0.01			0.05	0.37		0.23	0.46		0.19
v/c Ratio	2.01	0.67	0.05	0.78	0.12	0.16	0.94	0.67	0.58	0.99	1.06	0.39
Uniform Delay, d1	57.5	50.1	46.1	43.9	28.1	24.0	34.7	29.8	13.5	37.9	30.7	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.43	1.43	1.91	1.20	1.17	1.96
Incremental Delay, d2	477.0	4.0	0.1	5.3	0.0	0.1	49.3	0.6	0.3	42.8	34.5	0.2
Delay (s)	534.5	54.1	46.2	49.1	28.2	24.2	98.9	43.2	26.0	88.3	70.5	32.8
Level of Service	F	D	D	D	C	C	F	D	C	F	E	C
Approach Delay (s)		260.8			41.7			39.7			66.0	
Approach LOS		F			D			D			E	

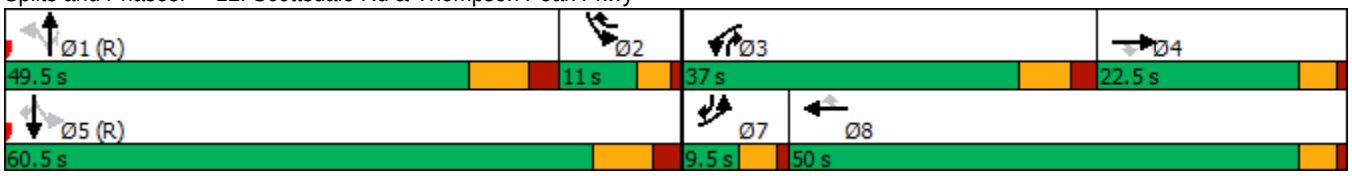
Intersection Summary			
HCM 2000 Control Delay	73.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	106.4%	ICU Level of Service	G
Analysis Period (min)	15		

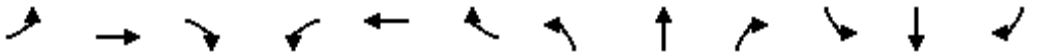
c Critical Lane Group

Phase Number	1	2	3	4	5	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None
Maximum Split (s)	49.5	11	37	22.5	60.5	9.5	50
Maximum Split (%)	41.3%	9.2%	30.8%	18.8%	50.4%	7.9%	41.7%
Minimum Split (s)	40	9	37	22.5	40	9.5	22.5
Yellow Time (s)	5.3	3	4.6	3.5	5.3	3.5	3.5
All-Red Time (s)	2.7	1	2.4	1	2.7	1	1
Minimum Initial (s)	20	5	6	5	20	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7		7
Flash Dont Walk (s)	25		23	11	25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
End Time (s)	49.5	60.5	97.5	0	60.5	70	0
Yield/Force Off (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Yield/Force Off 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5
Local Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
Local Yield (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Local Yield 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Future Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	124	5085	1583	132	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	203	31	354	93	81	26	1943	483	129	3274	331
RTOR Reduction (vph)	0	0	28	0	0	63	0	0	111	0	0	118
Lane Group Flow (vph)	341	203	3	354	93	18	26	1943	372	129	3274	213
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		6	1		2	5	
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	5.0	12.2	12.2	17.7	27.4	27.4	71.1	60.3	60.3	63.6	56.3	56.3
Effective Green, g (s)	5.0	12.2	12.2	17.7	27.4	27.4	71.1	60.3	60.3	63.6	56.3	56.3
Actuated g/C Ratio	0.04	0.10	0.10	0.15	0.23	0.23	0.59	0.50	0.50	0.53	0.47	0.47
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	359	160	506	808	361	221	2555	795	169	2385	742
v/s Ratio Prot	c0.10	c0.06		c0.10	0.03		c0.01	0.38		c0.05	c0.64	
v/s Ratio Perm			0.00			0.01	0.06		0.23	0.36		0.13
v/c Ratio	2.38	0.57	0.02	0.70	0.12	0.05	0.12	0.76	0.47	0.76	1.37	0.29
Uniform Delay, d1	57.5	51.4	48.5	48.6	36.7	36.2	46.8	24.0	19.4	42.6	31.9	19.5
Progression Factor	1.00	1.00	1.00	1.03	0.96	1.00	1.61	2.03	3.02	1.27	1.32	2.12
Incremental Delay, d2	644.0	2.0	0.0	4.1	0.1	0.1	0.1	0.6	0.6	14.1	169.0	0.5
Delay (s)	701.5	53.4	48.6	54.3	35.2	36.2	75.3	49.5	59.2	68.2	211.2	41.9
Level of Service	F	D	D	D	D	D	E	D	E	E	F	D
Approach Delay (s)		437.5			48.2			51.7			191.2	
Approach LOS		F			D			D			F	

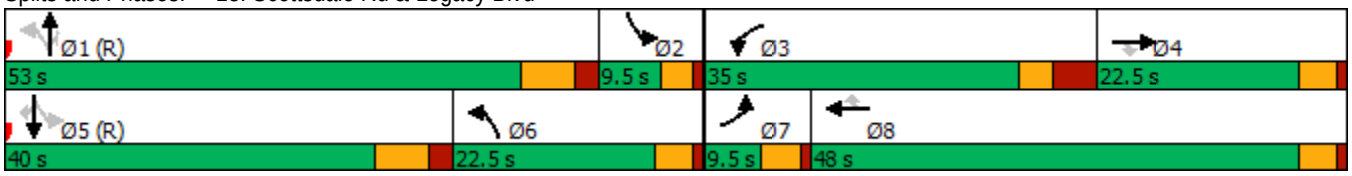
Intersection Summary			
HCM 2000 Control Delay	153.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		

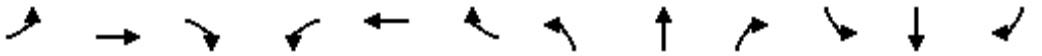
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	53	9.5	35	22.5	40	22.5	9.5	48
Maximum Split (%)	44.2%	7.9%	29.2%	18.8%	33.3%	18.8%	7.9%	40.0%
Minimum Split (s)	30	9	35	22.5	30	22.5	9.5	22.5
Yellow Time (s)	4.9	3	3	3.5	4.9	3.5	3.5	3.5
All-Red Time (s)	2.1	1	4	1	2.1	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7	7		7
Flash Dont Walk (s)	16		21	11	16	11		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
End Time (s)	53	62.5	97.5	0	40	62.5	72	0
Yield/Force Off (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Yield/Force Off 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5
Local Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
Local Yield (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Local Yield 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Future Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1568	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1568	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	819	94	668	486	1813	0	0	2732	911
RTOR Reduction (vph)	0	0	0	0	94	268	0	0	0	0	0	274
Lane Group Flow (vph)	0	0	0	819	294	106	486	1813	0	0	2732	637
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Effective Green, g (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Actuated g/C Ratio				0.28	0.28	0.28	0.21	0.32			0.37	0.37
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				972	444	426	715	1652			2766	580
v/s Ratio Prot					0.19		c0.14	0.36			0.36	
v/s Ratio Perm				c0.24		0.07						c0.40
v/c Ratio				0.84	0.66	0.25	0.68	1.10			0.99	1.10
Uniform Delay, d1				40.5	37.9	33.2	43.8	40.5			37.7	38.0
Progression Factor				1.00	1.00	1.00	1.18	0.39			1.35	1.95
Incremental Delay, d2				6.7	3.7	0.3	3.4	50.7			3.0	47.4
Delay (s)				47.2	41.6	33.5	55.3	66.6			53.8	121.5
Level of Service				D	D	C	E	E			D	F
Approach Delay (s)		0.0			42.6			64.2			70.7	
Approach LOS		A			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

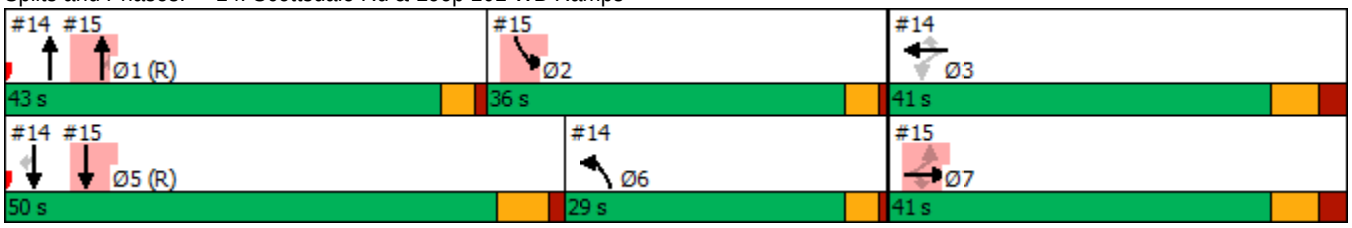
c Critical Lane Group

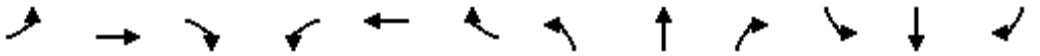
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	50	29	41
Maximum Split (%)	35.8%	30.0%	34.2%	41.7%	24.2%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	50	79
End Time (s)	43	79	0	50	79	0
Yield/Force Off (s)	39	75	113	44	75	113
Yield/Force Off 170(s)	39	75	105	36	75	85
Local Start Time (s)	0	43	79	0	50	79
Local Yield (s)	39	75	113	44	75	113
Local Yield 170(s)	39	75	105	36	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	140	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

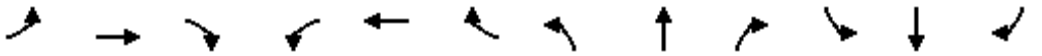




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Future Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	986	3	969	0	0	0	0	1328	473	981	2612	0
RTOR Reduction (vph)	0	301	301	0	0	0	0	0	277	0	0	0
Lane Group Flow (vph)	986	187	183	0	0	0	0	1328	196	981	2612	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Effective Green, g (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.32	0.32	0.27	0.37	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	972	426	426					2451	514	915	1864	
v/s Ratio Prot		0.12						0.18		c0.29	c0.51	
v/s Ratio Perm	c0.29		0.12						0.12			
v/c Ratio	1.01	0.44	0.43					0.54	0.38	1.07	1.40	
Uniform Delay, d1	43.0	35.2	35.1					33.2	31.2	44.0	38.0	
Progression Factor	1.00	1.00	1.00					1.33	4.02	0.87	0.54	
Incremental Delay, d2	32.5	0.7	0.7					0.7	1.7	40.4	181.7	
Delay (s)	75.5	35.9	35.8					44.7	127.2	78.7	202.3	
Level of Service	E	D	D					D	F	E	F	
Approach Delay (s)		55.8			0.0			66.3			168.6	
Approach LOS		E			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	113.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Future Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3196		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3196		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	529	219	337	74	108	198	161	1141	108	387	2380	817
RTOR Reduction (vph)	0	0	180	0	138	0	0	0	73	0	0	239
Lane Group Flow (vph)	529	219	157	74	168	0	161	1141	35	387	2380	578
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7		8	3		6	1		2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	21.9	23.3	23.3	12.3	13.7		17.4	39.1	39.1	19.9	41.9	63.8
Effective Green, g (s)	21.9	23.3	23.3	12.3	13.7		17.4	39.1	39.1	19.9	41.9	63.8
Actuated g/C Ratio	0.18	0.19	0.19	0.10	0.11		0.14	0.33	0.33	0.17	0.35	0.53
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	626	987	307	351	364		497	1656	515	569	1775	914
v/s Ratio Prot	c0.15	0.04		0.02	0.05		0.05	0.22		c0.11	c0.47	0.12
v/s Ratio Perm			c0.10						0.02			0.25
v/c Ratio	0.85	0.22	0.51	0.21	0.46		0.32	0.69	0.07	0.68	1.34	0.63
Uniform Delay, d1	47.4	40.7	43.3	49.4	49.7		46.0	35.2	27.9	47.1	39.0	19.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.99	1.23	6.87	1.35	1.02	1.51
Incremental Delay, d2	10.2	0.1	1.4	0.3	0.9		1.6	1.1	0.1	0.6	153.7	0.1
Delay (s)	57.6	40.8	44.7	49.7	50.6		47.2	44.4	191.6	63.9	193.6	30.1
Level of Service	E	D	D	D	D		D	D	F	E	F	C
Approach Delay (s)		50.2			50.4			56.0			142.3	
Approach LOS		D			D			E			F	

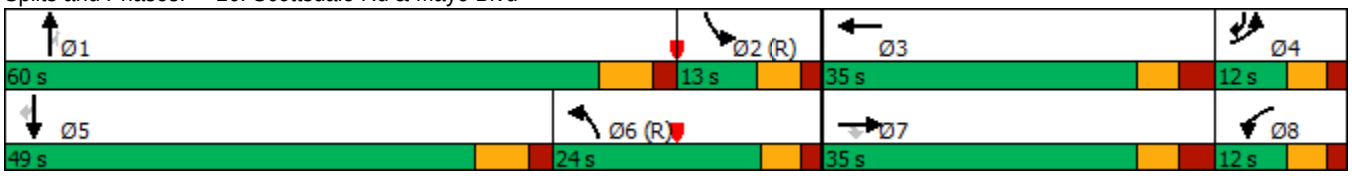
Intersection Summary			
HCM 2000 Control Delay	102.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

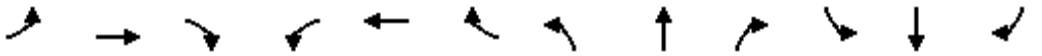
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	13	35	12	49	24	35	12
Maximum Split (%)	50.0%	10.8%	29.2%	10.0%	40.8%	20.0%	29.2%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	13	48	60	109	13	48
End Time (s)	0	13	48	60	109	13	48	60
Yield/Force Off (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Yield/Force Off 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5
Local Start Time (s)	60	0	13	48	60	109	13	48
Local Yield (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Local Yield 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	5	114	10	5	5	154	1192	5	6	2393	147
Future Volume (vph)	96	5	114	10	5	5	154	1192	5	6	2393	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.38	1.00	1.00	0.75	1.00	1.00	0.06	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	702	3539	1583	1404	3539	1583	104	5085	1583	364	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	6	127	11	6	6	171	1324	6	7	2659	163
RTOR Reduction (vph)	0	0	110	0	0	6	0	0	2	0	0	61
Lane Group Flow (vph)	107	6	17	11	6	0	171	1324	4	7	2659	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.0	16.1	16.1	6.9	5.5	5.5	83.0	76.3	76.3	67.1	65.9	65.9
Effective Green, g (s)	23.0	16.1	16.1	6.9	5.5	5.5	83.0	76.3	76.3	67.1	65.9	65.9
Actuated g/C Ratio	0.19	0.13	0.13	0.06	0.05	0.05	0.69	0.64	0.64	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	241	474	212	85	162	72	232	3233	1006	217	2792	869
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.07	0.26		0.00	c0.52	
v/s Ratio Perm	c0.04		0.01	0.01		0.00	0.44		0.00	0.02		0.06
v/c Ratio	0.44	0.01	0.08	0.13	0.04	0.00	0.74	0.41	0.00	0.03	0.95	0.12
Uniform Delay, d1	41.9	45.1	45.5	53.6	54.7	54.6	35.7	10.8	8.0	11.7	25.6	13.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.66	1.00	0.58	0.77	0.70
Incremental Delay, d2	1.3	0.0	0.2	0.7	0.1	0.0	10.5	0.4	0.0	0.0	1.1	0.0
Delay (s)	43.2	45.1	45.6	54.3	54.8	54.7	46.0	18.2	8.0	6.8	20.8	9.2
Level of Service	D	D	D	D	D	D	D	B	A	A	C	A
Approach Delay (s)		44.5			54.5			21.4			20.1	
Approach LOS		D			D			C			C	

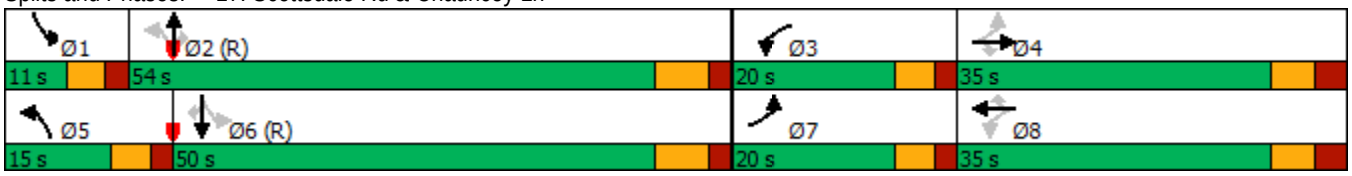
Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

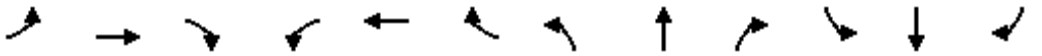
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Future Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.34	1.00	1.00	0.06	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1397	3063		630	3539	1583	120	5085	1583	307	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	37	321	199	11	209	166	1251	414	301	2396	94
RTOR Reduction (vph)	0	186	0	0	0	184	0	0	199	0	0	45
Lane Group Flow (vph)	50	172	0	199	11	25	166	1251	215	301	2396	49
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	23.7	14.4		23.7	14.4	14.4	75.3	62.3	62.3	75.3	62.3	62.3
Effective Green, g (s)	23.7	14.4		23.7	14.4	14.4	75.3	62.3	62.3	75.3	62.3	62.3
Actuated g/C Ratio	0.20	0.12		0.20	0.12	0.12	0.63	0.52	0.52	0.63	0.52	0.52
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	367		212	424	189	254	2639	821	351	2639	821
v/s Ratio Prot	0.01	0.06		c0.07	0.00		0.07	0.25		c0.09	c0.47	
v/s Ratio Perm	0.02			c0.11		0.02	0.34		0.14	0.45		0.03
v/c Ratio	0.16	0.86dr		0.94	0.03	0.13	0.65	0.47	0.26	0.86	0.91	0.06
Uniform Delay, d1	40.1	49.2		49.2	46.6	47.2	43.5	18.4	16.1	27.9	26.2	14.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.64	1.43	6.06	0.53	0.88	3.96
Incremental Delay, d2	0.3	1.0		44.3	0.0	0.3	10.8	0.5	0.7	12.4	3.0	0.1
Delay (s)	40.3	50.2		93.5	46.6	47.5	38.9	26.8	98.0	27.1	26.0	56.8
Level of Service	D	D		F	D	D	D	C	F	C	C	E
Approach Delay (s)		49.0			69.3			44.0			27.1	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

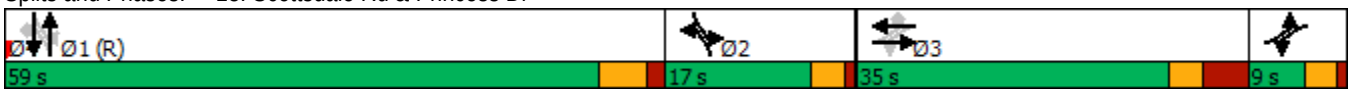
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

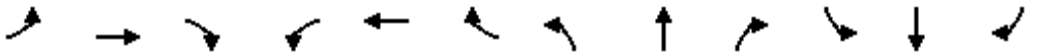
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Future Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.87			0.56		0.05	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)		1477			994		95	5085	1583	186	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	0	148	39	0	26	51	1731	14	53	2859	31
RTOR Reduction (vph)	0	63	0	0	54	0	0	0	5	0	0	11
Lane Group Flow (vph)	0	164	0	0	11	0	51	1731	9	53	2859	20
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		18.6			18.6		84.4	78.4	78.4	84.4	78.4	78.4
Effective Green, g (s)		18.6			18.6		84.4	78.4	78.4	84.4	78.4	78.4
Actuated g/C Ratio		0.16			0.16		0.70	0.65	0.65	0.70	0.65	0.65
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		228			154		150	3322	1034	210	3322	1034
v/s Ratio Prot							c0.02	0.34		0.01	c0.56	
v/s Ratio Perm		c0.11			0.01		0.22		0.01	0.16		0.01
v/c Ratio		0.72			0.07		0.34	0.52	0.01	0.25	0.86	0.02
Uniform Delay, d1		48.2			43.3		39.0	10.9	7.3	14.7	16.5	7.3
Progression Factor		1.00			1.00		1.52	1.19	1.00	1.00	1.21	1.00
Incremental Delay, d2		10.3			0.2		0.6	0.1	0.0	1.5	1.7	0.0
Delay (s)		58.5			43.5		59.9	13.1	7.3	16.1	21.6	7.3
Level of Service		E			D		E	B	A	B	C	A
Approach Delay (s)		58.5			43.5			14.4			21.3	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

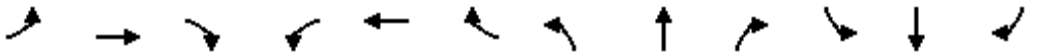
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Future Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4995	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4995	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	799	1944	518	308	618	310	110	826	237	503	2114	283
RTOR Reduction (vph)	0	0	43	0	0	44	0	0	43	0	13	0
Lane Group Flow (vph)	799	1944	475	308	618	266	110	826	194	503	2384	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	7.0	39.0	48.6	5.0	37.0	47.0	9.6	44.0	49.0	10.0	44.4	
Effective Green, g (s)	7.0	39.0	48.6	5.0	37.0	47.0	9.6	44.0	49.0	10.0	44.4	
Actuated g/C Ratio	0.06	0.32	0.41	0.04	0.31	0.39	0.08	0.37	0.41	0.08	0.37	
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	1652	641	143	1567	620	274	1864	646	286	1848	
v/s Ratio Prot	c0.23	c0.38	0.06	0.09	0.12	0.04	0.03	0.16	0.01	c0.15	c0.48	
v/s Ratio Perm			0.24			0.13			0.11			
v/c Ratio	4.00	1.18	0.74	2.15	0.39	0.43	0.40	0.44	0.30	1.76	1.29	
Uniform Delay, d1	56.5	40.5	30.3	57.5	32.7	26.7	52.5	28.7	23.9	55.0	37.8	
Progression Factor	1.00	1.00	1.00	0.99	1.60	0.83	1.00	1.00	1.00	0.98	0.72	
Incremental Delay, d2	1359.6	86.2	4.6	536.3	0.6	0.4	1.0	0.8	0.3	348.8	132.7	
Delay (s)	1416.1	126.7	34.9	593.0	52.9	22.5	53.4	29.5	24.2	402.7	159.7	
Level of Service	F	F	C	F	D	C	D	C	C	F	F	
Approach Delay (s)		428.1			179.9			30.7			201.9	
Approach LOS		F			F			C			F	

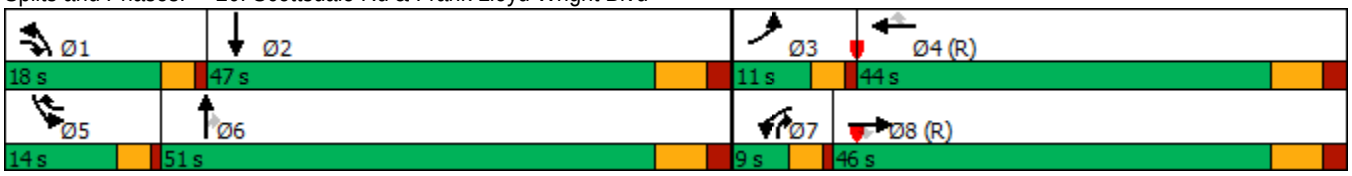
Intersection Summary			
HCM 2000 Control Delay	261.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

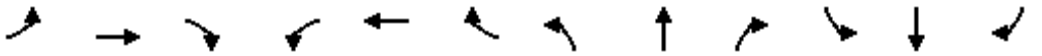
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	18	47	11	44	14	51	9	46
Maximum Split (%)	15.0%	39.2%	9.2%	36.7%	11.7%	42.5%	7.5%	38.3%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	44	62	109	0	44	58	109	118
End Time (s)	62	109	0	44	58	109	118	44
Yield/Force Off (s)	58	102	116	37	54	102	114	37
Yield/Force Off 170(s)	58	81	116	15	54	81	114	15
Local Start Time (s)	44	62	109	0	44	58	109	118
Local Yield (s)	58	102	116	37	54	102	114	37
Local Yield 170(s)	58	81	116	15	54	81	114	15

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Future Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	731	1627	98	714	1322	384	29	547	316	309	809	390
RTOR Reduction (vph)	0	0	58	0	0	55	0	0	68	0	0	64
Lane Group Flow (vph)	731	1627	40	714	1322	329	29	547	248	309	809	326
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	15.0	45.0	49.0	15.0	45.0	54.0	4.0	23.0	38.0	9.0	28.0	43.0
Effective Green, g (s)	15.0	45.0	49.0	15.0	45.0	54.0	4.0	23.0	38.0	9.0	28.0	43.0
Actuated g/C Ratio	0.12	0.38	0.41	0.12	0.38	0.45	0.03	0.19	0.32	0.08	0.23	0.36
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	1906	738	429	1906	804	59	678	593	257	825	659
v/s Ratio Prot	c0.21	c0.32	0.00	0.21	0.26	0.03	0.02	0.15	0.05	c0.09	c0.23	0.06
v/s Ratio Perm			0.02			0.18			0.10			0.14
v/c Ratio	1.70	0.85	0.05	1.66	0.69	0.41	0.49	0.81	0.42	1.20	0.98	0.49
Uniform Delay, d1	52.5	34.5	21.5	52.5	31.7	22.2	57.0	46.4	32.3	55.5	45.7	30.0
Progression Factor	0.94	1.33	2.27	1.00	1.00	1.00	1.00	1.00	1.00	1.06	0.83	1.17
Incremental Delay, d2	317.7	0.5	0.0	309.1	2.1	0.3	6.3	7.0	0.5	121.3	26.0	0.6
Delay (s)	367.0	46.3	48.8	361.6	33.8	22.6	63.3	53.4	32.8	180.2	63.9	35.8
Level of Service	F	D	D	F	C	C	E	D	C	F	E	D
Approach Delay (s)		141.8			128.7			46.4			80.5	
Approach LOS		F			F			D			F	

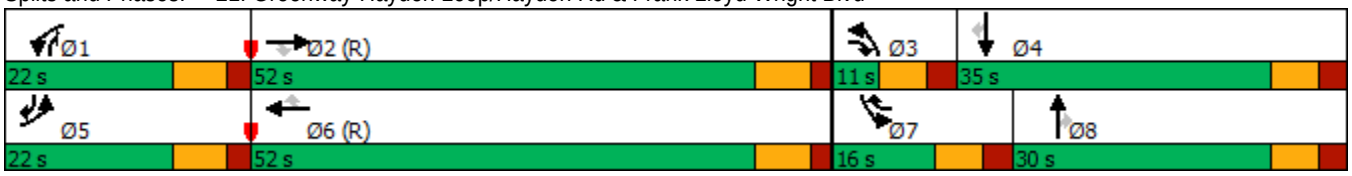
Intersection Summary			
HCM 2000 Control Delay	113.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

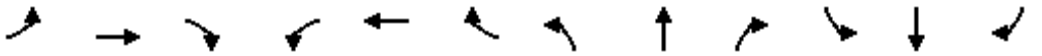
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	52	11	35	22	52	16	30
Maximum Split (%)	18.3%	43.3%	9.2%	29.2%	18.3%	43.3%	13.3%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	98	0	52	63	98	0	52	68
End Time (s)	0	52	63	98	0	52	68	98
Yield/Force Off (s)	113	45	56	91	113	45	61	91
Yield/Force Off 170(s)	113	28	56	67	113	28	61	67
Local Start Time (s)	98	0	52	63	98	0	52	68
Local Yield (s)	113	45	56	91	113	45	61	91
Local Yield 170(s)	113	28	56	67	113	28	61	67

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Future Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	297	518	153	131	487	351	148	1292	11	363	1563	494
RTOR Reduction (vph)	0	0	51	0	0	48	0	1	0	0	0	49
Lane Group Flow (vph)	297	518	102	131	487	303	148	1302	0	363	1563	445
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	15.5	23.3	36.3	14.5	22.3	40.3	13.0	42.2		18.0	47.2	62.7
Effective Green, g (s)	15.5	23.3	36.3	14.5	22.3	40.3	13.0	42.2		18.0	47.2	62.7
Actuated g/C Ratio	0.13	0.19	0.30	0.12	0.19	0.34	0.11	0.35		0.15	0.39	0.52
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	443	687	531	414	657	584	371	1786		514	2000	879
v/s Ratio Prot	c0.09	c0.15	0.02	0.04	0.14	0.08	0.04	0.26		c0.11	c0.31	0.07
v/s Ratio Perm			0.04			0.11						0.22
v/c Ratio	0.67	0.75	0.19	0.32	0.74	0.52	0.40	0.73		0.71	0.78	0.51
Uniform Delay, d1	49.8	45.6	31.0	48.2	46.1	32.0	49.9	33.9		48.5	31.9	18.6
Progression Factor	0.86	1.40	2.10	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.3	4.0	0.1	0.4	4.5	0.8	3.2	2.7		7.9	3.1	0.5
Delay (s)	46.4	67.9	65.3	48.7	50.6	32.8	53.0	36.6		56.4	35.0	19.1
Level of Service	D	E	E	D	D	C	D	D		E	D	B
Approach Delay (s)		60.9			43.9			38.3			35.0	
Approach LOS		E			D			D			C	

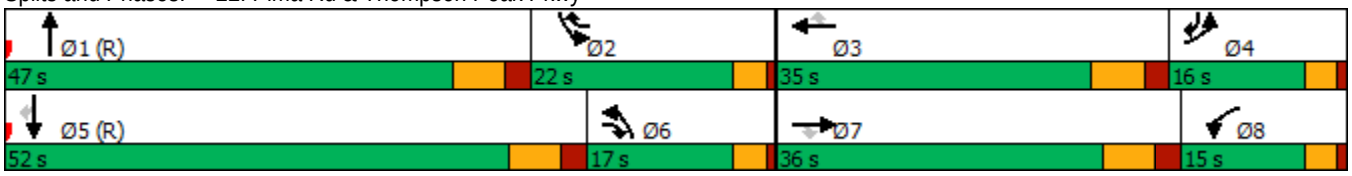
Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

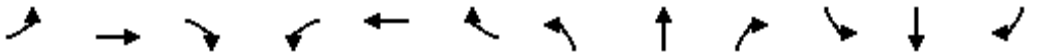
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





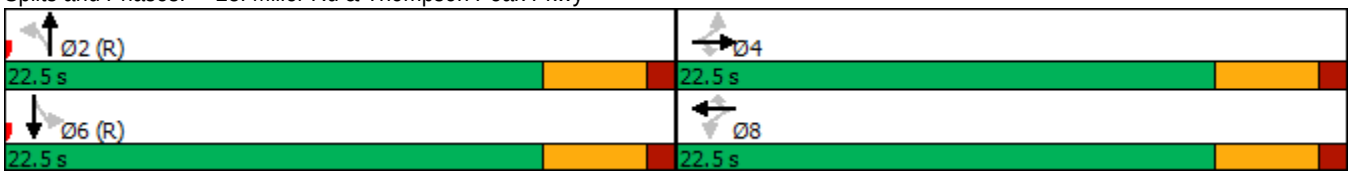
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	810	185	116	216	0	103	0	60	0	0	0
Future Volume (vph)	0	810	185	116	216	0	103	0	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.23	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	421	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	900	206	129	240	0	114	0	67	0	0	0
RTOR Reduction (vph)	0	0	124	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	900	82	129	240	0	114	35	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	168	1415		564	1203				
v/s Ratio Prot		0.25			0.07			0.01				
v/s Ratio Perm			0.05	c0.31			c0.08					
v/c Ratio		0.64	0.13	0.77	0.17		0.20	0.03				
Uniform Delay, d1		10.9	8.5	11.7	8.7		8.8	8.2				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		2.2	0.4	28.0	0.3		0.8	0.0				
Delay (s)		13.1	9.0	39.6	8.9		9.6	8.2				
Level of Service		B	A	D	A		A	A				
Approach Delay (s)		12.3			19.7			9.1			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy

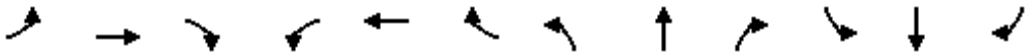




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	388	262	106	264	90	136	111	77	69	197	56
Future Volume (veh/h)	51	388	262	106	264	90	136	111	77	69	197	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	431	291	118	293	100	151	123	86	77	219	62
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	472	1366	829	379	1440	642	479	694	677	413	507	429
Arrive On Green	0.04	0.38	0.38	0.06	0.41	0.41	0.23	0.62	0.62	0.04	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	57	431	291	118	293	100	151	123	86	77	219	62
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.3	10.2	2.5	4.8	6.4	3.9	4.3	3.4	1.8	0.0	11.6	3.0
Cycle Q Clear(g_c), s	2.3	10.2	2.5	4.8	6.4	3.9	4.3	3.4	1.8	0.0	11.6	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	472	1366	829	379	1440	642	479	694	677	413	507	429
V/C Ratio(X)	0.12	0.32	0.35	0.31	0.20	0.16	0.32	0.18	0.13	0.19	0.43	0.14
Avail Cap(c_a), veh/h	535	1366	829	479	1440	642	590	694	677	471	507	429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	25.9	7.6	20.6	23.1	14.8	41.4	15.0	6.9	33.2	36.1	23.9
Incr Delay (d2), s/veh	0.1	0.6	1.2	0.5	0.3	0.5	0.4	0.6	0.4	0.2	2.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.4	2.9	2.0	2.8	1.9	1.8	1.5	0.8	1.8	5.7	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	26.5	8.8	21.1	23.4	15.3	41.8	15.6	7.3	33.4	38.8	24.6
LnGrp LOS	C	C	A	C	C	B	D	B	A	C	D	C
Approach Vol, veh/h		779			511			360			358	
Approach Delay, s/veh		19.5			21.3			24.6			35.2	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	49.0	11.3	50.6	21.1	37.0	8.8	53.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	44.5	13.5	35.5	20.5	32.5	8.5	40.5
Max Q Clear Time (g_c+I1), s	12.0	5.4	6.8	12.2	6.3	13.6	4.3	8.4
Green Ext Time (p_c), s	0.1	1.0	0.1	4.0	0.4	1.3	0.0	2.4

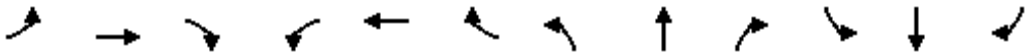
Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	0	12	0	192	22	15	121	0
Future Volume (Veh/h)	0	0	0	17	0	12	0	192	22	15	121	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	19	0	13	0	213	24	17	134	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	13			0			105	51	0	175	44	6
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	13			0			105	51	0	175	44	6
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	74	98	97	84	100
cM capacity (veh/h)	1604			1622			751	830	1084	600	837	1074

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	19	0	13	0	237	17	134
Volume Left	0	0	0	19	0	0	0	0	17	0
Volume Right	0	0	0	0	0	13	0	24	0	0
cSH	1700	1700	1700	1622	1700	1700	1700	850	600	837
Volume to Capacity	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.28	0.03	0.16
Queue Length 95th (ft)	0	0	0	1	0	0	0	29	2	14
Control Delay (s)	0.0	0.0	0.0	7.2	0.0	0.0	0.0	10.9	11.2	10.1
Lane LOS				A			A	B	B	B
Approach Delay (s)	0.0			4.3			10.9		10.2	
Approach LOS							B		B	

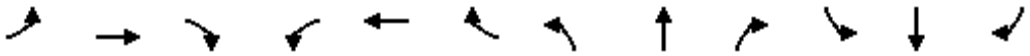
Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	22.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	4	0	0	11	61	40	103	32	173	47
Future Volume (Veh/h)	3	0	4	0	0	11	61	40	103	32	173	47
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	0	4	0	0	12	68	44	114	36	192	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	482	584	218	505	553	101	244			158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	482	584	218	505	553	101	244			158		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	99	95			97		
cM capacity (veh/h)	460	392	822	448	408	954	1322			1422		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	12	68	158	36	244
Volume Left	3	0	68	0	36	0
Volume Right	4	12	0	114	0	52
cSH	615	954	1322	1700	1422	1700
Volume to Capacity	0.01	0.01	0.05	0.09	0.03	0.14
Queue Length 95th (ft)	1	1	4	0	2	0
Control Delay (s)	10.9	8.8	7.9	0.0	7.6	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.9	8.8	2.4		1.0	
Approach LOS	B	A				

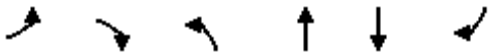
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	28.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	122	103	198	53	59	43	0	55	25	41	8
Future Volume (Veh/h)	24	122	103	198	53	59	43	0	55	25	41	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	136	114	220	59	66	48	0	61	28	46	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	125			250			778	812	193	783	836	92
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			250			778	812	193	783	836	92
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			83			79	100	93	89	81	99
cM capacity (veh/h)	1462			1316			230	256	849	248	248	965

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	27	250	220	125	48	61	28	55
Volume Left	27	0	220	0	48	0	28	0
Volume Right	0	114	0	66	0	61	0	9
cSH	1462	1700	1316	1700	230	849	248	282
Volume to Capacity	0.02	0.15	0.17	0.07	0.21	0.07	0.11	0.19
Queue Length 95th (ft)	1	0	15	0	19	6	9	18
Control Delay (s)	7.5	0.0	8.3	0.0	24.7	9.6	21.3	20.8
Lane LOS	A		A		C	A	C	C
Approach Delay (s)	0.7		5.3		16.2		21.0	
Approach LOS					C		C	

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	42.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	89	244	199	227	163
Future Volume (vph)	83	89	244	199	227	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.60	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1110	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	99	271	221	252	181
RTOR Reduction (vph)	0	75	0	0	0	58
Lane Group Flow (vph)	92	24	271	221	252	123
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	29.5	29.5	81.5	81.5	81.5	81.5
Effective Green, g (s)	29.5	29.5	81.5	81.5	81.5	81.5
Actuated g/C Ratio	0.25	0.25	0.68	0.68	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	435	389	753	2403	2403	1075
v/s Ratio Prot	c0.05			0.06	0.07	
v/s Ratio Perm		0.02	c0.24			0.08
v/c Ratio	0.21	0.06	0.36	0.09	0.10	0.11
Uniform Delay, d1	36.0	34.7	8.2	6.6	6.6	6.7
Progression Factor	0.98	0.95	0.64	0.48	1.00	1.00
Incremental Delay, d2	1.1	0.3	0.1	0.0	0.1	0.2
Delay (s)	36.4	33.1	5.4	3.2	6.7	6.9
Level of Service	D	C	A	A	A	A
Approach Delay (s)	34.7			4.4	6.8	
Approach LOS	C			A	A	

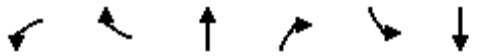
Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	Max	Max
Maximum Split (s)	86	34	86
Maximum Split (%)	71.7%	28.3%	71.7%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	86	0
End Time (s)	86	0	86
Yield/Force Off (s)	81.5	115.5	81.5
Yield/Force Off 170(s)	70.5	104.5	70.5
Local Start Time (s)	0	86	0
Local Yield (s)	81.5	115.5	81.5
Local Yield 170(s)	70.5	104.5	70.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	50
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd & Prop Rd 1





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	72	84	91	158	135
Future Volume (Veh/h)	32	72	84	91	158	135
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	80	93	101	176	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1027
pX, platoon unblocked						
vC, conflicting volume	595	93			194	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	595	93			194	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	92			87	
cM capacity (veh/h)	407	964			1379	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	36	80	93	101	176	150
Volume Left	36	0	0	0	176	0
Volume Right	0	80	0	101	0	0
cSH	407	964	1700	1700	1379	1700
Volume to Capacity	0.09	0.08	0.05	0.06	0.13	0.09
Queue Length 95th (ft)	7	7	0	0	11	0
Control Delay (s)	14.7	9.1	0.0	0.0	8.0	0.0
Lane LOS	B	A			A	
Approach Delay (s)	10.8		0.0		4.3	
Approach LOS	B					

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	29	146	80	106	60
Future Volume (Veh/h)	25	29	146	80	106	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	32	162	89	118	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	465	162			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465	162			251	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	96			91	
cM capacity (veh/h)	506	883			1314	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	162	89	118	67
Volume Left	28	0	0	118	0
Volume Right	32	0	89	0	0
cSH	655	1700	1700	1314	1700
Volume to Capacity	0.09	0.10	0.05	0.09	0.04
Queue Length 95th (ft)	8	0	0	7	0
Control Delay (s)	11.0	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	11.0	0.0		5.1	
Approach LOS	B				

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	50	114	41	49	271
Future Volume (Veh/h)	21	50	114	41	49	271
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	56	127	46	54	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						546
pX, platoon unblocked						
vC, conflicting volume	559	150			173	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	559	150			173	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	94			96	
cM capacity (veh/h)	471	896			1404	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	23	56	173	54	301
Volume Left	23	0	0	54	0
Volume Right	0	56	46	0	0
cSH	471	896	1700	1404	1700
Volume to Capacity	0.05	0.06	0.10	0.04	0.18
Queue Length 95th (ft)	4	5	0	3	0
Control Delay (s)	13.0	9.3	0.0	7.7	0.0
Lane LOS	B	A		A	
Approach Delay (s)	10.4		0.0	1.2	
Approach LOS	B				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	185	78	54	95	52	29
Future Volume (Veh/h)	185	78	54	95	52	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	206	87	60	106	58	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	871					
pX, platoon unblocked						
vC, conflicting volume			293		379	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			293		379	103
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		90	97
cM capacity (veh/h)			1265		567	932

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	103	103	87	60	53	53	58	32
Volume Left	0	0	0	60	0	0	58	0
Volume Right	0	0	87	0	0	0	0	32
cSH	1700	1700	1700	1265	1700	1700	567	932
Volume to Capacity	0.06	0.06	0.05	0.05	0.03	0.03	0.10	0.03
Queue Length 95th (ft)	0	0	0	4	0	0	8	3
Control Delay (s)	0.0	0.0	0.0	8.0	0.0	0.0	12.1	9.0
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.9			11.0	
Approach LOS							B	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	159	55	53	111	38	28
Future Volume (Veh/h)	159	55	53	111	38	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	177	61	59	123	42	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			238		356	88
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			238		356	88
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		93	97
cM capacity (veh/h)			1326		588	952

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	88	88	61	59	62	62	42	31
Volume Left	0	0	0	59	0	0	42	0
Volume Right	0	0	61	0	0	0	0	31
cSH	1700	1700	1700	1326	1700	1700	588	952
Volume to Capacity	0.05	0.05	0.04	0.04	0.04	0.04	0.07	0.03
Queue Length 95th (ft)	0	0	0	3	0	0	6	3
Control Delay (s)	0.0	0.0	0.0	7.8	0.0	0.0	11.6	8.9
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.5			10.5	
Approach LOS							B	

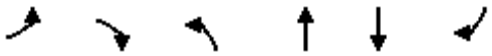
Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	147	40	58	132	32	31
Future Volume (Veh/h)	147	40	58	132	32	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	163	44	64	147	36	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				736		
pX, platoon unblocked						
vC, conflicting volume			207		364	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			207		364	82
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		94	96
cM capacity (veh/h)			1361		580	962

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	82	82	44	64	74	74	36	34
Volume Left	0	0	0	64	0	0	36	0
Volume Right	0	0	44	0	0	0	0	34
cSH	1700	1700	1700	1361	1700	1700	580	962
Volume to Capacity	0.05	0.05	0.03	0.05	0.04	0.04	0.06	0.04
Queue Length 95th (ft)	0	0	0	4	0	0	5	3
Control Delay (s)	0.0	0.0	0.0	7.8	0.0	0.0	11.6	8.9
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.4			10.3	
Approach LOS							B	

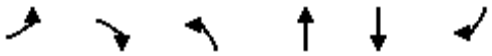
Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	89	193	339	8
Future Volume (Veh/h)	0	50	89	193	339	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	56	99	214	377	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				489	501	
pX, platoon unblocked						
vC, conflicting volume	686	193	386			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	686	193	386			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	92			
cM capacity (veh/h)	349	816	1169			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	56	99	107	107	251	135
Volume Left	0	99	0	0	0	0
Volume Right	56	0	0	0	0	9
cSH	816	1169	1700	1700	1700	1700
Volume to Capacity	0.07	0.08	0.06	0.06	0.15	0.08
Queue Length 95th (ft)	6	7	0	0	0	0
Control Delay (s)	9.7	8.4	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.7	2.6			0.0	
Approach LOS	A					

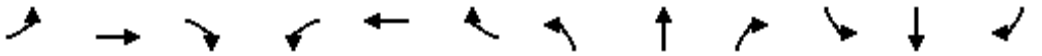
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	21.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	37	93	443	214	102
Future Volume (Veh/h)	0	37	93	443	214	102
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	41	103	492	238	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				734	774	
pX, platoon unblocked						
vC, conflicting volume	690	119	351			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690	119	351			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	91			
cM capacity (veh/h)	347	910	1204			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	41	103	246	246	119	119	113
Volume Left	0	103	0	0	0	0	0
Volume Right	41	0	0	0	0	0	113
cSH	910	1204	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.09	0.14	0.14	0.07	0.07	0.07
Queue Length 95th (ft)	4	7	0	0	0	0	0
Control Delay (s)	9.1	8.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	9.1	1.4			0.0		
Approach LOS	A						

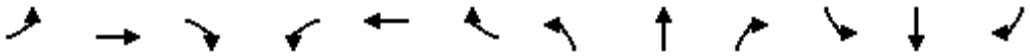
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	18.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	0	52	48	0	36	31	15	8	115	151	76
Future Volume (Veh/h)	47	0	52	48	0	36	31	15	8	115	151	76
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	52	0	58	53	0	40	34	17	9	128	168	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	549	518	168	572	598	22	252			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549	518	168	572	598	22	252			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	93	86	100	96	97			92		
cM capacity (veh/h)	395	414	876	371	373	1056	1313			1588		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	110	93	34	26	128	168	84
Volume Left	52	53	34	0	128	0	0
Volume Right	58	40	0	9	0	0	84
cSH	556	514	1313	1700	1588	1700	1700
Volume to Capacity	0.20	0.18	0.03	0.02	0.08	0.10	0.05
Queue Length 95th (ft)	18	16	2	0	7	0	0
Control Delay (s)	13.1	13.5	7.8	0.0	7.5	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	13.1	13.5	4.4		2.5		
Approach LOS	B	B					

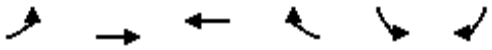
Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	27.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	80	112	111	227	69	48	0	61	32	0	36
Future Volume (Veh/h)	10	80	112	111	227	69	48	0	61	32	0	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	89	124	123	252	77	53	0	68	36	0	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					821							
pX, platoon unblocked												
vC, conflicting volume	329			213			711	748	151	716	772	290
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329			213			711	748	151	716	772	290
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			83	100	92	88	100	95
cM capacity (veh/h)	1231			1357			304	307	895	295	298	749

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	11	213	123	329	53	68	36	40
Volume Left	11	0	123	0	53	0	36	0
Volume Right	0	124	0	77	0	68	0	40
cSH	1231	1700	1357	1700	304	895	295	749
Volume to Capacity	0.01	0.13	0.09	0.19	0.17	0.08	0.12	0.05
Queue Length 95th (ft)	1	0	7	0	16	6	10	4
Control Delay (s)	8.0	0.0	7.9	0.0	19.3	9.4	18.9	10.1
Lane LOS	A		A		C	A	C	B
Approach Delay (s)	0.4		2.2		13.7		14.3	
Approach LOS					B		B	

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	38.8%	ICU Level of Service		A
Analysis Period (min)	15			



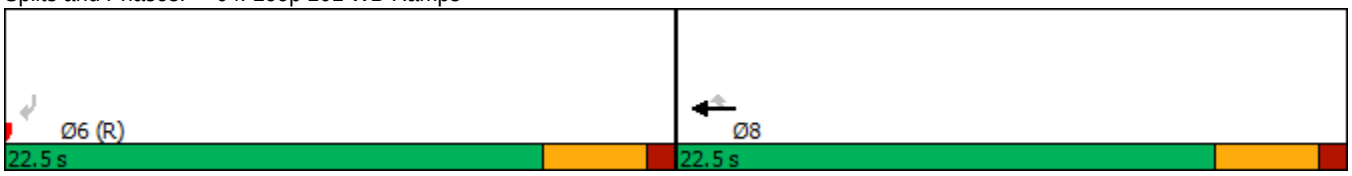
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

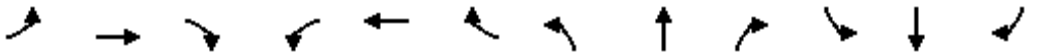
Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	19	73	41	13	4	76	1192	83	5	543	18
Future Volume (vph)	24	19	73	41	13	4	76	1192	83	5	543	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1801		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.69	1.00		0.38	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1389	1641		1287	1801		701	3539	1583	169	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	21	81	46	14	4	84	1324	92	6	603	20
RTOR Reduction (vph)	0	49	0	0	2	0	0	0	25	0	0	11
Lane Group Flow (vph)	27	53	0	46	16	0	84	1324	67	6	603	9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	555	656		514	720		324	1639	733	78	1639	733
v/s Ratio Prot		0.03			0.01			c0.37			0.17	
v/s Ratio Perm	0.02			c0.04			0.12		0.04	0.04		0.01
v/c Ratio	0.05	0.08		0.09	0.02		0.26	0.81	0.09	0.08	0.37	0.01
Uniform Delay, d1	17.4	17.7		17.7	17.2		15.6	21.9	14.3	14.2	16.5	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.3	0.1		1.9	4.4	0.2	1.9	0.6	0.0
Delay (s)	17.6	17.9		18.1	17.3		17.5	26.3	14.5	16.1	17.1	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.9			17.9			25.1			17.0	
Approach LOS		B			B			C			B	

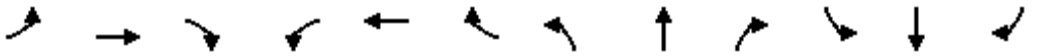
Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





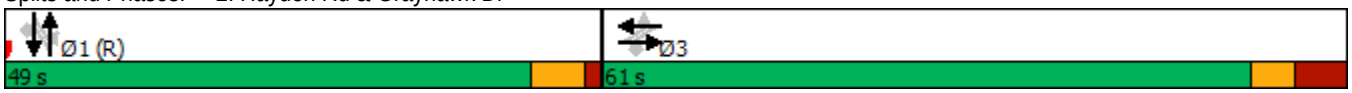
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	9	69	24	8	13	79	1330	39	13	587	40
Future Volume (vph)	38	9	69	24	8	13	79	1330	39	13	587	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.75	1.00		0.31	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1383	1863	1583	1399	1693		581	3539	1583	173	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	10	77	27	9	14	88	1478	43	14	652	44
RTOR Reduction (vph)	0	0	40	0	3	0	0	0	26	0	0	27
Lane Group Flow (vph)	42	10	37	27	20	0	88	1478	17	14	652	17
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	666	897	762	674	815		227	1383	618	67	1383	618
v/s Ratio Prot		0.01			0.01			c0.42			0.18	
v/s Ratio Perm	c0.03		0.02	0.02			0.15		0.01	0.08		0.01
v/c Ratio	0.06	0.01	0.05	0.04	0.02		0.39	1.07	0.03	0.21	0.47	0.03
Uniform Delay, d1	15.2	14.8	15.1	15.1	14.9		24.0	33.5	20.6	22.2	25.0	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.1	0.1		4.9	44.9	0.1	7.0	1.2	0.1
Delay (s)	15.4	14.9	15.2	15.2	15.0		29.0	78.4	20.7	29.2	26.2	20.7
Level of Service	B	B	B	B	B		C	E	C	C	C	C
Approach Delay (s)		15.3			15.1			74.1			25.9	
Approach LOS		B			B			E			C	

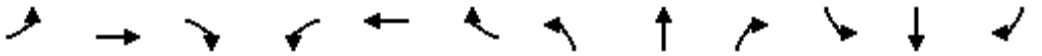
Intersection Summary			
HCM 2000 Control Delay	56.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	598	389	405	381	169	538	1193	704	224	402	81
Future Volume (vph)	100	598	389	405	381	169	538	1193	704	224	402	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.51	1.00	1.00	0.13	1.00	1.00	0.42	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	941	3539	1583	238	3539	1583	782	3539	1583	194	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	664	432	450	423	188	598	1326	782	249	447	90
RTOR Reduction (vph)	0	0	284	0	0	131	0	0	242	0	0	61
Lane Group Flow (vph)	111	664	148	450	423	57	598	1326	540	249	447	29
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	37.9	27.8	27.8	51.3	36.7	36.7	53.4	36.6	36.6	55.0	38.4	38.4
Effective Green, g (s)	37.9	27.8	27.8	51.3	36.7	36.7	53.4	36.6	36.6	55.0	38.4	38.4
Actuated g/C Ratio	0.32	0.23	0.23	0.43	0.31	0.31	0.44	0.31	0.31	0.46	0.32	0.32
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	366	819	366	357	1082	484	486	1079	482	306	1132	506
v/s Ratio Prot	0.03	0.19		c0.21	0.12		c0.17	0.37		0.11	0.13	
v/s Ratio Perm	0.07		0.09	c0.33		0.04	c0.38		0.34	0.26		0.02
v/c Ratio	0.30	0.81	0.40	1.26	0.39	0.12	1.23	1.23	1.12	0.81	0.39	0.06
Uniform Delay, d1	30.0	43.6	39.1	35.5	32.8	30.0	29.4	41.7	41.7	31.5	31.8	28.3
Progression Factor	1.00	1.00	1.00	0.96	1.21	3.50	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	6.1	0.7	135.2	0.2	0.1	120.7	111.3	78.3	15.1	1.0	0.2
Delay (s)	30.4	49.7	39.8	169.2	39.9	105.0	150.1	153.0	120.0	46.7	32.8	28.5
Level of Service	C	D	D	F	D	F	F	F	F	D	C	C
Approach Delay (s)		44.4			106.3			142.8			36.7	
Approach LOS		D			F			F			D	

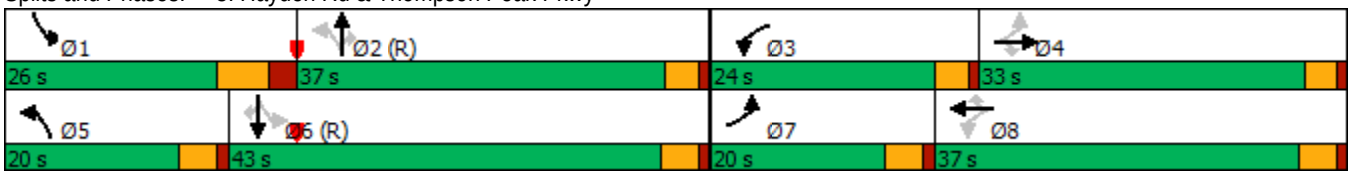
Intersection Summary			
HCM 2000 Control Delay	101.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

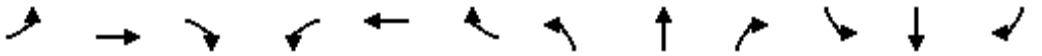
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





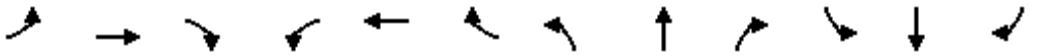
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	133	445	201	131	60	415	2265	154	34	1078	128
Future Volume (veh/h)	130	133	445	201	131	60	415	2265	154	34	1078	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	148	494	223	146	67	461	2517	171	38	1198	142
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	355	593	308	549	397	948	2766	859	231	1855	576
Arrive On Green	0.06	0.10	0.10	0.11	0.15	0.15	0.27	0.54	0.54	0.10	0.36	0.36
Sat Flow, veh/h	3456	3554	1585	1781	3554	1585	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	144	148	494	223	146	67	461	2517	171	38	1198	142
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	4.9	4.7	8.1	13.2	4.3	0.5	13.4	53.5	3.9	0.0	23.4	5.9
Cycle Q Clear(g_c), s	4.9	4.7	8.1	13.2	4.3	0.5	13.4	53.5	3.9	0.0	23.4	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	355	593	308	549	397	948	2766	859	231	1855	576
V/C Ratio(X)	0.72	0.42	0.83	0.72	0.27	0.17	0.49	0.91	0.20	0.16	0.65	0.25
Avail Cap(c_a), veh/h	279	533	672	308	646	440	948	2766	859	231	1855	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	50.7	16.0	41.0	44.7	21.6	36.5	24.9	4.9	49.0	31.8	16.7
Incr Delay (d2), s/veh	5.3	0.8	8.0	8.1	0.3	0.2	0.0	0.6	0.0	0.3	1.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.1	8.8	6.5	1.9	1.2	5.7	20.6	2.3	1.1	9.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	51.5	24.0	49.1	45.0	21.8	36.5	25.4	5.0	49.4	33.5	17.7
LnGrp LOS	E	D	C	D	D	C	D	C	A	D	C	B
Approach Vol, veh/h		786			436			3149			1378	
Approach Delay, s/veh		35.9			43.5			26.0			32.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	69.5	18.0	16.5	37.4	48.1	11.5	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	65.0	13.5	18.0	26.9	43.6	9.7	21.8
Max Q Clear Time (g_c+I1), s	2.0	55.5	15.2	10.1	15.4	25.4	6.9	6.3
Green Ext Time (p_c), s	0.0	8.9	0.0	1.8	1.3	8.8	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Future Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.95			0.86	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1580	1504	3433	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1580	1504	3433	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	220	206	1191	996	2052	0	0	1922	564
RTOR Reduction (vph)	0	0	0	0	75	270	0	0	0	0	0	317
Lane Group Flow (vph)	0	0	0	220	643	409	996	2052	0	0	1922	247
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				50.8	50.8	50.8	21.0	28.2			28.2	28.2
Effective Green, g (s)				50.8	50.8	50.8	21.0	28.2			28.2	28.2
Actuated g/C Ratio				0.42	0.42	0.42	0.18	0.23			0.23	0.23
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1453	668	636	600	831			1505	372
v/s Ratio Prot					c0.41		c0.29	c0.58			0.30	
v/s Ratio Perm				0.06		0.27						0.16
v/c Ratio				0.15	0.96	0.64	1.66	2.47			1.28	0.66
Uniform Delay, d1				21.3	33.7	27.4	49.5	45.9			45.9	41.6
Progression Factor				1.00	1.00	1.00	0.73	0.80			1.00	1.02
Incremental Delay, d2				0.0	25.7	2.2	297.7	661.5			130.0	9.0
Delay (s)				21.4	59.4	29.7	334.0	698.1			175.9	51.2
Level of Service				C	E	C	F	F			F	D
Approach Delay (s)		0.0			41.7			579.1			147.6	
Approach LOS		A			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	307.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	145.3%	ICU Level of Service	H
Analysis Period (min)	15		

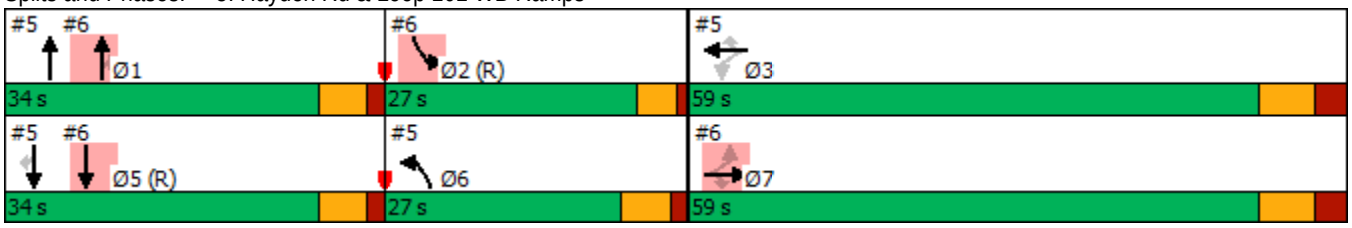
c Critical Lane Group

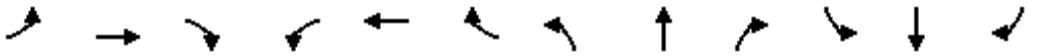
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	34	27	59
Maximum Split (%)	28.3%	22.5%	49.2%	28.3%	22.5%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	0	27
End Time (s)	0	27	86	0	27	86
Yield/Force Off (s)	114	22.5	78	114	21	78
Yield/Force Off 170(s)	104	22.5	52	104	21	52
Local Start Time (s)	86	0	27	86	0	27
Local Yield (s)	114	22.5	78	114	21	78
Local Yield 170(s)	104	22.5	52	104	21	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	150	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

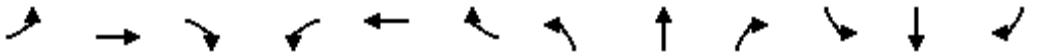




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Future Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1605	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1605	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	934	6	286	0	0	0	0	2162	237	1041	1120	0
RTOR Reduction (vph)	0	2	148	0	0	0	0	0	102	0	0	0
Lane Group Flow (vph)	486	481	109	0	0	0	0	2162	135	1041	1120	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	50.8	50.8	50.8					28.2	28.2	22.5	28.2	
Effective Green, g (s)	50.8	50.8	50.8					28.2	28.2	22.5	28.2	
Actuated g/C Ratio	0.42	0.42	0.42					0.23	0.23	0.19	0.23	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	711	679	636					1194	372	643	831	
v/s Ratio Prot								c0.43		c0.30	0.32	
v/s Ratio Perm	0.29	0.30	0.07						0.09			
v/c Ratio	0.68	0.71	0.17					1.81	0.36	1.62	1.35	
Uniform Delay, d1	28.1	28.5	21.5					45.9	38.4	48.8	45.9	
Progression Factor	1.27	1.27	4.13					1.08	1.34	0.56	0.77	
Incremental Delay, d2	0.2	0.3	0.0					366.3	0.3	279.2	157.3	
Delay (s)	35.9	36.4	88.8					415.8	51.7	306.6	192.8	
Level of Service	D	D	F					F	D	F	F	
Approach Delay (s)		47.2			0.0			379.8			247.6	
Approach LOS		D			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	260.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	145.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	68	289	45	69	377	209	1368	22	76	888	332
Future Volume (vph)	368	68	289	45	69	377	209	1368	22	76	888	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.71	1.00	1.00	0.65	1.00	1.00	0.14	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1317	1863	1583	1217	1863	1583	257	3539	1583	150	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	76	321	50	77	419	232	1520	24	84	987	369
RTOR Reduction (vph)	0	0	176	0	0	71	0	0	9	0	0	165
Lane Group Flow (vph)	409	76	145	50	77	348	232	1520	15	84	987	204
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.5	18.0	34.2	37.5	19.5	30.2	70.5	55.3	73.3	60.5	49.8	66.3
Effective Green, g (s)	34.5	18.0	34.2	37.5	19.5	30.2	70.5	55.3	73.3	60.5	49.8	66.3
Actuated g/C Ratio	0.29	0.15	0.29	0.31	0.16	0.25	0.59	0.46	0.61	0.50	0.41	0.55
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	440	279	510	463	302	457	355	1630	1026	220	1468	933
v/s Ratio Prot	c0.13	0.04	0.04	0.02	0.04	c0.07	0.09	c0.43	0.00	0.03	0.28	0.03
v/s Ratio Perm	c0.14		0.05	0.02		0.15	0.30		0.01	0.16		0.10
v/c Ratio	0.93	0.27	0.28	0.11	0.25	0.76	0.65	0.93	0.01	0.38	0.67	0.22
Uniform Delay, d1	40.2	45.2	33.4	29.2	43.9	41.6	17.7	30.6	9.2	23.5	28.5	13.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.80	1.12	9.52	1.30	0.87	9.00
Incremental Delay, d2	28.4	2.4	1.4	0.5	2.0	11.4	7.1	9.1	0.0	0.5	0.2	0.0
Delay (s)	68.6	47.6	34.8	29.7	45.9	52.9	38.9	43.5	87.3	31.0	25.1	123.0
Level of Service	E	D	C	C	D	D	D	D	F	C	C	F
Approach Delay (s)		53.2			49.8			43.5			50.5	
Approach LOS		D			D			D			D	

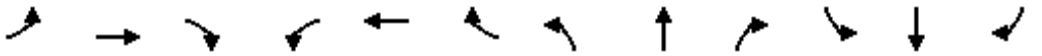
Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	15.2	59.8	22.5	22.5	20.7	54.3	21	24
Maximum Split (%)	12.7%	49.8%	18.8%	18.8%	17.3%	45.3%	17.5%	20.0%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	99.3	114.5	54.3	76.8	99.3	0	54.3	75.3
End Time (s)	114.5	54.3	76.8	99.3	0	54.3	75.3	99.3
Yield/Force Off (s)	110	49.8	72.3	94.8	115.5	49.8	70.8	94.8
Yield/Force Off 170(s)	110	38.8	61.3	83.8	115.5	38.8	70.8	83.8
Local Start Time (s)	99.3	114.5	54.3	76.8	99.3	0	54.3	75.3
Local Yield (s)	110	49.8	72.3	94.8	115.5	49.8	70.8	94.8
Local Yield 170(s)	110	38.8	61.3	83.8	115.5	38.8	70.8	83.8

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	21	81	253	0	212	149	1338	165	69	1066	71
Future Volume (vph)	38	21	81	253	0	212	149	1338	165	69	1066	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1804	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.18	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)		1804	1583	3433		1583	334	3539	1583	197	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	23	90	281	0	236	166	1487	183	77	1184	79
RTOR Reduction (vph)	0	0	82	0	0	206	0	0	44	0	0	30
Lane Group Flow (vph)	0	65	8	281	0	30	166	1487	139	77	1184	49
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		10.6	10.6	15.4		15.4	74.0	74.0	74.0	74.0	74.0	74.0
Effective Green, g (s)		10.6	10.6	15.4		15.4	74.0	74.0	74.0	74.0	74.0	74.0
Actuated g/C Ratio		0.09	0.09	0.13		0.13	0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		159	139	440		203	205	2182	976	121	2182	976
v/s Ratio Prot		c0.04		c0.08				0.42			0.33	
v/s Ratio Perm			0.01			0.02	c0.50		0.09	0.39		0.03
v/c Ratio		0.41	0.06	0.64		0.15	0.81	0.68	0.14	0.64	0.54	0.05
Uniform Delay, d1		51.7	50.1	49.7		46.5	17.6	15.2	9.7	14.5	13.3	9.1
Progression Factor		1.00	1.00	1.00		1.00	0.90	0.94	1.46	1.97	2.16	6.95
Incremental Delay, d2		1.7	0.2	3.0		0.3	21.2	1.2	0.2	18.7	0.8	0.1
Delay (s)		53.4	50.3	52.7		46.8	37.1	15.6	14.3	47.3	29.4	63.3
Level of Service		D	D	D		D	D	B	B	D	C	E
Approach Delay (s)		51.6			50.0			17.4			32.4	
Approach LOS		D			D			B			C	

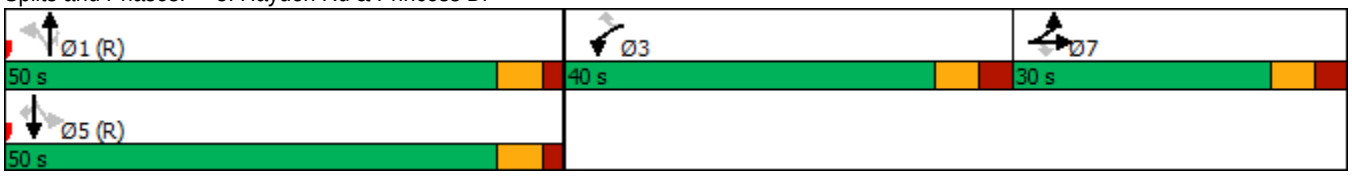
Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

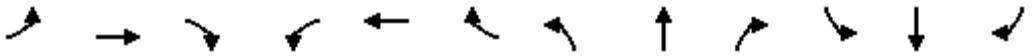
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1	23	488	0	186	6	1511	276	212	1221	10
Future Volume (vph)	13	1	23	488	0	186	6	1511	276	212	1221	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3535	
Flt Permitted		0.78		0.73	0.73	1.00	0.14	1.00	1.00	0.07	1.00	
Satd. Flow (perm)		2496		1290	1290	1583	252	3539	1583	135	3535	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1	26	542	0	207	7	1679	307	236	1357	11
RTOR Reduction (vph)	0	17	0	0	0	153	0	0	79	0	0	0
Lane Group Flow (vph)	0	24	0	271	271	54	7	1679	228	236	1368	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		5.5		30.9	30.9	30.9	75.1	75.1	75.1	75.1	75.1	
Effective Green, g (s)		5.5		30.9	30.9	30.9	75.1	75.1	75.1	75.1	75.1	
Actuated g/C Ratio		0.05		0.26	0.26	0.26	0.63	0.63	0.63	0.63	0.63	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		114		388	388	407	157	2214	990	84	2212	
v/s Ratio Prot				c0.10	0.10			0.47			0.39	
v/s Ratio Perm		0.01		c0.08	0.08	0.03	0.03		0.14	c1.74		
v/c Ratio		0.21		0.70	0.70	0.13	0.04	0.76	0.23	2.81	0.62	
Uniform Delay, d1		55.2		39.3	40.3	34.2	8.6	16.0	9.8	22.5	13.7	
Progression Factor		1.00		1.00	1.00	1.00	1.11	1.01	1.29	0.70	0.46	
Incremental Delay, d2		0.9		5.4	5.4	0.1	0.0	0.2	0.0	843.2	1.2	
Delay (s)		56.1		44.7	45.7	34.4	9.6	16.4	12.7	858.8	7.5	
Level of Service		E		D	D	C	A	B	B	F	A	
Approach Delay (s)		56.1			42.2			15.8			132.8	
Approach LOS		E			D			B			F	

Intersection Summary			
HCM 2000 Control Delay	63.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	2.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

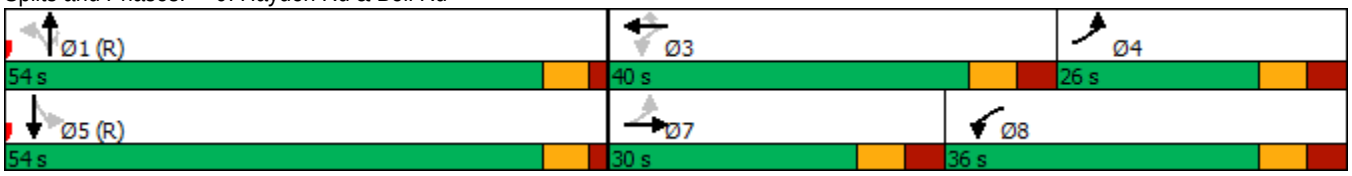
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	63	2389	109	20	1292
Future Volume (vph)	132	63	2389	109	20	1292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	79	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	70	2654	121	22	1436
RTOR Reduction (vph)	0	9	0	12	0	0
Lane Group Flow (vph)	147	61	2654	109	22	1436
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.6	13.6	94.4	94.4	94.4	94.4
Effective Green, g (s)	13.6	13.6	94.4	94.4	94.4	94.4
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	179	2784	1245	62	2784
v/s Ratio Prot	c0.08		c0.75			0.41
v/s Ratio Perm		0.04		0.07	0.28	
v/c Ratio	0.73	0.34	0.95	0.09	0.35	0.52
Uniform Delay, d1	51.5	49.1	10.9	2.9	3.8	4.6
Progression Factor	1.00	1.00	1.17	1.44	1.00	1.00
Incremental Delay, d2	13.1	1.1	3.9	0.0	15.2	0.7
Delay (s)	64.5	50.2	16.7	4.3	19.0	5.3
Level of Service	E	D	B	A	B	A
Approach Delay (s)	59.9		16.1			5.5
Approach LOS	E		B			A

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	128	69	2400	128	60	1326
Future Volume (vph)	128	69	2400	128	60	1326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	79	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	77	2667	142	67	1473
RTOR Reduction (vph)	0	8	0	19	0	0
Lane Group Flow (vph)	142	69	2667	123	67	1473
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	14.2	14.2	93.8	93.8	93.8	93.8
Effective Green, g (s)	14.2	14.2	93.8	93.8	93.8	93.8
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	187	2766	1237	61	2766
v/s Ratio Prot	c0.08		0.75			0.42
v/s Ratio Perm		0.04		0.08	c0.84	
v/c Ratio	0.68	0.37	0.96	0.10	1.10	0.53
Uniform Delay, d1	50.7	48.8	11.6	3.1	13.1	4.9
Progression Factor	1.00	1.00	2.13	1.55	1.39	0.85
Incremental Delay, d2	8.5	1.2	1.4	0.0	136.2	0.6
Delay (s)	59.2	50.0	26.2	4.8	154.4	4.8
Level of Service	E	D	C	A	F	A
Approach Delay (s)	56.0		25.1			11.3
Approach LOS	E		C			B

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

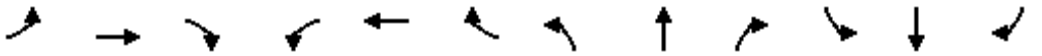
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Future Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	161	5085	1583	137	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	259	101	743	381	296	167	2231	557	219	1589	407
RTOR Reduction (vph)	0	0	89	0	0	52	0	0	38	0	0	143
Lane Group Flow (vph)	592	259	12	743	381	244	167	2231	519	219	1589	264
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Perm	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	2		1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	5.0	14.1	14.1	29.2	40.8	47.8	46.2	46.2	75.4	61.2	57.2	62.2
Effective Green, g (s)	5.0	14.1	14.1	29.2	40.8	47.8	46.2	46.2	75.4	61.2	57.2	62.2
Actuated g/C Ratio	0.04	0.12	0.12	0.24	0.34	0.40	0.39	0.39	0.63	0.51	0.48	0.52
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	8.0	8.0	7.0	4.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	415	186	835	1203	630	61	1957	994	165	2423	820
v/s Ratio Prot	c0.17	c0.07		c0.22	0.11	0.02		0.44	0.13	c0.08	0.31	0.01
v/s Ratio Perm			0.01			0.13	c1.04		0.20	0.60		0.15
v/c Ratio	4.14	0.62	0.06	0.89	0.32	0.39	2.74	1.14	0.52	1.33	0.66	0.32
Uniform Delay, d1	57.5	50.4	47.1	43.8	29.3	25.7	36.9	36.9	12.3	51.4	23.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.56	1.57	2.25	1.14	1.13	1.41
Incremental Delay, d2	1429.3	2.9	0.1	11.4	0.2	0.4	786.1	63.7	0.0	181.0	1.3	0.2
Delay (s)	1486.8	53.3	47.2	55.3	29.4	26.1	843.6	121.6	27.8	239.5	28.4	23.9
Level of Service	F	D	D	E	C	C	F	F	C	F	C	C
Approach Delay (s)		944.1			42.3			144.7			48.4	
Approach LOS		F			D			F			D	

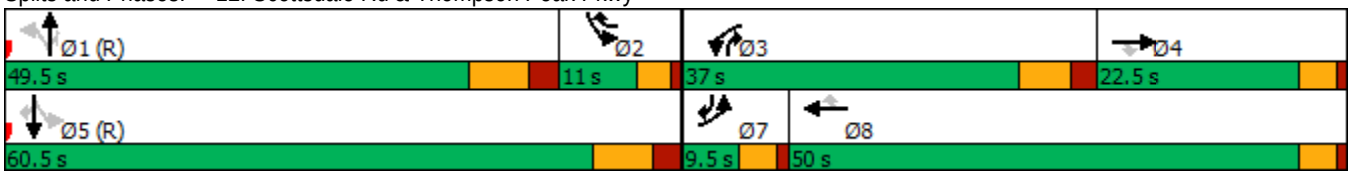
Intersection Summary			
HCM 2000 Control Delay	198.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

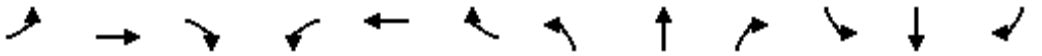
c Critical Lane Group

Phase Number	1	2	3	4	5	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None
Maximum Split (s)	49.5	11	37	22.5	60.5	9.5	50
Maximum Split (%)	41.3%	9.2%	30.8%	18.8%	50.4%	7.9%	41.7%
Minimum Split (s)	40	9	37	22.5	40	9.5	22.5
Yellow Time (s)	5.3	3	4.6	3.5	5.3	3.5	3.5
All-Red Time (s)	2.7	1	2.4	1	2.7	1	1
Minimum Initial (s)	20	5	6	5	20	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7		7
Flash Dont Walk (s)	25		23	11	25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
End Time (s)	49.5	60.5	97.5	0	60.5	70	0
Yield/Force Off (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Yield/Force Off 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5
Local Start Time (s)	0	49.5	60.5	97.5	0	60.5	70
Local Yield (s)	41.5	56.5	90.5	115.5	52.5	65.5	115.5
Local Yield 170(s)	16.5	56.5	67.5	104.5	27.5	65.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Future Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	141	5085	1583	163	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	183	41	613	260	192	81	2791	479	123	2344	387
RTOR Reduction (vph)	0	0	37	0	0	130	0	0	87	0	0	138
Lane Group Flow (vph)	407	183	4	613	260	62	81	2791	392	123	2344	249
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		6	1		2	5	
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	5.0	11.5	11.5	25.4	34.4	34.4	67.1	54.2	54.2	52.1	45.7	45.7
Effective Green, g (s)	5.0	11.5	11.5	25.4	34.4	34.4	67.1	54.2	54.2	52.1	45.7	45.7
Actuated g/C Ratio	0.04	0.10	0.10	0.21	0.29	0.29	0.56	0.45	0.45	0.43	0.38	0.38
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	339	151	726	1014	453	274	2296	714	156	1936	602
v/s Ratio Prot	c0.12	c0.05		c0.18	0.07		0.04	c0.55		c0.04	0.46	
v/s Ratio Perm			0.00			0.04	0.13		0.25	0.30		0.16
v/c Ratio	2.85	0.54	0.03	0.84	0.26	0.14	0.30	1.22	0.55	0.79	1.21	0.41
Uniform Delay, d1	57.5	51.7	49.2	45.4	33.0	31.8	43.5	32.9	24.0	52.8	37.1	27.3
Progression Factor	1.00	1.00	1.00	1.00	0.98	1.46	1.36	1.86	2.45	1.07	1.19	1.66
Incremental Delay, d2	849.7	1.7	0.1	7.9	0.1	0.1	0.1	97.4	0.3	26.9	98.9	1.7
Delay (s)	907.2	53.4	49.2	53.2	32.5	46.5	59.3	158.5	59.1	83.5	143.2	47.1
Level of Service	F	D	D	D	C	D	E	F	E	F	F	D
Approach Delay (s)		603.9			47.0			141.9			127.6	
Approach LOS		F			D			F			F	

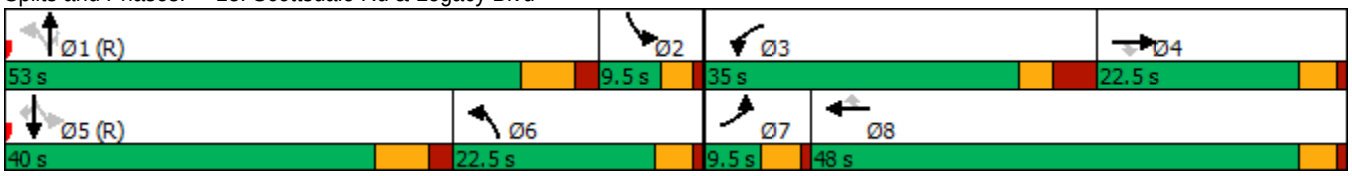
Intersection Summary			
HCM 2000 Control Delay	160.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

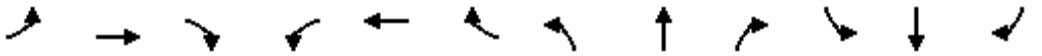
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	53	9.5	35	22.5	40	22.5	9.5	48
Maximum Split (%)	44.2%	7.9%	29.2%	18.8%	33.3%	18.8%	7.9%	40.0%
Minimum Split (s)	30	9	35	22.5	30	22.5	9.5	22.5
Yellow Time (s)	4.9	3	3	3.5	4.9	3.5	3.5	3.5
All-Red Time (s)	2.1	1	4	1	2.1	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7	7		7
Flash Dont Walk (s)	16		21	11	16	11		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
End Time (s)	53	62.5	97.5	0	40	62.5	72	0
Yield/Force Off (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Yield/Force Off 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5
Local Start Time (s)	0	53	62.5	97.5	0	40	62.5	72
Local Yield (s)	46	58.5	90.5	115.5	33	58	67.5	115.5
Local Yield 170(s)	30	58.5	69.5	104.5	17	47	67.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Future Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.93	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1651	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1651	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1047	319	776	1237	2597	0	0	2069	1022
RTOR Reduction (vph)	0	0	0	0	24	312	0	0	0	0	0	92
Lane Group Flow (vph)	0	0	0	1047	551	208	1237	2597	0	0	2069	930
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Effective Green, g (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Actuated g/C Ratio				0.28	0.28	0.28	0.21	0.32			0.37	0.37
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				972	467	426	715	1652			2766	580
v/s Ratio Prot					c0.33		c0.36	0.51			0.27	
v/s Ratio Perm				0.30		0.14						c0.59
v/c Ratio				1.08	1.18	0.49	1.73	1.57			0.75	1.60
Uniform Delay, d1				43.0	43.0	35.8	47.5	40.5			33.2	38.0
Progression Factor				1.00	1.00	1.00	0.88	0.61			1.50	1.51
Incremental Delay, d2				52.0	100.9	0.9	329.1	257.7			0.2	272.4
Delay (s)				95.0	143.9	36.6	370.9	282.3			49.9	329.8
Level of Service				F	F	D	F	F			D	F
Approach Delay (s)		0.0			93.9			310.9			142.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	202.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

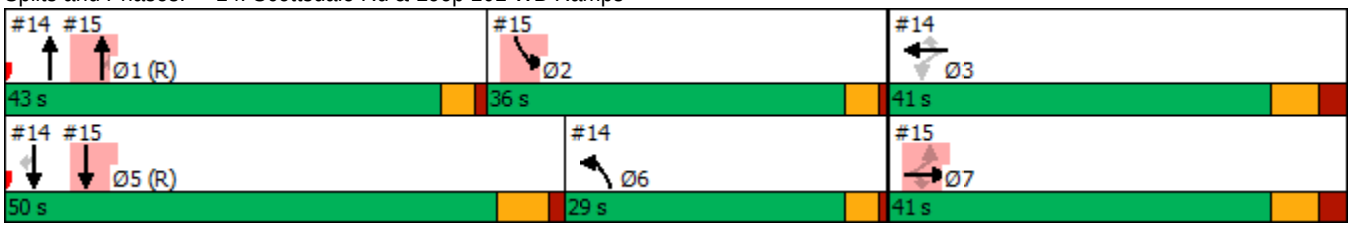
c Critical Lane Group

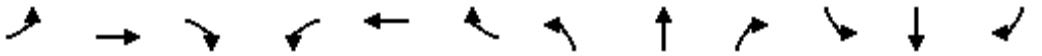
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	50	29	41
Maximum Split (%)	35.8%	30.0%	34.2%	41.7%	24.2%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	50	79
End Time (s)	43	79	0	50	79	0
Yield/Force Off (s)	39	75	113	44	75	113
Yield/Force Off 170(s)	39	75	105	36	75	85
Local Start Time (s)	0	43	79	0	50	79
Local Yield (s)	39	75	113	44	75	113
Local Yield 170(s)	39	75	105	36	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	140	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

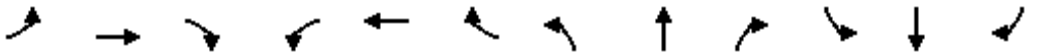




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Future Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	766	0	1068	0	0	0	0	3084	870	729	2502	0
RTOR Reduction (vph)	0	301	301	0	0	0	0	0	219	0	0	0
Lane Group Flow (vph)	766	233	233	0	0	0	0	3084	651	729	2502	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Effective Green, g (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.32	0.32	0.27	0.37	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	972	426	426					2451	514	915	1864	
v/s Ratio Prot		0.15						0.41		c0.21	c0.49	
v/s Ratio Perm	c0.22		0.15						0.41			
v/c Ratio	0.79	0.55	0.55					1.26	1.27	0.80	1.34	
Uniform Delay, d1	39.7	36.5	36.5					40.5	40.5	41.0	38.0	
Progression Factor	1.00	1.00	1.00					1.10	1.21	1.01	0.51	
Incremental Delay, d2	4.3	1.4	1.4					116.5	121.1	3.9	156.0	
Delay (s)	44.0	37.9	37.9					161.3	170.0	45.4	175.4	
Level of Service	D	D	D					F	F	D	F	
Approach Delay (s)		40.4			0.0			163.2			146.0	
Approach LOS		D			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	132.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Future Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3185		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3185		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	832	214	238	213	306	614	461	2548	151	491	2136	922
RTOR Reduction (vph)	0	0	181	0	100	0	0	0	78	0	0	92
Lane Group Flow (vph)	832	214	57	213	820	0	461	2548	73	491	2136	830
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7		8	3		6	1		2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	6.5	14.3	14.3	20.2	28.0		18.5	53.0	53.0	7.1	41.9	48.4
Effective Green, g (s)	6.5	14.3	14.3	20.2	28.0		18.5	53.0	53.0	7.1	41.9	48.4
Actuated g/C Ratio	0.05	0.12	0.12	0.17	0.23		0.15	0.44	0.44	0.06	0.35	0.40
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	605	188	577	743		529	2245	699	203	1775	711
v/s Ratio Prot	c0.24	0.04		0.06	c0.26		c0.13	c0.50		c0.14	0.42	0.06
v/s Ratio Perm			0.04						0.05			0.46
v/c Ratio	4.50	0.35	0.31	0.37	1.31dr		0.87	1.13	0.10	2.42	1.20	1.17
Uniform Delay, d1	56.8	48.6	48.3	44.2	46.0		49.6	33.5	19.6	56.5	39.0	35.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.16	1.34	2.91	1.27	1.04	1.08
Incremental Delay, d2	1586.2	0.4	0.9	0.4	65.3		10.3	64.1	0.0	639.8	92.1	76.9
Delay (s)	1642.9	49.0	49.2	44.7	111.3		67.6	108.9	57.1	711.5	132.7	115.7
Level of Service	F	D	D	D	F		E	F	E	F	F	F
Approach Delay (s)		1081.9			98.8			100.4			208.3	
Approach LOS		F			F			F			F	

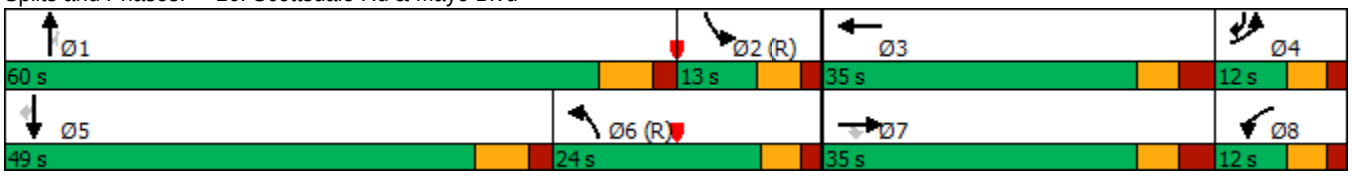
Intersection Summary			
HCM 2000 Control Delay	280.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	124.9%	ICU Level of Service	H
Analysis Period (min)	15		

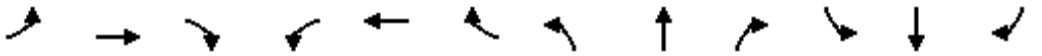
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	13	35	12	49	24	35	12
Maximum Split (%)	50.0%	10.8%	29.2%	10.0%	40.8%	20.0%	29.2%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	13	48	60	109	13	48
End Time (s)	0	13	48	60	109	13	48	60
Yield/Force Off (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Yield/Force Off 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5
Local Start Time (s)	60	0	13	48	60	109	13	48
Local Yield (s)	113	7.1	41	54.5	101.9	7.5	41	54.5
Local Yield 170(s)	94	7.1	18	54.5	82.9	7.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1	144	16	5	5	168	2691	8	10	2395	101
Future Volume (vph)	143	1	144	16	5	5	168	2691	8	10	2395	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.37	1.00	1.00	0.76	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	695	3539	1583	1410	3539	1583	109	5085	1583	118	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	1	160	18	6	6	187	2990	9	11	2661	112
RTOR Reduction (vph)	0	0	139	0	0	6	0	0	3	0	0	53
Lane Group Flow (vph)	159	1	21	18	6	0	187	2990	6	11	2661	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.4	15.9	15.9	8.4	5.4	5.4	81.6	74.8	74.8	64.4	63.1	63.1
Effective Green, g (s)	24.4	15.9	15.9	8.4	5.4	5.4	81.6	74.8	74.8	64.4	63.1	63.1
Actuated g/C Ratio	0.20	0.13	0.13	0.07	0.05	0.05	0.68	0.62	0.62	0.54	0.53	0.53
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	262	468	209	107	159	71	254	3169	986	81	2673	832
v/s Ratio Prot	c0.07	0.00		0.00	0.00		c0.08	c0.59		0.00	c0.52	
v/s Ratio Perm	c0.06		0.01	0.01		0.00	0.42		0.00	0.07		0.04
v/c Ratio	0.61	0.00	0.10	0.17	0.04	0.00	0.74	0.94	0.01	0.14	1.00	0.07
Uniform Delay, d1	42.0	45.2	45.8	52.4	54.8	54.7	36.5	20.7	8.5	24.2	28.3	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.77	2.56	1.00	0.78	0.80	1.25
Incremental Delay, d2	3.9	0.0	0.2	0.7	0.1	0.0	1.0	0.8	0.0	0.2	7.6	0.0
Delay (s)	45.9	45.2	46.0	53.2	54.9	54.8	29.2	53.8	8.5	19.0	30.2	17.6
Level of Service	D	D	D	D	D	D	C	D	A	B	C	B
Approach Delay (s)		46.0			53.8			52.2			29.6	
Approach LOS		D			D			D			C	

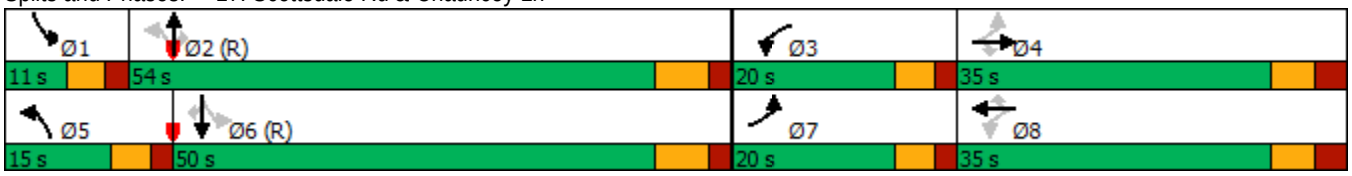
Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

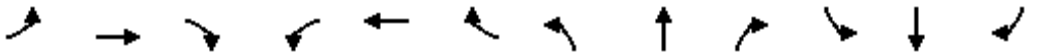
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Future Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3036		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.72	1.00		0.44	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1346	3036		826	3539	1583	141	5085	1583	141	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	17	313	472	50	394	324	2669	367	239	2503	89
RTOR Reduction (vph)	0	169	0	0	0	213	0	0	124	0	0	50
Lane Group Flow (vph)	70	161	0	472	50	181	324	2669	243	239	2503	39
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	33.0	19.1		33.0	19.1	19.1	66.0	53.0	53.0	66.0	53.0	53.0
Effective Green, g (s)	33.0	19.1		33.0	19.1	19.1	66.0	53.0	53.0	66.0	53.0	53.0
Actuated g/C Ratio	0.28	0.16		0.28	0.16	0.16	0.55	0.44	0.44	0.55	0.44	0.44
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	419	483		336	563	251	254	2245	699	254	2245	699
v/s Ratio Prot	0.02	0.05		c0.16	0.01		c0.14	0.52		0.10	0.49	
v/s Ratio Perm	0.03			c0.22		0.11	c0.56		0.15	0.42		0.02
v/c Ratio	0.17	0.33		1.40	0.09	0.72	1.28	1.19	0.35	0.94	1.11	0.06
Uniform Delay, d1	33.3	44.8		43.6	43.0	47.9	50.1	33.5	22.1	49.7	33.5	19.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.37	2.55	0.54	0.79	4.43
Incremental Delay, d2	0.2	0.4		199.1	0.1	9.8	126.9	85.4	0.1	24.9	54.8	0.1
Delay (s)	33.5	45.2		242.8	43.1	57.7	177.0	131.3	56.4	51.6	81.2	85.0
Level of Service	C	D		F	D	E	F	F	E	D	F	F
Approach Delay (s)		43.1			152.3			127.5			78.8	
Approach LOS		D			F			F			E	

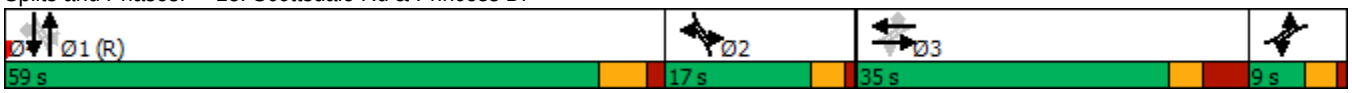
Intersection Summary			
HCM 2000 Control Delay	107.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		

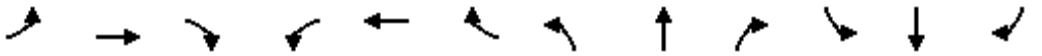
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Future Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.60		0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1372			1058		102	5085	1583	102	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	3	154	120	10	73	139	3214	33	72	3176	106
RTOR Reduction (vph)	0	57	0	0	18	0	0	0	13	0	0	29
Lane Group Flow (vph)	0	184	0	0	185	0	139	3214	20	72	3176	77
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		24.2			24.2		78.8	72.8	72.8	78.8	72.8	72.8
Effective Green, g (s)		24.2			24.2		78.8	72.8	72.8	78.8	72.8	72.8
Actuated g/C Ratio		0.20			0.20		0.66	0.61	0.61	0.66	0.61	0.61
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		276			213		150	3084	960	150	3084	960
v/s Ratio Prot							c0.05	c0.63		0.02	0.62	
v/s Ratio Perm		0.13			c0.18		0.56		0.01	0.29		0.05
v/c Ratio		0.67			0.87		0.93	1.04	0.02	0.48	1.03	0.08
Uniform Delay, d1		44.2			46.4		53.6	23.6	9.4	52.3	23.6	9.8
Progression Factor		1.00			1.00		1.42	1.32	1.00	0.77	1.11	1.98
Incremental Delay, d2		6.0			29.8		10.4	20.2	0.0	1.0	15.0	0.0
Delay (s)		50.2			76.2		86.3	51.3	9.4	41.4	41.2	19.3
Level of Service		D			E		F	D	A	D	D	B
Approach Delay (s)		50.2			76.2			52.4			40.5	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

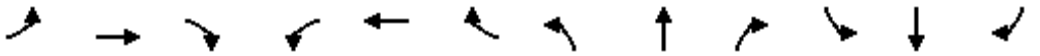
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Future Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4885	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4885	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	486	847	270	289	1932	683	643	2307	358	573	2150	766
RTOR Reduction (vph)	0	0	41	0	0	44	0	0	43	0	53	0
Lane Group Flow (vph)	486	847	229	289	1932	639	643	2307	315	573	2863	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	7.0	39.0	53.0	5.0	37.0	47.0	14.0	44.0	49.0	10.0	40.0	
Effective Green, g (s)	7.0	39.0	53.0	5.0	37.0	47.0	14.0	44.0	49.0	10.0	40.0	
Actuated g/C Ratio	0.06	0.32	0.44	0.04	0.31	0.39	0.12	0.37	0.41	0.08	0.33	
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	1652	699	143	1567	620	400	1864	646	286	1628	
v/s Ratio Prot	c0.14	0.17	0.04	0.08	c0.38	0.09	0.19	c0.45	0.02	c0.17	c0.59	
v/s Ratio Perm			0.11			0.32			0.18			
v/c Ratio	2.43	0.51	0.33	2.02	1.23	1.03	1.61	1.24	0.49	2.00	1.76	
Uniform Delay, d1	56.5	32.8	21.9	57.5	41.5	36.5	53.0	38.0	26.2	55.0	40.0	
Progression Factor	1.00	1.00	1.00	1.01	1.36	1.03	1.00	1.00	1.00	1.02	0.66	
Incremental Delay, d2	658.4	1.1	0.3	461.7	105.4	19.7	284.8	111.8	0.6	454.6	341.9	
Delay (s)	714.9	33.9	22.1	519.7	161.9	57.3	337.8	149.8	26.8	510.8	368.3	
Level of Service	F	C	C	F	F	E	F	F	C	F	F	
Approach Delay (s)		238.4			172.9			173.0			391.7	
Approach LOS		F			F			F			F	

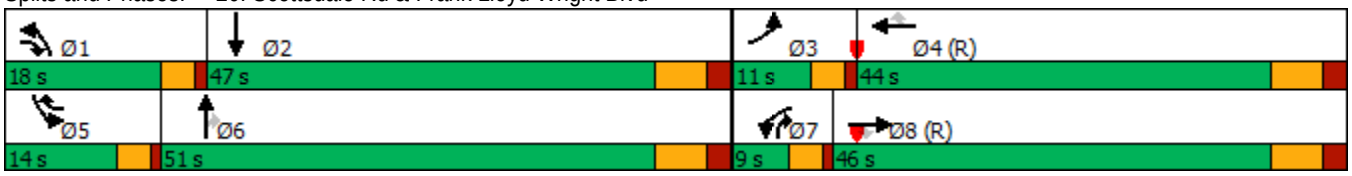
Intersection Summary			
HCM 2000 Control Delay	249.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	133.7%	ICU Level of Service	H
Analysis Period (min)	15		

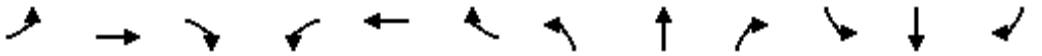
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	18	47	11	44	14	51	9	46
Maximum Split (%)	15.0%	39.2%	9.2%	36.7%	11.7%	42.5%	7.5%	38.3%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	44	62	109	0	44	58	109	118
End Time (s)	62	109	0	44	58	109	118	44
Yield/Force Off (s)	58	102	116	37	54	102	114	37
Yield/Force Off 170(s)	58	81	116	15	54	81	114	15
Local Start Time (s)	44	62	109	0	44	58	109	118
Local Yield (s)	58	102	116	37	54	102	114	37
Local Yield 170(s)	58	81	116	15	54	81	114	15

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Future Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	609	1467	114	452	2143	580	131	732	703	518	947	832
RTOR Reduction (vph)	0	0	59	0	0	55	0	0	68	0	0	64
Lane Group Flow (vph)	609	1467	55	452	2143	525	131	732	635	518	947	768
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	15.0	45.0	49.0	15.0	45.0	54.0	4.0	23.0	38.0	9.0	28.0	43.0
Effective Green, g (s)	15.0	45.0	49.0	15.0	45.0	54.0	4.0	23.0	38.0	9.0	28.0	43.0
Actuated g/C Ratio	0.12	0.38	0.41	0.12	0.38	0.45	0.03	0.19	0.32	0.08	0.23	0.36
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	1906	738	429	1906	804	59	678	593	257	825	659
v/s Ratio Prot	c0.18	0.29	0.00	0.13	c0.42	0.05	0.07	0.21	0.13	c0.15	0.27	c0.15
v/s Ratio Perm			0.03			0.28			0.27			0.34
v/c Ratio	1.42	0.77	0.07	1.05	1.12	0.65	2.22	1.08	1.07	2.02	1.15	1.17
Uniform Delay, d1	52.5	32.9	21.7	52.5	37.5	25.7	58.0	48.5	41.0	55.5	46.0	38.5
Progression Factor	0.90	0.95	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.86	1.08
Incremental Delay, d2	196.7	1.8	0.0	58.3	63.5	1.9	600.0	58.1	57.2	468.9	79.1	88.6
Delay (s)	244.0	33.0	36.1	110.8	101.0	27.6	658.0	106.6	98.2	526.7	118.8	130.3
Level of Service	F	C	D	F	F	C	F	F	F	F	F	F
Approach Delay (s)		91.9			89.0			148.9			214.9	
Approach LOS		F			F			F			F	

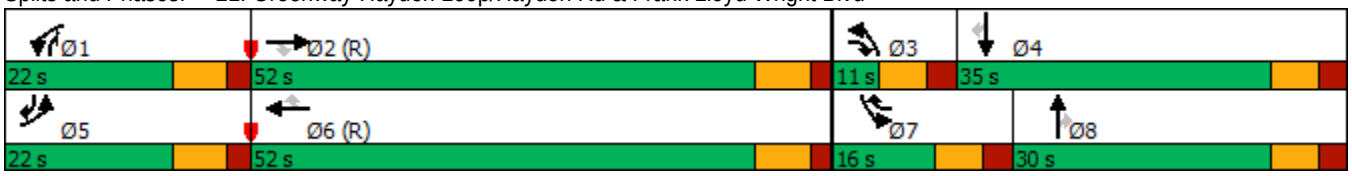
Intersection Summary			
HCM 2000 Control Delay	131.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		

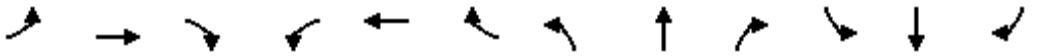
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	52	11	35	22	52	16	30
Maximum Split (%)	18.3%	43.3%	9.2%	29.2%	18.3%	43.3%	13.3%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	98	0	52	63	98	0	52	68
End Time (s)	0	52	63	98	0	52	68	98
Yield/Force Off (s)	113	45	56	91	113	45	61	91
Yield/Force Off 170(s)	113	28	56	67	113	28	61	67
Local Start Time (s)	98	0	52	63	98	0	52	68
Local Yield (s)	113	45	56	91	113	45	61	91
Local Yield 170(s)	113	28	56	67	113	28	61	67

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Future Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	741	706	159	116	452	446	264	1907	21	403	1236	403
RTOR Reduction (vph)	0	0	48	0	0	49	0	1	0	0	0	34
Lane Group Flow (vph)	741	706	111	116	452	397	264	1927	0	403	1236	369
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	18.8	27.7	40.7	12.3	21.2	39.2	13.0	40.0		18.0	45.0	63.8
Effective Green, g (s)	18.8	27.7	40.7	12.3	21.2	39.2	13.0	40.0		18.0	45.0	63.8
Actuated g/C Ratio	0.16	0.23	0.34	0.10	0.18	0.33	0.11	0.33		0.15	0.38	0.53
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	537	816	589	351	625	569	371	1692		514	1906	894
v/s Ratio Prot	c0.22	c0.20	0.02	0.03	0.13	0.10	0.08	c0.38		c0.12	0.24	0.06
v/s Ratio Perm			0.05			0.15						0.17
v/c Ratio	1.38	0.87	0.19	0.33	0.72	0.70	0.71	1.14		0.78	0.65	0.41
Uniform Delay, d1	50.6	44.4	28.0	50.0	46.6	35.2	51.7	40.0		49.1	31.0	16.9
Progression Factor	0.85	1.37	1.81	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	175.7	4.1	0.1	0.6	4.1	3.7	11.0	70.3		11.4	1.7	0.3
Delay (s)	218.9	64.8	50.8	50.6	50.8	38.9	62.7	110.3		60.5	32.7	17.2
Level of Service	F	E	D	D	D	D	E	F		E	C	B
Approach Delay (s)		134.5			45.5			104.6			35.1	
Approach LOS		F			D			F			D	

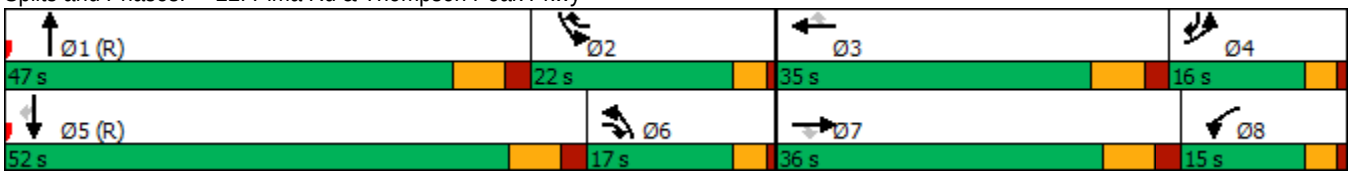
Intersection Summary			
HCM 2000 Control Delay	82.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

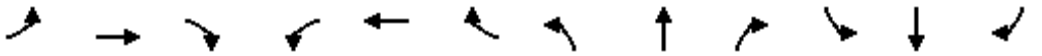
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





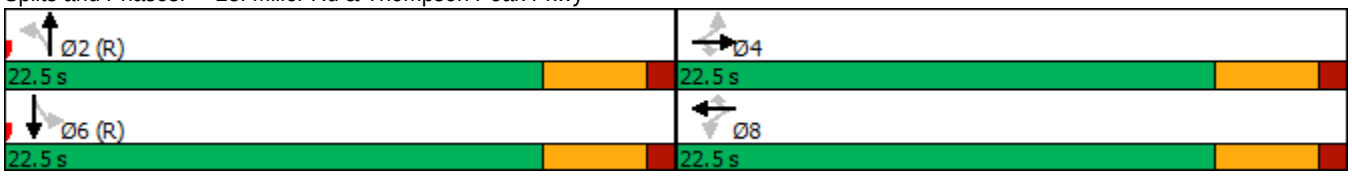
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	751	179	110	366	0	262	0	179	0	0	0
Future Volume (vph)	0	751	179	110	366	0	262	0	179	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.26	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	482	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	834	199	122	407	0	291	0	199	0	0	0
RTOR Reduction (vph)	0	0	119	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	0	834	80	122	407	0	291	159	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	192	1415		564	1203				
v/s Ratio Prot		0.24			0.11			0.05				
v/s Ratio Perm			0.05	c0.25			c0.21					
v/c Ratio		0.59	0.13	0.64	0.29		0.52	0.13				
Uniform Delay, d1		10.6	8.5	10.9	9.2		10.2	8.6				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		1.8	0.4	15.0	0.5		3.4	0.2				
Delay (s)		12.4	8.9	25.8	9.7		13.6	8.8				
Level of Service		B	A	C	A		B	A				
Approach Delay (s)		11.7			13.4			11.6			0.0	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy

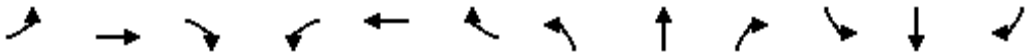




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	501	235	141	478	75	350	317	209	116	211	70
Future Volume (veh/h)	70	501	235	141	478	75	350	317	209	116	211	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	557	261	157	531	83	389	352	232	129	234	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	374	1329	803	358	1437	641	458	631	647	362	510	432
Arrive On Green	0.04	0.37	0.37	0.07	0.40	0.40	0.22	0.56	0.56	0.07	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	78	557	261	157	531	83	389	352	232	129	234	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.2	14.0	11.7	6.3	12.6	3.9	13.0	14.4	9.1	6.2	12.5	4.5
Cycle Q Clear(g_c), s	3.2	14.0	11.7	6.3	12.6	3.9	13.0	14.4	9.1	6.2	12.5	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	1329	803	358	1437	641	458	631	647	362	510	432
V/C Ratio(X)	0.21	0.42	0.33	0.44	0.37	0.13	0.85	0.56	0.36	0.36	0.46	0.18
Avail Cap(c_a), veh/h	399	1329	803	462	1437	641	677	631	647	397	510	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	21.9	27.9	17.5	20.8	25.0	22.5	45.6	20.5	15.6	28.3	36.3	33.4
Incr Delay (d2), s/veh	0.2	0.8	0.9	0.8	0.7	0.4	6.7	3.5	1.5	0.5	2.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.1	4.4	2.7	5.4	1.6	5.5	5.7	3.1	2.7	6.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	28.7	18.4	21.7	25.8	22.9	52.3	24.0	17.1	28.9	39.0	34.2
LnGrp LOS	C	C	B	C	C	C	D	C	B	C	D	C
Approach Vol, veh/h		896			771			973			441	
Approach Delay, s/veh		25.1			24.6			33.7			35.2	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	45.0	13.0	49.4	20.4	37.2	9.3	53.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	40.5	15.5	35.5	23.5	27.5	6.5	44.5
Max Q Clear Time (g_c+I1), s	8.2	16.4	8.3	16.0	15.0	14.5	5.2	14.6
Green Ext Time (p_c), s	0.1	3.0	0.2	4.6	0.9	1.3	0.0	4.2

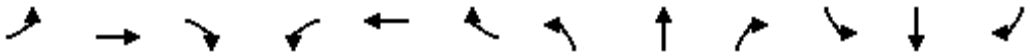
Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	0	32	0	228	38	29	279	0
Future Volume (Veh/h)	0	0	0	52	0	32	0	228	38	29	279	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	58	0	36	0	253	42	32	310	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	36			0			271	152	0	302	134	18
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	36			0			271	152	0	302	134	18
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			100	64	96	92	57	100
cM capacity (veh/h)	1573			1622			430	712	1084	425	729	1056

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	58	0	36	0	295	32	310
Volume Left	0	0	0	58	0	0	0	0	32	0
Volume Right	0	0	0	0	0	36	0	42	0	0
cSH	1700	1700	1700	1622	1700	1700	1700	749	425	729
Volume to Capacity	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.39	0.08	0.43
Queue Length 95th (ft)	0	0	0	3	0	0	0	47	6	53
Control Delay (s)	0.0	0.0	0.0	7.3	0.0	0.0	0.0	12.9	14.2	13.5
Lane LOS				A			A	B	B	B
Approach Delay (s)	0.0			4.5			12.9		13.6	
Approach LOS							B		B	

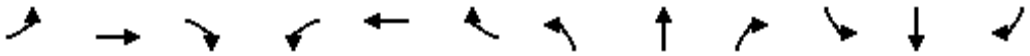
Intersection Summary				
Average Delay	12.1			
Intersection Capacity Utilization	31.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	0	0	36	22	15	49	15	419	17
Future Volume (Veh/h)	8	0	10	0	0	36	22	15	49	15	419	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	0	11	0	0	40	24	17	54	17	466	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	614	628	476	603	611	44	485			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614	628	476	603	611	44	485			71		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	100	100	96	98			99		
cM capacity (veh/h)	378	386	589	393	395	1026	1078			1529		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	20	40	24	71	17	485
Volume Left	9	0	24	0	17	0
Volume Right	11	40	0	54	0	19
cSH	471	1026	1078	1700	1529	1700
Volume to Capacity	0.04	0.04	0.02	0.04	0.01	0.29
Queue Length 95th (ft)	3	3	2	0	1	0
Control Delay (s)	13.0	8.7	8.4	0.0	7.4	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	13.0	8.7	2.1		0.2	
Approach LOS	B	A				

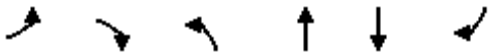
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	37.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	64	48	130	157	65	130	0	138	48	82	16
Future Volume (Veh/h)	26	64	48	130	157	65	130	0	138	48	82	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	71	53	144	174	72	144	0	153	53	91	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	246			124			681	690	98	780	680	210
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246			124			681	690	98	780	680	210
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			44	100	84	78	72	98
cM capacity (veh/h)	1320			1463			256	325	959	239	329	830

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	29	124	144	246	144	153	53	109
Volume Left	29	0	144	0	144	0	53	0
Volume Right	0	53	0	72	0	153	0	18
cSH	1320	1700	1463	1700	256	959	239	365
Volume to Capacity	0.02	0.07	0.10	0.14	0.56	0.16	0.22	0.30
Queue Length 95th (ft)	2	0	8	0	79	14	21	31
Control Delay (s)	7.8	0.0	7.7	0.0	35.7	9.5	24.3	19.0
Lane LOS	A		A		E	A	C	C
Approach Delay (s)	1.5		2.9		22.2		20.7	
Approach LOS					C		C	

Intersection Summary				
Average Delay	11.3			
Intersection Capacity Utilization	41.4%	ICU Level of Service		A
Analysis Period (min)	15			



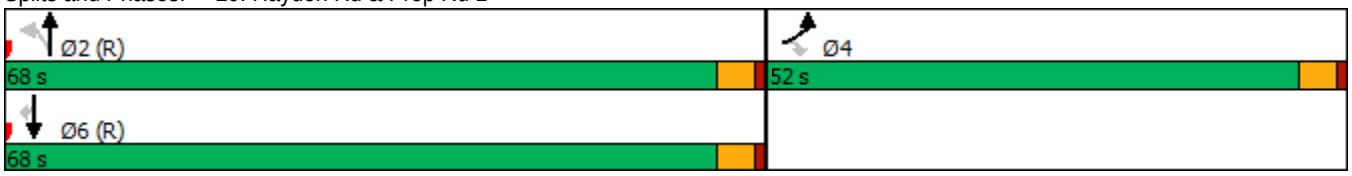
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	214	224	165	216	267	94
Future Volume (vph)	214	224	165	216	267	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.56	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1048	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	249	183	240	297	104
RTOR Reduction (vph)	0	150	0	0	0	49
Lane Group Flow (vph)	238	99	183	240	297	55
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	47.5	47.5	63.5	63.5	63.5	63.5
Effective Green, g (s)	47.5	47.5	63.5	63.5	63.5	63.5
Actuated g/C Ratio	0.40	0.40	0.53	0.53	0.53	0.53
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	700	626	554	1872	1872	837
v/s Ratio Prot	c0.13			0.07	0.08	
v/s Ratio Perm		0.06	c0.17			0.03
v/c Ratio	0.34	0.16	0.33	0.13	0.16	0.07
Uniform Delay, d1	25.3	23.4	16.1	14.3	14.5	13.8
Progression Factor	0.99	0.93	0.68	0.64	1.00	1.00
Incremental Delay, d2	1.3	0.5	0.1	0.0	0.2	0.2
Delay (s)	26.3	22.4	11.1	9.1	14.7	13.9
Level of Service	C	C	B	A	B	B
Approach Delay (s)	24.3			10.0	14.5	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	Max	Max
Maximum Split (s)	68	52	68
Maximum Split (%)	56.7%	43.3%	56.7%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	68	0
End Time (s)	68	0	68
Yield/Force Off (s)	63.5	115.5	63.5
Yield/Force Off 170(s)	52.5	104.5	52.5
Local Start Time (s)	0	68	0
Local Yield (s)	63.5	115.5	63.5
Local Yield 170(s)	52.5	104.5	52.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd & Prop Rd 1





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	97	206	129	52	86	94
Future Volume (Veh/h)	97	206	129	52	86	94
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	108	229	143	58	96	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1027
pX, platoon unblocked						
vC, conflicting volume	439	143			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	439	143			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	75			93	
cM capacity (veh/h)	535	905			1371	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	108	229	143	58	96	104
Volume Left	108	0	0	0	96	0
Volume Right	0	229	0	58	0	0
cSH	535	905	1700	1700	1371	1700
Volume to Capacity	0.20	0.25	0.08	0.03	0.07	0.06
Queue Length 95th (ft)	19	25	0	0	6	0
Control Delay (s)	13.4	10.3	0.0	0.0	7.8	0.0
Lane LOS	B	B			A	
Approach Delay (s)	11.3		0.0		3.8	
Approach LOS	B					

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	61	69	111	29	38	153
Future Volume (Veh/h)	61	69	111	29	38	153
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	68	77	123	32	42	170
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	377	123			155	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	377	123			155	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	92			97	
cM capacity (veh/h)	606	928			1425	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	145	123	32	42	170
Volume Left	68	0	0	42	0
Volume Right	77	0	32	0	0
cSH	743	1700	1700	1425	1700
Volume to Capacity	0.20	0.07	0.02	0.03	0.10
Queue Length 95th (ft)	18	0	0	2	0
Control Delay (s)	11.0	0.0	0.0	7.6	0.0
Lane LOS	B			A	
Approach Delay (s)	11.0	0.0		1.5	
Approach LOS	B				

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	23.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	99	290	45	53	139
Future Volume (Veh/h)	42	99	290	45	53	139
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	47	110	322	50	59	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						546
pX, platoon unblocked						
vC, conflicting volume	619	347			372	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	619	347			372	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	84			95	
cM capacity (veh/h)	430	696			1186	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	157	372	59	154
Volume Left	47	0	59	0
Volume Right	110	50	0	0
cSH	587	1700	1186	1700
Volume to Capacity	0.27	0.22	0.05	0.09
Queue Length 95th (ft)	27	0	4	0
Control Delay (s)	13.4	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.4	0.0	2.3	
Approach LOS	B			

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	Err%	ICU Level of Service	H	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	176	85	59	170	103	57
Future Volume (Veh/h)	176	85	59	170	103	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	196	94	66	189	114	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	871					
pX, platoon unblocked						
vC, conflicting volume			290		422	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			290		422	98
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		79	93
cM capacity (veh/h)			1269		530	939

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	98	98	94	66	94	94	114	63
Volume Left	0	0	0	66	0	0	114	0
Volume Right	0	0	94	0	0	0	0	63
cSH	1700	1700	1700	1269	1700	1700	530	939
Volume to Capacity	0.06	0.06	0.06	0.05	0.06	0.06	0.21	0.07
Queue Length 95th (ft)	0	0	0	4	0	0	20	5
Control Delay (s)	0.0	0.0	0.0	8.0	0.0	0.0	13.6	9.1
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.1			12.0	
Approach LOS							B	

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	173	60	57	154	75	55
Future Volume (Veh/h)	173	60	57	154	75	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	192	67	63	171	83	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			259		404	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			259		404	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		85	94
cM capacity (veh/h)			1303		547	942

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	96	96	67	63	86	86	83	61
Volume Left	0	0	0	63	0	0	83	0
Volume Right	0	0	67	0	0	0	0	61
cSH	1700	1700	1700	1303	1700	1700	547	942
Volume to Capacity	0.06	0.06	0.04	0.05	0.05	0.05	0.15	0.06
Queue Length 95th (ft)	0	0	0	4	0	0	13	5
Control Delay (s)	0.0	0.0	0.0	7.9	0.0	0.0	12.8	9.1
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.1			11.2	
Approach LOS							B	

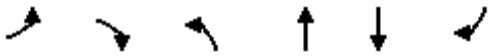
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	185	43	63	149	62	62
Future Volume (Veh/h)	185	43	63	149	62	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	206	48	70	166	69	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				736		
pX, platoon unblocked						
vC, conflicting volume			254		429	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			254		429	103
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		87	93
cM capacity (veh/h)			1308		525	932

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	103	103	48	70	83	83	69	69
Volume Left	0	0	0	70	0	0	69	0
Volume Right	0	0	48	0	0	0	0	69
cSH	1700	1700	1700	1308	1700	1700	525	932
Volume to Capacity	0.06	0.06	0.03	0.05	0.05	0.05	0.13	0.07
Queue Length 95th (ft)	0	0	0	4	0	0	11	6
Control Delay (s)	0.0	0.0	0.0	7.9	0.0	0.0	12.9	9.2
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.3			11.0	
Approach LOS							B	

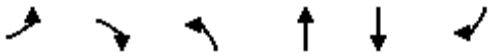
Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	99	97	334	262	9
Future Volume (Veh/h)	0	99	97	334	262	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	110	108	371	291	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				489	501	
pX, platoon unblocked						
vC, conflicting volume	698	150	301			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	698	150	301			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	91			
cM capacity (veh/h)	343	869	1257			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	110	108	186	186	194	107
Volume Left	0	108	0	0	0	0
Volume Right	110	0	0	0	0	10
cSH	869	1257	1700	1700	1700	1700
Volume to Capacity	0.13	0.09	0.11	0.11	0.11	0.06
Queue Length 95th (ft)	11	7	0	0	0	0
Control Delay (s)	9.7	8.1	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.7	1.8			0.0	
Approach LOS	A					

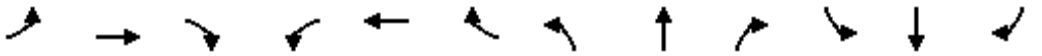
Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	20.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	116	44	381	443	48
Future Volume (Veh/h)	0	116	44	381	443	48
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	129	49	423	492	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				734	774	
pX, platoon unblocked	1.00	1.00	1.00			
vC, conflicting volume	802	246	545			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	795	238	538			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	83	95			
cM capacity (veh/h)	308	761	1023			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	129	49	212	212	246	246	53
Volume Left	0	49	0	0	0	0	0
Volume Right	129	0	0	0	0	0	53
cSH	761	1023	1700	1700	1700	1700	1700
Volume to Capacity	0.17	0.05	0.12	0.12	0.14	0.14	0.03
Queue Length 95th (ft)	15	4	0	0	0	0	0
Control Delay (s)	10.7	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	10.7	0.9			0.0		
Approach LOS	B						

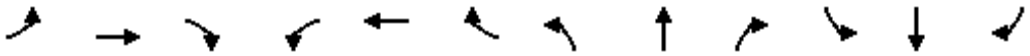
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	0	126	148	0	112	11	43	4	55	177	28
Future Volume (Veh/h)	113	0	126	148	0	112	11	43	4	55	177	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	126	0	140	164	0	124	12	48	4	61	197	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	515	395	197	533	424	50	228			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	515	395	197	533	424	50	228			52		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	68	100	83	55	100	88	99			96		
cM capacity (veh/h)	398	516	844	368	497	1018	1340			1554		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	266	288	12	52	61	197	31
Volume Left	126	164	12	0	61	0	0
Volume Right	140	124	0	4	0	0	31
cSH	551	507	1340	1700	1554	1700	1700
Volume to Capacity	0.48	0.57	0.01	0.03	0.04	0.12	0.02
Queue Length 95th (ft)	65	87	1	0	3	0	0
Control Delay (s)	17.5	21.0	7.7	0.0	7.4	0.0	0.0
Lane LOS	C	C	A		A		
Approach Delay (s)	17.5	21.0	1.4		1.6		
Approach LOS	C	C					

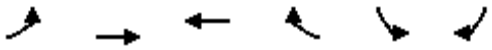
Intersection Summary				
Average Delay	12.4			
Intersection Capacity Utilization	36.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	186	53	52	131	75	150	0	190	62	0	70
Future Volume (Veh/h)	11	186	53	52	131	75	150	0	190	62	0	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	207	59	58	146	83	167	0	211	69	0	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					821							
pX, platoon unblocked												
vC, conflicting volume	229			266			600	606	236	746	594	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	229			266			600	606	236	746	594	188
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			54	100	74	70	100	91
cM capacity (veh/h)	1339			1298			360	390	802	233	396	855

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	12	266	58	229	167	211	69	78
Volume Left	12	0	58	0	167	0	69	0
Volume Right	0	59	0	83	0	211	0	78
cSH	1339	1700	1298	1700	360	802	233	855
Volume to Capacity	0.01	0.16	0.04	0.13	0.46	0.26	0.30	0.09
Queue Length 95th (ft)	1	0	4	0	59	26	30	8
Control Delay (s)	7.7	0.0	7.9	0.0	23.4	11.1	26.8	9.6
Lane LOS	A		A		C	B	D	A
Approach Delay (s)	0.3		1.6		16.5		17.7	
Approach LOS					C		C	

Intersection Summary				
Average Delay	8.6			
Intersection Capacity Utilization	44.9%	ICU Level of Service		A
Analysis Period (min)	15			



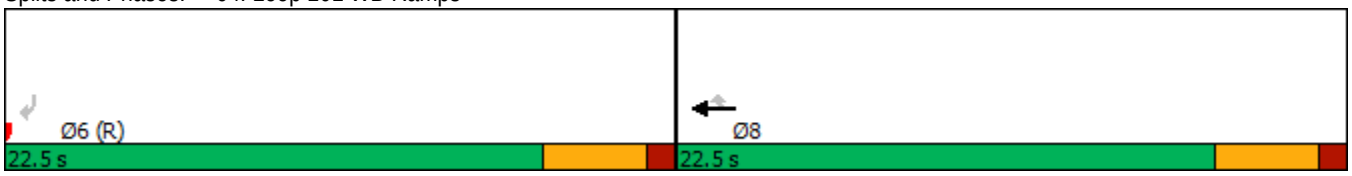
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

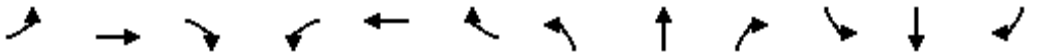
Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	13	70	73	14	3	69	635	19	4	748	38
Future Volume (vph)	30	13	70	73	14	3	69	635	19	4	748	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1819		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.26	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	1388	1626		1299	1819		482	3539	1583	596	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	14	78	81	16	3	77	706	21	4	831	42
RTOR Reduction (vph)	0	47	0	0	2	0	0	0	11	0	0	23
Lane Group Flow (vph)	33	45	0	81	17	0	77	706	10	4	831	19
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	555	650		519	727		223	1639	733	276	1639	733
v/s Ratio Prot		0.03			0.01			0.20			c0.23	
v/s Ratio Perm	0.02			c0.06			0.16		0.01	0.01		0.01
v/c Ratio	0.06	0.07		0.16	0.02		0.35	0.43	0.01	0.01	0.51	0.03
Uniform Delay, d1	17.5	17.6		18.2	17.3		16.3	17.1	13.8	13.8	17.9	13.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.6	0.1		4.2	0.8	0.0	0.1	1.1	0.1
Delay (s)	17.7	17.8		18.9	17.3		20.5	17.9	13.8	13.9	19.0	13.9
Level of Service	B	B		B	B		C	B	B	B	B	B
Approach Delay (s)		17.8			18.6			18.1			18.7	
Approach LOS		B			B			B			B	

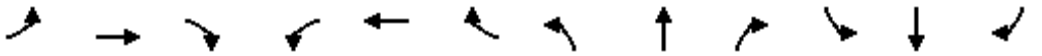
Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





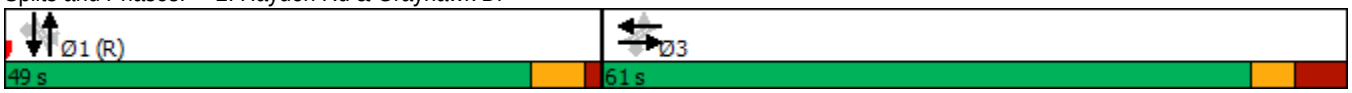
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	3	105	53	9	21	41	662	10	4	869	40
Future Volume (vph)	35	3	105	53	9	21	41	662	10	4	869	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1668		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.16	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	1370	1863	1583	1408	1668		291	3539	1583	494	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	3	117	59	10	23	46	736	11	4	966	44
RTOR Reduction (vph)	0	0	20	0	12	0	0	0	7	0	0	27
Lane Group Flow (vph)	39	3	97	59	21	0	46	736	4	4	966	17
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	660	897	762	678	803		113	1383	618	193	1383	618
v/s Ratio Prot		0.00			0.01			0.21			c0.27	
v/s Ratio Perm	0.03		c0.06	0.04			0.16		0.00	0.01		0.01
v/c Ratio	0.06	0.00	0.13	0.09	0.03		0.41	0.53	0.01	0.02	0.70	0.03
Uniform Delay, d1	15.2	14.8	15.7	15.4	15.0		24.3	25.8	20.5	20.6	28.1	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.3	0.3	0.1		10.5	1.5	0.0	0.2	3.0	0.1
Delay (s)	15.4	14.8	16.1	15.7	15.0		34.8	27.2	20.5	20.8	31.0	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.9			15.4			27.6			30.5	
Approach LOS		B			B			C			C	

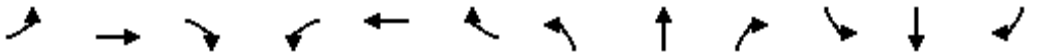
Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	370	503	557	412	103	223	543	405	240	729	68
Future Volume (vph)	44	370	503	557	412	103	223	543	405	240	729	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.49	1.00	1.00	0.33	1.00	1.00	0.18	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	909	3539	1583	1190	3539	1583	327	3539	1583	395	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	411	559	619	458	114	248	603	450	267	810	76
RTOR Reduction (vph)	0	0	212	0	0	73	0	0	323	0	0	52
Lane Group Flow (vph)	49	411	347	619	458	41	248	603	127	267	810	24
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	37.1	30.8	30.8	54.4	43.6	43.6	48.2	33.8	33.8	54.0	37.7	37.7
Effective Green, g (s)	37.1	30.8	30.8	54.4	43.6	43.6	48.2	33.8	33.8	54.0	37.7	37.7
Actuated g/C Ratio	0.31	0.26	0.26	0.45	0.36	0.36	0.40	0.28	0.28	0.45	0.31	0.31
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	326	908	406	915	1285	575	304	996	445	364	1111	497
v/s Ratio Prot	0.01	0.12		c0.11	0.13		0.10	0.17		c0.10	0.23	
v/s Ratio Perm	0.04		c0.22	0.19		0.03	c0.23		0.08	c0.23		0.02
v/c Ratio	0.15	0.45	0.86	0.68	0.36	0.07	0.82	0.61	0.28	0.73	0.73	0.05
Uniform Delay, d1	29.5	37.5	42.5	22.8	27.9	25.0	26.9	37.3	33.7	23.6	36.6	28.7
Progression Factor	1.00	1.00	1.00	1.08	1.08	1.97	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.4	16.0	1.8	0.1	0.0	15.4	2.7	1.6	7.5	4.2	0.2
Delay (s)	29.7	37.9	58.4	26.5	30.3	49.2	42.2	40.1	35.3	31.1	40.8	28.8
Level of Service	C	D	E	C	C	D	D	D	D	C	D	C
Approach Delay (s)		48.8			30.1			38.8			37.8	
Approach LOS		D			C			D			D	

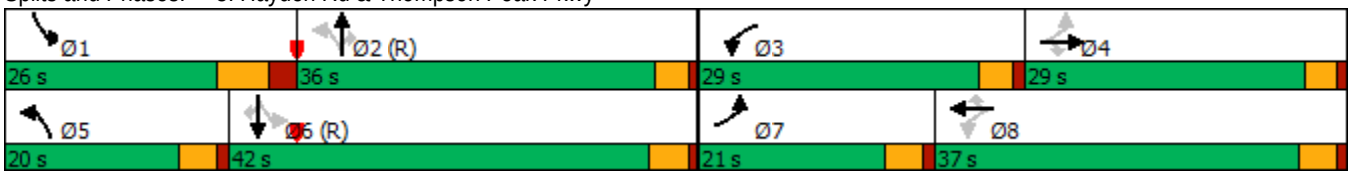
Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

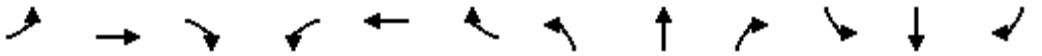
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	36	29	29	20	42	21	37
Maximum Split (%)	21.7%	30.0%	24.2%	24.2%	16.7%	35.0%	17.5%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	36	65	94	114	36	57
End Time (s)	0	36	65	94	114	36	57	94
Yield/Force Off (s)	113	32	61	90	109.5	31.5	52.5	89.5
Yield/Force Off 170(s)	113	8	61	69	109.5	7.5	52.5	68.5
Local Start Time (s)	94	0	36	65	94	114	36	57
Local Yield (s)	113	32	61	90	109.5	31.5	52.5	89.5
Local Yield 170(s)	113	8	61	69	109.5	7.5	52.5	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	98	333	113	74	18	299	1108	147	49	1708	80
Future Volume (vph)	89	98	333	113	74	18	299	1108	147	49	1708	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.70	1.00	1.00	0.69	1.00	1.00	0.06	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	1311	1863	1583	1279	1863	1583	219	3539	1583	310	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	109	370	126	82	20	332	1231	163	54	1898	89
RTOR Reduction (vph)	0	0	29	0	0	15	0	0	65	0	0	18
Lane Group Flow (vph)	99	109	341	126	82	5	332	1231	98	54	1898	71
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			1			1	
Permitted Phases	4		4	4		4	1		1	1		1
Actuated Green, G (s)	30.0	30.0	30.0	30.0	30.0	30.0	66.0	66.0	66.0	66.0	66.0	66.0
Effective Green, g (s)	30.0	30.0	30.0	30.0	30.0	30.0	66.0	66.0	66.0	66.0	66.0	66.0
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.27	0.60	0.60	0.60	0.60	0.60	0.60
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	357	508	431	348	508	431	131	2123	949	186	2123	949
v/s Ratio Prot		0.06			0.04			0.35			0.54	
v/s Ratio Perm	0.08		c0.22	0.10		0.00	c1.52		0.06	0.17		0.05
v/c Ratio	0.28	0.21	0.79	0.36	0.16	0.01	2.53	0.58	0.10	0.29	0.89	0.08
Uniform Delay, d1	31.5	30.9	37.1	32.3	30.4	29.2	22.0	13.5	9.4	10.7	19.0	9.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2	9.6	0.6	0.1	0.0	712.5	1.2	0.2	3.9	6.3	0.2
Delay (s)	31.9	31.1	46.6	32.9	30.6	29.2	734.5	14.7	9.6	14.6	25.3	9.4
Level of Service	C	C	D	C	C	C	F	B	A	B	C	A
Approach Delay (s)		41.2			31.8			152.6			24.3	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	75.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.98		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

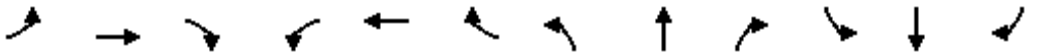
c Critical Lane Group

Phase Number	1	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	65	45
Maximum Split (%)	59.1%	40.9%
Minimum Split (s)	50	32
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	65
End Time (s)	65	0
Yield/Force Off (s)	58	103
Yield/Force Off 170(s)	48	88
Local Start Time (s)	0	65
Local Yield (s)	58	103
Local Yield 170(s)	48	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Future Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.95			0.86	1.00
Frt				1.00	0.88	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1553	1504	3433	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1553	1504	3433	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	148	86	820	359	1383	0	0	1637	654
RTOR Reduction (vph)	0	0	0	0	147	284	0	0	0	0	0	399
Lane Group Flow (vph)	0	0	0	148	316	159	359	1383	0	0	1637	255
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				43.0	43.0	43.0	21.0	36.0			36.0	36.0
Effective Green, g (s)				43.0	43.0	43.0	21.0	36.0			36.0	36.0
Actuated g/C Ratio				0.36	0.36	0.36	0.18	0.30			0.30	0.30
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1230	556	538	600	1061			1922	474
v/s Ratio Prot					c0.20		c0.10	c0.39			0.26	
v/s Ratio Perm				0.04		0.11						0.16
v/c Ratio				0.12	0.57	0.30	0.60	1.30			0.85	0.54
Uniform Delay, d1				25.8	31.0	27.6	45.6	42.0			39.5	35.1
Progression Factor				1.00	1.00	1.00	0.90	0.62			0.99	1.00
Incremental Delay, d2				0.0	1.3	0.3	3.2	141.7			5.0	4.3
Delay (s)				25.9	32.4	27.9	44.4	167.7			44.2	39.4
Level of Service				C	C	C	D	F			D	D
Approach Delay (s)		0.0			29.6			142.3			42.8	
Approach LOS		A			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	74.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

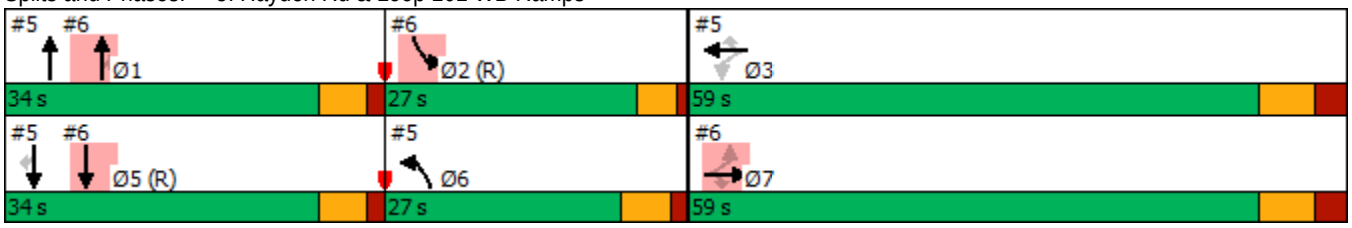
c Critical Lane Group

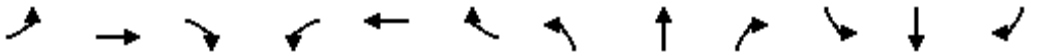
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	27	59	34	27	59
Maximum Split (%)	28.3%	22.5%	49.2%	28.3%	22.5%	49.2%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	27	86	0	27
End Time (s)	0	27	86	0	27	86
Yield/Force Off (s)	114	22.5	78	114	21	78
Yield/Force Off 170(s)	104	22.5	52	104	21	52
Local Start Time (s)	86	0	27	86	0	27
Local Yield (s)	114	22.5	78	114	21	78
Local Yield 170(s)	104	22.5	52	104	21	52

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

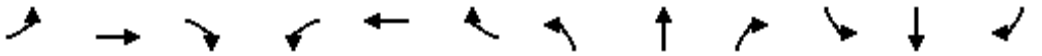




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Future Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.93	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1533	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1533	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	672	11	643	0	0	0	0	1063	66	909	883	0
RTOR Reduction (vph)	0	33	272	0	0	0	0	0	46	0	0	0
Lane Group Flow (vph)	457	412	152	0	0	0	0	1063	20	909	883	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	43.0	43.0	43.0					36.0	36.0	22.5	36.0	
Effective Green, g (s)	43.0	43.0	43.0					36.0	36.0	22.5	36.0	
Actuated g/C Ratio	0.36	0.36	0.36					0.30	0.30	0.19	0.30	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	602	549	538					1525	474	643	1061	
v/s Ratio Prot								0.21		c0.26	c0.25	
v/s Ratio Perm	c0.27	0.27	0.10						0.01			
v/c Ratio	0.76	0.75	0.28					0.70	0.04	1.41	0.83	
Uniform Delay, d1	33.9	33.8	27.5					37.2	29.8	48.8	39.2	
Progression Factor	1.47	1.56	9.57					0.85	2.86	0.67	0.56	
Incremental Delay, d2	2.2	2.3	0.1					1.4	0.0	191.6	4.7	
Delay (s)	51.9	55.2	263.1					32.9	85.2	224.4	26.8	
Level of Service	D	E	F					C	F	F	C	
Approach Delay (s)		120.5			0.0			36.0			127.0	
Approach LOS		F			A			D			F	

Intersection Summary			
HCM 2000 Control Delay	100.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

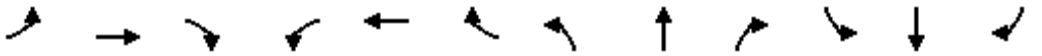
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	57	83	10	28	72	149	821	50	302	868	200
Future Volume (Veh/h)	137	57	83	10	28	72	149	821	50	302	868	200
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	152	63	92	11	31	80	166	912	56	336	964	222
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											595	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	2520	2936	482	2522	3102	456	1186			968		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2426	2924	0	2428	3122	456	833			968		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	90	0	0	85	75			53		
cM capacity (veh/h)	0	5	908	0	4	551	666			707		

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	152	63	92	11	31	80	166	456	456	56	336	482
Volume Left	152	0	0	11	0	0	166	0	0	0	336	0
Volume Right	0	0	92	0	0	80	0	0	0	56	0	0
cSH	0	5	908	0	4	551	666	1700	1700	1700	707	1700
Volume to Capacity	Err	12.73	0.10	Err	8.47	0.15	0.25	0.27	0.27	0.03	0.47	0.28
Queue Length 95th (ft)	Err	Err	8	Err	Err	13	25	0	0	0	64	0
Control Delay (s)	Err	Err	9.4	Err	Err	12.6	12.2	0.0	0.0	0.0	14.6	0.0
Lane LOS	F	F	A	F	F	B	B				B	
Approach Delay (s)	Err			Err			1.8				3.2	
Approach LOS	F			F								

Intersection Summary					
Average Delay	Err				
Intersection Capacity Utilization	63.7%	ICU Level of Service		B	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	68	102	189	0	62	83	859	222	154	729	54
Future Volume (vph)	48	68	102	189	0	62	83	859	222	154	729	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.31	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	570	3539	1583	468	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	76	113	210	0	69	92	954	247	171	810	60
RTOR Reduction (vph)	0	0	100	0	0	62	0	0	94	0	0	23
Lane Group Flow (vph)	0	129	13	210	0	7	92	954	153	171	810	37
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		13.8	13.8	12.7		12.7	73.5	73.5	73.5	73.5	73.5	73.5
Effective Green, g (s)		13.8	13.8	12.7		12.7	73.5	73.5	73.5	73.5	73.5	73.5
Actuated g/C Ratio		0.12	0.12	0.11		0.11	0.61	0.61	0.61	0.61	0.61	0.61
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		209	182	363		167	349	2167	969	286	2167	969
v/s Ratio Prot		c0.07		c0.06				0.27			0.23	
v/s Ratio Perm			0.01			0.00	0.16		0.10	c0.37		0.02
v/c Ratio		0.62	0.07	0.58		0.04	0.26	0.44	0.16	0.60	0.37	0.04
Uniform Delay, d1		50.6	47.4	51.1		48.2	10.7	12.3	10.0	14.2	11.7	9.2
Progression Factor		1.00	1.00	1.00		1.00	1.14	1.11	2.40	1.37	1.30	6.21
Incremental Delay, d2		5.3	0.2	2.2		0.1	1.7	0.6	0.3	6.9	0.4	0.1
Delay (s)		55.9	47.5	53.3		48.3	13.9	14.3	24.3	26.4	15.5	57.4
Level of Service		E	D	D		D	B	B	C	C	B	E
Approach Delay (s)		52.0			52.1			16.2			19.7	
Approach LOS		D			D			B			B	

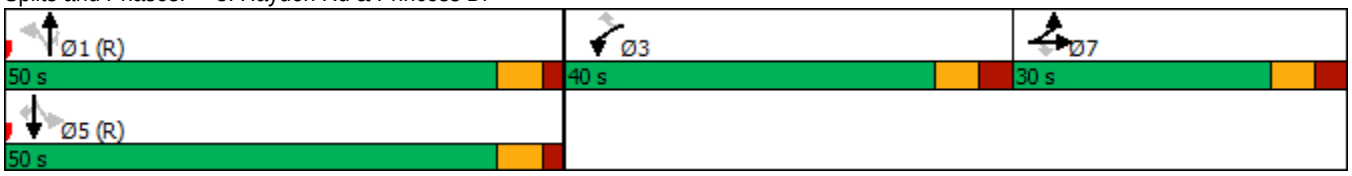
Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

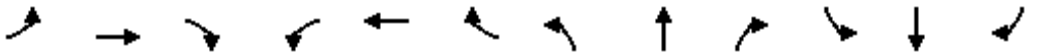
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	23	240	10	154	31	1021	403	185	848	21
Future Volume (vph)	9	8	23	240	10	154	31	1021	403	185	848	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3197		1681	1692	1583	1770	3539	1583	1770	3527	
Flt Permitted		0.81		0.73	0.71	1.00	0.27	1.00	1.00	0.22	1.00	
Satd. Flow (perm)		2603		1285	1254	1583	501	3539	1583	403	3527	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	9	26	267	11	171	34	1134	448	206	942	23
RTOR Reduction (vph)	0	25	0	0	0	141	0	0	132	0	1	0
Lane Group Flow (vph)	0	20	0	139	139	30	34	1134	316	206	964	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		5.4		21.4	21.4	21.4	84.6	84.6	84.6	84.6	84.6	
Effective Green, g (s)		5.4		21.4	21.4	21.4	84.6	84.6	84.6	84.6	84.6	
Actuated g/C Ratio		0.05		0.18	0.18	0.18	0.70	0.70	0.70	0.70	0.70	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		117		255	252	282	353	2494	1116	284	2486	
v/s Ratio Prot				0.04	c0.04			0.32			0.27	
v/s Ratio Perm		0.01		0.06	c0.06	0.02	0.07		0.20	c0.51		
v/c Ratio		0.17		0.55	0.55	0.11	0.10	0.45	0.28	0.73	0.39	
Uniform Delay, d1		55.1		45.4	44.9	41.3	5.6	7.7	6.5	10.7	7.2	
Progression Factor		1.00		1.00	1.00	1.00	1.08	0.93	1.74	1.20	1.27	
Incremental Delay, d2		0.7		2.4	2.6	0.2	0.2	0.2	0.3	14.4	0.4	
Delay (s)		55.9		47.8	47.5	41.5	6.3	7.4	11.6	27.3	9.5	
Level of Service		E		D	D	D	A	A	B	C	A	
Approach Delay (s)		55.9			45.3			8.5			12.7	
Approach LOS		E			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

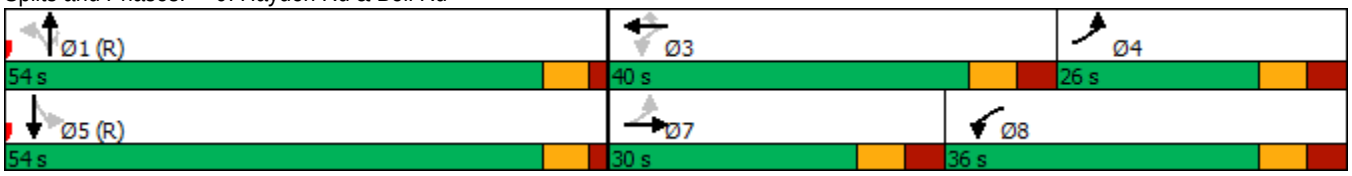
c Critical Lane Group



Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	30	1148	154	51	2426
Future Volume (vph)	110	30	1148	154	51	2426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.20	1.00
Satd. Flow (perm)	1770	1583	3539	1583	368	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	33	1276	171	57	2696
RTOR Reduction (vph)	0	30	0	35	0	0
Lane Group Flow (vph)	122	3	1276	136	57	2696
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.7	12.7	95.3	95.3	95.3	95.3
Effective Green, g (s)	12.7	12.7	95.3	95.3	95.3	95.3
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	187	167	2810	1257	292	2810
v/s Ratio Prot	c0.07		0.36			c0.76
v/s Ratio Perm		0.00		0.09	0.15	
v/c Ratio	0.65	0.02	0.45	0.11	0.20	0.96
Uniform Delay, d1	51.5	48.1	4.0	2.8	3.0	10.7
Progression Factor	1.00	1.00	0.13	0.00	1.00	1.00
Incremental Delay, d2	7.9	0.1	0.5	0.2	1.5	9.8
Delay (s)	59.4	48.1	1.0	0.2	4.5	20.5
Level of Service	E	D	A	A	A	C
Approach Delay (s)	57.0		0.9			20.2
Approach LOS	E		A			C

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	38	1250	54	45	2483
Future Volume (vph)	114	38	1250	54	45	2483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.17	1.00
Satd. Flow (perm)	1770	1583	3539	1583	318	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	42	1389	60	50	2759
RTOR Reduction (vph)	0	37	0	13	0	0
Lane Group Flow (vph)	127	5	1389	47	50	2759
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.5	13.5	94.5	94.5	94.5	94.5
Effective Green, g (s)	13.5	13.5	94.5	94.5	94.5	94.5
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	178	2786	1246	250	2786
v/s Ratio Prot	c0.07		0.39			c0.78
v/s Ratio Perm		0.00		0.03	0.16	
v/c Ratio	0.64	0.03	0.50	0.04	0.20	0.99
Uniform Delay, d1	50.9	47.4	4.5	2.8	3.2	12.3
Progression Factor	1.00	1.00	1.34	0.07	1.36	1.25
Incremental Delay, d2	6.6	0.1	0.3	0.0	0.6	7.9
Delay (s)	57.5	47.5	6.2	0.2	5.0	23.3
Level of Service	E	D	A	A	A	C
Approach Delay (s)	55.0		6.0			23.0
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

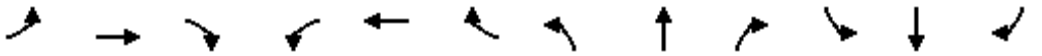
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Future Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	8.0	7.0	4.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.11	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	197	5085	1583	255	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	287	300	77	600	134	150	58	1359	599	206	2644	502
RTOR Reduction (vph)	0	0	67	0	0	98	0	0	74	0	0	134
Lane Group Flow (vph)	287	300	10	600	134	52	58	1359	525	206	2644	368
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	2	6	1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	27.8	15.2	15.2	20.0	9.9	27.8	43.4	43.4	63.4	59.3	55.3	83.1
Effective Green, g (s)	27.8	15.2	15.2	20.0	9.9	27.8	43.4	43.4	63.4	59.3	55.3	83.1
Actuated g/C Ratio	0.23	0.13	0.13	0.17	0.08	0.23	0.36	0.36	0.53	0.49	0.46	0.69
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	8.0	7.0	4.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	795	448	200	572	291	419	143	1839	836	352	2343	1096
v/s Ratio Prot	0.08	c0.08		c0.17	0.04	0.02	0.02	c0.27	0.10	0.09	c0.52	0.08
v/s Ratio Perm			0.01			0.01	0.13		0.23	0.20		0.15
v/c Ratio	0.36	0.67	0.05	1.05	0.46	0.13	0.41	0.74	0.63	0.59	1.13	0.34
Uniform Delay, d1	38.7	50.0	46.0	50.0	52.5	36.5	30.2	33.4	20.0	32.2	32.4	7.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.29	0.67	1.07	1.01	1.29
Incremental Delay, d2	0.3	3.8	0.1	51.1	1.2	0.1	1.1	1.6	0.9	3.7	61.1	0.1
Delay (s)	38.9	53.8	46.1	101.1	53.7	36.6	13.3	11.5	14.3	38.1	93.7	9.7
Level of Service	D	D	D	F	D	D	B	B	B	D	F	A
Approach Delay (s)		46.5			83.0			12.4			77.7	
Approach LOS		D			F			B			E	

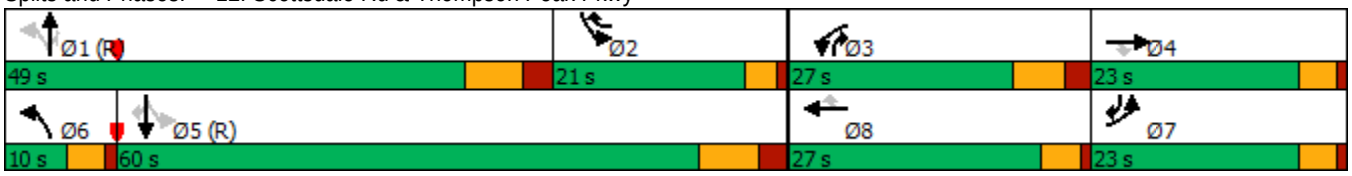
Intersection Summary			
HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

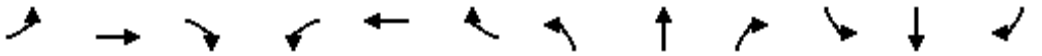
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	49	21	27	23	60	10	23	27
Maximum Split (%)	40.8%	17.5%	22.5%	19.2%	50.0%	8.3%	19.2%	22.5%
Minimum Split (s)	40	9	13	22.5	40	9.5	9.5	22.5
Yellow Time (s)	5.3	3	4.6	3.5	5.3	3.5	3.5	3.5
All-Red Time (s)	2.7	1	2.4	1	2.7	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7			7	7			7
Flash Dont Walk (s)	25			11	25			11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	104	33	54	81	114	104	81	54
End Time (s)	33	54	81	104	54	114	104	81
Yield/Force Off (s)	25	50	74	99.5	46	109.5	99.5	76.5
Yield/Force Off 170(s)	0	50	74	88.5	21	109.5	99.5	65.5
Local Start Time (s)	110	39	60	87	0	110	87	60
Local Yield (s)	31	56	80	105.5	52	115.5	105.5	82.5
Local Yield 170(s)	6	56	80	94.5	27	115.5	105.5	71.5

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 114 (95%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green		

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Future Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	145	5085	1583	128	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	203	31	354	93	81	26	1943	483	129	3274	331
RTOR Reduction (vph)	0	0	26	0	0	56	0	0	124	0	0	83
Lane Group Flow (vph)	341	203	5	354	93	25	26	1943	359	129	3274	248
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	6	3	8	2	6	1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	16.0	12.2	20.6	15.1	13.8	32.7	59.7	51.3	66.4	77.2	61.3	77.3
Effective Green, g (s)	16.0	12.2	20.6	15.1	13.8	32.7	59.7	51.3	66.4	77.2	61.3	77.3
Actuated g/C Ratio	0.13	0.10	0.17	0.13	0.12	0.27	0.50	0.43	0.55	0.64	0.51	0.64
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	457	359	271	431	406	431	185	2173	875	340	2597	1019
v/s Ratio Prot	0.10	c0.06	0.00	c0.10	0.03	0.01	0.01	0.38	0.05	c0.06	c0.64	0.03
v/s Ratio Perm			0.00			0.01	0.06		0.18	0.18		0.12
v/c Ratio	0.75	0.57	0.02	0.82	0.23	0.06	0.14	0.89	0.41	0.38	1.26	0.24
Uniform Delay, d1	50.0	51.4	41.3	51.1	48.3	32.3	48.9	31.8	15.5	34.7	29.4	9.0
Progression Factor	1.00	1.00	1.00	1.14	0.88	1.06	1.12	1.83	5.60	1.05	1.42	1.93
Incremental Delay, d2	6.5	2.0	0.0	11.7	0.3	0.1	0.1	1.9	0.1	1.0	118.4	0.0
Delay (s)	56.6	53.4	41.3	69.9	42.7	34.3	54.9	60.1	86.7	37.4	160.0	17.5
Level of Service	E	D	D	E	D	C	D	E	F	D	F	B
Approach Delay (s)		54.6			59.6			65.3			143.2	
Approach LOS		D			E			E			F	

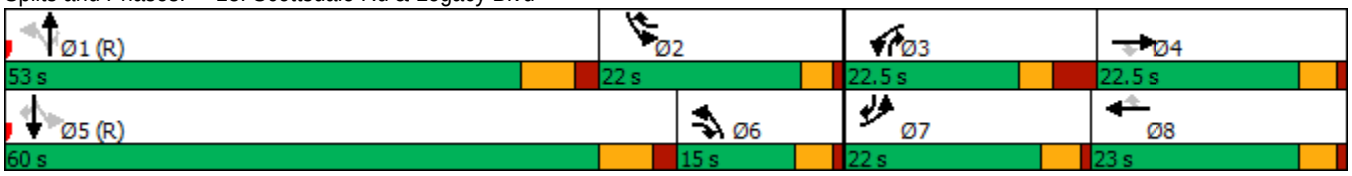
Intersection Summary			
HCM 2000 Control Delay	103.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		

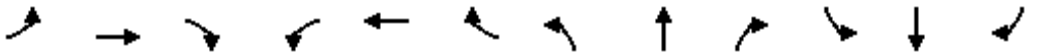
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	53	22	22.5	22.5	60	15	22	23
Maximum Split (%)	44.2%	18.3%	18.8%	18.8%	50.0%	12.5%	18.3%	19.2%
Minimum Split (s)	30	9	35	22.5	30	22.5	9.5	22.5
Yellow Time (s)	4.9	3	3	3.5	4.9	3.5	3.5	3.5
All-Red Time (s)	2.1	1	4	1	2.1	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7	7		7
Flash Dont Walk (s)	16		21	11	16	11		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	75	97.5	0	60	75	97
End Time (s)	53	75	97.5	0	60	75	97	0
Yield/Force Off (s)	46	71	90.5	115.5	53	70.5	92.5	115.5
Yield/Force Off 170(s)	30	71	69.5	104.5	37	59.5	92.5	104.5
Local Start Time (s)	0	53	75	97.5	0	60	75	97
Local Yield (s)	46	71	90.5	115.5	53	70.5	92.5	115.5
Local Yield 170(s)	30	71	69.5	104.5	37	59.5	92.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Future Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1568	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1568	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	819	94	668	486	1813	0	0	2732	911
RTOR Reduction (vph)	0	0	0	0	94	268	0	0	0	0	0	274
Lane Group Flow (vph)	0	0	0	819	294	106	486	1813	0	0	2732	637
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Effective Green, g (s)				34.0	34.0	34.0	25.0	39.0			44.0	44.0
Actuated g/C Ratio				0.28	0.28	0.28	0.21	0.32			0.37	0.37
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				972	444	426	715	1652			2766	580
v/s Ratio Prot					0.19		c0.14	0.36			0.36	
v/s Ratio Perm				c0.24		0.07						c0.40
v/c Ratio				0.84	0.66	0.25	0.68	1.10			0.99	1.10
Uniform Delay, d1				40.5	37.9	33.2	43.8	40.5			37.7	38.0
Progression Factor				1.00	1.00	1.00	1.19	0.34			1.55	2.18
Incremental Delay, d2				6.7	3.7	0.3	3.4	50.7			3.0	47.4
Delay (s)				47.2	41.6	33.5	55.6	64.5			61.4	130.3
Level of Service				D	D	C	E	E			E	F
Approach Delay (s)		0.0			42.6			62.6			78.6	
Approach LOS		A			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	66.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

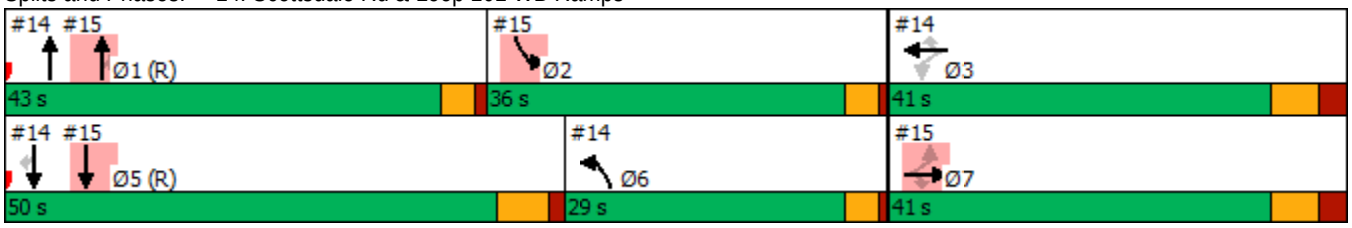
c Critical Lane Group

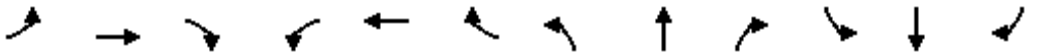
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	50	29	41
Maximum Split (%)	35.8%	30.0%	34.2%	41.7%	24.2%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	50	79
End Time (s)	43	79	0	50	79	0
Yield/Force Off (s)	39	75	113	44	75	113
Yield/Force Off 170(s)	39	75	105	36	75	85
Local Start Time (s)	0	43	79	0	50	79
Local Yield (s)	39	75	113	44	75	113
Local Yield 170(s)	39	75	105	36	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	140	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

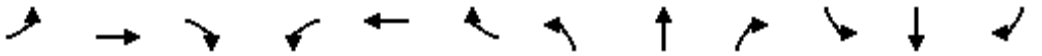




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Future Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	986	3	969	0	0	0	0	1328	473	981	2612	0
RTOR Reduction (vph)	0	301	301	0	0	0	0	0	277	0	0	0
Lane Group Flow (vph)	986	187	183	0	0	0	0	1328	196	981	2612	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Effective Green, g (s)	34.0	34.0	34.0					39.0	39.0	32.0	44.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.32	0.32	0.27	0.37	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	972	426	426					2451	514	915	1864	
v/s Ratio Prot		0.12						0.18		c0.29	c0.51	
v/s Ratio Perm	c0.29		0.12						0.12			
v/c Ratio	1.01	0.44	0.43					0.54	0.38	1.07	1.40	
Uniform Delay, d1	43.0	35.2	35.1					33.2	31.2	44.0	38.0	
Progression Factor	1.00	1.00	1.00					1.30	3.98	0.87	0.54	
Incremental Delay, d2	32.5	0.7	0.7					0.6	1.4	40.4	181.7	
Delay (s)	75.5	35.9	35.8					43.8	125.6	78.7	202.1	
Level of Service	E	D	D					D	F	E	F	
Approach Delay (s)		55.8			0.0			65.3			168.4	
Approach LOS		E			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	113.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Future Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.9	7.0	5.5	5.9	7.1	5.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3196		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3196		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	529	219	337	74	108	198	161	1141	108	387	2380	817
RTOR Reduction (vph)	0	0	292	0	184	0	0	0	56	0	0	107
Lane Group Flow (vph)	529	219	45	74	122	0	161	1141	52	387	2380	710
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	7		8	3		6	1	8	2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	17.9	12.2	12.2	14.3	8.6		18.1	37.0	51.3	31.1	49.9	67.8
Effective Green, g (s)	17.9	12.2	12.2	14.3	8.6		18.1	37.0	51.3	31.1	49.9	67.8
Actuated g/C Ratio	0.15	0.10	0.10	0.12	0.07		0.15	0.31	0.43	0.26	0.42	0.56
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.9	7.0	5.5	5.9	7.1	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	512	516	160	409	229		517	1567	749	889	2114	966
v/s Ratio Prot	c0.15	c0.04		0.02	0.04		0.05	0.22	0.01	c0.11	c0.47	0.11
v/s Ratio Perm			0.03						0.02			0.34
v/c Ratio	1.03	0.42	0.28	0.18	0.53		0.31	0.73	0.07	0.44	1.13	0.73
Uniform Delay, d1	51.0	50.6	49.8	47.6	53.8		45.4	37.0	20.3	37.1	35.0	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.32	2.96	1.61	1.20	1.50
Incremental Delay, d2	48.6	0.6	1.0	0.2	2.4		1.5	1.6	0.0	0.1	57.3	0.3
Delay (s)	99.6	51.2	50.8	47.8	56.1		47.0	50.6	60.0	59.8	99.2	29.3
Level of Service	F	D	D	D	E		D	D	E	E	F	C
Approach Delay (s)		74.7			54.5			50.9			79.0	
Approach LOS		E			D			D			E	

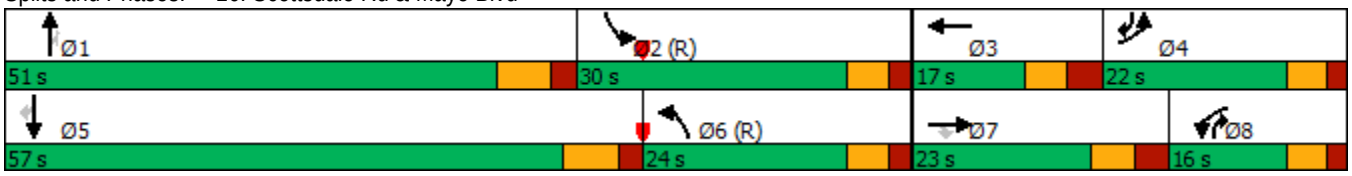
Intersection Summary			
HCM 2000 Control Delay	70.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

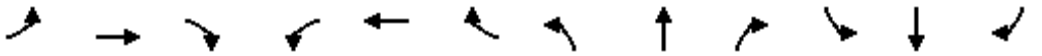
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	51	30	17	22	57	24	23	16
Maximum Split (%)	42.5%	25.0%	14.2%	18.3%	47.5%	20.0%	19.2%	13.3%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.9	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.9	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	63	114	24	41	63	0	24	47
End Time (s)	114	24	41	63	0	24	47	63
Yield/Force Off (s)	107	18.1	34	57.5	112.9	18.1	40	57.5
Yield/Force Off 170(s)	88	18.1	11	57.5	93.9	18.1	17	57.5
Local Start Time (s)	63	114	24	41	63	0	24	47
Local Yield (s)	107	18.1	34	57.5	112.9	18.1	40	57.5
Local Yield 170(s)	88	18.1	11	57.5	93.9	18.1	17	57.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	5	114	10	5	5	154	1192	5	6	2393	147
Future Volume (vph)	96	5	114	10	5	5	154	1192	5	6	2393	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.38	1.00	1.00	0.75	1.00	1.00	0.06	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	702	3539	1583	1404	3539	1583	104	5085	1583	364	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	6	127	11	6	6	171	1324	6	7	2659	163
RTOR Reduction (vph)	0	0	110	0	0	6	0	0	2	0	0	61
Lane Group Flow (vph)	107	6	17	11	6	0	171	1324	4	7	2659	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.0	16.1	16.1	6.9	5.5	5.5	83.0	76.3	76.3	67.1	65.9	65.9
Effective Green, g (s)	23.0	16.1	16.1	6.9	5.5	5.5	83.0	76.3	76.3	67.1	65.9	65.9
Actuated g/C Ratio	0.19	0.13	0.13	0.06	0.05	0.05	0.69	0.64	0.64	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	241	474	212	85	162	72	232	3233	1006	217	2792	869
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.07	0.26		0.00	c0.52	
v/s Ratio Perm	c0.04		0.01	0.01		0.00	0.44		0.00	0.02		0.06
v/c Ratio	0.44	0.01	0.08	0.13	0.04	0.00	0.74	0.41	0.00	0.03	0.95	0.12
Uniform Delay, d1	41.9	45.1	45.5	53.6	54.7	54.6	35.7	10.8	8.0	11.7	25.6	13.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.65	1.00	0.41	0.51	0.41
Incremental Delay, d2	1.3	0.0	0.2	0.7	0.1	0.0	10.5	0.4	0.0	0.0	1.1	0.0
Delay (s)	43.2	45.1	45.6	54.3	54.8	54.7	46.7	18.1	8.0	4.8	14.1	5.4
Level of Service	D	D	D	D	D	D	D	B	A	A	B	A
Approach Delay (s)		44.5			54.5			21.3			13.5	
Approach LOS		D			D			C			B	

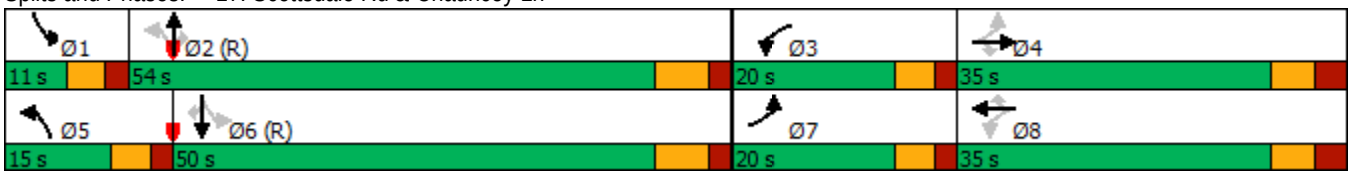
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

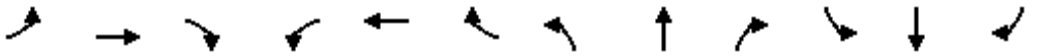
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Future Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.34	1.00	1.00	0.06	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1397	3063		630	3539	1583	120	5085	1583	307	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	37	321	199	11	209	166	1251	414	301	2396	94
RTOR Reduction (vph)	0	186	0	0	0	184	0	0	199	0	0	45
Lane Group Flow (vph)	50	172	0	199	11	25	166	1251	215	301	2396	49
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	23.7	14.4		23.7	14.4	14.4	75.3	62.3	62.3	75.3	62.3	62.3
Effective Green, g (s)	23.7	14.4		23.7	14.4	14.4	75.3	62.3	62.3	75.3	62.3	62.3
Actuated g/C Ratio	0.20	0.12		0.20	0.12	0.12	0.63	0.52	0.52	0.63	0.52	0.52
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	367		212	424	189	254	2639	821	351	2639	821
v/s Ratio Prot	0.01	0.06		c0.07	0.00		0.07	0.25		c0.09	c0.47	
v/s Ratio Perm	0.02			c0.11		0.02	0.34		0.14	0.45		0.03
v/c Ratio	0.16	0.86dr		0.94	0.03	0.13	0.65	0.47	0.26	0.86	0.91	0.06
Uniform Delay, d1	40.1	49.2		49.2	46.6	47.2	43.5	18.4	16.1	27.9	26.2	14.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.53	1.37	5.56	0.49	0.95	4.02
Incremental Delay, d2	0.3	1.0		44.3	0.0	0.3	10.8	0.5	0.7	12.4	3.0	0.1
Delay (s)	40.3	50.2		93.5	46.6	47.5	33.8	25.7	89.9	26.2	27.9	57.6
Level of Service	D	D		F	D	D	C	C	F	C	C	E
Approach Delay (s)		49.0			69.3			40.9			28.7	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

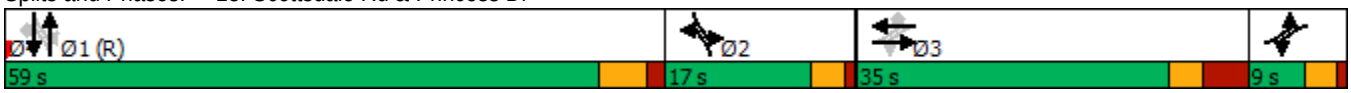
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

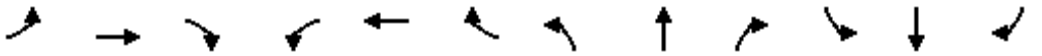
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Future Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.87			0.56		0.05	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)		1477			994		95	5085	1583	186	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	0	148	39	0	26	51	1731	14	53	2859	31
RTOR Reduction (vph)	0	63	0	0	54	0	0	0	5	0	0	11
Lane Group Flow (vph)	0	164	0	0	11	0	51	1731	9	53	2859	20
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		18.6			18.6		84.4	78.4	78.4	84.4	78.4	78.4
Effective Green, g (s)		18.6			18.6		84.4	78.4	78.4	84.4	78.4	78.4
Actuated g/C Ratio		0.16			0.16		0.70	0.65	0.65	0.70	0.65	0.65
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		228			154		150	3322	1034	210	3322	1034
v/s Ratio Prot							c0.02	0.34		0.01	c0.56	
v/s Ratio Perm		c0.11			0.01		0.22		0.01	0.16		0.01
v/c Ratio		0.72			0.07		0.34	0.52	0.01	0.25	0.86	0.02
Uniform Delay, d1		48.2			43.3		39.0	10.9	7.3	14.7	16.5	7.3
Progression Factor		1.00			1.00		1.80	1.50	1.00	0.99	1.21	1.00
Incremental Delay, d2		10.3			0.2		3.5	0.3	0.0	1.5	1.7	0.0
Delay (s)		58.5			43.5		73.7	16.8	7.3	16.0	21.6	7.3
Level of Service		E			D		E	B	A	B	C	A
Approach Delay (s)		58.5			43.5			18.3			21.4	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

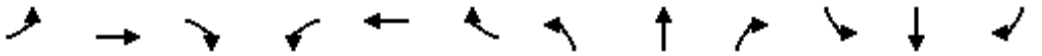
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Future Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Ideal Flow (vphpl)	1800	2000	1800	1800	2000	1800	1800	2000	1800	1800	2000	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3252	5353	1500	3252	5353	1500	3252	5353	1500	3252	5258	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3252	5353	1500	3252	5353	1500	3252	5353	1500	3252	5258	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	799	1944	518	308	618	310	110	826	237	503	2114	283
RTOR Reduction (vph)	0	0	68	0	0	71	0	0	97	0	14	0
Lane Group Flow (vph)	799	1944	450	308	618	239	110	826	140	503	2383	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	27.0	35.0	45.0	11.0	19.0	42.2	10.0	28.8	39.8	23.2	42.0	
Effective Green, g (s)	27.0	35.0	45.0	11.0	19.0	42.2	10.0	28.8	39.8	23.2	42.0	
Actuated g/C Ratio	0.22	0.29	0.38	0.09	0.16	0.35	0.08	0.24	0.33	0.19	0.35	
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	731	1561	562	298	847	527	271	1284	497	628	1840	
v/s Ratio Prot	c0.25	c0.36	0.07	0.09	0.12	0.09	0.03	0.15	0.03	c0.15	c0.45	
v/s Ratio Perm			0.23			0.07			0.07			
v/c Ratio	1.09	1.25	0.80	1.03	0.73	0.45	0.41	0.64	0.28	0.80	1.30	
Uniform Delay, d1	46.5	42.5	33.5	54.5	48.1	30.0	52.2	41.0	29.6	46.2	39.0	
Progression Factor	1.00	1.00	1.00	0.86	1.46	1.24	1.00	1.00	1.00	0.98	0.77	
Incremental Delay, d2	61.5	116.0	8.0	49.4	3.4	0.4	1.0	2.5	0.3	3.9	135.1	
Delay (s)	108.0	158.5	41.5	96.1	73.5	37.7	53.2	43.5	29.9	49.1	165.0	
Level of Service	F	F	D	F	E	D	D	D	C	D	F	
Approach Delay (s)		127.5			70.1			41.6			144.9	
Approach LOS		F			E			D			F	

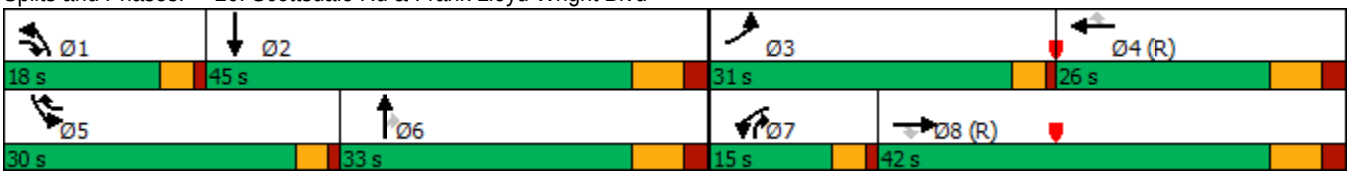
Intersection Summary			
HCM 2000 Control Delay	113.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		

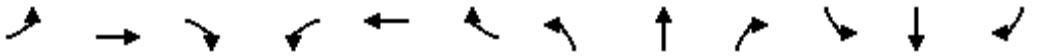
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	18	45	31	26	30	33	15	42
Maximum Split (%)	15.0%	37.5%	25.8%	21.7%	25.0%	27.5%	12.5%	35.0%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	26	44	89	0	26	56	89	104
End Time (s)	44	89	0	26	56	89	104	26
Yield/Force Off (s)	40	82	116	19	52	82	100	19
Yield/Force Off 170(s)	40	61	116	117	52	61	100	117
Local Start Time (s)	26	44	89	0	26	56	89	104
Local Yield (s)	40	82	116	19	52	82	100	19
Local Yield 170(s)	40	61	116	117	52	61	100	117

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Future Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.21	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	396	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	731	1627	98	714	1322	384	29	547	316	309	809	390
RTOR Reduction (vph)	0	0	63	0	0	59	0	0	65	0	0	133
Lane Group Flow (vph)	731	1627	35	714	1322	325	29	547	251	309	809	257
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6	8		8			4
Actuated Green, G (s)	24.0	36.0	42.9	23.0	35.0	49.2	25.7	18.8	41.8	14.2	26.1	50.1
Effective Green, g (s)	24.0	36.0	42.9	23.0	35.0	49.2	25.7	18.8	41.8	14.2	26.1	50.1
Actuated g/C Ratio	0.20	0.30	0.36	0.19	0.29	0.41	0.21	0.16	0.35	0.12	0.22	0.42
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	686	1525	658	657	1483	741	163	554	643	406	769	753
v/s Ratio Prot	c0.21	c0.32	0.00	0.21	0.26	0.05	0.01	0.15	0.07	c0.09	c0.23	0.07
v/s Ratio Perm			0.02			0.15	0.03		0.08			0.09
v/c Ratio	1.07	1.07	0.05	1.09	0.89	0.44	0.18	0.99	0.39	0.76	1.05	0.34
Uniform Delay, d1	48.0	42.0	25.2	48.5	40.7	25.5	38.6	50.5	29.5	51.3	46.9	23.7
Progression Factor	1.24	1.04	0.24	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.85	1.54
Incremental Delay, d2	33.0	31.7	0.0	61.0	8.5	0.4	0.5	34.6	0.4	8.0	46.5	0.3
Delay (s)	92.2	75.3	6.0	109.5	49.2	25.9	39.1	85.1	29.9	58.7	86.5	36.7
Level of Service	F	E	A	F	D	C	D	F	C	E	F	D
Approach Delay (s)		77.6			63.3			64.1			67.9	
Approach LOS		E			E			E			E	

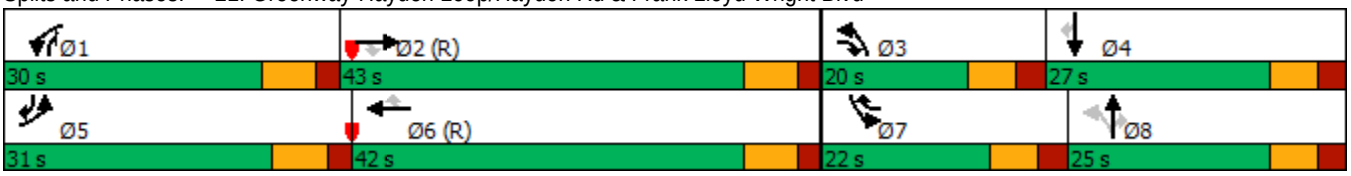
Intersection Summary			
HCM 2000 Control Delay	69.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

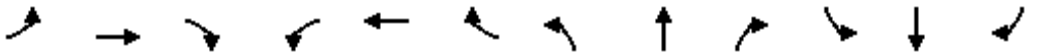
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	30	43	20	27	31	42	22	25
Maximum Split (%)	25.0%	35.8%	16.7%	22.5%	25.8%	35.0%	18.3%	20.8%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89	119	42	62	89	0	42	64
End Time (s)	119	42	62	89	0	42	64	89
Yield/Force Off (s)	112	35	55	82	113	35	57	82
Yield/Force Off 170(s)	112	18	55	58	113	18	57	58
Local Start Time (s)	89	119	42	62	89	0	42	64
Local Yield (s)	112	35	55	82	113	35	57	82
Local Yield 170(s)	112	18	55	58	113	18	57	58

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Future Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	297	518	153	131	487	351	148	1292	11	363	1563	494
RTOR Reduction (vph)	0	0	51	0	0	48	0	1	0	0	0	49
Lane Group Flow (vph)	297	518	102	131	487	303	148	1302	0	363	1563	445
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	15.5	23.3	36.3	14.5	22.3	40.3	13.0	42.2		18.0	47.2	62.7
Effective Green, g (s)	15.5	23.3	36.3	14.5	22.3	40.3	13.0	42.2		18.0	47.2	62.7
Actuated g/C Ratio	0.13	0.19	0.30	0.12	0.19	0.34	0.11	0.35		0.15	0.39	0.52
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	443	687	531	414	657	584	371	1786		514	2000	879
v/s Ratio Prot	c0.09	c0.15	0.02	0.04	0.14	0.08	0.04	0.26		c0.11	c0.31	0.07
v/s Ratio Perm			0.04			0.11						0.22
v/c Ratio	0.67	0.75	0.19	0.32	0.74	0.52	0.40	0.73		0.71	0.78	0.51
Uniform Delay, d1	49.8	45.6	31.0	48.2	46.1	32.0	49.9	33.9		48.5	31.9	18.6
Progression Factor	0.88	1.43	2.28	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.3	4.0	0.1	0.4	4.5	0.8	3.2	2.7		7.9	3.1	0.5
Delay (s)	47.1	69.0	70.7	48.7	50.6	32.8	53.0	36.6		56.4	35.0	19.1
Level of Service	D	E	E	D	D	C	D	D		E	D	B
Approach Delay (s)		62.6			43.9			38.3			35.0	
Approach LOS		E			D			D			C	

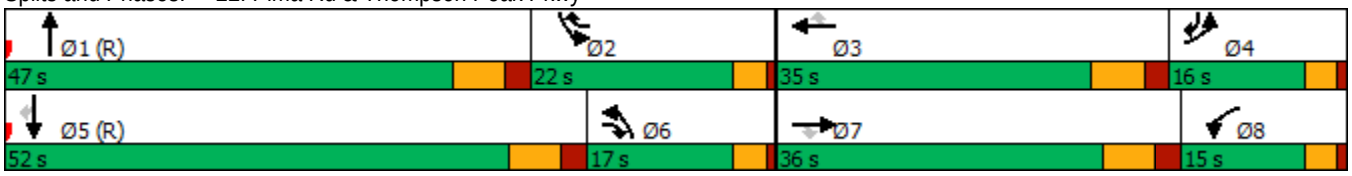
Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

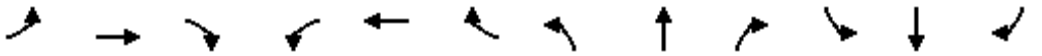
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





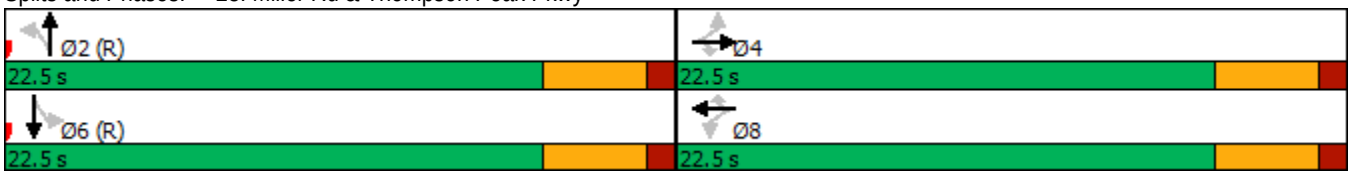
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	810	185	116	216	0	103	0	60	0	0	0
Future Volume (vph)	0	810	185	116	216	0	103	0	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.23	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	421	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	900	206	129	240	0	114	0	67	0	0	0
RTOR Reduction (vph)	0	0	124	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	900	82	129	240	0	114	35	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	168	1415		564	1203				
v/s Ratio Prot		0.25			0.07			0.01				
v/s Ratio Perm			0.05	c0.31			c0.08					
v/c Ratio		0.64	0.13	0.77	0.17		0.20	0.03				
Uniform Delay, d1		10.9	8.5	11.7	8.7		8.8	8.2				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		2.2	0.4	28.0	0.3		0.8	0.0				
Delay (s)		13.1	9.0	39.6	8.9		9.6	8.2				
Level of Service		B	A	D	A		A	A				
Approach Delay (s)		12.3			19.7			9.1			0.0	
Approach LOS		B			B			A			A	

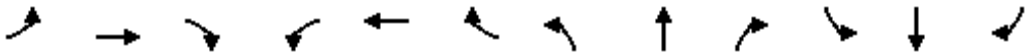
Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy





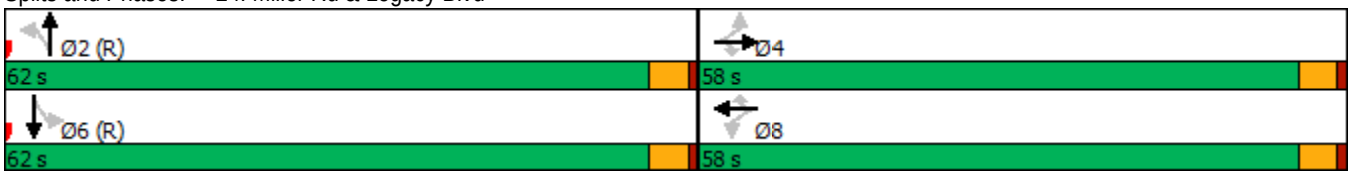
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	388	262	106	264	90	136	111	77	69	197	56
Future Volume (vph)	51	388	262	106	264	90	136	111	77	69	197	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1748		1770	1801	
Flt Permitted	0.55	1.00	1.00	0.45	1.00	1.00	0.52	1.00		0.59	1.00	
Satd. Flow (perm)	1032	3539	1583	845	3539	1583	959	1748		1093	1801	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	431	291	118	293	100	151	123	86	77	219	62
RTOR Reduction (vph)	0	0	161	0	0	55	0	21	0	0	8	0
Lane Group Flow (vph)	57	431	130	118	293	45	151	188	0	77	273	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	53.5	53.5	53.5	53.5	53.5	53.5	57.5	57.5		57.5	57.5	
Effective Green, g (s)	53.5	53.5	53.5	53.5	53.5	53.5	57.5	57.5		57.5	57.5	
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.45	0.45	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	460	1577	705	376	1577	705	459	837		523	862	
v/s Ratio Prot		0.12			0.08			0.11			0.15	
v/s Ratio Perm	0.06		0.08	c0.14		0.03	c0.16			0.07		
v/c Ratio	0.12	0.27	0.18	0.31	0.19	0.06	0.33	0.22		0.15	0.32	
Uniform Delay, d1	19.5	21.0	20.1	21.4	20.1	19.0	19.3	18.2		17.5	19.2	
Progression Factor	0.59	0.60	0.71	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.4	0.5	2.2	0.3	0.2	1.9	0.6		0.6	1.0	
Delay (s)	12.1	12.9	14.7	23.6	20.4	19.1	21.2	18.9		18.1	20.1	
Level of Service	B	B	B	C	C	B	C	B		B	C	
Approach Delay (s)		13.5			20.9			19.9			19.7	
Approach LOS		B			C			B			B	

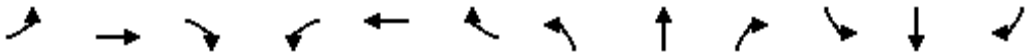
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	62	58	62	58
Maximum Split (%)	51.7%	48.3%	51.7%	48.3%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	62	0	62
End Time (s)	62	0	62	0
Yield/Force Off (s)	57.5	115.5	57.5	115.5
Yield/Force Off 170(s)	46.5	104.5	46.5	104.5
Local Start Time (s)	0	62	0	62
Local Yield (s)	57.5	115.5	57.5	115.5
Local Yield 170(s)	46.5	104.5	46.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 24: Miller Rd & Legacy Blvd

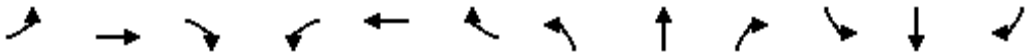




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	0	12	0	192	22	15	121	0
Future Volume (Veh/h)	0	0	0	17	0	12	0	192	22	15	121	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	19	0	13	0	213	24	17	134	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	13			0			105	51	0	175	44	6
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	13			0			105	51	0	175	44	6
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	74	98	97	84	100
cM capacity (veh/h)	1604			1622			751	830	1084	600	837	1074

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	0	19	0	13	0	237	17	134
Volume Left	0	0	0	19	0	0	0	0	17	0
Volume Right	0	0	0	0	0	13	0	24	0	0
cSH	1700	1700	1700	1622	1700	1700	1700	850	600	837
Volume to Capacity	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.28	0.03	0.16
Queue Length 95th (ft)	0	0	0	1	0	0	0	29	2	14
Control Delay (s)	0.0	0.0	0.0	7.2	0.0	0.0	0.0	10.9	11.2	10.1
Lane LOS				A			A	B	B	B
Approach Delay (s)	0.0			4.3			10.9		10.2	
Approach LOS							B		B	

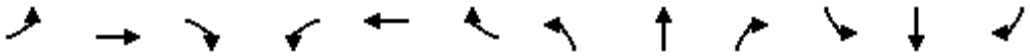
Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	22.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	4	0	0	11	61	40	103	32	173	47
Future Volume (Veh/h)	3	0	4	0	0	11	61	40	103	32	173	47
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	0	4	0	0	12	68	44	114	36	192	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								324				
pX, platoon unblocked												
vC, conflicting volume	482	584	218	505	553	101	244			158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	482	584	218	505	553	101	244			158		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	99	95			97		
cM capacity (veh/h)	460	392	822	448	408	954	1322			1422		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	12	68	158	36	244
Volume Left	3	0	68	0	36	0
Volume Right	4	12	0	114	0	52
cSH	615	954	1322	1700	1422	1700
Volume to Capacity	0.01	0.01	0.05	0.09	0.03	0.14
Queue Length 95th (ft)	1	1	4	0	2	0
Control Delay (s)	10.9	8.8	7.9	0.0	7.6	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	10.9	8.8	2.4		1.0	
Approach LOS	B	A				

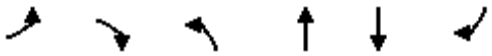
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	28.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	122	103	198	53	59	43	0	55	25	41	8
Future Volume (Veh/h)	24	122	103	198	53	59	43	0	55	25	41	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	136	114	220	59	66	48	0	61	28	46	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	125			250			778	812	193	783	836	92
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			250			778	812	193	783	836	92
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			83			79	100	93	89	81	99
cM capacity (veh/h)	1462			1316			230	256	849	248	248	965

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	27	250	220	125	48	61	28	55
Volume Left	27	0	220	0	48	0	28	0
Volume Right	0	114	0	66	0	61	0	9
cSH	1462	1700	1316	1700	230	849	248	282
Volume to Capacity	0.02	0.15	0.17	0.07	0.21	0.07	0.11	0.19
Queue Length 95th (ft)	1	0	15	0	19	6	9	18
Control Delay (s)	7.5	0.0	8.3	0.0	24.7	9.6	21.3	20.8
Lane LOS	A		A		C	A	C	C
Approach Delay (s)	0.7		5.3		16.2		21.0	
Approach LOS					C		C	

Intersection Summary				
Average Delay	6.8			
Intersection Capacity Utilization	42.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	89	244	199	227	163
Future Volume (vph)	83	89	244	199	227	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.60	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1110	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	99	271	221	252	181
RTOR Reduction (vph)	0	75	0	0	0	58
Lane Group Flow (vph)	92	24	271	221	252	123
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	29.5	29.5	81.5	81.5	81.5	81.5
Effective Green, g (s)	29.5	29.5	81.5	81.5	81.5	81.5
Actuated g/C Ratio	0.25	0.25	0.68	0.68	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	435	389	753	2403	2403	1075
v/s Ratio Prot	c0.05			0.06	0.07	
v/s Ratio Perm		0.02	c0.24			0.08
v/c Ratio	0.21	0.06	0.36	0.09	0.10	0.11
Uniform Delay, d1	36.0	34.7	8.2	6.6	6.6	6.7
Progression Factor	1.00	0.98	0.64	0.48	1.00	1.00
Incremental Delay, d2	1.1	0.3	0.1	0.0	0.1	0.2
Delay (s)	37.0	34.4	5.4	3.2	6.7	6.9
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.7			4.4	6.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	Max	Max
Maximum Split (s)	86	34	86
Maximum Split (%)	71.7%	28.3%	71.7%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	86	0
End Time (s)	86	0	86
Yield/Force Off (s)	81.5	115.5	81.5
Yield/Force Off 170(s)	70.5	104.5	70.5
Local Start Time (s)	0	86	0
Local Yield (s)	81.5	115.5	81.5
Local Yield 170(s)	70.5	104.5	70.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	50
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd & Prop Rd 1





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	72	84	91	158	135
Future Volume (Veh/h)	32	72	84	91	158	135
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	80	93	101	176	150
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1027
pX, platoon unblocked						
vC, conflicting volume	595	93			194	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	595	93			194	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	92			87	
cM capacity (veh/h)	407	964			1379	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	36	80	93	101	176	150
Volume Left	36	0	0	0	176	0
Volume Right	0	80	0	101	0	0
cSH	407	964	1700	1700	1379	1700
Volume to Capacity	0.09	0.08	0.05	0.06	0.13	0.09
Queue Length 95th (ft)	7	7	0	0	11	0
Control Delay (s)	14.7	9.1	0.0	0.0	8.0	0.0
Lane LOS	B	A			A	
Approach Delay (s)	10.8		0.0		4.3	
Approach LOS	B					

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	29	146	80	106	60
Future Volume (Veh/h)	25	29	146	80	106	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	32	162	89	118	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	465	162			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465	162			251	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	96			91	
cM capacity (veh/h)	506	883			1314	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	162	89	118	67
Volume Left	28	0	0	118	0
Volume Right	32	0	89	0	0
cSH	655	1700	1700	1314	1700
Volume to Capacity	0.09	0.10	0.05	0.09	0.04
Queue Length 95th (ft)	8	0	0	7	0
Control Delay (s)	11.0	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	11.0	0.0		5.1	
Approach LOS	B				

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	26.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	50	114	41	49	271
Future Volume (Veh/h)	21	50	114	41	49	271
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	56	127	46	54	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						546
pX, platoon unblocked						
vC, conflicting volume	559	150			173	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	559	150			173	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	94			96	
cM capacity (veh/h)	471	896			1404	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	23	56	173	54	301
Volume Left	23	0	0	54	0
Volume Right	0	56	46	0	0
cSH	471	896	1700	1404	1700
Volume to Capacity	0.05	0.06	0.10	0.04	0.18
Queue Length 95th (ft)	4	5	0	3	0
Control Delay (s)	13.0	9.3	0.0	7.7	0.0
Lane LOS	B	A		A	
Approach Delay (s)	10.4		0.0	1.2	
Approach LOS	B				

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	185	78	54	95	52	29
Future Volume (Veh/h)	185	78	54	95	52	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	206	87	60	106	58	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	871					
pX, platoon unblocked						
vC, conflicting volume			293		379	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			293		379	103
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		90	97
cM capacity (veh/h)			1265		567	932

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	103	103	87	60	53	53	58	32
Volume Left	0	0	0	60	0	0	58	0
Volume Right	0	0	87	0	0	0	0	32
cSH	1700	1700	1700	1265	1700	1700	567	932
Volume to Capacity	0.06	0.06	0.05	0.05	0.03	0.03	0.10	0.03
Queue Length 95th (ft)	0	0	0	4	0	0	8	3
Control Delay (s)	0.0	0.0	0.0	8.0	0.0	0.0	12.1	9.0
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.9			11.0	
Approach LOS							B	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	159	55	53	111	38	28
Future Volume (Veh/h)	159	55	53	111	38	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	177	61	59	123	42	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			238		356	88
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			238		356	88
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		93	97
cM capacity (veh/h)			1326		588	952

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	88	88	61	59	62	62	42	31
Volume Left	0	0	0	59	0	0	42	0
Volume Right	0	0	61	0	0	0	0	31
cSH	1700	1700	1700	1326	1700	1700	588	952
Volume to Capacity	0.05	0.05	0.04	0.04	0.04	0.04	0.07	0.03
Queue Length 95th (ft)	0	0	0	3	0	0	6	3
Control Delay (s)	0.0	0.0	0.0	7.8	0.0	0.0	11.6	8.9
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.5			10.5	
Approach LOS							B	

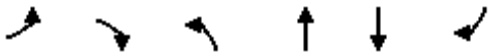
Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	147	40	58	132	32	31
Future Volume (Veh/h)	147	40	58	132	32	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	163	44	64	147	36	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				736		
pX, platoon unblocked						
vC, conflicting volume			207		364	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			207		364	82
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		94	96
cM capacity (veh/h)			1361		580	962

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	82	82	44	64	74	74	36	34
Volume Left	0	0	0	64	0	0	36	0
Volume Right	0	0	44	0	0	0	0	34
cSH	1700	1700	1700	1361	1700	1700	580	962
Volume to Capacity	0.05	0.05	0.03	0.05	0.04	0.04	0.06	0.04
Queue Length 95th (ft)	0	0	0	4	0	0	5	3
Control Delay (s)	0.0	0.0	0.0	7.8	0.0	0.0	11.6	8.9
Lane LOS				A			B	A
Approach Delay (s)	0.0			2.4			10.3	
Approach LOS							B	

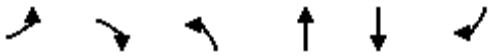
Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	89	193	339	8
Future Volume (Veh/h)	0	50	89	193	339	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	56	99	214	377	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				489	501	
pX, platoon unblocked						
vC, conflicting volume	686	193	386			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	686	193	386			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	92			
cM capacity (veh/h)	349	816	1169			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	56	99	107	107	251	135
Volume Left	0	99	0	0	0	0
Volume Right	56	0	0	0	0	9
cSH	816	1169	1700	1700	1700	1700
Volume to Capacity	0.07	0.08	0.06	0.06	0.15	0.08
Queue Length 95th (ft)	6	7	0	0	0	0
Control Delay (s)	9.7	8.4	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.7	2.6			0.0	
Approach LOS	A					

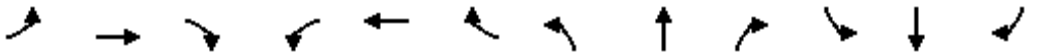
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	21.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	37	93	443	214	102
Future Volume (Veh/h)	0	37	93	443	214	102
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	41	103	492	238	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				734	774	
pX, platoon unblocked						
vC, conflicting volume	690	119	351			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690	119	351			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	91			
cM capacity (veh/h)	347	910	1204			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	41	103	246	246	119	119	113
Volume Left	0	103	0	0	0	0	0
Volume Right	41	0	0	0	0	0	113
cSH	910	1204	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.09	0.14	0.14	0.07	0.07	0.07
Queue Length 95th (ft)	4	7	0	0	0	0	0
Control Delay (s)	9.1	8.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A					
Approach Delay (s)	9.1	1.4			0.0		
Approach LOS	A						

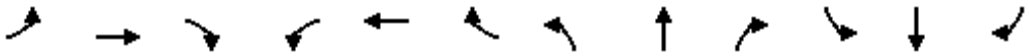
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	18.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	0	52	48	0	36	31	15	8	115	151	76
Future Volume (Veh/h)	47	0	52	48	0	36	31	15	8	115	151	76
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	52	0	58	53	0	40	34	17	9	128	168	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								766				
pX, platoon unblocked												
vC, conflicting volume	549	518	168	572	598	22	252			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549	518	168	572	598	22	252			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	93	86	100	96	97			92		
cM capacity (veh/h)	395	414	876	371	373	1056	1313			1588		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	110	93	34	26	128	168	84
Volume Left	52	53	34	0	128	0	0
Volume Right	58	40	0	9	0	0	84
cSH	556	514	1313	1700	1588	1700	1700
Volume to Capacity	0.20	0.18	0.03	0.02	0.08	0.10	0.05
Queue Length 95th (ft)	18	16	2	0	7	0	0
Control Delay (s)	13.1	13.5	7.8	0.0	7.5	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	13.1	13.5	4.4		2.5		
Approach LOS	B	B					

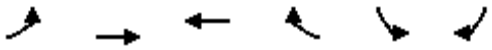
Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	27.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	80	112	111	227	69	48	0	61	32	0	36
Future Volume (Veh/h)	10	80	112	111	227	69	48	0	61	32	0	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	89	124	123	252	77	53	0	68	36	0	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					821							
pX, platoon unblocked												
vC, conflicting volume	329			213			711	748	151	716	772	290
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329			213			711	748	151	716	772	290
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			83	100	92	88	100	95
cM capacity (veh/h)	1231			1357			304	307	895	295	298	749

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	11	213	123	329	53	68	36	40
Volume Left	11	0	123	0	53	0	36	0
Volume Right	0	124	0	77	0	68	0	40
cSH	1231	1700	1357	1700	304	895	295	749
Volume to Capacity	0.01	0.13	0.09	0.19	0.17	0.08	0.12	0.05
Queue Length 95th (ft)	1	0	7	0	16	6	10	4
Control Delay (s)	8.0	0.0	7.9	0.0	19.3	9.4	18.9	10.1
Lane LOS	A		A		C	A	C	B
Approach Delay (s)	0.4		2.2		13.7		14.3	
Approach LOS					B		B	

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	38.8%	ICU Level of Service		A
Analysis Period (min)	15			



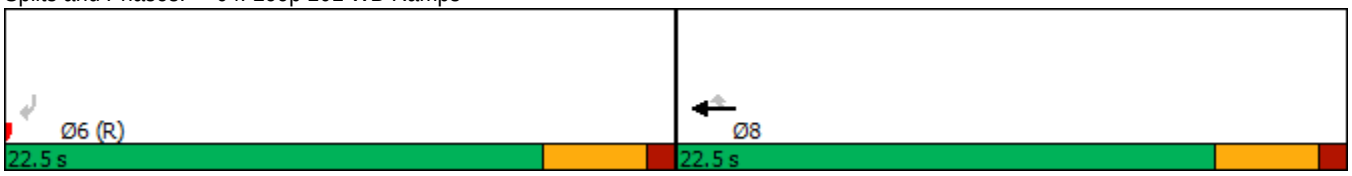
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)						
Lane Util. Factor						
Frt						
Flt Protected						
Satd. Flow (prot)						
Flt Permitted						
Satd. Flow (perm)						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0
Turn Type				Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)						
Effective Green, g (s)						
Actuated g/C Ratio						
Clearance Time (s)						
Lane Grp Cap (vph)						
v/s Ratio Prot						
v/s Ratio Perm						
v/c Ratio						
Uniform Delay, d1						
Progression Factor						
Incremental Delay, d2						
Delay (s)						
Level of Service						
Approach Delay (s)		0.0	0.0		0.0	
Approach LOS		A	A		A	

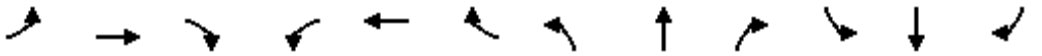
Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 64: Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	19	73	41	13	4	76	1192	83	5	543	18
Future Volume (vph)	24	19	73	41	13	4	76	1192	83	5	543	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1801		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.69	1.00		0.38	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1389	1641		1287	1801		701	3539	1583	169	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	21	81	46	14	4	84	1324	92	6	603	20
RTOR Reduction (vph)	0	49	0	0	2	0	0	0	25	0	0	11
Lane Group Flow (vph)	27	53	0	46	16	0	84	1324	67	6	603	9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	555	656		514	720		324	1639	733	78	1639	733
v/s Ratio Prot		0.03			0.01			c0.37			0.17	
v/s Ratio Perm	0.02			c0.04			0.12		0.04	0.04		0.01
v/c Ratio	0.05	0.08		0.09	0.02		0.26	0.81	0.09	0.08	0.37	0.01
Uniform Delay, d1	17.4	17.7		17.7	17.2		15.6	21.9	14.3	14.2	16.5	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.3	0.1		1.9	4.4	0.2	1.9	0.6	0.0
Delay (s)	17.6	17.9		18.1	17.3		17.5	26.3	14.5	16.1	17.1	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.9			17.9			25.1			17.0	
Approach LOS		B			B			C			B	

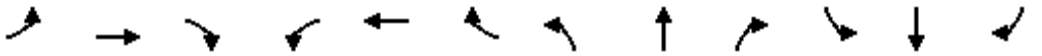
Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd





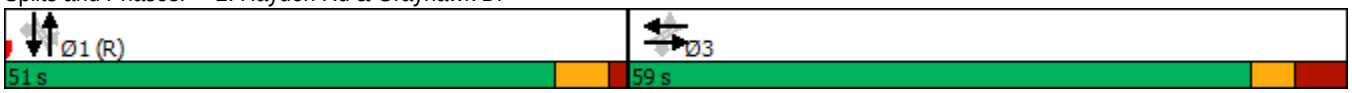
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	9	69	24	8	13	79	1330	39	13	587	40
Future Volume (vph)	38	9	69	24	8	13	79	1330	39	13	587	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.75	1.00		0.32	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1383	1863	1583	1399	1693		597	3539	1583	166	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	10	77	27	9	14	88	1478	43	14	652	44
RTOR Reduction (vph)	0	0	41	0	4	0	0	0	25	0	0	26
Lane Group Flow (vph)	42	10	36	27	19	0	88	1478	18	14	652	18
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	51.0	51.0	51.0	51.0	51.0		45.0	45.0	45.0	45.0	45.0	45.0
Effective Green, g (s)	51.0	51.0	51.0	51.0	51.0		45.0	45.0	45.0	45.0	45.0	45.0
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46		0.41	0.41	0.41	0.41	0.41	0.41
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	641	863	733	648	784		244	1447	647	67	1447	647
v/s Ratio Prot		0.01			0.01			c0.42			0.18	
v/s Ratio Perm	c0.03		0.02	0.02			0.15		0.01	0.08		0.01
v/c Ratio	0.07	0.01	0.05	0.04	0.02		0.36	1.02	0.03	0.21	0.45	0.03
Uniform Delay, d1	16.3	15.9	16.2	16.1	16.0		22.5	32.5	19.4	21.0	23.5	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1	0.1	0.1		4.1	29.2	0.1	7.0	1.0	0.1
Delay (s)	16.5	15.9	16.3	16.3	16.1		26.6	61.7	19.5	28.0	24.6	19.5
Level of Service	B	B	B	B	B		C	E	B	C	C	B
Approach Delay (s)		16.3			16.2			58.7			24.3	
Approach LOS		B			B			E			C	

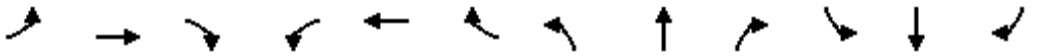
Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	51	59
Maximum Split (%)	46.4%	53.6%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	51
End Time (s)	51	0
Yield/Force Off (s)	45	102
Yield/Force Off 170(s)	38	94
Local Start Time (s)	0	51
Local Yield (s)	45	102
Local Yield 170(s)	38	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	598	389	405	381	169	538	1193	704	224	402	81
Future Volume (vph)	100	598	389	405	381	169	538	1193	704	224	402	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.0	4.5	7.0	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	664	432	450	423	188	598	1326	782	249	447	90
RTOR Reduction (vph)	0	0	82	0	0	34	0	0	35	0	0	56
Lane Group Flow (vph)	111	664	350	450	423	154	598	1326	747	249	447	34
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.0	22.4	46.6	17.9	32.3	45.3	24.2	47.7	65.6	13.0	38.5	45.5
Effective Green, g (s)	7.0	22.4	46.6	17.9	32.3	45.3	24.2	47.7	65.6	13.0	38.5	45.5
Actuated g/C Ratio	0.06	0.19	0.39	0.15	0.27	0.38	0.20	0.40	0.55	0.11	0.32	0.38
Clearance Time (s)	4.5	4.0	4.5	4.0	4.5	7.0	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	949	614	512	1368	597	692	2021	918	371	1631	659
v/s Ratio Prot	0.03	c0.13	0.11	c0.13	0.08	0.03	c0.17	0.26	c0.12	0.07	0.09	0.00
v/s Ratio Perm			0.11			0.07			0.35			0.02
v/c Ratio	0.56	0.70	0.57	0.88	0.31	0.26	0.86	0.66	0.81	0.67	0.27	0.05
Uniform Delay, d1	55.0	45.7	28.8	50.0	35.0	25.8	46.3	29.5	22.2	51.4	30.3	23.6
Progression Factor	0.78	1.02	2.15	0.92	1.06	1.48	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	2.2	1.2	13.2	0.1	0.2	10.9	1.7	5.6	4.7	0.4	0.0
Delay (s)	46.2	48.6	63.2	59.3	37.3	38.3	57.2	31.1	27.8	56.2	30.8	23.6
Level of Service	D	D	E	E	D	D	E	C	C	E	C	C
Approach Delay (s)		53.6			46.8			35.9			38.0	
Approach LOS		D			D			D			D	

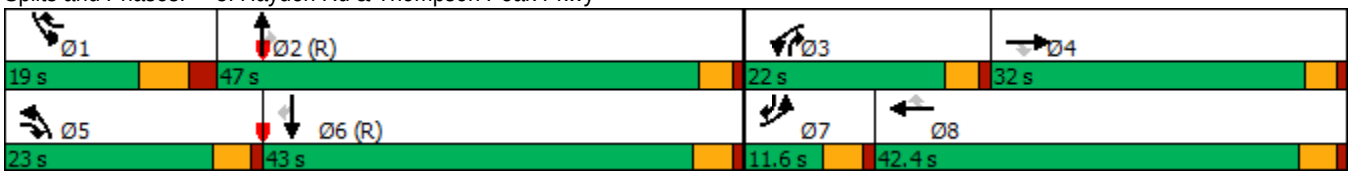
Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

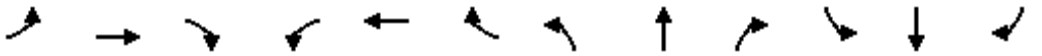
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	19	47	22	32	23	43	11.6	42.4
Maximum Split (%)	15.8%	39.2%	18.3%	26.7%	19.2%	35.8%	9.7%	35.3%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	97	116	43	65	97	0	43	54.6
End Time (s)	116	43	65	97	0	43	54.6	97
Yield/Force Off (s)	109	39	61	93	115.5	38.5	50.1	92.5
Yield/Force Off 170(s)	109	15	61	72	115.5	14.5	50.1	71.5
Local Start Time (s)	97	116	43	65	97	0	43	54.6
Local Yield (s)	109	39	61	93	115.5	38.5	50.1	92.5
Local Yield 170(s)	109	15	61	72	115.5	14.5	50.1	71.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	133	445	201	131	60	415	2265	154	34	1078	128
Future Volume (vph)	130	133	445	201	131	60	415	2265	154	34	1078	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.45	1.00	1.00	0.44	1.00	1.00	0.95	1.00	1.00	0.00	1.00	1.00
Satd. Flow (perm)	838	1863	1583	825	1863	1583	3433	3539	1583	0	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	144	148	494	223	146	67	461	2517	171	38	1198	142
RTOR Reduction (vph)	0	0	13	0	0	59	0	0	39	0	0	43
Lane Group Flow (vph)	144	148	481	223	146	8	461	2517	132	38	1198	99
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	5!	3	8		5!	1!		5!	1!	
Permitted Phases	4		4	8		8			1	1		1
Actuated Green, G (s)	19.2	14.2	98.5	19.2	14.2	14.2	84.3	81.8	81.8	84.3	81.8	81.8
Effective Green, g (s)	19.2	14.2	98.5	19.2	14.2	14.2	84.3	81.8	81.8	84.3	81.8	81.8
Actuated g/C Ratio	0.16	0.12	0.84	0.16	0.12	0.12	0.72	0.70	0.70	0.72	0.70	0.70
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	177	226	1393	175	226	192	2473	2474	1106	1275	2474	1106
v/s Ratio Prot	0.03	0.08	0.25	c0.05	0.08		0.13	c0.71		0.02	0.34	
v/s Ratio Perm	0.10		0.06	c0.15		0.01			0.08			0.06
v/c Ratio	0.81	0.65	0.35	1.27	0.65	0.04	0.19	1.02	0.12	0.03	0.48	0.09
Uniform Delay, d1	46.7	49.1	2.1	48.6	49.0	45.4	5.3	17.6	5.8	4.7	8.0	5.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.0	6.7	0.1	160.2	6.2	0.1	0.0	22.6	0.2	0.0	0.7	0.2
Delay (s)	70.8	55.7	2.2	208.8	55.2	45.5	5.3	40.2	6.0	4.7	8.7	5.8
Level of Service	E	E	A	F	E	D	A	D	A	A	A	A
Approach Delay (s)		24.8			132.3			33.2			8.3	
Approach LOS		C			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	117.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

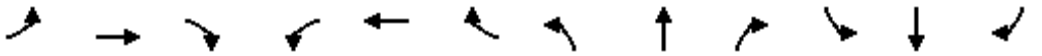
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBSB	WBL	EBTL	NBSBL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	None	None	None
Maximum Split (s)	85	9.5	22.5	85	9.5	22.5
Maximum Split (%)	72.6%	8.1%	19.2%	72.6%	8.1%	19.2%
Minimum Split (s)	50	9.5	22.5	9.5	9.5	22.5
Yellow Time (s)	4.8	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	2.2	1	1	1	1	1
Minimum Initial (s)	10	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	15		7			7
Flash Dont Walk (s)	10		11			11
Dual Entry	Yes	No	Yes	No	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	85	94.5	0	85	94.5
End Time (s)	85	94.5	0	85	94.5	0
Yield/Force Off (s)	78	90	112.5	80.5	90	112.5
Yield/Force Off 170(s)	68	90	101.5	80.5	90	101.5
Local Start Time (s)	0	85	94.5	0	85	94.5
Local Yield (s)	78	90	112.5	80.5	90	112.5
Local Yield 170(s)	68	90	101.5	80.5	90	101.5

Intersection Summary	
Cycle Length	117
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Future Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	4.5	6.0			6.0	6.0
Lane Util. Factor				0.91	0.91	0.88	0.97	0.91			0.86	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1610	3343	2787	3433	5085			6408	1583
Flt Permitted				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1610	3343	2787	3433	5085			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	220	206	1191	996	2052	0	0	1922	564
RTOR Reduction (vph)	0	0	0	0	0	651	0	0	0	0	0	132
Lane Group Flow (vph)	0	0	0	139	287	540	996	2052	0	0	1922	432
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				30.0	30.0	30.0	34.5	41.0			37.0	37.0
Effective Green, g (s)				30.0	30.0	30.0	34.5	41.0			37.0	37.0
Actuated g/C Ratio				0.25	0.25	0.25	0.29	0.34			0.31	0.31
Clearance Time (s)				8.0	8.0	8.0	4.5	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				402	835	696	986	1737			1975	488
v/s Ratio Prot							c0.29	c0.40			0.30	
v/s Ratio Perm				0.09	0.09	c0.19						0.27
v/c Ratio				0.35	0.34	0.78	1.01	1.18			0.97	0.89
Uniform Delay, d1				36.9	36.9	41.9	42.8	39.5			41.0	39.5
Progression Factor				1.00	1.00	1.00	1.01	0.54			1.00	1.00
Incremental Delay, d2				0.5	0.2	5.4	11.2	82.2			14.8	20.4
Delay (s)				37.5	37.2	47.3	54.4	103.5			55.9	59.9
Level of Service				D	D	D	D	F			E	E
Approach Delay (s)		0.0			44.7			87.4			56.8	
Approach LOS		A			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	67.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

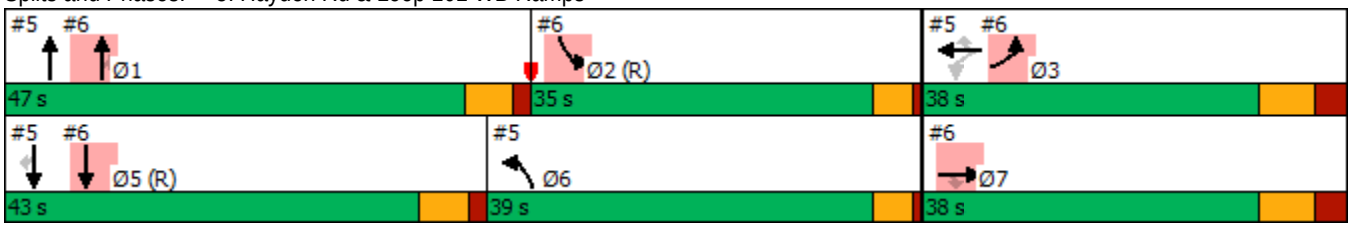
c Critical Lane Group

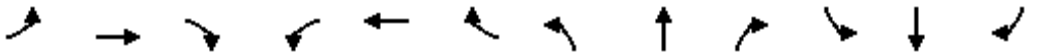
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBT
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	None	None
Maximum Split (s)	47	35	38	43	39	38
Maximum Split (%)	39.2%	29.2%	31.7%	35.8%	32.5%	31.7%
Minimum Split (s)	21	9.5	41	21	22.5	41
Yellow Time (s)	4.4	3.5	4.9	4.4	3.5	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1	3.1
Minimum Initial (s)	12	5	7	12	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5	7	7
Flash Dont Walk (s)	10		26	10	11	26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	73	0	35	73	116	35
End Time (s)	0	35	73	116	35	73
Yield/Force Off (s)	114	30.5	65	110	30.5	65
Yield/Force Off 170(s)	104	30.5	39	100	19.5	39
Local Start Time (s)	73	0	35	73	116	35
Local Yield (s)	114	30.5	65	110	30.5	65
Local Yield 170(s)	104	30.5	39	100	19.5	39

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

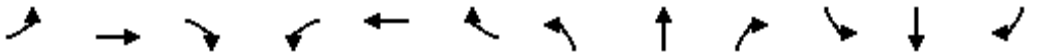




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Future Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.97	0.95	1.00					0.86	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583					6408	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583					6408	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	934	6	286	0	0	0	0	2162	237	1041	1120	0
RTOR Reduction (vph)	0	0	215	0	0	0	0	0	129	0	0	0
Lane Group Flow (vph)	934	6	72	0	0	0	0	2162	108	1041	1120	0
Turn Type	Prot	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	3	7						1		2	5	
Permitted Phases			7						1			
Actuated Green, G (s)	30.0	30.0	30.0					41.0	41.0	30.5	37.0	
Effective Green, g (s)	30.0	30.0	30.0					41.0	41.0	30.5	37.0	
Actuated g/C Ratio	0.25	0.25	0.25					0.34	0.34	0.25	0.31	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	858	884	395					2189	540	872	1091	
v/s Ratio Prot	c0.27	0.00						c0.34		c0.30	0.32	
v/s Ratio Perm			0.05						0.07			
v/c Ratio	1.09	0.01	0.18					0.99	0.20	1.19	1.03	
Uniform Delay, d1	45.0	33.8	35.3					39.2	27.9	44.8	41.5	
Progression Factor	1.22	1.34	3.07					1.10	1.91	0.88	0.52	
Incremental Delay, d2	42.1	0.0	0.0					9.9	0.1	92.2	24.7	
Delay (s)	96.9	45.3	108.6					53.0	53.3	131.6	46.3	
Level of Service	F	D	F					D	D	F	D	
Approach Delay (s)		99.4			0.0			53.0			87.4	
Approach LOS		F			A			D			F	

Intersection Summary			
HCM 2000 Control Delay	75.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	68	289	45	69	377	209	1368	22	76	888	332
Future Volume (vph)	368	68	289	45	69	377	209	1368	22	76	888	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.71	1.00	1.00	0.65	1.00	1.00	0.14	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1317	1863	1583	1217	1863	1583	257	3539	1583	150	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	76	321	50	77	419	232	1520	24	84	987	369
RTOR Reduction (vph)	0	0	176	0	0	71	0	0	9	0	0	165
Lane Group Flow (vph)	409	76	145	50	77	348	232	1520	15	84	987	204
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.5	18.0	34.2	37.5	19.5	30.2	70.5	55.3	73.3	60.5	49.8	66.3
Effective Green, g (s)	34.5	18.0	34.2	37.5	19.5	30.2	70.5	55.3	73.3	60.5	49.8	66.3
Actuated g/C Ratio	0.29	0.15	0.29	0.31	0.16	0.25	0.59	0.46	0.61	0.50	0.41	0.55
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	440	279	510	463	302	457	355	1630	1026	220	1468	933
v/s Ratio Prot	c0.13	0.04	0.04	0.02	0.04	c0.07	0.09	c0.43	0.00	0.03	0.28	0.03
v/s Ratio Perm	c0.14		0.05	0.02		0.15	0.30		0.01	0.16		0.10
v/c Ratio	0.93	0.27	0.28	0.11	0.25	0.76	0.65	0.93	0.01	0.38	0.67	0.22
Uniform Delay, d1	40.2	45.2	33.4	29.2	43.9	41.6	17.7	30.6	9.2	23.5	28.5	13.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.72	1.31	12.90	0.74	1.12	11.43
Incremental Delay, d2	28.4	2.4	1.4	0.5	2.0	11.4	7.1	9.1	0.0	2.2	1.1	0.2
Delay (s)	68.6	47.6	34.8	29.7	45.9	52.9	37.6	49.2	118.2	19.5	33.0	156.4
Level of Service	E	D	C	C	D	D	D	D	F	B	C	F
Approach Delay (s)		53.2			49.8			48.6			63.9	
Approach LOS		D			D			D			E	

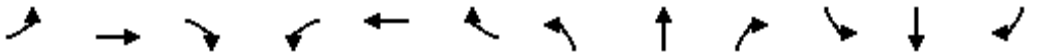
Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Maximum Split (s)	15.2	59.8	22.5	22.5	20.7	54.3	21	24
Maximum Split (%)	12.7%	49.8%	18.8%	18.8%	17.3%	45.3%	17.5%	20.0%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	99.3	114.5	54.3	76.8	99.3	0	54.3	75.3
End Time (s)	114.5	54.3	76.8	99.3	0	54.3	75.3	99.3
Yield/Force Off (s)	110	49.8	72.3	94.8	115.5	49.8	70.8	94.8
Yield/Force Off 170(s)	110	38.8	61.3	83.8	115.5	38.8	70.8	83.8
Local Start Time (s)	99.3	114.5	54.3	76.8	99.3	0	54.3	75.3
Local Yield (s)	110	49.8	72.3	94.8	115.5	49.8	70.8	94.8
Local Yield 170(s)	110	38.8	61.3	83.8	115.5	38.8	70.8	83.8

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	21	81	253	0	212	149	1338	165	69	1066	71
Future Volume (vph)	38	21	81	253	0	212	149	1338	165	69	1066	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1804	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.18	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)		1804	1583	3433		1583	334	3539	1583	197	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	23	90	281	0	236	166	1487	183	77	1184	79
RTOR Reduction (vph)	0	0	82	0	0	206	0	0	44	0	0	30
Lane Group Flow (vph)	0	65	8	281	0	30	166	1487	139	77	1184	49
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		10.6	10.6	15.4		15.4	74.0	74.0	74.0	74.0	74.0	74.0
Effective Green, g (s)		10.6	10.6	15.4		15.4	74.0	74.0	74.0	74.0	74.0	74.0
Actuated g/C Ratio		0.09	0.09	0.13		0.13	0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		159	139	440		203	205	2182	976	121	2182	976
v/s Ratio Prot		c0.04		c0.08				0.42			0.33	
v/s Ratio Perm			0.01			0.02	c0.50		0.09	0.39		0.03
v/c Ratio		0.41	0.06	0.64		0.15	0.81	0.68	0.14	0.64	0.54	0.05
Uniform Delay, d1		51.7	50.1	49.7		46.5	17.6	15.2	9.7	14.5	13.3	9.1
Progression Factor		1.00	1.00	1.00		1.00	0.94	0.88	1.45	1.98	2.17	6.98
Incremental Delay, d2		1.7	0.2	3.0		0.3	14.6	0.8	0.1	18.7	0.8	0.1
Delay (s)		53.4	50.3	52.7		46.8	31.2	14.1	14.1	47.4	29.5	63.6
Level of Service		D	D	D		D	C	B	B	D	C	E
Approach Delay (s)		51.6			50.0			15.7			32.5	
Approach LOS		D			D			B			C	

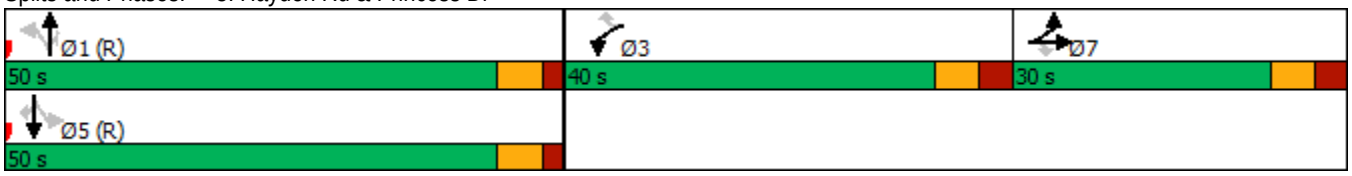
Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

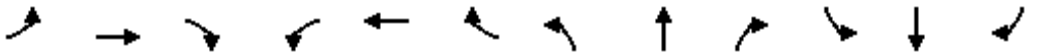
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1	23	488	0	186	6	1511	276	212	1221	10
Future Volume (vph)	13	1	23	488	0	186	6	1511	276	212	1221	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3535	
Flt Permitted		0.78		0.73	0.73	1.00	0.12	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		2511		1290	1290	1583	224	3539	1583	1770	3535	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1	26	542	0	207	7	1679	307	236	1357	11
RTOR Reduction (vph)	0	25	0	0	0	147	0	0	125	0	0	0
Lane Group Flow (vph)	0	16	0	271	271	60	7	1679	182	236	1368	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Prot	NA	
Protected Phases	4	7		8	3			1		2	5	
Permitted Phases	7			3		3	1		1			
Actuated Green, G (s)		5.4		29.7	29.7	29.7	58.8	58.8	58.8	13.0	76.3	
Effective Green, g (s)		5.4		29.7	29.7	29.7	58.8	58.8	58.8	13.0	76.3	
Actuated g/C Ratio		0.05		0.25	0.25	0.25	0.49	0.49	0.49	0.11	0.64	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		112		372	372	391	109	1734	775	191	2247	
v/s Ratio Prot				c0.10	0.10			c0.47		c0.13	0.39	
v/s Ratio Perm		0.01		c0.08	0.08	0.04	0.03		0.11			
v/c Ratio		0.14		0.73	0.73	0.15	0.06	0.97	0.23	1.24	0.61	
Uniform Delay, d1		55.1		40.3	41.4	35.3	16.1	29.7	17.6	53.5	13.0	
Progression Factor		1.00		1.00	1.00	1.00	1.22	1.08	1.87	0.93	0.48	
Incremental Delay, d2		0.6		7.0	7.0	0.2	0.4	7.8	0.3	139.8	1.1	
Delay (s)		55.7		47.3	48.4	35.5	20.1	39.8	33.2	189.6	7.3	
Level of Service		E		D	D	D	C	D	C	F	A	
Approach Delay (s)		55.7			44.5			38.7			34.1	
Approach LOS		E			D			D			C	

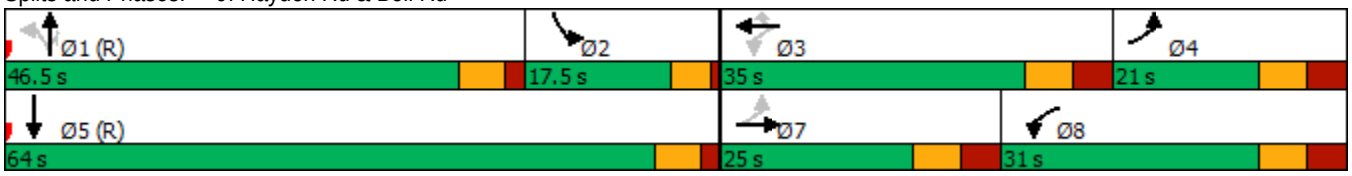
Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	7	8
Movement	NBTL	SBL	WBTL	EBL	SBT	EBTL	WBL
Lead/Lag	Lead	Lag	Lead	Lag		Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	46.5	17.5	35	21	64	25	31
Maximum Split (%)	38.8%	14.6%	29.2%	17.5%	53.3%	20.8%	25.8%
Minimum Split (s)	50	22.5	40	26	50	30	26
Yellow Time (s)	4.1	3.5	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	1	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	5	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)	7	7	7		7	7	
Flash Dont Walk (s)	11	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	46.5	64	99	0	64	89
End Time (s)	46.5	64	99	0	64	89	0
Yield/Force Off (s)	40.5	59.5	91	112	58	81	112
Yield/Force Off 170(s)	29.5	48.5	80	112	47	70	112
Local Start Time (s)	0	46.5	64	99	0	64	89
Local Yield (s)	40.5	59.5	91	112	58	81	112
Local Yield 170(s)	29.5	48.5	80	112	47	70	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBT, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	63	2389	109	20	1292
Future Volume (vph)	132	63	2389	109	20	1292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	79	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	70	2654	121	22	1436
RTOR Reduction (vph)	0	9	0	12	0	0
Lane Group Flow (vph)	147	61	2654	109	22	1436
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.6	13.6	94.4	94.4	94.4	94.4
Effective Green, g (s)	13.6	13.6	94.4	94.4	94.4	94.4
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	179	2784	1245	62	2784
v/s Ratio Prot	c0.08		c0.75			0.41
v/s Ratio Perm		0.04		0.07	0.28	
v/c Ratio	0.73	0.34	0.95	0.09	0.35	0.52
Uniform Delay, d1	51.5	49.1	10.9	2.9	3.8	4.6
Progression Factor	1.00	1.00	1.15	1.50	1.00	1.00
Incremental Delay, d2	13.1	1.1	3.9	0.0	15.2	0.7
Delay (s)	64.5	50.2	16.5	4.5	19.0	5.3
Level of Service	E	D	B	A	B	A
Approach Delay (s)	59.9		15.9			5.5
Approach LOS	E		B			A

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	128	69	2400	128	60	1326
Future Volume (vph)	128	69	2400	128	60	1326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	79	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	77	2667	142	67	1473
RTOR Reduction (vph)	0	8	0	19	0	0
Lane Group Flow (vph)	142	69	2667	123	67	1473
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	14.2	14.2	93.8	93.8	93.8	93.8
Effective Green, g (s)	14.2	14.2	93.8	93.8	93.8	93.8
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	187	2766	1237	61	2766
v/s Ratio Prot	c0.08		0.75			0.42
v/s Ratio Perm		0.04		0.08	c0.84	
v/c Ratio	0.68	0.37	0.96	0.10	1.10	0.53
Uniform Delay, d1	50.7	48.8	11.6	3.1	13.1	4.9
Progression Factor	1.00	1.00	1.97	2.10	1.39	0.85
Incremental Delay, d2	8.5	1.2	1.4	0.0	136.2	0.6
Delay (s)	59.2	50.0	24.3	6.5	154.4	4.8
Level of Service	E	D	C	A	F	A
Approach Delay (s)	56.0		23.4			11.3
Approach LOS	E		C			B

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

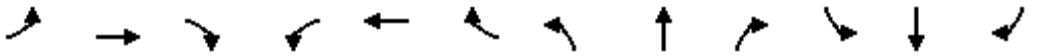
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Future Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	8.0	7.0	4.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	152	5085	1583	163	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	259	101	743	381	296	167	2231	557	219	1589	407
RTOR Reduction (vph)	0	0	86	0	0	99	0	0	43	0	0	47
Lane Group Flow (vph)	592	259	15	743	381	197	167	2231	514	219	1589	360
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	2	6	1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	23.8	18.2	18.2	21.0	17.9	26.3	59.9	48.9	69.9	54.2	45.8	69.6
Effective Green, g (s)	23.8	18.2	18.2	21.0	17.9	26.3	59.9	48.9	69.9	54.2	45.8	69.6
Actuated g/C Ratio	0.20	0.15	0.15	0.18	0.15	0.22	0.50	0.41	0.58	0.45	0.38	0.58
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	8.0	7.0	4.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	680	536	240	600	527	346	224	2072	922	186	1940	918
v/s Ratio Prot	c0.17	0.07		c0.22	0.11	0.04	c0.07	0.44	0.10	c0.08	0.31	0.08
v/s Ratio Perm			0.01			0.08	0.30		0.23	c0.45		0.15
v/c Ratio	0.87	0.48	0.06	1.24	0.72	0.57	0.75	1.08	0.56	1.18	0.82	0.39
Uniform Delay, d1	46.6	46.6	43.6	49.5	48.7	41.8	25.5	35.5	15.5	31.8	33.4	13.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.68	0.45	0.17	0.88	0.92	0.91
Incremental Delay, d2	11.7	0.7	0.1	121.1	4.9	2.1	1.2	35.6	0.1	119.9	3.8	0.3
Delay (s)	58.3	47.3	43.7	170.6	53.6	43.9	44.1	51.5	2.7	147.9	34.5	12.7
Level of Service	E	D	D	F	D	D	D	D	A	F	C	B
Approach Delay (s)		53.8			112.8			41.9			41.7	
Approach LOS		D			F			D			D	

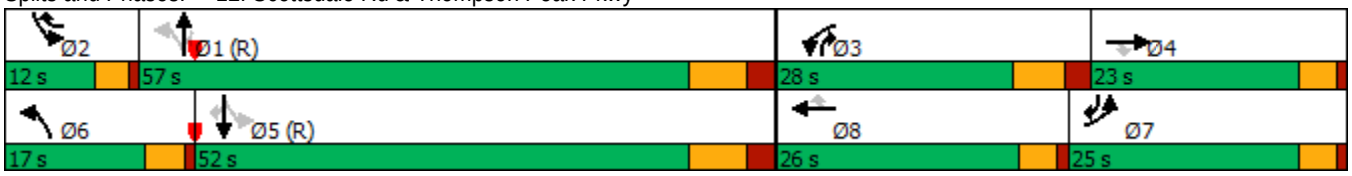
Intersection Summary			
HCM 2000 Control Delay	56.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

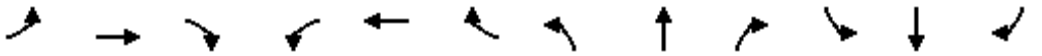
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	57	12	28	23	52	17	25	26
Maximum Split (%)	47.5%	10.0%	23.3%	19.2%	43.3%	14.2%	20.8%	21.7%
Minimum Split (s)	40	9	13	22.5	40	9.5	9.5	22.5
Yellow Time (s)	5.3	3	4.6	3.5	5.3	3.5	3.5	3.5
All-Red Time (s)	2.7	1	2.4	1	2.7	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7			7	7			7
Flash Dont Walk (s)	25			11	25			11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	88	76	25	53	93	76	51	25
End Time (s)	25	88	53	76	25	93	76	51
Yield/Force Off (s)	17	84	46	71.5	17	88.5	71.5	46.5
Yield/Force Off 170(s)	112	84	46	60.5	112	88.5	71.5	35.5
Local Start Time (s)	115	103	52	80	0	103	78	52
Local Yield (s)	44	111	73	98.5	44	115.5	98.5	73.5
Local Yield 170(s)	19	111	73	87.5	19	115.5	98.5	62.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 93 (78%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Future Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Ideal Flow (vphpl)	1800	2000	1800	1800	2000	1800	1800	2000	1800	1800	2000	1800
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3252	3725	1500	3252	3725	1500	1676	5353	1500	1676	3725	1500
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.05	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	3252	3725	1500	3252	3725	1500	94	5353	1500	103	3725	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	183	41	613	260	192	81	2791	479	123	2344	387
RTOR Reduction (vph)	0	0	33	0	0	90	0	0	51	0	0	84
Lane Group Flow (vph)	407	183	8	613	260	102	81	2791	428	123	2344	303
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	6	3	8	2	6	1	3	2	5	7
Permitted Phases			4			8	1		1	5		5
Actuated Green, G (s)	23.7	12.7	30.7	28.0	19.5	30.0	93.3	76.3	104.3	78.8	68.3	92.0
Effective Green, g (s)	23.7	12.7	30.7	28.0	19.5	30.0	93.3	76.3	104.3	78.8	68.3	92.0
Actuated g/C Ratio	0.16	0.08	0.20	0.19	0.13	0.20	0.62	0.51	0.70	0.53	0.46	0.61
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.0	4.5	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	513	315	307	607	484	300	248	2722	1043	164	1696	920
v/s Ratio Prot	0.13	0.05	0.00	c0.19	c0.07	0.02	0.04	c0.52	0.08	c0.05	c0.63	0.05
v/s Ratio Perm			0.00			0.04	0.16		0.21	0.34		0.15
v/c Ratio	0.79	0.58	0.03	1.01	0.54	0.34	0.33	1.03	0.41	0.75	1.38	0.33
Uniform Delay, d1	60.8	66.1	47.7	61.0	61.0	51.5	55.4	36.9	9.7	64.8	40.9	14.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.2	2.7	0.0	39.0	1.2	0.7	0.8	24.1	0.3	26.6	175.7	0.2
Delay (s)	69.0	68.8	47.7	100.0	62.2	52.2	56.1	60.9	10.0	91.4	216.5	14.3
Level of Service	E	E	D	F	E	D	E	E	B	F	F	B
Approach Delay (s)		67.6			82.1			53.5			183.7	
Approach LOS		E			F			D			F	

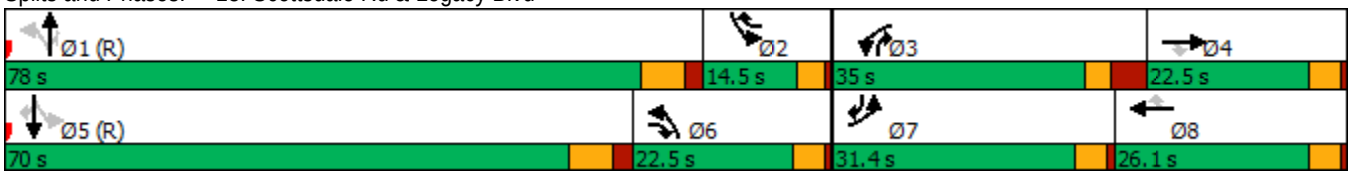
Intersection Summary			
HCM 2000 Control Delay	105.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

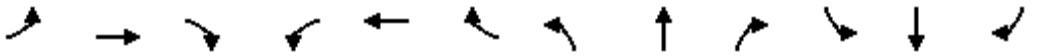
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBL	EBT	SBTL	NBL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	None	None	None
Maximum Split (s)	78	14.5	35	22.5	70	22.5	31.4	26.1
Maximum Split (%)	52.0%	9.7%	23.3%	15.0%	46.7%	15.0%	20.9%	17.4%
Minimum Split (s)	30	9	35	22.5	30	22.5	9.5	22.5
Yellow Time (s)	4.9	3	3	3.5	4.9	3.5	3.5	3.5
All-Red Time (s)	2.1	1	4	1	2.1	1	1	1
Minimum Initial (s)	20	5	6	5	20	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7	7	7	7		7
Flash Dont Walk (s)	16		21	11	16	11		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	78	92.5	127.5	0	70	92.5	123.9
End Time (s)	78	92.5	127.5	0	70	92.5	123.9	0
Yield/Force Off (s)	71	88.5	120.5	145.5	63	88	119.4	145.5
Yield/Force Off 170(s)	55	88.5	99.5	134.5	47	77	119.4	134.5
Local Start Time (s)	0	78	92.5	127.5	0	70	92.5	123.9
Local Yield (s)	71	88.5	120.5	145.5	63	88	119.4	145.5
Local Yield 170(s)	55	88.5	99.5	134.5	47	77	119.4	134.5

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Future Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.93	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1651	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1651	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1047	319	776	1237	2597	0	0	2069	1022
RTOR Reduction (vph)	0	0	0	0	24	337	0	0	0	0	0	92
Lane Group Flow (vph)	0	0	0	1047	551	183	1237	2597	0	0	2069	930
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				34.0	34.0	34.0	25.0	37.0			44.0	44.0
Effective Green, g (s)				34.0	34.0	34.0	25.0	37.0			44.0	44.0
Actuated g/C Ratio				0.28	0.28	0.28	0.21	0.31			0.37	0.37
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				972	467	426	715	1567			2766	580
v/s Ratio Prot					c0.33		c0.36	0.51			0.27	
v/s Ratio Perm				0.30		0.12						c0.59
v/c Ratio				1.08	1.18	0.43	1.73	1.66			0.75	1.60
Uniform Delay, d1				43.0	43.0	35.1	47.5	41.5			33.2	38.0
Progression Factor				1.09	1.10	2.01	0.90	0.62			1.00	1.00
Incremental Delay, d2				47.1	94.7	0.5	329.1	296.0			1.9	279.7
Delay (s)				94.1	141.9	71.1	371.8	321.8			35.1	317.7
Level of Service				F	F	E	F	F			D	F
Approach Delay (s)		0.0			101.3			337.9			128.5	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	210.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

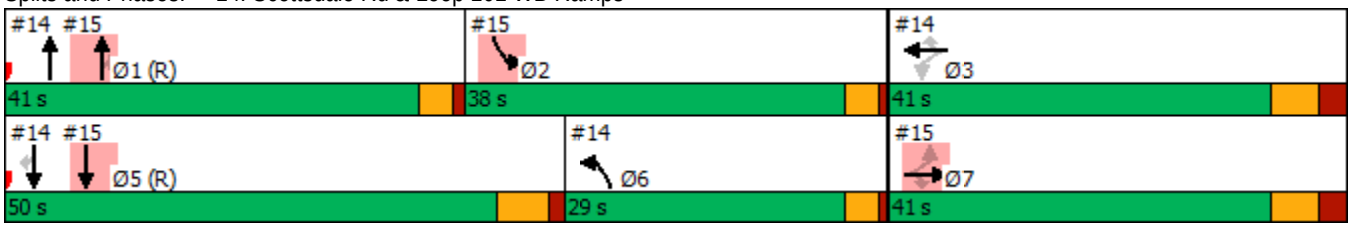
c Critical Lane Group

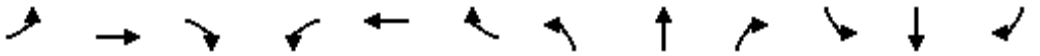
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	41	38	41	50	29	41
Maximum Split (%)	34.2%	31.7%	34.2%	41.7%	24.2%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	41	79	0	50	79
End Time (s)	41	79	0	50	79	0
Yield/Force Off (s)	37	75	113	44	75	113
Yield/Force Off 170(s)	37	75	105	36	75	85
Local Start Time (s)	0	41	79	0	50	79
Local Yield (s)	37	75	113	44	75	113
Local Yield 170(s)	37	75	105	36	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	140	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

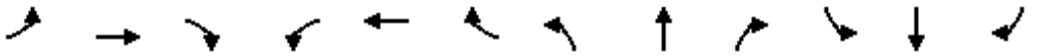




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Future Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	766	0	1068	0	0	0	0	3084	870	729	2502	0
RTOR Reduction (vph)	0	301	301	0	0	0	0	0	219	0	0	0
Lane Group Flow (vph)	766	233	233	0	0	0	0	3084	651	729	2502	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	34.0	34.0	34.0					37.0	37.0	34.0	44.0	
Effective Green, g (s)	34.0	34.0	34.0					37.0	37.0	34.0	44.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.31	0.31	0.28	0.37	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	972	426	426					2326	488	972	1864	
v/s Ratio Prot		0.15						0.41		c0.21	c0.49	
v/s Ratio Perm	c0.22		0.15						0.41			
v/c Ratio	0.79	0.55	0.55					1.33	1.33	0.75	1.34	
Uniform Delay, d1	39.7	36.5	36.5					41.5	41.5	39.1	38.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.02	0.44	
Incremental Delay, d2	4.3	1.4	1.4					149.7	163.6	2.9	156.0	
Delay (s)	44.0	37.9	37.9					191.2	205.1	42.7	172.6	
Level of Service	D	D	D					F	F	D	F	
Approach Delay (s)		40.4			0.0			194.3			143.3	
Approach LOS		D			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	144.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Future Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Ideal Flow (vphpl)	1800	2000	1800	1800	2000	1800	1800	2000	1800	1800	2000	1800
Total Lost time (s)	5.5	7.0	5.5	5.5	7.0	5.9	5.5	7.0	5.5	5.9	7.1	5.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3252	5353	1500	1676	3725	1500	3252	5353	1500	3252	5353	1500
Flt Permitted	0.95	1.00	1.00	0.61	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	3252	5353	1500	1080	3725	1500	3252	5353	1500	286	5353	1500
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	832	214	238	213	306	614	461	2548	151	491	2136	922
RTOR Reduction (vph)	0	0	98	0	0	94	0	0	26	0	0	56
Lane Group Flow (vph)	832	214	140	213	306	520	461	2548	125	491	2136	866
Turn Type	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1	8	2	5	4
Permitted Phases			7	3		3			1	5		5
Actuated Green, G (s)	33.3	14.8	39.3	56.9	19.2	33.3	24.5	58.0	95.7	62.0	47.9	81.2
Effective Green, g (s)	33.3	14.8	39.3	56.9	19.2	33.3	24.5	58.0	95.7	62.0	47.9	81.2
Actuated g/C Ratio	0.22	0.10	0.26	0.38	0.13	0.22	0.16	0.39	0.64	0.41	0.32	0.54
Clearance Time (s)	5.5	7.0	5.5	5.5	7.0	5.9	5.5	7.0	5.5	5.9	7.1	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	721	528	448	559	476	392	531	2069	1012	397	1709	867
v/s Ratio Prot	c0.26	0.04	0.05	c0.10	0.08	c0.12	0.14	c0.48	0.03	0.12	0.40	0.22
v/s Ratio Perm			0.04	0.05		0.22			0.05	0.40		0.36
v/c Ratio	1.15	0.41	0.31	0.38	0.64	1.33	0.87	1.23	0.12	1.24	1.25	1.00
Uniform Delay, d1	58.4	63.5	44.5	35.0	62.1	58.4	61.2	46.0	10.7	64.5	51.0	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	84.6	0.5	0.4	0.4	3.0	163.5	17.3	108.6	0.1	126.5	117.5	29.9
Delay (s)	143.0	64.0	44.9	35.5	65.1	221.9	78.5	154.6	10.7	191.0	168.5	64.3
Level of Service	F	E	D	D	E	F	E	F	B	F	F	E
Approach Delay (s)		111.6			144.5			136.6			144.6	
Approach LOS		F			F			F			F	

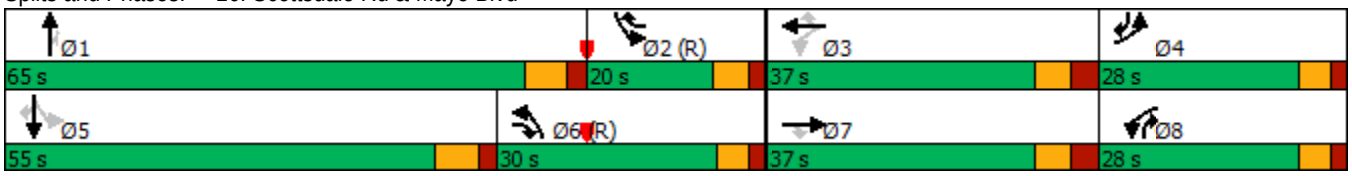
Intersection Summary			
HCM 2000 Control Delay	137.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	116.1%	ICU Level of Service	H
Analysis Period (min)	15		

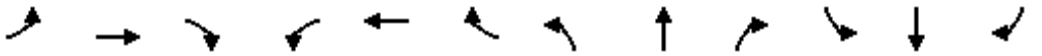
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBTL	EBL	SBTL	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	65	20	37	28	55	30	37	28
Maximum Split (%)	43.3%	13.3%	24.7%	18.7%	36.7%	20.0%	24.7%	18.7%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	85	0	20	57	85	140	20	57
End Time (s)	0	20	57	85	140	20	57	85
Yield/Force Off (s)	143	14.1	50	79.5	132.9	14.5	50	79.5
Yield/Force Off 170(s)	124	14.1	27	79.5	113.9	14.5	27	79.5
Local Start Time (s)	85	0	20	57	85	140	20	57
Local Yield (s)	143	14.1	50	79.5	132.9	14.5	50	79.5
Local Yield 170(s)	124	14.1	27	79.5	113.9	14.5	27	79.5

Intersection Summary	
Cycle Length	150
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1	144	16	5	5	168	2691	8	10	2395	101
Future Volume (vph)	143	1	144	16	5	5	168	2691	8	10	2395	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.37	1.00	1.00	0.76	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	695	3539	1583	1410	3539	1583	109	5085	1583	118	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	1	160	18	6	6	187	2990	9	11	2661	112
RTOR Reduction (vph)	0	0	139	0	0	6	0	0	3	0	0	53
Lane Group Flow (vph)	159	1	21	18	6	0	187	2990	6	11	2661	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.4	15.9	15.9	8.4	5.4	5.4	81.6	74.8	74.8	64.4	63.1	63.1
Effective Green, g (s)	24.4	15.9	15.9	8.4	5.4	5.4	81.6	74.8	74.8	64.4	63.1	63.1
Actuated g/C Ratio	0.20	0.13	0.13	0.07	0.05	0.05	0.68	0.62	0.62	0.54	0.53	0.53
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	262	468	209	107	159	71	254	3169	986	81	2673	832
v/s Ratio Prot	c0.07	0.00		0.00	0.00		c0.08	c0.59		0.00	c0.52	
v/s Ratio Perm	c0.06		0.01	0.01		0.00	0.42		0.00	0.07		0.04
v/c Ratio	0.61	0.00	0.10	0.17	0.04	0.00	0.74	0.94	0.01	0.14	1.00	0.07
Uniform Delay, d1	42.0	45.2	45.8	52.4	54.8	54.7	36.5	20.7	8.5	24.2	28.3	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.77	2.51	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.0	0.2	0.7	0.1	0.0	1.0	0.8	0.0	0.8	16.4	0.2
Delay (s)	45.9	45.2	46.0	53.2	54.9	54.8	29.1	52.7	8.5	25.0	44.7	14.2
Level of Service	D	D	D	D	D	D	C	D	A	C	D	B
Approach Delay (s)		46.0			53.8			51.2			43.4	
Approach LOS		D			D			D			D	

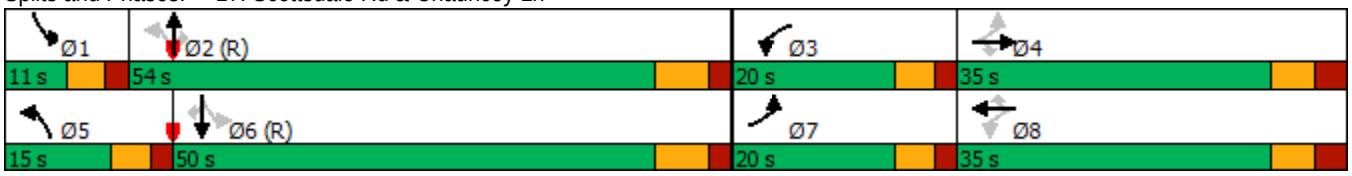
Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

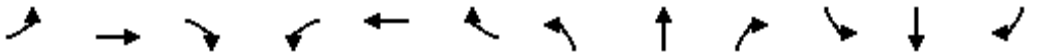
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Future Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3036		3433	1863	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.72	1.00		0.95	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1349	3036		3433	1863	1583	135	5085	1583	135	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	17	313	472	50	394	324	2669	367	239	2503	89
RTOR Reduction (vph)	0	165	0	0	0	135	0	0	133	0	0	34
Lane Group Flow (vph)	70	165	0	472	50	259	324	2669	234	239	2503	55
Turn Type	pm+pt	NA		Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	4	3		4	3	2	2	1	4	2	1	4
Permitted Phases	3					3	1		1	1		1
Actuated Green, G (s)	30.0	11.0		19.0	11.0	25.0	69.0	55.0	74.0	69.0	55.0	74.0
Effective Green, g (s)	30.0	11.0		19.0	11.0	25.0	69.0	55.0	74.0	69.0	55.0	74.0
Actuated g/C Ratio	0.25	0.09		0.16	0.09	0.21	0.58	0.46	0.62	0.58	0.46	0.62
Clearance Time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	403	278		543	170	382	268	2330	1028	268	2330	1028
v/s Ratio Prot	0.03	0.05		c0.14	0.03	c0.08	c0.14	0.52	0.04	0.10	0.49	0.01
v/s Ratio Perm	0.02					0.08	c0.55		0.11	0.41		0.03
v/c Ratio	0.17	1.01dr		0.87	0.29	0.68	1.21	1.15	0.23	0.89	1.07	0.05
Uniform Delay, d1	35.6	52.3		49.3	50.9	43.8	49.6	32.5	10.3	48.7	32.5	9.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.95	1.33	6.29	0.56	0.86	3.95
Incremental Delay, d2	0.2	3.4		13.8	1.0	4.7	97.4	66.0	0.0	17.4	37.7	0.0
Delay (s)	35.8	55.7		63.1	51.8	48.6	144.5	109.1	64.5	44.8	65.6	36.0
Level of Service	D	E		E	D	D	F	F	E	D	E	D
Approach Delay (s)		52.2			56.2			107.7			62.9	
Approach LOS		D			E			F			E	

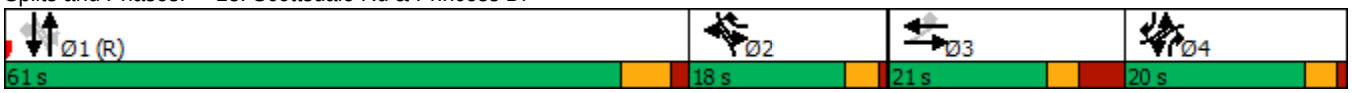
Intersection Summary			
HCM 2000 Control Delay	81.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

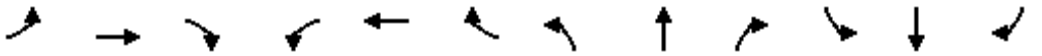
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	WBEBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	61	18	21	20
Maximum Split (%)	50.8%	15.0%	17.5%	16.7%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	61	79	100
End Time (s)	61	79	100	0
Yield/Force Off (s)	55	75	93	116
Yield/Force Off 170(s)	45	75	72	116
Local Start Time (s)	0	61	79	100
Local Yield (s)	55	75	93	116
Local Yield 170(s)	45	75	72	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Future Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.60		0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1372			1058		102	5085	1583	102	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	3	154	120	10	73	139	3214	33	72	3176	106
RTOR Reduction (vph)	0	57	0	0	18	0	0	0	13	0	0	29
Lane Group Flow (vph)	0	184	0	0	185	0	139	3214	20	72	3176	77
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		24.2			24.2		78.8	72.8	72.8	78.8	72.8	72.8
Effective Green, g (s)		24.2			24.2		78.8	72.8	72.8	78.8	72.8	72.8
Actuated g/C Ratio		0.20			0.20		0.66	0.61	0.61	0.66	0.61	0.61
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		276			213		150	3084	960	150	3084	960
v/s Ratio Prot							c0.05	c0.63		0.02	0.62	
v/s Ratio Perm		0.13			c0.18		0.56		0.01	0.29		0.05
v/c Ratio		0.67			0.87		0.93	1.04	0.02	0.48	1.03	0.08
Uniform Delay, d1		44.2			46.4		53.6	23.6	9.4	52.3	23.6	9.8
Progression Factor		1.00			1.00		1.00	1.00	1.00	0.77	1.06	1.98
Incremental Delay, d2		6.0			29.8		56.1	28.6	0.0	2.8	17.4	0.0
Delay (s)		50.2			76.2		109.7	52.2	9.4	43.1	42.5	19.4
Level of Service		D			E		F	D	A	D	D	B
Approach Delay (s)		50.2			76.2			54.1			41.8	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

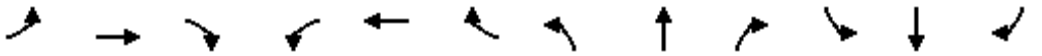
c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Future Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Ideal Flow (vphpl)	1800	2000	1800	1800	2000	1800	1800	2000	1800	1800	2000	1800
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3252	5353	1500	3252	5353	1500	3252	5353	1500	3252	5142	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3252	5353	1500	3252	5353	1500	3252	5353	1500	3252	5142	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	486	847	270	289	1932	683	643	2307	358	573	2150	766
RTOR Reduction (vph)	0	0	37	0	0	36	0	0	31	0	44	0
Lane Group Flow (vph)	486	847	233	289	1932	647	643	2307	327	573	2872	0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	12.0	39.4	55.4	15.6	43.0	57.0	16.0	54.0	69.6	14.0	52.0	
Effective Green, g (s)	12.0	39.4	55.4	15.6	43.0	57.0	16.0	54.0	69.6	14.0	52.0	
Actuated g/C Ratio	0.08	0.27	0.38	0.11	0.30	0.39	0.11	0.37	0.48	0.10	0.36	
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	269	1454	573	349	1587	589	358	1993	720	313	1844	
v/s Ratio Prot	c0.15	0.16	0.04	0.09	c0.36	0.11	c0.20	0.43	0.05	0.18	c0.56	
v/s Ratio Perm			0.11			0.33			0.17			
v/c Ratio	1.81	0.58	0.41	0.83	1.22	1.10	1.80	1.16	0.45	1.83	1.56	
Uniform Delay, d1	66.5	45.7	32.8	63.4	51.0	44.0	64.5	45.5	25.1	65.5	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	377.4	1.7	0.5	14.8	103.8	66.6	369.2	77.0	0.5	386.1	253.5	
Delay (s)	443.9	47.4	33.2	78.2	154.8	110.6	433.7	122.5	25.5	451.6	300.0	
Level of Service	F	D	C	E	F	F	F	F	C	F	F	
Approach Delay (s)		165.2			136.8			172.5			324.9	
Approach LOS		F			F			F			F	

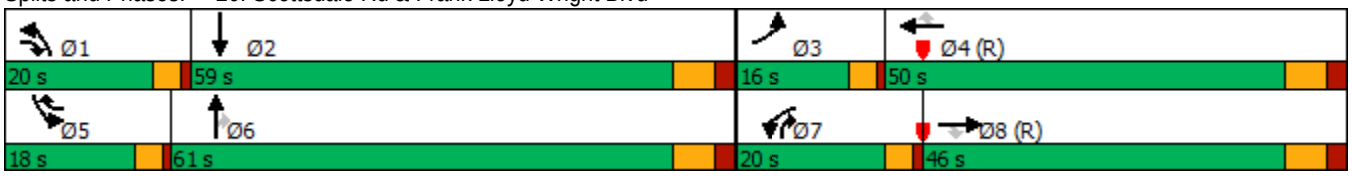
Intersection Summary			
HCM 2000 Control Delay	209.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	131.0%	ICU Level of Service	H
Analysis Period (min)	15		

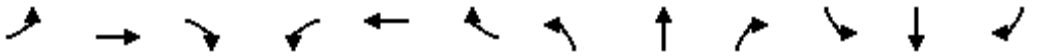
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	20	59	16	50	18	61	20	46
Maximum Split (%)	13.8%	40.7%	11.0%	34.5%	12.4%	42.1%	13.8%	31.7%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	46	66	125	141	46	64	125	0
End Time (s)	66	125	141	46	64	125	0	46
Yield/Force Off (s)	62	118	137	39	60	118	141	39
Yield/Force Off 170(s)	62	97	137	17	60	97	141	17
Local Start Time (s)	46	66	125	141	46	64	125	0
Local Yield (s)	62	118	137	39	60	118	141	39
Local Yield 170(s)	62	97	137	17	60	97	141	17

Intersection Summary	
Cycle Length	145
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Future Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.15	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	402	6408	1583	402	6408	1583	276	3539	1583	438	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	609	1467	114	452	2143	580	131	732	703	518	947	832
RTOR Reduction (vph)	0	0	80	0	0	57	0	0	67	0	0	62
Lane Group Flow (vph)	609	1467	34	452	2143	523	131	732	636	518	947	770
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	49.0	36.0	36.0	49.0	36.0	52.0	37.0	27.0	40.0	49.0	33.0	46.0
Effective Green, g (s)	49.0	36.0	36.0	49.0	36.0	52.0	37.0	27.0	40.0	49.0	33.0	46.0
Actuated g/C Ratio	0.41	0.30	0.30	0.41	0.30	0.43	0.31	0.22	0.33	0.41	0.28	0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	492	1922	474	492	1922	778	209	796	620	578	973	699
v/s Ratio Prot	0.13	0.23		0.10	0.33	0.09	0.05	0.21	0.11	c0.12	0.27	c0.12
v/s Ratio Perm	c0.37		0.02	0.28		0.24	0.14		0.29	0.25		0.37
v/c Ratio	1.24	0.76	0.07	0.92	1.11	0.67	0.63	0.92	1.03	0.90	0.97	1.10
Uniform Delay, d1	34.0	38.1	30.1	30.1	42.0	27.2	32.9	45.4	40.0	31.8	43.1	37.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.81	0.97
Incremental Delay, d2	123.5	2.9	0.3	22.1	59.6	2.3	5.8	15.5	43.0	14.7	20.6	63.5
Delay (s)	157.5	41.1	30.3	52.2	101.6	29.5	38.7	60.9	83.0	48.7	55.3	99.2
Level of Service	F	D	C	D	F	C	D	E	F	D	E	F
Approach Delay (s)		72.9			81.4			69.0			69.7	
Approach LOS		E			F			E			E	

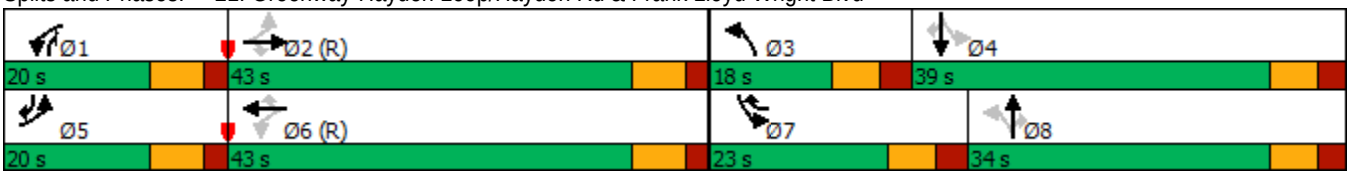
Intersection Summary			
HCM 2000 Control Delay	74.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

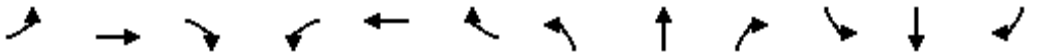
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBTL	EBL	WBTL	SBL	NBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	43	18	39	20	43	23	34
Maximum Split (%)	16.7%	35.8%	15.0%	32.5%	16.7%	35.8%	19.2%	28.3%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	43	61	100	0	43	66
End Time (s)	0	43	61	100	0	43	66	100
Yield/Force Off (s)	113	36	54	93	113	36	59	93
Yield/Force Off 170(s)	113	19	54	69	113	19	59	69
Local Start Time (s)	100	0	43	61	100	0	43	66
Local Yield (s)	113	36	54	93	113	36	59	93
Local Yield 170(s)	113	19	54	69	113	19	59	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Future Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.22	1.00	1.00	0.12	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	790	3539	1583	439	5077		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	741	706	159	116	452	446	264	1907	21	403	1236	403
RTOR Reduction (vph)	0	0	55	0	0	97	0	1	0	0	0	32
Lane Group Flow (vph)	741	706	104	116	452	349	264	1927	0	403	1236	371
Turn Type	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7	3		3	1					5
Actuated Green, G (s)	21.7	27.7	40.7	30.6	18.3	34.3	55.0	42.0		16.0	45.0	66.7
Effective Green, g (s)	21.7	27.7	40.7	30.6	18.3	34.3	55.0	42.0		16.0	45.0	66.7
Actuated g/C Ratio	0.18	0.23	0.34	0.26	0.15	0.29	0.46	0.35		0.13	0.38	0.56
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	620	816	589	472	539	505	525	1776		457	1906	932
v/s Ratio Prot	c0.22	c0.20	0.02	0.03	0.13	0.09	0.05	c0.38		c0.12	0.24	0.07
v/s Ratio Perm			0.05	0.04		0.13	0.18					0.16
v/c Ratio	1.20	0.87	0.18	0.25	0.84	0.69	0.50	1.09		0.88	0.65	0.40
Uniform Delay, d1	49.1	44.4	27.9	46.3	49.4	38.1	37.7	39.0		51.1	31.0	15.2
Progression Factor	0.77	1.32	2.06	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	99.0	7.0	0.1	0.3	11.0	4.1	3.4	48.5		21.1	1.7	0.3
Delay (s)	137.0	65.7	57.5	46.6	60.4	42.2	41.1	87.5		72.1	32.7	15.5
Level of Service	F	E	E	D	E	D	D	F		E	C	B
Approach Delay (s)		97.8			50.8			81.9			37.1	
Approach LOS		F			D			F			D	

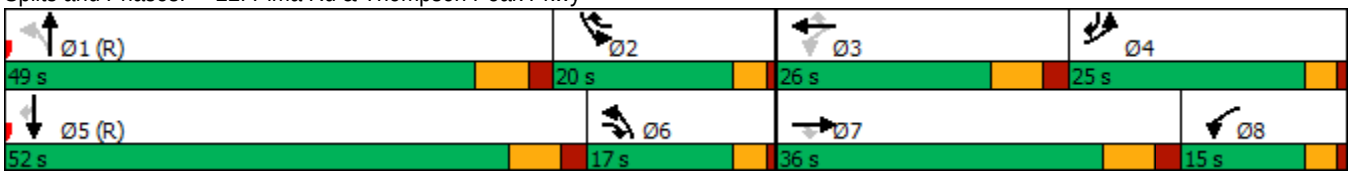
Intersection Summary			
HCM 2000 Control Delay	67.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

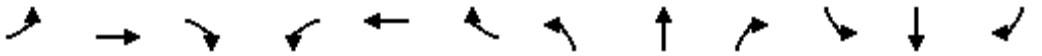
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBTL	SBL	WBTL	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	49	20	26	25	52	17	36	15
Maximum Split (%)	40.8%	16.7%	21.7%	20.8%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	1	21	47	72	4	21	57
End Time (s)	1	21	47	72	4	21	57	72
Yield/Force Off (s)	114	17	40	68	117	17	50	68
Yield/Force Off 170(s)	92	17	19	68	95	17	29	68
Local Start Time (s)	0	49	69	95	0	52	69	105
Local Yield (s)	42	65	88	116	45	65	98	116
Local Yield 170(s)	20	65	67	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 72 (60%), Referenced to phase 1:NBTL and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





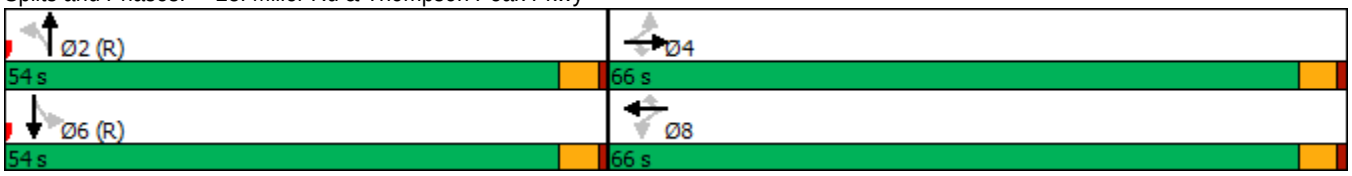
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	751	179	110	366	0	262	0	179	0	0	0
Future Volume (vph)	0	751	179	110	366	0	262	0	179	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.26	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	482	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	834	199	122	407	0	291	0	199	0	0	0
RTOR Reduction (vph)	0	0	97	0	0	0	0	75	0	0	0	0
Lane Group Flow (vph)	0	834	102	122	407	0	291	124	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		61.5	61.5	61.5	61.5		49.5	49.5				
Effective Green, g (s)		61.5	61.5	61.5	61.5		49.5	49.5				
Actuated g/C Ratio		0.51	0.51	0.51	0.51		0.41	0.41				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1813	811	247	1813		581	1240				
v/s Ratio Prot		0.24			0.11			0.04				
v/s Ratio Perm			0.06	c0.25			c0.21					
v/c Ratio		0.46	0.13	0.49	0.22		0.50	0.10				
Uniform Delay, d1		18.7	15.2	19.1	16.1		26.1	21.6				
Progression Factor		0.83	1.09	1.74	1.63		1.47	2.25				
Incremental Delay, d2		0.6	0.2	5.7	0.2		2.3	0.1				
Delay (s)		16.1	16.8	39.0	26.5		40.7	48.8				
Level of Service		B	B	D	C		D	D				
Approach Delay (s)		16.2			29.4			44.0			0.0	
Approach LOS		B			C			D			A	

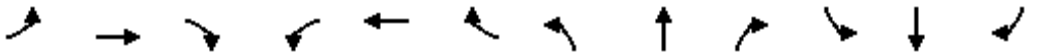
Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	54	66	54	66
Maximum Split (%)	45.0%	55.0%	45.0%	55.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	0	54
End Time (s)	54	0	54	0
Yield/Force Off (s)	49.5	115.5	49.5	115.5
Yield/Force Off 170(s)	38.5	104.5	38.5	104.5
Local Start Time (s)	0	54	0	54
Local Yield (s)	49.5	115.5	49.5	115.5
Local Yield 170(s)	38.5	104.5	38.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy





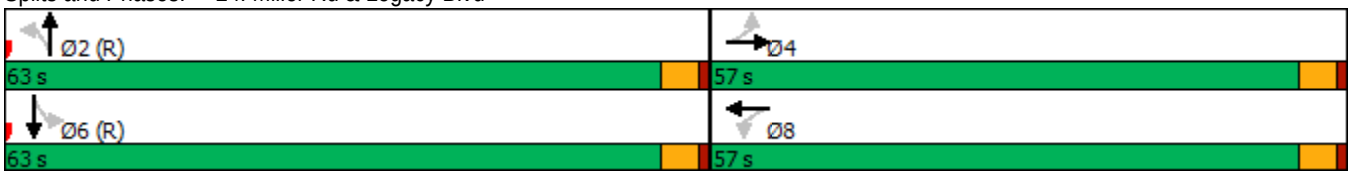
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	501	235	141	478	75	350	317	209	116	211	70
Future Volume (vph)	70	501	235	141	478	75	350	317	209	116	211	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1752		1770	1793	
Flt Permitted	0.39	1.00	1.00	0.37	1.00	1.00	0.49	1.00		0.25	1.00	
Satd. Flow (perm)	719	3539	1583	690	3539	1583	911	1752		473	1793	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	557	261	157	531	83	389	352	232	129	234	78
RTOR Reduction (vph)	0	0	261	0	0	83	0	20	0	0	10	0
Lane Group Flow (vph)	78	557	0	157	531	0	389	564	0	129	302	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.5	52.5	0.0	52.5	52.5	0.0	58.5	58.5		58.5	58.5	
Effective Green, g (s)	52.5	52.5	0.0	52.5	52.5	0.0	58.5	58.5		58.5	58.5	
Actuated g/C Ratio	0.44	0.44	0.00	0.44	0.44	0.00	0.49	0.49		0.49	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	314	1548	0	301	1548	0	444	854		230	874	
v/s Ratio Prot		0.16			0.15			0.32			0.17	
v/s Ratio Perm	0.11			c0.23			c0.43			0.27		
v/c Ratio	0.25	0.36	0.00	0.52	0.34	0.00	0.88	0.66		0.56	0.35	
Uniform Delay, d1	21.3	22.5	60.0	24.6	22.3	60.0	27.5	23.2		21.7	18.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.00		0.78	0.66	
Incremental Delay, d2	1.9	0.7	0.0	6.3	0.6	0.0	20.9	4.0		9.4	1.1	
Delay (s)	23.2	23.2	60.0	30.9	22.9	60.0	48.6	27.4		26.3	13.6	
Level of Service	C	C	E	C	C	E	D	C		C	B	
Approach Delay (s)		33.9			28.6			35.8			17.3	
Approach LOS		C			C			D			B	

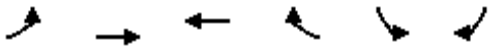
Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	63	57	63	57
Maximum Split (%)	52.5%	47.5%	52.5%	47.5%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	63	0	63
End Time (s)	63	0	63	0
Yield/Force Off (s)	58.5	115.5	58.5	115.5
Yield/Force Off 170(s)	47.5	104.5	47.5	104.5
Local Start Time (s)	0	63	0	63
Local Yield (s)	58.5	115.5	58.5	115.5
Local Yield 170(s)	47.5	104.5	47.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 24: Miller Rd & Legacy Blvd

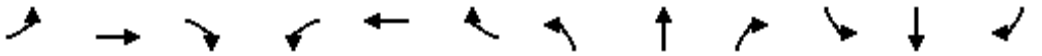




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	32	29	0
Future Volume (Veh/h)	0	0	0	32	29	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	36	32	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	36				18	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				18	18
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1573				997	1056

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	0	0	0	0	36	32	0
Volume Left	0	0	0	0	0	32	0
Volume Right	0	0	0	0	36	0	0
cSH	1700	1700	1700	1700	1700	997	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.02	0.03	0.00
Queue Length 95th (ft)	0	0	0	0	0	2	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7	0.0
Lane LOS						A	A
Approach Delay (s)	0.0			0.0		8.7	
Approach LOS						A	

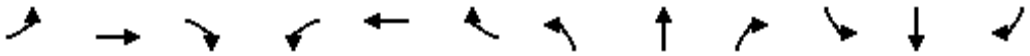
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	10	0	0	36	22	15	49	15	419	17
Future Volume (Veh/h)	8	0	10	0	0	36	22	15	49	15	419	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	0	11	0	0	40	24	17	54	17	466	19
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	614	628	476	603	611	44	485			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614	628	476	603	611	44	485			71		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	100	100	96	98			99		
cM capacity (veh/h)	378	386	589	393	395	1026	1078			1529		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	9	11	0	40	24	71	17	485
Volume Left	9	0	0	0	24	0	17	0
Volume Right	0	11	0	40	0	54	0	19
cSH	378	589	1700	1026	1078	1700	1529	1700
Volume to Capacity	0.02	0.02	0.00	0.04	0.02	0.04	0.01	0.29
Queue Length 95th (ft)	2	1	0	3	2	0	1	0
Control Delay (s)	14.8	11.2	0.0	8.7	8.4	0.0	7.4	0.0
Lane LOS	B	B	A	A	A		A	
Approach Delay (s)	12.8		8.7		2.1		0.2	
Approach LOS	B		A					

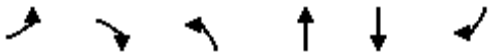
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	36.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	64	48	130	157	65	130	0	138	48	82	16
Future Volume (Veh/h)	26	64	48	130	157	65	130	0	138	48	82	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	71	53	144	174	72	144	0	153	53	91	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	246			124			681	690	98	780	680	210
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246			124			681	690	98	780	680	210
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			44	100	84	78	72	98
cM capacity (veh/h)	1320			1463			256	325	959	239	329	830

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	29	124	144	246	144	153	53	109
Volume Left	29	0	144	0	144	0	53	0
Volume Right	0	53	0	72	0	153	0	18
cSH	1320	1700	1463	1700	256	959	239	365
Volume to Capacity	0.02	0.07	0.10	0.14	0.56	0.16	0.22	0.30
Queue Length 95th (ft)	2	0	8	0	79	14	21	31
Control Delay (s)	7.8	0.0	7.7	0.0	35.7	9.5	24.3	19.0
Lane LOS	A		A		E	A	C	C
Approach Delay (s)	1.5		2.9		22.2		20.7	
Approach LOS					C		C	

Intersection Summary				
Average Delay	11.3			
Intersection Capacity Utilization	41.4%	ICU Level of Service		A
Analysis Period (min)	15			



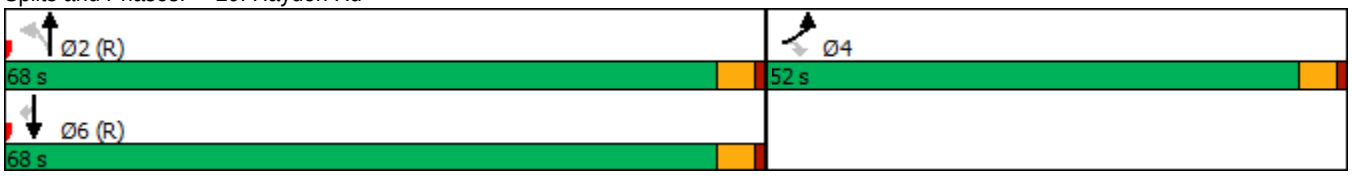
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	214	224	165	216	267	94
Future Volume (vph)	214	224	165	216	267	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.56	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1048	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	249	183	240	297	104
RTOR Reduction (vph)	0	150	0	0	0	49
Lane Group Flow (vph)	238	99	183	240	297	55
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	47.5	47.5	63.5	63.5	63.5	63.5
Effective Green, g (s)	47.5	47.5	63.5	63.5	63.5	63.5
Actuated g/C Ratio	0.40	0.40	0.53	0.53	0.53	0.53
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	700	626	554	1872	1872	837
v/s Ratio Prot	c0.13			0.07	0.08	
v/s Ratio Perm		0.06	c0.17			0.03
v/c Ratio	0.34	0.16	0.33	0.13	0.16	0.07
Uniform Delay, d1	25.3	23.4	16.1	14.3	14.5	13.8
Progression Factor	1.02	1.08	0.95	0.81	1.00	1.00
Incremental Delay, d2	1.3	0.5	0.1	0.0	0.2	0.2
Delay (s)	27.1	25.9	15.4	11.5	14.7	13.9
Level of Service	C	C	B	B	B	B
Approach Delay (s)	26.5			13.2	14.5	
Approach LOS	C			B	B	

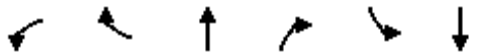
Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	Max	Max
Maximum Split (s)	68	52	68
Maximum Split (%)	56.7%	43.3%	56.7%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	68	0
End Time (s)	68	0	68
Yield/Force Off (s)	63.5	115.5	63.5
Yield/Force Off 170(s)	52.5	104.5	52.5
Local Start Time (s)	0	68	0
Local Yield (s)	63.5	115.5	63.5
Local Yield 170(s)	52.5	104.5	52.5

Intersection Summary	
Cycle Length	120
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd

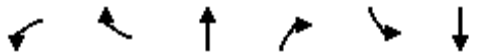




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	97	206	129	52	86	94
Future Volume (Veh/h)	97	206	129	52	86	94
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	108	229	143	58	96	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						1305
pX, platoon unblocked						
vC, conflicting volume	468	172			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468	172			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	74			93	
cM capacity (veh/h)	515	872			1371	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	108	229	201	96	104
Volume Left	108	0	0	96	0
Volume Right	0	229	58	0	0
cSH	515	872	1700	1371	1700
Volume to Capacity	0.21	0.26	0.12	0.07	0.06
Queue Length 95th (ft)	20	26	0	6	0
Control Delay (s)	13.8	10.6	0.0	7.8	0.0
Lane LOS	B	B		A	
Approach Delay (s)	11.6		0.0	3.8	
Approach LOS	B				

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	61	69	111	29	38	153
Future Volume (Veh/h)	61	69	111	29	38	153
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	68	77	123	32	42	170
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	393	139			155	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393	139			155	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	92			97	
cM capacity (veh/h)	593	909			1425	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	68	77	155	42	170
Volume Left	68	0	0	42	0
Volume Right	0	77	32	0	0
cSH	593	909	1700	1425	1700
Volume to Capacity	0.11	0.08	0.09	0.03	0.10
Queue Length 95th (ft)	10	7	0	2	0
Control Delay (s)	11.8	9.3	0.0	7.6	0.0
Lane LOS	B	A		A	
Approach Delay (s)	10.5		0.0	1.5	
Approach LOS	B				

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	99	290	45	53	139
Future Volume (Veh/h)	42	99	290	45	53	139
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	47	110	322	50	59	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						676
pX, platoon unblocked						
vC, conflicting volume	619	347			372	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	619	347			372	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	84			95	
cM capacity (veh/h)	430	696			1186	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	47	110	372	59	154
Volume Left	47	0	0	59	0
Volume Right	0	110	50	0	0
cSH	430	696	1700	1186	1700
Volume to Capacity	0.11	0.16	0.22	0.05	0.09
Queue Length 95th (ft)	9	14	0	4	0
Control Delay (s)	14.4	11.1	0.0	8.2	0.0
Lane LOS	B	B		A	
Approach Delay (s)	12.1		0.0	2.3	
Approach LOS	B				

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	176	85	59	170	103	57
Future Volume (Veh/h)	176	85	59	170	103	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	196	94	66	189	114	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1156					
pX, platoon unblocked						
vC, conflicting volume			290		470	145
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			290		470	145
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		77	93
cM capacity (veh/h)			1269		495	876

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	131	159	66	94	94	114	63
Volume Left	0	0	66	0	0	114	0
Volume Right	0	94	0	0	0	0	63
cSH	1700	1700	1269	1700	1700	495	876
Volume to Capacity	0.08	0.09	0.05	0.06	0.06	0.23	0.07
Queue Length 95th (ft)	0	0	4	0	0	22	6
Control Delay (s)	0.0	0.0	8.0	0.0	0.0	14.4	9.4
Lane LOS			A			B	A
Approach Delay (s)	0.0		2.1			12.6	
Approach LOS						B	

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	173	60	57	154	75	55
Future Volume (Veh/h)	173	60	57	154	75	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	192	67	63	171	83	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			259		437	130
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			259		437	130
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		84	93
cM capacity (veh/h)			1303		521	896

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	128	131	63	86	86	83	61
Volume Left	0	0	63	0	0	83	0
Volume Right	0	67	0	0	0	0	61
cSH	1700	1700	1303	1700	1700	521	896
Volume to Capacity	0.08	0.08	0.05	0.05	0.05	0.16	0.07
Queue Length 95th (ft)	0	0	4	0	0	14	5
Control Delay (s)	0.0	0.0	7.9	0.0	0.0	13.2	9.3
Lane LOS			A			B	A
Approach Delay (s)	0.0		2.1			11.6	
Approach LOS						B	

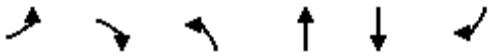
Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	185	43	63	149	62	62
Future Volume (Veh/h)	185	43	63	149	62	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	206	48	70	166	69	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				919		
pX, platoon unblocked						
vC, conflicting volume			254		453	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			254		453	127
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		86	92
cM capacity (veh/h)			1308		507	900

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	137	117	125	111	69	69
Volume Left	0	0	70	0	69	0
Volume Right	0	48	0	0	0	69
cSH	1700	1700	1308	1700	507	900
Volume to Capacity	0.08	0.07	0.05	0.07	0.14	0.08
Queue Length 95th (ft)	0	0	4	0	12	6
Control Delay (s)	0.0	0.0	4.6	0.0	13.2	9.3
Lane LOS			A		B	A
Approach Delay (s)	0.0		2.4		11.3	
Approach LOS					B	

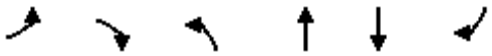
Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	99	97	334	262	9
Future Volume (Veh/h)	0	99	97	334	262	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	110	108	371	291	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				541	654	
pX, platoon unblocked						
vC, conflicting volume	698	150	301			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	698	150	301			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	91			
cM capacity (veh/h)	343	869	1257			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	110	108	186	186	194	107
Volume Left	0	108	0	0	0	0
Volume Right	110	0	0	0	0	10
cSH	869	1257	1700	1700	1700	1700
Volume to Capacity	0.13	0.09	0.11	0.11	0.11	0.06
Queue Length 95th (ft)	11	7	0	0	0	0
Control Delay (s)	9.7	8.1	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.7	1.8			0.0	
Approach LOS	A					

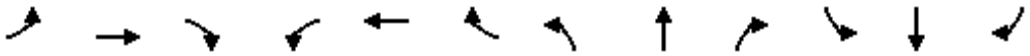
Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	20.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	116	44	381	443	48
Future Volume (Veh/h)	0	116	44	381	443	48
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	129	49	423	492	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				622	680	
pX, platoon unblocked						
vC, conflicting volume	828	190	545			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	828	190	545			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	95			
cM capacity (veh/h)	295	819	1020			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	129	49	212	212	197	197	151
Volume Left	0	49	0	0	0	0	0
Volume Right	129	0	0	0	0	0	53
cSH	819	1020	1700	1700	1700	1700	1700
Volume to Capacity	0.16	0.05	0.12	0.12	0.12	0.12	0.09
Queue Length 95th (ft)	14	4	0	0	0	0	0
Control Delay (s)	10.2	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	10.2	0.9			0.0		
Approach LOS	B						

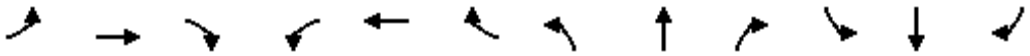
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	0	126	148	0	112	11	43	4	55	177	28
Future Volume (Veh/h)	113	0	126	148	0	112	11	43	4	55	177	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	126	0	140	164	0	124	12	48	4	61	197	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	530	410	212	533	424	50	228			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530	410	212	533	424	50	228			52		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	68	100	83	55	100	88	99			96		
cM capacity (veh/h)	389	506	828	366	497	1018	1340			1554		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	126	140	164	124	12	52	61	228
Volume Left	126	0	164	0	12	0	61	0
Volume Right	0	140	0	124	0	4	0	31
cSH	389	828	366	1018	1340	1700	1554	1700
Volume to Capacity	0.32	0.17	0.45	0.12	0.01	0.03	0.04	0.13
Queue Length 95th (ft)	35	15	56	10	1	0	3	0
Control Delay (s)	18.6	10.2	22.6	9.0	7.7	0.0	7.4	0.0
Lane LOS	C	B	C	A	A		A	
Approach Delay (s)	14.2		16.7		1.4		1.6	
Approach LOS	B		C					

Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	37.0%	ICU Level of Service		A
Analysis Period (min)	15			



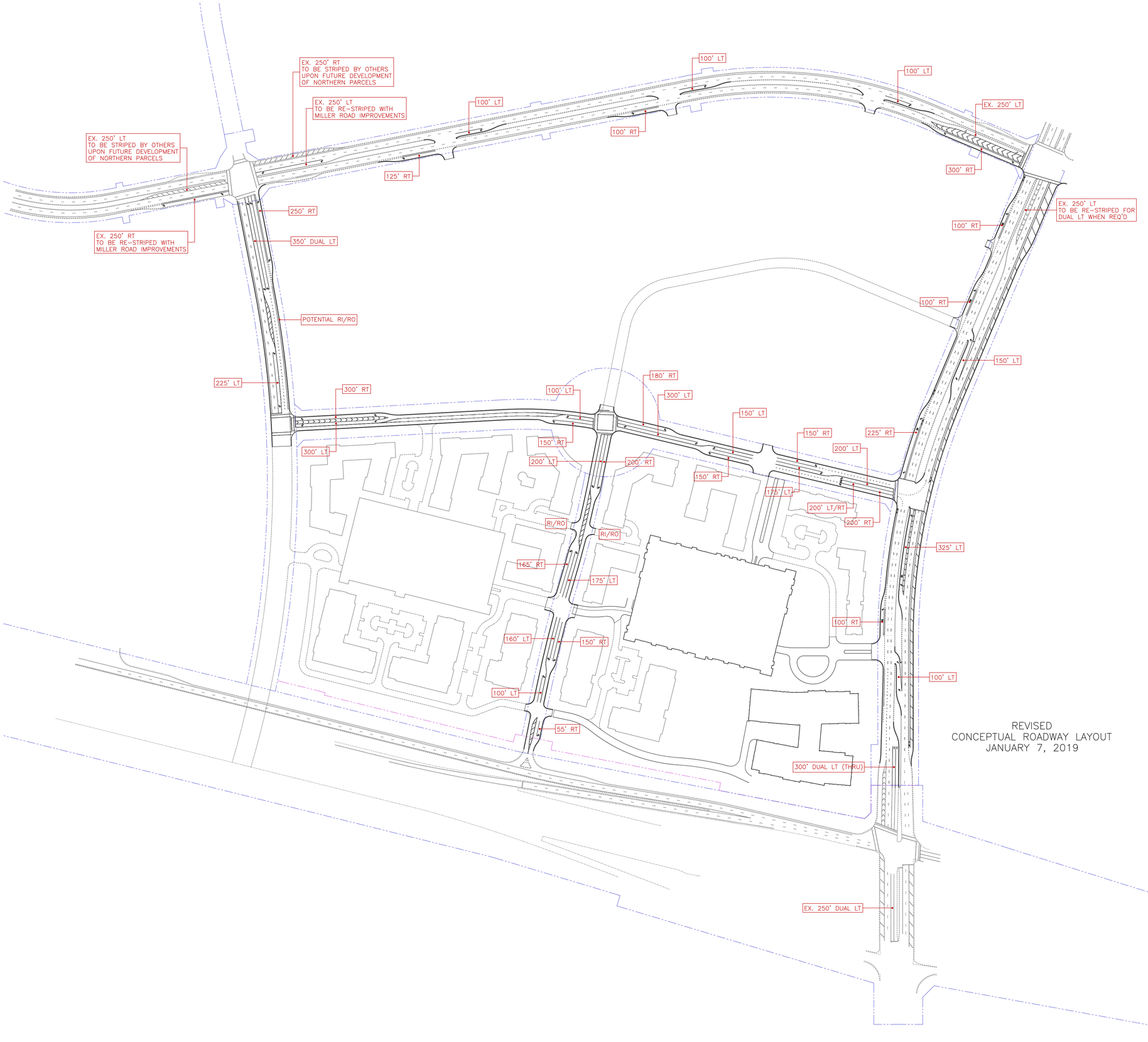
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	186	53	52	131	75	150	0	190	62	0	70
Future Volume (Veh/h)	11	186	53	52	131	75	150	0	190	62	0	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	207	59	58	146	83	167	0	211	69	0	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					890							
pX, platoon unblocked												
vC, conflicting volume	229			266			600	606	236	746	594	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	229			266			600	606	236	746	594	188
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			54	100	74	70	100	91
cM capacity (veh/h)	1339			1298			360	390	802	233	396	855

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	12	266	58	229	167	211	69	78
Volume Left	12	0	58	0	167	0	69	0
Volume Right	0	59	0	83	0	211	0	78
cSH	1339	1700	1298	1700	360	802	233	855
Volume to Capacity	0.01	0.16	0.04	0.13	0.46	0.26	0.30	0.09
Queue Length 95th (ft)	1	0	4	0	59	26	30	8
Control Delay (s)	7.7	0.0	7.9	0.0	23.4	11.1	26.8	9.6
Lane LOS	A		A		C	B	D	A
Approach Delay (s)	0.3		1.6		16.5		17.7	
Approach LOS					C		C	

Intersection Summary				
Average Delay	8.6			
Intersection Capacity Utilization	44.9%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX K

QUEUE LENGTH ANALYSIS



REVISED
CONCEPTUAL ROADWAY LAYOUT
JANUARY 7, 2019

Signalized Intersection
2030

Average Vehicle Length (ft): 25 Cycles: 1.5
Intersection Cycle Length (sec): 120
Equation Used: storage length = 1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length
Hayden Rd & Deer Valley Rd	NB Left	69	0	76	4	0	**100'**
	SB Left	4	0	5	1	0	**25'**
	EB Left	30	0	24	2	0	**50'**
	WB Left	73	0	41	4	0	**100'**
	NB Right	19	0	83	5	0	**125'**
	SB Right	38	0	18	2	0	**50'**
	EB Right	70	0	73	4	0	100'
	WB Right	3	0	4	1	0	25'
Hayden Rd & Grayhawk Dr	NB Left	41	0	79	4	0	**100'**
	SB Left	4	0	13	1	0	**25'**
	EB Left	35	0	38	2	0	**50'**
	WB Left	53	0	24	3	0	**75'**
	NB Right	10	0	39	2	0	**50'**
	SB Right	40	0	40	3	0	**75'**
	EB Right	105	0	69	6	0	**150'**
	WB Right	21	0	13	2	0	50'
Hayden Rd & Thompson Peak Pkwy	NB Left	223	0	538	27	0	**350'**
	SB Left	240	0	224	13	0	**175'**
	EB Left	44	0	100	5	0	**75'**
	WB Left	557	0	405	28	0	**350'**
	NB Right	405	0	704	36	0	**900'**
	SB Right	68	0	81	5	0	**125'**
	EB Right	503	0	389	26	0	**650'**
	WB Right	103	0	169	9	0	**225'**
Hayden Rd & Legacy Blvd	NB Left	299	0	415	21	0	**275'**
	SB Left	49	0	34	3	0	**75'**
	EB Left	89	0	130	7	0	**175'**
	WB Left	113	0	201	11	0	**275'**
	NB Right	146	0	151	8	0	**200'**
	SB Right	80	0	128	7	0	**175'**
	EB Right	333	0	445	23	0	**575'**
	WB Right	18	0	60	3	0	**75'**
Hayden Rd & Mayo Blvd	NB Left	149	0	209	11	0	**275'**
	SB Left	302	0	76	16	0	**400'**
	EB Left	137	0	368	19	0	**475'**
	WB Left	10	0	45	3	0	**75'**
	NB Right	50	0	22	3	0	**75'**
	SB Right	200	0	332	17	0	**425'**
	EB Right	83	0	289	15	0	**375'**
	WB Right	72	0	377	19	0	**475'**
Hayden Rd & Princess Dr	NB Left	83	0	149	8	0	**200'**
	SB Left	154	0	69	8	0	**200'**
	EB Left	48	0	38	3	0	75'
	WB Left	189	0	253	13	0	**175'**
	NB Right	222	0	165	12	0	**300'**
	SB Right	54	0	71	4	0	**100'**
	EB Right	102	0	81	6	0	**150'**
	WB Right	62	0	212	11	0	**275'**

Signalized Intersection
2030

Average Vehicle Length (ft): 25 Cycles: 1.5
Intersection Cycle Length (sec): 120
Equation Used: storage length = 1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length
Hayden Rd & Bell Rd	NB Left	31	0	6	2	0	**50'**
	SB Left	185	0	212	11	0	**275'**
	EB Left	9	0	13	1	0	**25'**
	WB Left	240	0	488	25	0	**325'**
	NB Right	403	0	276	21	0	**525'**
	SB Right	21	0	10	2	0	50'
	EB Right	23	0	23	2	0	50'
	WB Right	154	0	186	10	0	**250'**
Scottsdale Rd & Deer Valley Rd	NB Left	0	0	0	0	0	0'
	SB Left	51	0	20	3	0	**75'**
	EB Left	0	0	0	0	0	0'
	WB Left	110	0	132	7	0	**175'**
	NB Right	154	0	109	8	0	**200'**
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	30	0	63	4	0	**100'**
Scottsdale Rd & Grayhawk Dr	NB Left	0	0	0	0	0	0'
	SB Left	45	0	60	4	0	**100'**
	EB Left	0	0	0	0	0	0'
	WB Left	114	0	128	7	0	**175'**
	NB Right	54	0	128	7	0	**175'**
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	38	0	69	4	0	**100'**
Scottsdale Rd & Thompson Peak Pkwy	NB Left	52	0	150	8	0	**200'**
	SB Left	185	0	197	10	0	**250'**
	EB Left	258	0	533	27	0	**350'**
	WB Left	540	0	669	34	0	**425'**
	NB Right	539	0	501	27	0	**675'**
	SB Right	452	0	366	23	0	**575'**
	EB Right	69	0	91	5	0	**125'**
	WB Right	135	0	266	14	0	**350'**
Scottsdale Rd & Legacy Blvd	NB Left	23	0	73	4	0	**100'**
	SB Left	116	0	111	6	0	**150'**
	EB Left	307	0	366	19	0	**250'**
	WB Left	319	0	552	28	0	**350'**
	NB Right	435	0	431	22	0	**550'**
	SB Right	298	0	348	18	0	**450'**
	EB Right	28	0	37	2	0	**50'**
	WB Right	73	0	173	9	0	**225'**
Scottsdale Rd & Mayo Blvd	NB Left	145	0	415	21	0	**275'**
	SB Left	348	0	442	23	0	**300'**
	EB Left	476	0	749	38	0	**475'**
	WB Left	67	0	192	10	0	**125'**
	NB Right	97	0	136	7	0	**175'**
	SB Right	735	0	830	42	0	**1050'**
	EB Right	303	0	214	16	0	**400'**
	WB Right	178	0	553	28	0	**700'**

Signalized Intersection
2030

Average Vehicle Length (ft): 25 Cycles: 1.5
Intersection Cycle Length (sec): 120
Equation Used: storage length = 1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length
Scottsdale Rd & Chauncey Ln	NB Left	154	0	168	9	0	**225'**
	SB Left	6	0	10	1	0	**25'**
	EB Left	96	0	143	8	0	**200'**
	WB Left	10	0	16	1	0	**25'**
	NB Right	5	0	8	1	0	**25'**
	SB Right	147	0	101	8	0	**200'**
	EB Right	114	0	144	8	0	**200'**
	WB Right	5	0	5	1	0	**25'**
Scottsdale Rd & Princess Blvd	NB Left	149	0	292	15	0	**375'**
	SB Left	271	0	215	14	0	**350'**
	EB Left	45	0	63	4	0	**100'**
	WB Left	179	0	425	22	0	**550'**
	NB Right	373	0	330	19	0	**475'**
	SB Right	85	0	80	5	0	**125'**
	EB Right	289	0	282	15	0	375'
	WB Right	188	0	355	18	0	**450'**
Scottsdale Rd & 17050 North	NB Left	46	0	125	7	0	**175'**
	SB Left	48	0	65	4	0	**100'**
	EB Left	71	0	76	4	0	100'
	WB Left	35	0	108	6	0	150'
	NB Right	13	0	30	2	0	**50'**
	SB Right	28	0	95	5	0	**125'**
	EB Right	133	0	139	7	0	175'
	WB Right	23	0	66	4	0	100'
Scottsdale Rd & Frank Lloyd Wright Blvd	NB Left	99	0	579	29	0	**375'**
	SB Left	453	0	516	26	0	**325'**
	EB Left	719	0	437	36	0	**450'**
	WB Left	277	0	260	14	0	**175'**
	NB Right	213	0	322	17	0	**425'**
	SB Right	255	0	689	35	0	875'
	EB Right	466	0	243	24	0	**600'**
	WB Right	279	0	615	31	0	**775'**
Greenway-Hayden & Frank Lloyd Wright Blvd	NB Left	26	0	118	6	0	**150'**
	SB Left	278	0	466	24	0	**300'**
	EB Left	658	0	548	33	0	**425'**
	WB Left	643	0	407	33	0	**425'**
	NB Right	284	0	633	32	0	**800'**
	SB Right	351	0	749	38	0	**950'**
	EB Right	88	0	103	6	0	**150'**
	WB Right	346	0	522	27	0	**675'**
Pima Rd & Thompson Peak Pkwy	NB Left	133	0	238	12	0	**150'**
	SB Left	327	0	363	19	0	**250'**
	EB Left	267	0	667	34	0	**425'**
	WB Left	118	0	104	6	0	**75'**
	NB Right	10	0	19	1	0	25'
	SB Right	445	0	363	23	0	**575'**
	EB Right	138	0	143	8	0	**200'**
	WB Right	316	0	401	21	0	**525'**

Signalized Intersection
2030

Average Vehicle Length (ft): 25 Cycles: 1.5
Intersection Cycle Length (sec): 120
Equation Used: storage length = 1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length
Miller Rd & Thompson Peak Pkwy	NB Left	103	0	262	14	0	**350'**
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	116	0	110	6	0	**150'**
	NB Right	60	0	179	9	0	225'
	SB Right	0	0	0	0	0	0'
	EB Right	185	0	179	10	0	250'
	WB Right	0	0	0	0	0	0'
Miller Rd & Legacy Blvd	NB Left	136	0	350	18	0	**450'**
	SB Left	69	0	116	6	0	**150'**
	EB Left	51	0	70	4	0	**100'**
	WB Left	106	0	141	8	0	**200'**
	NB Right	77	0	209	11	0	275'
	SB Right	56	0	70	4	0	100'
	EB Right	262	0	235	14	0	**350'**
	WB Right	90	0	75	5	0	**125'**
Hayden Rd & Prop Rd 1	NB Left	244	0	165	13	0	**325'**
	SB Left	0	0	0	0	0	0'
	EB Left	83	0	214	11	0	**275'**
	WB Left	0	0	0	0	0	0'
	NB Right	0	0	0	0	0	0'
	SB Right	163	0	94	9	0	**225'**
	EB Right	89	0	224	12	0	**300'**
	WB Right	0	0	0	0	0	0'

Unsignalized Intersection
2030

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Veh per 2 minutes	Trucks per 2 minutes	Storage Length
Miller Rd & Union Hills Dr	NB Left	65	0	197	7	0	**175'**
	SB Left	50	0	147	5	0	**125'**
	EB Left	170	0	204	7	0	**175'**
	WB Left	64	0	118	4	0	**100'**
	NB Right	44	0	119	4	0	100'
	SB Right	81	0	251	9	0	**225'**
	EB Right	105	0	171	6	0	150'
	WB Right	68	0	103	4	0	100'
Prop Rd 2 & Access I	NB Left	61	0	22	3	0	**75'**
	SB Left	38	0	18	2	0	**50'**
	EB Left	3	0	8	1	0	25'
	WB Left	37	0	116	4	0	100'
	NB Right	103	0	49	4	0	100'
	SB Right	47	0	17	2	0	50'
	EB Right	31	0	74	3	0	75'
	WB Right	11	0	36	2	0	50'
Access K & Prop Rd 1	NB Left	43	0	130	5	0	**125'**
	SB Left	25	0	48	2	0	**50'**
	EB Left	24	0	26	1	0	**25'**
	WB Left	198	0	130	7	0	**175'**
	NB Right	55	0	138	5	0	125'
	SB Right	8	0	16	1	0	25'
	EB Right	103	0	48	4	0	100'
	WB Right	59	0	65	3	0	75'
Miller Rd & Access B	NB Left	0	0	0	0	0	0'
	SB Left	158	0	86	6	0	**150'**
	EB Left	0	0	0	0	0	0'
	WB Left	32	0	97	4	0	**100'**
	NB Right	91	0	52	4	0	**100'**
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	72	0	206	7	0	175'
Miller Rd & Access A	NB Left	0	0	0	0	0	0'
	SB Left	106	0	38	4	0	**100'**
	EB Left	0	0	0	0	0	0'
	WB Left	25	0	61	3	0	75'
	NB Right	80	0	29	3	0	**75'**
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	29	0	69	3	0	75'

Unsignalized Intersection
2030

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Veh per 2 minutes	Trucks per 2 minutes	Storage Length
Miller Rd & Access C	NB Left	0	0	0	0	0	0'
	SB Left	49	0	53	2	0	**50'**
	EB Left	0	0	0	0	0	0'
	WB Left	21	0	42	2	0	50'
	NB Right	41	0	45	2	0	50'
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	50	0	99	4	0	**100'**
Access D & Legacy Blvd	NB Left	52	0	103	4	0	100'
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	54	0	59	2	0	**50'**
	NB Right	29	0	57	2	0	50'
	SB Right	0	0	0	0	0	0'
	EB Right	78	0	85	3	0	**75'**
	WB Right	0	0	0	0	0	0'
Access E & Legacy Blvd	NB Left	38	0	75	3	0	75'
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	53	0	57	2	0	**50'**
	NB Right	28	0	55	2	0	50'
	SB Right	0	0	0	0	0	0'
	EB Right	55	0	60	2	0	**50'**
	WB Right	0	0	0	0	0	0'
Access F & Legacy Blvd	NB Left	32	0	62	3	0	75'
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	58	0	63	3	0	**75'**
	NB Right	31	0	62	3	0	75'
	SB Right	0	0	0	0	0	0'
	EB Right	40	0	43	2	0	50'
	WB Right	0	0	0	0	0	0'
Hayden Rd & Access G	NB Left	89	0	97	4	0	**100'**
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	0	0	0	0	0	0'
	NB Right	1	0	3	1	0	25'
	SB Right	8	0	9	1	0	25'
	EB Right	50	0	99	4	0	100'
	WB Right	0	0	0	0	0	0'

Unsignalized Intersection
2030

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Veh per 2 minutes	Trucks per 2 minutes	Storage Length
Hayden Rd & Access H	NB Left	93	0	44	4	0	**100'**
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	0	0	0	0	0	0'
	NB Right	0	0	0	0	0	0'
	SB Right	102	0	48	4	0	**100'**
	EB Right	37	0	116	4	0	100'
	WB Right	0	0	0	0	0	0'
Prop Rd 2 & Access J	NB Left	31	0	11	2	0	50'
	SB Left	115	0	55	4	0	**100'**
	EB Left	47	0	113	4	0	**100'**
	WB Left	16	0	35	2	0	50'
	NB Right	8	0	4	1	0	25'
	SB Right	76	0	28	3	0	**75'**
	EB Right	26	0	62	3	0	75'
	WB Right	36	0	112	4	0	100'
Access L & Prop Rd 1	NB Left	48	0	150	5	0	125'
	SB Left	32	0	62	3	0	75'
	EB Left	10	0	11	1	0	**25'**
	WB Left	111	0	52	4	0	**100'**
	NB Right	61	0	190	7	0	175'
	SB Right	36	0	70	3	0	75'
	EB Right	112	0	53	4	0	**100'**
	WB Right	69	0	75	3	0	**75'**

Signalized Intersection

Total Traffic: ADOT Minimum and Desirable Queue Storage Calculations

2030

					Left-Turn Lane Only!	
Average Vehicle Length (ft):	25	Lane Width, W =	12	Taper Length, T =	One Side	Symmetrical
Cycle Length (sec):	120	esign Speed, S =	50	Speed >= 45	600'	300'
Cycles per Hour:	30	Trucks > 10%?	Y	Speed < 45 mph		
				Taper Length, RTL = GAP		

Queue Storage Equations:	
Queue Length =	**1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length***
Storage Length =	**Queue Length + Minimum Braking Distance**
Turn Lane Length =	**Storage Length – [Gap – 2/3 Gap]**

*** ADOT TGP 430 allows for queues to be calculated for 1.5 to 2.0 cycles.**

Design Speed (mph)	Gap (ft)	2/3 Gap (ft)	Calculated Gap (ft)
< 40mph	60	40	20
40-50mph	90	60	30
> 50mph	140	95	45

* Queue length: minimum queue length is 2 vehicles (2 cars or 1 car+1 truck), which can be reduced by 20 feet for a free right turn movement.

	Minimum			Desired	
Design Speed (mph)	Entering Speed (mph)	Braking Speed (mph)	Braking Distance (ft)	Braking Speed (mph)	Braking Distance (ft)
30	20	20	20	29	80
35	25	25	40	34	115
40	30	29	50	38	150
45	35	34	85	43	200
50	40	38	120	47	245
55	45	42	145	52	300
60	50	47	200	56	360
65	55	52	265	60	415
70	60	56	315	64	490
75	65	61	400	70	585

Intersection	Approach	Free-Flow Right?	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Veh per 1.5 cycles	Queue Length (ft)*	Minimum Storage Length (ft)	Minimum **Turn Lane Length (ft)**	Desired Storage Length (ft)
Hayden Rd & Loop 101 WB Ramps	NB Left		323	0	896	45	575	695	**665**	820
	SB Left		0	0	0	0	85	205	175	330
	EB Left		0	0	0	0	85	205	175	330
	WB Left		133	0	198	10	125	245	**215**	370
	NB Right	N	0	0	0	0	85	205	175	330
	SB Right	**N**	589	0	508	30	**750**	870	**840**	995
	EB Right	N	0	0	0	0	85	205	175	330
	WB Right	**N**	738	0	1,072	54	675	795	**765**	920
Hayden Rd & Loop 101 EB Ramps	NB Left		0	0	0	0	85	205	175	330
	SB Left		818	0	937	47	600	720	**690**	845
	EB Left		605	0	841	43	550	670	**640**	795
	WB Left		0	0	0	0	85	205	175	330
	NB Right	**N**	59	0	213	11	**275**	395	**365**	520
	SB Right	N	0	0	0	0	85	205	175	330
	EB Right	**N**	579	0	257	29	375	495	**465**	620
	WB Right	N	0	0	0	0	85	205	175	330

Signalized Intersection

Total Traffic: ADOT Minimum and Desirable Queue Storage Calculations

2030

					Left-Turn Lane Only!	
Average Vehicle Length (ft):	25	Lane Width, W =	12	Taper Length, T =	One Side	Symmetrical
Cycle Length (sec):	120	esign Speed, S =	50	Speed >= 45	600'	300'
Cycles per Hour:	30	Trucks > 10%?	Y	Speed < 45 mph		
				Taper Length, RTL = GAP		

Queue Storage Equations:

Queue Length =	**1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length***
Storage Length =	**Queue Length + Minimum Braking Distance**
Turn Lane Length =	**Storage Length – [Gap – 2/3 Gap]**

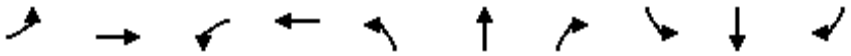
*** ADOT TGP 430 allows for queues to be calculated for 1.5 to 2.0 cycles.**

Design Speed (mph)	Gap (ft)	2/3 Gap (ft)	Calculated Gap (ft)
< 40mph	60	40	20
40-50mph	90	60	30
> 50mph	140	95	45

* Queue length: minimum queue length is 2 vehicles (2 cars or 1 car+1 truck), which can be reduced by 20 feet for a free right turn movement.

	Minimum			Desired	
Design Speed (mph)	Entering Speed (mph)	Braking Speed (mph)	Braking Distance (ft)	Braking Speed (mph)	Braking Distance (ft)
30	20	20	20	29	80
35	25	25	40	34	115
40	30	29	50	38	150
45	35	34	85	43	200
50	40	38	120	47	245
55	45	42	145	52	300
60	50	47	200	56	360
65	55	52	265	60	415
70	60	56	315	64	490
75	65	61	400	70	585

Intersection	Approach	Free-Flow Right?	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Veh per 1.5 cycles	Queue Length (ft)*	Minimum Storage Length (ft)	Minimum **Turn Lane Length (ft)**	Desired Storage Length (ft)
Scottsdale Rd & Loop 101 WB Ramps	NB Left		437	0	1,113	56	700	820	**790**	945
	SB Left		0	0	0	0	85	205	175	330
	EB Left		0	0	0	0	85	205	175	330
	WB Left		737	0	942	48	600	720	**690**	845
	NB Right	N	0	0	0	0	85	205	175	330
	SB Right	**N**	820	0	920	46	**1150**	1270	**1240**	1395
	EB Right	N	0	0	0	0	85	205	175	330
	WB Right	**N**	601	0	698	35	450	570	**540**	695
Scottsdale Rd & Loop 101 EB Ramps	NB Left		0	0	0	0	85	205	175	330
	SB Left		883	0	656	45	575	695	**665**	820
	EB Left		887	0	689	45	575	695	**665**	820
	WB Left		0	0	0	0	85	205	175	330
	NB Right	**N**	426	0	783	40	**1000**	1120	**1090**	1245
	SB Right	N	0	0	0	0	85	205	175	330
	EB Right	**N**	872	0	961	49	625	745	**715**	870
	WB Right	N	0	0	0	0	85	205	175	330



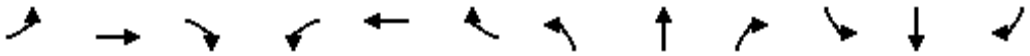
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	92	81	19	77	706	21	4	831	42
v/c Ratio	0.06	0.13	0.16	0.03	0.35	0.43	0.03	0.01	0.51	0.06
Control Delay	18.0	6.2	19.3	15.6	21.9	18.1	1.3	14.2	19.3	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	6.2	19.3	15.6	21.9	18.1	1.3	14.2	19.3	4.2
Queue Length 50th (ft)	12	5	31	6	29	145	0	1	178	0
Queue Length 95th (ft)	31	35	62	20	67	192	4	7	232	16
Internal Link Dist (ft)		2433		70		2475			551	
Turn Bay Length (ft)	25		95		250		100	140		180
Base Capacity (vph)	555	697	519	729	223	1639	757	276	1639	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.13	0.16	0.03	0.35	0.43	0.03	0.01	0.51	0.06

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	3	117	59	33	46	736	11	4	966	44
v/c Ratio	0.06	0.00	0.15	0.09	0.04	0.41	0.53	0.02	0.02	0.70	0.07
Control Delay	15.6	15.0	11.1	15.9	7.8	37.7	27.5	0.0	21.2	31.4	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	15.0	11.1	15.9	7.8	37.7	27.5	0.0	21.2	31.4	5.5
Queue Length 50th (ft)	14	1	29	22	4	23	207	0	2	296	0
Queue Length 95th (ft)	33	6	62	46	20	64	265	0	9	371	20
Internal Link Dist (ft)		3909			3382		3821			2475	
Turn Bay Length (ft)	100		100			240		240	170		115
Base Capacity (vph)	660	897	782	678	815	113	1383	649	193	1383	649
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.00	0.15	0.09	0.04	0.41	0.53	0.02	0.02	0.70	0.07

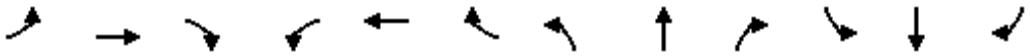
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	411	559	619	458	114	248	603	450	267	810	76
v/c Ratio	0.24	0.71	0.86	0.89	0.41	0.14	0.41	0.48	0.46	0.55	0.73	0.10
Control Delay	41.1	53.0	63.4	52.2	25.2	5.2	52.3	22.6	5.7	54.0	42.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	53.0	63.4	52.2	25.2	5.2	52.3	22.6	5.7	54.0	42.8	0.6
Queue Length 50th (ft)	19	165	419	254	152	19	73	187	152	101	305	0
Queue Length 95th (ft)	40	226	534	#344	197	53	116	176	34	#176	#419	4
Internal Link Dist (ft)		388			4641			1839			3821	
Turn Bay Length (ft)	330		300	225		190	170		212	210		195
Base Capacity (vph)	414	914	649	715	1194	840	611	1253	989	486	1109	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.45	0.86	0.87	0.38	0.14	0.41	0.48	0.46	0.55	0.73	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	99	109	370	126	82	20	332	1231	162	54	1898	89
v/c Ratio	0.40	0.57	0.27	0.51	0.38	0.08	0.14	0.50	0.12	0.23	0.78	0.07
Control Delay	45.9	64.3	0.7	47.7	52.6	0.6	6.4	9.5	0.6	13.5	18.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	64.3	0.7	47.7	52.6	0.6	6.4	9.5	0.6	13.5	18.3	1.4
Queue Length 50th (ft)	64	83	3	83	59	0	37	211	1	18	530	5
Queue Length 95th (ft)	110	141	8	134	106	0	63	289	11	m32	686	m9
Internal Link Dist (ft)		839			389			574			1661	
Turn Bay Length (ft)							255					155
Base Capacity (vph)	246	279	1376	247	315	331	2368	2441	1331	240	2441	1335
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.39	0.27	0.51	0.26	0.06	0.14	0.50	0.12	0.23	0.78	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	148	463	443	359	1383	1637	654
v/c Ratio	0.16	0.83	0.60	0.77	1.20	0.83	0.80
Control Delay	33.5	38.5	7.0	54.5	114.5	42.4	18.5
Queue Delay	0.0	0.0	0.0	0.7	0.0	0.6	0.0
Total Delay	33.5	38.5	7.0	55.2	114.5	43.0	18.5
Queue Length 50th (ft)	44	226	0	299	~704	344	132
Queue Length 95th (ft)	72	#414	90	m361	m#750	388	306
Internal Link Dist (ft)		1731			379	542	
Turn Bay Length (ft)			495				240
Base Capacity (vph)	944	558	734	464	1150	1975	814
Starvation Cap Reductn	0	0	0	14	0	0	0
Spillback Cap Reductn	0	0	0	0	0	100	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.83	0.60	0.80	1.20	0.87	0.80

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



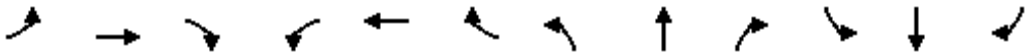
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	457	445	424	1063	66	909	883
v/c Ratio	0.99	0.99	0.59	0.64	0.12	1.08	0.81
Control Delay	76.3	73.5	22.6	45.6	15.7	85.3	18.9
Queue Delay	0.0	1.0	0.0	0.9	0.0	0.0	0.2
Total Delay	76.3	74.5	22.6	46.6	15.7	85.3	19.1
Queue Length 50th (ft)	400	383	176	305	8	~419	78
Queue Length 95th (ft)	m#406	m#389	m174	m317	m29	#550	146
Internal Link Dist (ft)		6998		515			379
Turn Bay Length (ft)			1000		260		
Base Capacity (vph)	462	450	721	1652	572	843	1091
Starvation Cap Reductn	0	0	0	0	0	0	17
Spillback Cap Reductn	0	2	0	314	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.99	0.59	0.79	0.12	1.08	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

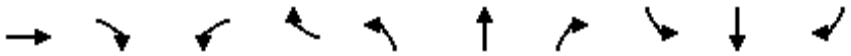


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	63	92	11	31	80	166	912	56	336	964	222
v/c Ratio	0.71	0.23	0.15	0.04	0.09	0.11	0.56	0.83	0.07	0.80	0.71	0.23
Control Delay	69.9	47.3	5.5	44.2	42.1	5.4	50.4	47.9	1.0	49.0	33.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Total Delay	69.9	47.3	5.5	44.2	42.1	5.4	50.4	47.9	1.0	49.0	34.1	2.5
Queue Length 50th (ft)	115	44	0	7	20	3	125	252	1	174	401	14
Queue Length 95th (ft)	#210	87	34	25	49	31	207	405	6	m#233	478	m37
Internal Link Dist (ft)		319			847			2228			515	
Turn Bay Length (ft)									145	365		
Base Capacity (vph)	213	279	623	265	333	758	296	1105	839	420	1353	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	141	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.23	0.15	0.04	0.09	0.11	0.56	0.83	0.07	0.80	0.80	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	113	210	69	92	954	247	171	810	60
v/c Ratio	0.62	0.40	0.58	0.28	0.26	0.44	0.23	0.60	0.37	0.06
Control Delay	62.8	12.7	57.2	7.8	15.1	13.7	3.7	50.7	33.3	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	12.7	57.2	7.8	15.1	13.7	3.7	50.7	33.3	13.4
Queue Length 50th (ft)	97	0	80	0	26	143	13	137	338	19
Queue Length 95th (ft)	155	52	118	27	55	200	42	m#218	406	m39
Internal Link Dist (ft)	3455					977			2228	
Turn Bay Length (ft)			145		150		235	255		255
Base Capacity (vph)	349	394	944	501	349	2168	1063	286	2168	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.29	0.22	0.14	0.26	0.44	0.23	0.60	0.37	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

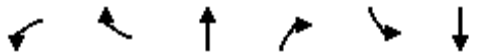
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	45	139	139	171	34	1134	448	206	965
v/c Ratio	0.27	0.58	0.59	0.42	0.09	0.45	0.35	0.72	0.38
Control Delay	33.1	55.9	56.4	9.2	8.7	8.8	2.4	28.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.1	55.9	56.4	9.2	8.7	8.8	2.4	28.4	3.1
Queue Length 50th (ft)	7	104	104	0	9	176	16	48	96
Queue Length 95th (ft)	27	161	160	57	m12	m219	m18	#285	110
Internal Link Dist (ft)	220		2160			2679			977
Turn Bay Length (ft)		140		140	290		280	140	
Base Capacity (vph)	498	518	363	547	359	2542	1263	288	2532
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.27	0.38	0.31	0.09	0.45	0.35	0.72	0.38

Intersection Summary

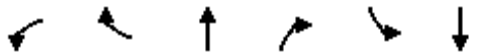
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	122	33	1276	171	57	2696
v/c Ratio	0.66	0.17	0.45	0.13	0.19	0.96
Control Delay	67.8	17.4	2.7	0.3	5.2	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	17.4	2.7	0.3	5.2	21.8
Queue Length 50th (ft)	91	0	14	0	9	809
Queue Length 95th (ft)	155	31	17	0	24	#1252
Internal Link Dist (ft)	2433		2555			412
Turn Bay Length (ft)		155		100	150	
Base Capacity (vph)	221	226	2811	1292	293	2811
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.15	0.45	0.13	0.19	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	127	42	1389	60	50	2759
v/c Ratio	0.64	0.20	0.50	0.05	0.20	0.99
Control Delay	65.3	15.9	11.9	0.1	6.3	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	15.9	11.9	0.1	6.3	24.0
Queue Length 50th (ft)	95	0	467	1	11	797
Queue Length 95th (ft)	157	33	251	m0	m14	m#1297
Internal Link Dist (ft)	3909		2573			2555
Turn Bay Length (ft)	175			150	120	
Base Capacity (vph)	250	260	2788	1259	251	2788
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.16	0.50	0.05	0.20	0.99

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	300	77	600	134	150	58	1359	599	206	2644
v/c Ratio	0.67	0.21	0.78	0.09	0.15	0.19	0.84	0.64	0.67	1.54
Control Delay	57.8	1.3	46.3	16.4	0.5	34.5	69.6	28.8	51.9	271.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	1.3	46.3	16.4	0.5	34.5	69.6	28.8	51.9	271.1
Queue Length 50th (ft)	118	0	205	27	0	21	394	428	117	~1131
Queue Length 95th (ft)	162	0	260	34	0	m43	#515	583	m128	m#1212
Internal Link Dist (ft)	273			3163			1899			2573
Turn Bay Length (ft)			225					510	200	
Base Capacity (vph)	530	399	858	1478	985	334	1612	971	308	1718
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.19	0.70	0.09	0.15	0.17	0.84	0.62	0.67	1.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	203	31	354	93	81	26	1943	483	129	3274
v/c Ratio	0.57	0.08	0.67	0.08	0.11	0.10	0.75	0.44	0.89	1.35
Control Delay	57.3	0.4	59.0	27.6	4.9	30.4	49.6	12.7	47.2	193.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	0.4	59.0	27.6	4.9	30.4	49.6	12.7	47.2	193.4
Queue Length 50th (ft)	80	0	130	24	0	12	561	239	41	~1373
Queue Length 95th (ft)	117	0	171	41	6	m14	m551	m244	m44	m#960
Internal Link Dist (ft)	242			3212			477			1899
Turn Bay Length (ft)			225		130			145	190	
Base Capacity (vph)	530	445	801	1299	714	323	2597	1219	145	2428
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.07	0.44	0.07	0.11	0.08	0.75	0.40	0.89	1.35

Intersection Summary

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Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	819	388	374	486	1813	2732	911
v/c Ratio	0.84	0.72	0.54	1.22	1.07	0.79	0.91
Control Delay	52.2	36.4	10.1	161.8	56.7	33.1	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.4	0.0
Total Delay	52.2	36.4	10.1	161.8	56.7	35.5	29.0
Queue Length 50th (ft)	326	216	46	~245	~588	301	327
Queue Length 95th (ft)	400	m324	m121	m#307	m#640	m274	m277
Internal Link Dist (ft)		7027			382	908	
Turn Bay Length (ft)	300		300				400
Base Capacity (vph)	972	538	694	400	1695	3457	1000
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	571	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.72	0.54	1.22	1.07	0.95	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



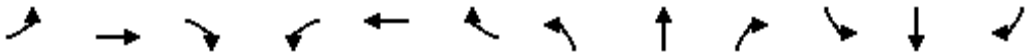
Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	986	488	484	1328	473	981	2612
v/c Ratio	1.01	0.82	0.81	0.53	0.59	1.11	1.12
Control Delay	75.3	33.0	32.4	38.6	22.6	93.2	80.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	75.3	33.0	32.4	38.8	22.6	93.2	80.5
Queue Length 50th (ft)	~404	204	200	267	232	~461	~839
Queue Length 95th (ft)	#544	#396	#390	m287	m308	#595	#925
Internal Link Dist (ft)		912		820			382
Turn Bay Length (ft)	200		200		135		
Base Capacity (vph)	972	595	594	2514	804	886	2330
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	402	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.82	0.81	0.63	0.59	1.11	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

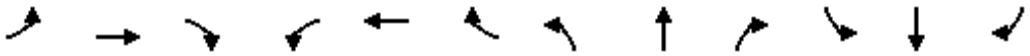


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	529	219	337	74	108	198	161	1141	108	387	2380	817
v/c Ratio	1.08	0.38	0.73	0.34	0.32	0.60	0.27	0.70	0.18	0.76	0.97	0.89
Control Delay	111.0	50.0	16.5	55.2	51.6	14.3	45.7	47.1	13.3	54.2	41.3	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.0	50.0	16.5	55.2	51.6	14.3	45.7	47.1	13.3	54.2	41.3	21.7
Queue Length 50th (ft)	211	59	14	52	42	0	62	258	9	243	533	389
Queue Length 95th (ft)	#484	78	101	#155	63	64	104	391	95	m234	m501	m362
Internal Link Dist (ft)		1274			1018			1252			820	
Turn Bay Length (ft)	320		330	160			245		155	160		245
Base Capacity (vph)	491	974	559	217	678	463	586	1949	693	507	2451	918
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.22	0.60	0.34	0.16	0.43	0.27	0.59	0.16	0.76	0.97	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	107	6	127	11	6	6	171	1324	6	7	2659	163
v/c Ratio	0.48	0.01	0.39	0.07	0.02	0.03	0.72	0.37	0.01	0.02	0.89	0.17
Control Delay	47.7	38.0	8.8	35.6	47.4	0.2	41.2	16.6	0.0	3.7	18.5	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	38.0	8.8	35.6	47.4	0.2	41.2	16.6	0.0	3.7	18.5	1.9
Queue Length 50th (ft)	80	2	0	8	2	0	59	34	0	0	157	0
Queue Length 95th (ft)	100	7	44	19	8	0	187	404	m0	m1	m#1121	m39
Internal Link Dist (ft)		1111			792			1666			1252	
Turn Bay Length (ft)	160		175	160		100	195		125	175		160
Base Capacity (vph)	260	825	473	282	825	473	244	3605	1161	301	2980	984
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.01	0.27	0.04	0.01	0.01	0.70	0.37	0.01	0.02	0.89	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



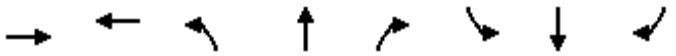
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	50	358	199	11	209	166	1251	414	301	2396	94
v/c Ratio	0.15	0.86dr	0.87	0.03	0.56	0.65	0.47	0.41	0.85	0.91	0.11
Control Delay	32.7	24.7	80.5	41.2	11.6	30.0	26.9	12.0	28.0	31.1	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	24.7	80.5	41.2	11.6	30.0	26.9	12.0	28.0	31.1	10.9
Queue Length 50th (ft)	30	57	130	4	0	68	176	86	88	312	7
Queue Length 95th (ft)	56	92	#185	11	61	#141	320	210	m#112	#804	m34
Internal Link Dist (ft)		1695		2331			1810			1666	
Turn Bay Length (ft)	200		160		85	250		250	235		250
Base Capacity (vph)	339	876	228	825	529	255	2641	1021	356	2641	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.41	0.87	0.01	0.40	0.65	0.47	0.41	0.85	0.91	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	227	65	51	1731	14	53	2859	31
v/c Ratio	0.78	0.31	0.34	0.52	0.01	0.25	0.86	0.03
Control Delay	49.6	13.8	39.3	17.6	0.5	10.6	23.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	13.8	39.3	17.6	0.5	10.6	23.3	2.7
Queue Length 50th (ft)	115	1	18	398	0	10	420	0
Queue Length 95th (ft)	189	38	m29	m519	m0	m15	#586	m0
Internal Link Dist (ft)	526	222		1201			1810	
Turn Bay Length (ft)			185		135	200		240
Base Capacity (vph)	425	296	152	3323	1059	213	3323	1059
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.22	0.34	0.52	0.01	0.25	0.86	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



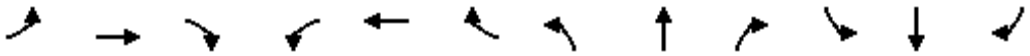
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	799	1944	518	308	618	310	110	826	237	503	2397
v/c Ratio	1.00	1.05	0.67	0.67	0.54	0.41	0.44	0.81	0.36	1.80	1.46
Control Delay	77.4	74.3	25.2	43.1	71.5	15.4	28.7	53.2	12.4	396.1	237.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	74.3	25.2	43.1	71.5	15.4	28.7	53.2	12.4	396.1	237.2
Queue Length 50th (ft)	320	~601	244	113	187	62	26	226	49	~585	~919
Queue Length 95th (ft)	#455	#731	389	m143	228	m119	44	276	110	m#720	#1013
Internal Link Dist (ft)		667			5100			483			1201
Turn Bay Length (ft)	250		235	265		315	295		145	560	
Base Capacity (vph)	801	1844	778	534	1144	760	250	1017	684	280	1637
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	1.05	0.67	0.58	0.54	0.41	0.44	0.81	0.35	1.80	1.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	731	1627	98	714	1322	384	29	547	316	309	809	390
v/c Ratio	1.04	0.98	0.16	1.01	0.80	0.61	0.20	0.84	0.45	0.65	0.86	0.62
Control Delay	69.1	44.7	3.9	72.5	41.4	23.7	30.7	60.1	19.4	30.2	42.8	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	44.7	3.9	72.5	41.4	23.7	30.7	60.1	19.4	30.2	42.8	13.8
Queue Length 50th (ft)	~283	337	3	~258	340	142	15	215	117	64	310	45
Queue Length 95th (ft)	m245	m269	m3	#381	400	251	37	#283	197	121	#454	129
Internal Link Dist (ft)		29			1965			691			2679	
Turn Bay Length (ft)	190		160	275		165	190		100	185		170
Base Capacity (vph)	704	1652	625	704	1652	625	145	678	706	475	946	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.98	0.16	1.01	0.80	0.61	0.20	0.81	0.45	0.65	0.86	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

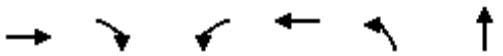
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	297	518	153	131	487	351	148	1303	363	1563	494
v/c Ratio	0.67	0.76	0.25	0.31	0.74	0.53	0.40	0.73	0.71	0.78	0.51
Control Delay	45.8	50.0	16.9	51.0	53.1	24.1	53.4	37.3	56.8	35.8	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	50.0	16.9	51.0	53.1	24.1	53.4	37.3	56.8	35.8	14.4
Queue Length 50th (ft)	96	151	30	47	188	161	56	329	139	396	170
Queue Length 95th (ft)	#186	184	78	82	234	233	90	387	192	458	293
Internal Link Dist (ft)		4641			742			2607		3254	
Turn Bay Length (ft)	212		225	250		180	250		250		350
Base Capacity (vph)	443	855	617	416	825	667	371	1787	514	1999	962
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.61	0.25	0.31	0.59	0.53	0.40	0.73	0.71	0.78	0.51

Intersection Summary

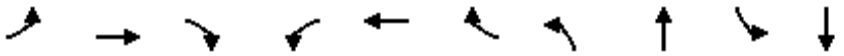
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	900	206	129	240	114	67
v/c Ratio	0.38	0.18	0.37	0.10	0.32	0.07
Control Delay	9.8	1.9	16.2	7.5	41.4	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	1.9	16.2	7.5	41.4	2.0
Queue Length 50th (ft)	181	10	47	37	83	0
Queue Length 95th (ft)	199	25	104	60	m119	m3
Internal Link Dist (ft)	3163			2467		2517
Turn Bay Length (ft)						
Base Capacity (vph)	2374	1129	348	2374	358	904
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.18	0.37	0.10	0.32	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



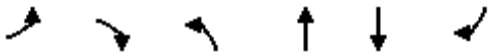
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	431	291	118	293	100	151	209	77	281
v/c Ratio	0.10	0.23	1.00	0.25	0.15	1.00	0.44	0.30	0.19	0.40
Control Delay	15.4	17.6	71.0	16.2	14.0	103.2	32.4	22.5	23.8	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	17.6	71.0	16.2	14.0	103.2	32.4	22.5	23.8	25.1
Queue Length 50th (ft)	33	134	~229	45	56	0	86	92	45	160
Queue Length 95th (ft)	m45	m159	m#402	82	79	#116	151	152	87	240
Internal Link Dist (ft)		3212			1076			596		2517
Turn Bay Length (ft)	75			75			75			
Base Capacity (vph)	566	1902	291	474	1902	100	340	697	402	706
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.23	1.00	0.25	0.15	1.00	0.44	0.30	0.19	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	92	99	271	221	252	181
v/c Ratio	0.21	0.21	0.36	0.09	0.10	0.16
Control Delay	39.8	9.7	10.0	5.3	6.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	9.7	10.0	5.3	6.5	1.5
Queue Length 50th (ft)	58	1	123	28	28	6
Queue Length 95th (ft)	m102	m41	m128	m30	m39	m13
Internal Link Dist (ft)	810			218	461	
Turn Bay Length (ft)						
Base Capacity (vph)	435	463	753	2403	2403	1133
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.21	0.36	0.09	0.10	0.16

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX L

SIGHT DISTANCE ANALYSIS

SITE DISTANCE

SIX LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	304	340	403	440	476	513
30	364	408	483	527	572	616
35	425	476	564	615	667	718
40	486	544	644	703	762	821
45	546	612	725	791	857	923
50	607	680	805	879	952	1026
55	668	748	886	967	1048	1128

FOUR LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	285	322	377	414	451	487
30	342	386	453	497	541	585
35	399	451	528	579	631	682
40	456	515	603	662	721	780
45	513	579	679	745	811	877
50	570	644	754	827	901	974
55	627	708	829	910	991	1072

THREE LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	267	304	351	388	425	462
30	320	364	422	466	510	554
35	374	425	492	543	595	646
40	427	486	562	621	680	738
45	480	546	632	698	765	831
50	267	304	351	388	425	462
55	320	364	422	466	510	554

SITE DISTANCE

TWO LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	239	276	313	350	386	423
30	287	331	375	419	464	508
35	335	386	438	489	541	592
40	383	441	500	559	618	677
45	430	497	563	629	695	761
50	478	552	625	699	772	846
55	526	607	688	769	849	930

Notes: [1]
Cross section assumed to include a 12' median/center lane and 6' bike lane
TH = Through Movement, LT = Turn Movement
All distances given in feet
Design speed by roadway classification is shown in Appendix 5-3A
For cross sections deviating from the tabulated configurations, refer to the AASHTO Geometric Design of Highways and Streets (current editions) for additional information

CAVASSON

LOCATED NEAR THE SOUTHWEST CORNER OF NORTH HAYDEN ROAD AND EAST LEGACY BOULEVARD

MASTER DRAINAGE REPORT

December 18, 2018

Project No.: 18114-001

PREPARED FOR:

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Figure 1.1	Site Vicinity Map
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Appendix A	TY Lin HEC-1 Existing
Appendix B	TY Lin HEC-1 Proposed
Appendix C	Cavasson HEC-1 Data
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EXHIBITS

Exhibit 1	404 Washes
Exhibit 2	HEC-1 Off-Site Flow Area Map- Existing Conditions Post-Channel
Exhibit 3	HEC-1 Off-Site Flow Area Map- Proposed Conditions
Exhibit 4	HEC-1 Off-Site Flow Area Map- Ultimate Conditions
Exhibit 5	Master Drainage Exhibit
Exhibit 6	Phase I Preliminary Grading Plan



1. INTRODUCTION

1.1 Project Scope

This report presents the results of a *Master Drainage Study* conducted by Hubbard Engineering at the request of Nationwide Realty Investors ("client"), for the Cavasson development ("site"). The purpose of this report is to provide a hydrologic evaluation for the site as required for Design Review through the City of Scottsdale per the City of Scottsdale Ordinances 4346 and 4347. This report addresses off-site and on-site conditions as well as storm water runoff storage requirements for the overall Cavasson development, which consists of roughly 136+/- acres. Drainage calculations and methodologies conform to the City of Scottsdale requirements and standards.

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from, and performed with, currently accepted engineering methodologies and practices. Additionally, the criteria for this evaluation are designed to conform to currently applicable ordinances, regulations and policies affected by the appropriate jurisdictional regulatory authorities for the site. Hubbard's *Master Drainage Study* also references the *Pinnacle Peak South Area Drainage Master Study,* completed by TY Lin International.

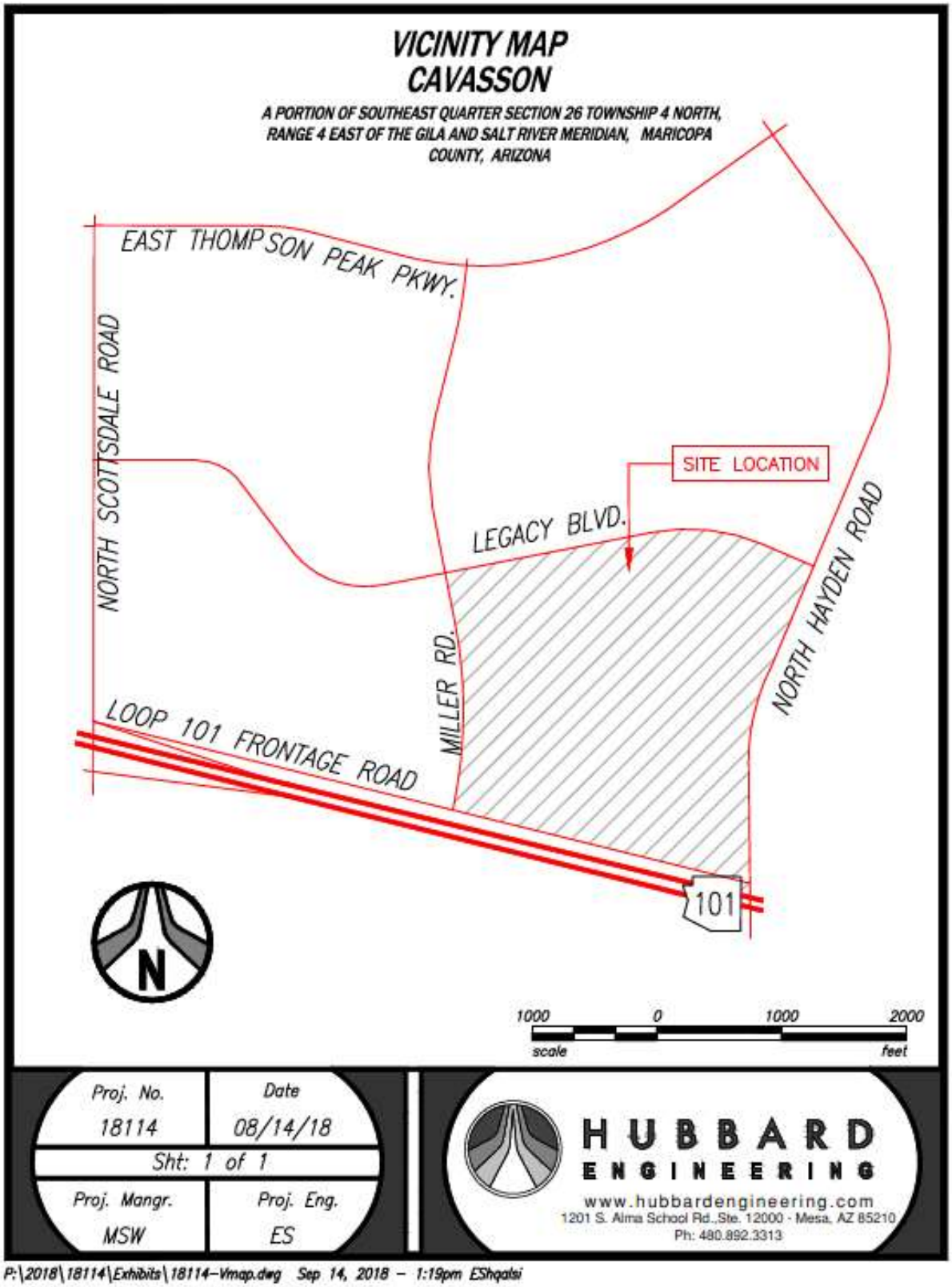
The analysis presented herein focuses on developing design estimates of storm water runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. The scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency event. Hubbard assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development costs resulting from or related to any such events. Nor shall Hubbard be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

1.2 Site Description

The site is located in the southeast quarter of Section 26, Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The project site is irregular in shape and encompasses approximately 136 acres. The site is currently undeveloped, and prior to Nationwide Reality Investor's acquisition, was held in trust by the Arizona State Land Department (ASLD) as a portion of the overall Crossroads East development, which encompasses approximately 883 gross acres. The topography of the undeveloped land shows an alluvial fan, indicating a significant amount of surface water is conveyed over the land. Aerials show there are only a few preferential flow paths across the site. The site is currently located in Planning Unit V of Crossroads East within the Zone AO (1'Depth) flood zone.

The project is bounded by the Loop 101 Freeway to the south, East Legacy Boulevard to the north, the Miller Road alignment to the west, and North Hayden Road to the east. The site location is shown in **Figure 1.1** on the *Vicinity Map*.

Figure 1.1 – Vicinity Map



1.3 Project Type

The Cavasson development is being developed by Nationwide Reality Investors as a master planned mixed use development with office, retail, hotels, and multifamily residential parcels with public and private roadways that run adjacent and through the development. The scope for the Master Drainage Plan includes analyses of pre-development and post-development peak discharges, the routing of off-site stormwater and the drainage analysis for the retention requirements during each phase of the development, as required by the stipulations identified in the City of Scottsdale Zoning Ordinance No. 4346. The project will be completed in a series of phases, beginning with the design and construction of Hayden Road, two proposed internal roads (Cavasson Boulevard and Claret Drive), and Miller Road, from Legacy Blvd. to Cavasson Blvd. all of which will require their own drainage analyses. Included with Phase 1 is the development of sub parcels within Parcel 1A, shown in **Exhibit 5.** A Final Drainage Report with detailed infrastructure calculations will be submitted with each project. This Master Drainage Plan is to be the guideline for the project. The developments of Parcels 1B and 1C will follow in consecutive phases. Analyses for the Cavasson development considered the future project phasing by splitting the three parcels into smaller sub-parcels. As parcels develop within Cavasson, a separate drainage analysis will be conducted to address site specific drainage and retention requirements and designs. Any significant variance to the Master Drainage Report will require an Addendum to the Master Drainage Report and will be submitted at the same time as the site's drainage report.

1.4 Special Conditions- 404 Washes

Located throughout the project site are waters of the United States 404 washes. The handling of the 404 washes will be coordinated with engineering consultants and the City of Scottsdale as the project develops. A Section 404 Certification form will be completed. **Exhibit 1** maps the preliminary 404 washes within the project site as delineated in a prior study. A meeting with the Army Corp of Engineers (USACE) has already occurred, along with a field walk of the site and a mitigation plan is being submitted to the Corp concurrent with this report.

1.5 Regulatory Issues

The criterion used in the drainage design and analysis of the site was established using the guidelines as described in the following:

- City of Scottsdale, *Design Standards & Policies Manual*, January 18, 2018.
- City of Scottsdale, *Ordinance No. 4346,* June 17, 2018.
- *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*.
- *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*.

2. EXISTING DRAINAGE CONDITIONS

2.1 Existing Off-Site Conditions Characteristics

Development in the surrounding area has increased in the last decade and many of the surrounding properties which sit in the Reata Pass basin, part of the Pinnacle Peak South Area, have installed infrastructure to route the offsite flows through their developments. As-built plans for the developments show channels and culverts have been constructed to divert and route off-site flows. Historical runoff for the areas on and surrounding the project site flow south towards collections points (i.e. existing culverts) where the off-site storm runoff is ultimately conveyed to the TPC golf course just north of the Central Arizona Project canal. Existing culverts located at the edges of the property are currently utilized to route off-site runoff. Off-site routing for the developed surrounding areas has been verified with their corresponding as-builts, including Hayden Road Improvement Plans, 76th Street & Infrastructure Design, Center Drive (now Legacy Boulevard) Improvements, and One Scottsdale Civil Center Improvement Plans.

2.2 On-site Drainage

As the Cavasson project site is currently undeveloped, there are no on-site drainage structures. The project site was included in two previous studies, Bob Ward's *Core North/ Core South Drainage Study* and TY Lin's *Pinnacle Peak South Area Drainage Master Study.* The TY Lin report analyzed the Crossroads East area and included FLO2d models combined with HEC-1 analyses on localized basins. The TY Lin report provided a basis on which Hubbard completed its hydrologic studies for the Cavasson project development.

The project site naturally falls from north to south at approximately 1.2% and approximately 0.7% east to west. The ultimate site outfall occurs at the southern boundary of the project development along Loop 101 frontage Road at an elevation of 1610' and is shown on **Exhibit 5**.

2.2.1 HEC-1 Analysis

The TY-Lin *Pinnacle Peak South Area Drainage Master Study* report provides an analysis of the entire Pinnacle Peak South Area, which covers an approximate area of 40 square miles. According to the report, the project site is located within the Dobson Wash Watershed, which includes inflow from the southwestern flow split of the Reata Pass Wash. TY Lin's existing and proposed exhibits and results can be found in **Appendices A** and **B**, respectively. Hubbard replicated TY-Lin's model in application to the approximate nine square miles including and surrounding the project site, shown in **Exhibit 2,** and included the inflow hydrographs from TY Lin's Master Drainage study to account for run-off affecting the project site from the 76th Street Channel and the Powerline for both the 100-year, 6-hour and 100-year, 24-hour storm events. Data collected for the model includes the precipitation, soil, and land use for the existing site conditions in application to the delineated sub-basins. All data Hubbard obtained and used in the model was compared to the existing TY Lin model for accuracy and adjusted accordingly based on current site conditions at maximum densities per approved zoning cases. Precipitation data was obtained from the NOAA Atlas 14 precipitation database. The map index used in DDMSW is 64, cells 687-

689. Existing soil data was obtained from the United States Department of Agriculture's Natural Resources Conservation Service. Additionally, land use data was determined based on current zoning of the project site. Data for the HEC-1 analysis are in **Appendix C**.

Hubbard has met with the City of Scottsdale and the developers south of the Cavasson development in order to coordinate the analyses for the Crossroads East development. It was determined in the meeting that the HEC-1 models be adjusted to reflect a time interval of 15 minutes rather than 3 minutes, as was originally modeled in TY Lin's report. Thus, the inflow hydrographs provided by TY Lin were convoluted to accurately represent this change in time interval resulting in more accurate time to peak values. In addition, it was also decided in the meeting that Hubbard's analysis for the existing, proposed, and ultimate conditions will be used by developers south of Hayden Road. Hubbard's sub-basin delineation, shown in **Exhibit 2**, deviates from TY Lin's analysis in that Hubbard added collection points at existing culverts along Legacy Boulevard and Hayden road to model the peak flows coming through each infrastructure for utilization in routing design. Additionally, detailed analysis of the existing topography and as-builts along Hayden road and Legacy Boulevard revealed that the basins were not segmented by Hayden Road or Legacy Boulevard, in the TY Lin Report. These larger basins were subdivided in the Hubbard analysis and a similar naming convention was used to compare baseline flows.

Hubbard's analysis split the original TY Lin sub-basins 7 and 8 into east and west components to more accurately model the conveyance of the flows on either side of Hayden Road. An additional basin, SB09N was also added per the city's request as this was not included in the TY Lin analysis. In Hubbard's routing, flows from SB07E and SB08E are routed east, following the topography. Since the TY-Lin model does not delineate a SB-08W, the TY-Lin model shows the flow from SB08 flowing from the southwest corner of the basin east across Hayden Road. This analysis is not correct considering that the eastern elevation is approximately 20 feet higher than the western elevation (CP-08 in TY-Lin's exhibit). This routing also neglects the flow being conveyed across the Loop 101 from SB07W and SB08W. Hubbard therefore routed the flow from SB07W and SB08W to the existing ADOT culvert along Frontage road and across the Loop 101, thus affecting the developments south of the Loop 101, a condition not represented in the TY-Lin report.

In TY-Lin's analysis, the 100-year, 24-hour storm event controlled for the entire area, with the 100-year, 6-hour storm event controlling the localized flows. TY-Lin recommended the creation of the Powerline Channel to intercept and route the 100-year, 24-hour flows to Basin 53R. Since it was determined in meetings with the City of Scottsdale that the channel will be built during construction of the Cavasson development, Hubbard's existing model includes this channel and results for the 100-year, 24-hour, 100-year, 6-hour, and 10-year, 6-hour storm events are shown in **Exhibit 2.** With the addition of the channel and routing to Basin 53R, a significant amount of flow is being diverted from the affected study area to Basin 53R. The addition of the channel results in higher peak flows for the Crossroads East development from the 100-year, 6-hour storm event rather than the 100-year, 24-hour storm.

In addition to the existing model post-channel and proposed model, Hubbard completed an ultimate condition model considering the surrounding lots will be developed. In the model, this was represented by increasing the imperviousness of SB01-B, SB01-C, and SB07W to reflect maximum assumed densities per the zoning stipulations pertinent to the Cavasson development and Cross Roads East approved zoning cases.

2.3 Flood Zone Information

The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (F.I.R.M.) number 04013C1320L, Panel number 1320 of 4425, dated October 16, 2013 indicates that the southeast corner and a margin of the northwest corner of the property falls within Zone AO (Depth 1 foot) while the rest of the property falls within Zone X.

Zone AO is defined as:

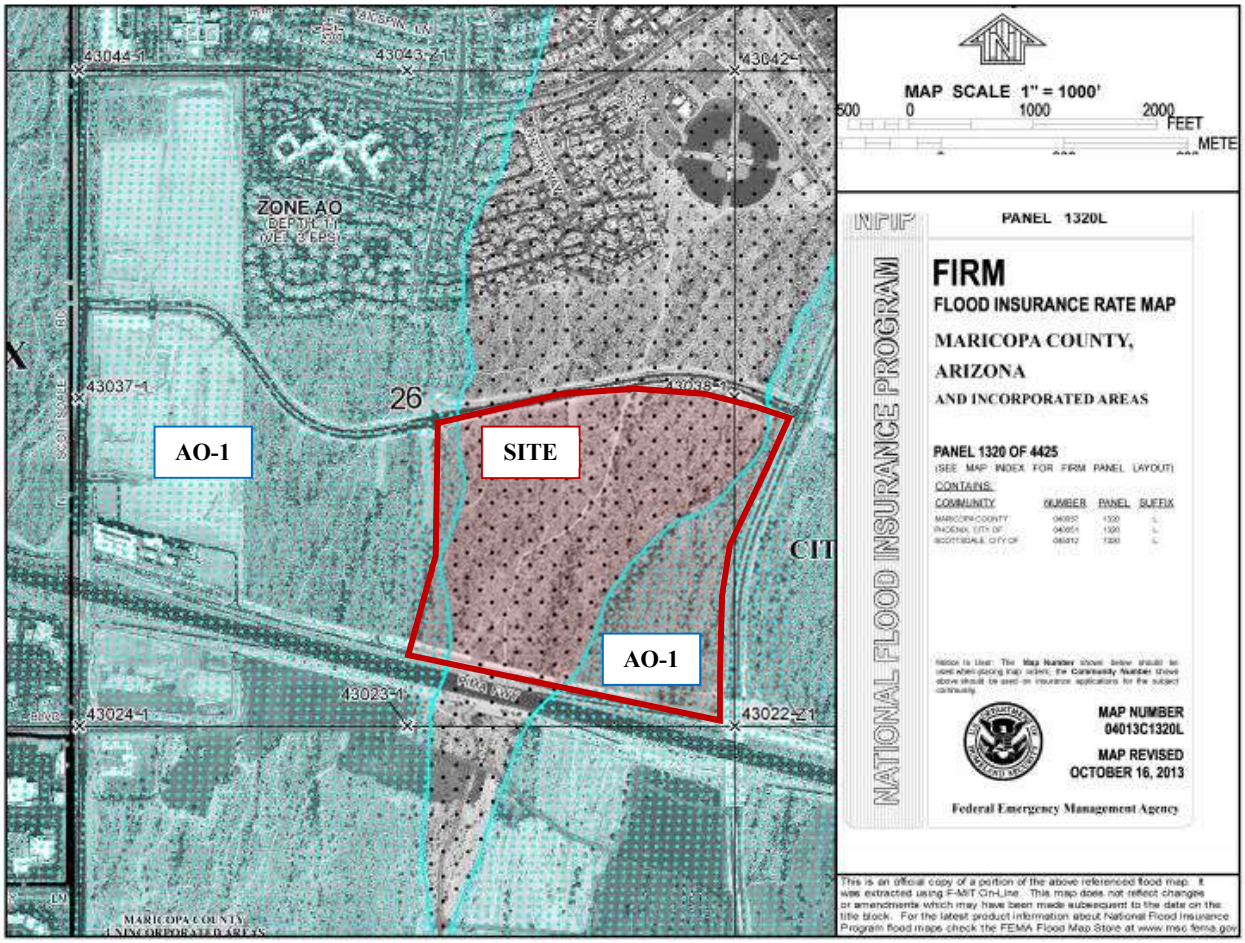
"*Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.*"

Zone X is defined as:

"*Areas of 0.2% annual chance flood; areas of 1.0% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood*."

Refer to FEMA Firmette in **Figure 2.1.**

Figure 2.1 – FIRM 04013C1320L



3. PROPOSED MASTER DRAINAGE PLAN

3.1 Off-Site Flows

Off-site flows conveyed from north of Legacy Boulevard are routed across Legacy Boulevard through box culverts and elliptical pipes, as determined from as-builts provided by Scottsdale and verified with the TY-Lin master report. Capacity calculations for the existing culverts were completed and are located in **Appendix G.** Two existing 30-inch culverts are shown to cross from east of Hayden Road to the project site, however, physical observations of the culverts following major storm events show that the velocity of the flow is too great for flow to enter through these culverts. It was assumed that flow does not cross Hayden Road and instead conveys southeast along an existing channel to Basin 53R, as was discussed in a meeting with the City of Scottsdale. Hubbard proposes filling these existing 30-inch culverts with concrete and modeled the routing accordingly. Flows ultimately exit the site through ADOT culverts along frontage road.

It was also determined in the meeting with the City of Scottsdale and other consultants that Hubbard's existing model will replicate conditions for the site as it is today with the Powerline Channel constructed. The proposed condition models the site with the Cavasson development and the ultimate condition models the additional surrounding lots as developed. Developers south of the Loop 101 at CP-08W will consider these oncoming flows for their designs and will utilize Hubbard's models as a basis for their own analyses. Hubbard has been in coordination with the developer just south of the Loop 101.

Off-site routing for Cavasson was designed to maintain historical runoff paths and to avoid disturbing existing downstream developments. A channel was designed along the eastern edge of the Cavasson development, on the west side of Hayden Rd., to convey the flow originating from north of Legacy Boulevard (SB07W) to the ultimate discharge point at the Loop 101 culverts, a total of 35 cfs for the ultimate condition. The channel runs towards an existing ADOT culvert where the conveyed flow will ultimately cross the Loop 101 and route south. Four culverts were also designed for where the channel crosses the proposed intersection and driveways along Hayden Road. Calculations for the proposed culverts can be found in **Appendix G**. The channel design is shown in **Exhibits 3.** Results from the Hubbard's analysis with the proposed project conditions are also included in **Exhibit 3**, which will be further addressed in section 3.2. **Exhibit 4** tabulates the results of the analysis for the ultimate condition which considers the surrounding lots, SB01-B, SB01B, and SB07W, developed.

The HEC-1 analyses for the 100-year, 6-hour storm results show the total pre- and post-development off-site flows entering the site through existing culverts along Legacy Blvd. as 79 cfs. The total off-site flows exiting the site pre-development through the existing culverts is 76 cfs. The total peak flow exiting the site post-development is 82 cfs. A breakdown of the peak flows entering each individual culvert is shown in **Exhibit 5.**

3.2 On-Site Hydrology

The storm event affecting the site was determined to be a 100-year, 6-hour storm, as discussed in section 2.2.1 of this report. Results for the 10-year, 6-hour storm event are also included in the appendix. The undeveloped property will be required to convey the peak flows from the 100-year, 6-hour storm event as required by the City of Scottsdale. The finished floors and low outfall elevations are estimates that demonstrate how the Master Drainage for the site will reach the ultimate site breakover elevations along the Loop 101 frontage road, as the site has been historically discharging to the south. Final finished floors and breakovers will be determined with the development of each phase and will meet the required two feet above ground elevation when located in the Zone AO floodplain.

In the proposed HEC-1 analyses, Hubbard adjusted its existing models to reflect an 85% increase in impervious areas within SB02E and SB08W, representing the maximum allowable densities, and modified the land uses to reflect the proposed development. The results of this analysis are shown in **Exhibit 3**. Proposed infrastructure to manage the on-site flows will be addressed in section 3.3.

The anticipated nature of the site configurations and grading designs indicate that the Rational Method of hydrology as described in the *Drainage Design Manual for Maricopa County, Volume I* (Reference 2) will be applicable in developing design storm discharges as the site develops further on the individual site as they are submitted to the City of Scottsdale for sizing storm drain and inlets.

3.3 Storm Water Storage

The project development is not required to retain on-site stormwater runoff other than for the first flush storm event, per the City of Scottsdale zoning stipulations. The required first flush volume determined for each drainage area site will be designed per *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology* (Reference 2). Drainage areas for the ultimate buildout of the Cavasson development have been estimated and are shown on **Exhibit 5.** The estimates are schematic and may change as the site develops but will delineate how much drainage each area would require and will further provide an estimate of the combined storage for the entire 136-acres Cavasson development. During the development of Cavasson Boulevard, temporary sediment ponds will be constructed along the north side of Cavasson Boulevard to capture and control runoff from Parcel 1C. The runoff from the ponds will be directed towards proposed culverts along Cavasson Boulevard where the flow will exit and sheet flow naturally across the desert landscape back towards their natural low points. Additionally, temporary retention basins to protect the roads from oncoming runoff will be designed and addressed in Final Drainage Reports for each proposed road. Two preliminary culvert calculations were designed assuming that the maximum possible flow from each contributing sub basin (SB02E and SB08W north of Cavasson Boulevard) will exit through these structures. The approximate locations of these culverts are shown on **Exhibit 5**. The culverts will also be addressed and recalculated in the Final Drainage Report for Cavasson Boulevard. Retention and culvert calculations are in **Appendix G.**

Additionally, in a previous Hubbard Engineering analysis and memorandum, it was determined that on-site retention for excess off-site flows, originating from the Powerline Channel, is not necessary for the entire Crossroads East and Core North development after the addition of the proposed Powerline Channel, as the proposed channel will divert a significant amount of flow from the upstream basins to Basin 53R. Excess runoff from the Powerline Channel will flow to

basin, which is located less than one mile southeast of the project location. The design of the new channel be completed by other engineering consultants.

3.3.1 Time to Drain

Each site will be required to dewater the required storm water detention through natural percolation and/or drywells. The City of Scottsdale allows each drywell to dissipate 43,560 cubic feet in the 36-hour period for each drywell installed. All drywells will be dual chamber drywell systems to meet both environmental and dissipation criteria.

4. SUMMARY AND CONCLUSION

- The site is located in Section 26 of Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.
- The northwester portion of the site is located in Flood Plain Zone X and the southeastern section of the site is located in the Flood Plain Zone AO-1.
- The storm event affecting the site was modeled as a 100-yr, 6-hour event.
- Temporary sediment basins will capture and guide runoff from Parcel 1C to sheet flow back towards the natural washes and across the natural desert as Cavasson Boulevard develops. These will be maintained as the site project develops further.
- Off-site flows will be directed to existing culverts and a designed channel.
- The site will provide retention for the first flush storm event, which requires a total volume of 190,337ft^3.
- The Finish Floor Elevations of the proposed buildings meet the required minimum 2 foot higher than existing land.
- The total peak flow entering the site pre- and post- development is 79 cfs. The total peak flow exiting the site pre-development is 76 cfs. The total peak flow exiting the site post-development is 82 cfs.

5. REFERENCES

1) City of Scottsdale. *Drainage Policies & Standards for Maricopa County, Arizona.* January 18, 2018.

2) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*. November 2003.

3) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*. November 2003.

4) City of Scottsdale. *Ordinance No. 4346.* June 17, 2018.

5) TY Lin, *Pinnacle Peak South Area Drainage Master Study,* 2014.

6) City of Scottsdale, *Ordinance No. 4346,* June 17, 2018.

6. LIMITATIONS

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from, and performed with, currently accepted engineering methodologies and practices. Additionally, the criteria for this evaluation is designed to conform to currently applicable ordinances, regulations and policies effected by the appropriate jurisdictional regulatory authorities for the site.

The analysis presented herein focuses on developing design estimates of storm water runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. However, the scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency event. Hubbard Engineering assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development cost resulting from or related to any such events. Nor shall Hubbard Engineering be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

In performing the services contained herein, Hubbard Engineering has received or will receive information prepared or compiled by others. Hubbard Engineering, as engineering professionals, are not required to verify the information, but may rely on the information unless actual knowledge concerning the validity of the information is known or is obvious to the professional. Therefore, Hubbard Engineering is entitled to rely upon the accuracy and completeness of this information without independent evaluation or verification.

Appendix A
TY Lin HEC-1 Existing
Cavasson

WATERSHED MAP

0 200 400 800 Feet

TY LIN INTERNATIONAL
engineers| planners| scientists

Legend

- Flow Path
- Sub-basins
- Proposed ROW

SB01
SB02
SB03
SB04
SB05
SB06
SB07
SB08
SB09
SB10
SB11

N 76TH ST
E LEGACY BL
N HAYDEN RD
N 84TH WY
N GRAYHAWK DR
N 84TH ST
E HUALAPAI DR
N 89TH PL
N 88TH WY
N 88TH ST
N 90TH PL
N 90TH WY
N SCOTTSDALE RD
L101 EB
L101 WB
E UNION HILLS DR
N PERIMETER DR
N 81ST WY
N 82ND ST
E ST JOHN RD
E PRINCESS BL
E PRINCESS DR
N 77TH PL

Drainage Sub-Basin ID	Area (sq. mi.)	Longest Flow Path (mi.)	Upstream Ground Elev. (ft)	Downstream Ground Elev. (ft)	Slope (ft/mi)
SB01	0.112	0.641	1678	1637	64.0
SB02	0.157	0.728	1651	1605	63.2
SB03	0.048	0.352	1600	1594	17.1
SB04	0.144	0.695	1592	1546	66.2
SB05	0.130	0.699	1650	1613	52.9
SB06	0.136	0.575	1584	1557	47.0
SB07	0.074	0.601	1602	1567	58.3
SB08	0.224	0.321	1683	1653	93.5
SB09	0.052	0.450	1654	1618	80.0
SB10	0.040	0.271	1603	1590	48.1
SB11	0.071	0.457	1606	1583	50.4

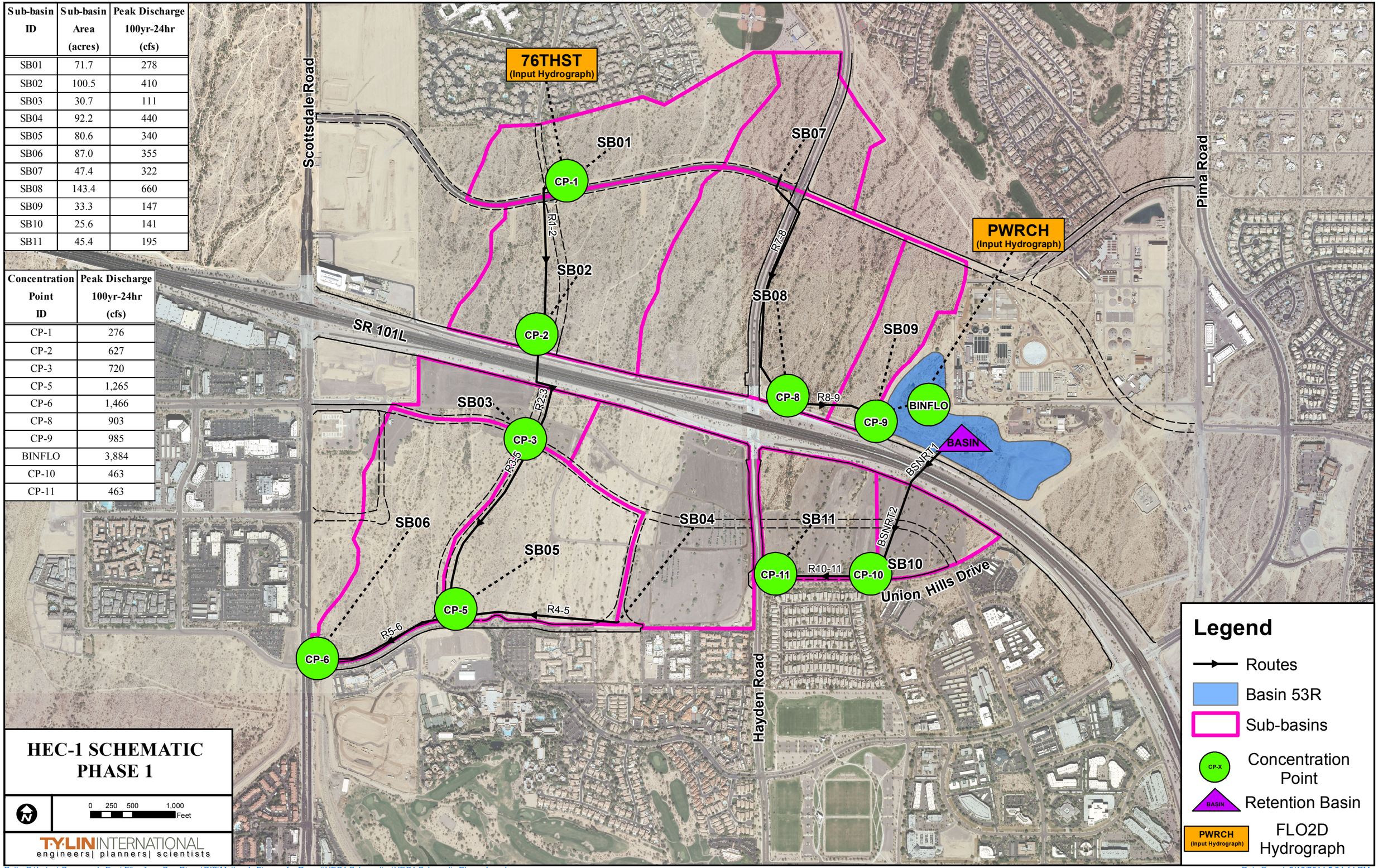
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Appendix B
TY Lin HEC-1 Proposed
Cavasson

Sub-basin ID	Sub-basin Area (acres)	Peak Discharge 100yr-24hr (cfs)
SB01	71.7	278
SB02	100.5	410
SB03	30.7	111
SB04	92.2	440
SB05	80.6	340
SB06	87.0	355
SB07	47.4	322
SB08	143.4	660
SB09	33.3	147
SB10	25.6	141
SB11	45.4	195

Concentration Point ID	Peak Discharge 100yr-24hr (cfs)
CP-1	276
CP-2	627
CP-3	720
CP-5	1,265
CP-6	1,466
CP-8	903
CP-9	985
BINFLO	3,884
CP-10	463
CP-11	463



HEC-1 SCHEMATIC PHASE 1

0 250 500 1,000 Feet

T·Y·LIN INTERNATIONAL
engineers| planners| scientists

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  *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                *          609 SECOND STREET
  *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   12SEP14  TIME  11:45:27  *                                                *           (916) 756-1104
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            3           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            4           ID       100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            5           ID           PIMA ROAD FLOWS)
            6           ID
            7           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            8           ID       MODELERS: RK, MW
            9           ID
           10           IT       3       0       0    1000
           11           IN       3
           12           IO       5
                        *DIAGRAM
                        *
           13           JD   3.849  0.0001
           14           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
           15           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
           16           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
           17           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
           18           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
           19           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
           20           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
           21           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
           22           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
           23           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
           24           JD   3.657    10.0
           25           JD   3.533    20.0
                        *
           26           KK  76THST
           27           KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           28           KM        100-YR, 6-HR FLO-2D MODEL (XS 98)
           29           BA    0.24
           30           QI       0       0       0       0       0       0       0       0       0
           31           QI       0       0       0       0       0       0       0       0       0
           32           QI       0       0       0       0       0       0       0       0       0
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     49          QI    0.03    0.04    0.04    0.05    0.05    0.05    0.06    0.06    0.07    0.08
     50          QI    0.09    0.09     0.1     0.1    0.11    0.11    0.12    0.12    0.13    0.14
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     71          QI    6.32    6.27    6.23    6.22    6.16    6.12    6.08    6.05    6.02    5.98
     72          QI    5.95    5.95    5.95    5.93     5.9    5.87    5.84    5.76    5.72    5.64
     73          QI     5.7    5.76    5.62    5.65    5.74    5.84    5.95     4.5    4.58    5.32
     74          QI    5.41    5.43    4.49    5.32    5.36    5.44    5.48     5.6    5.67    4.68
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     83          QI    2.48    2.53    2.53    2.47    2.41    2.36    2.32    2.28    2.25    2.22
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     85          QI    1.94    1.91    1.88    1.85     1.8    1.72    1.63    1.56    1.58    1.65
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     92          QI    0.85    0.84    0.84    0.83    0.82    0.81     0.8     0.8    0.79    0.78
     93          QI    0.78    0.77    0.76    0.76    0.75    0.74    0.73    0.73    0.72    0.72
     94          QI    0.72    0.71    0.71    0.71     0.7     0.7    0.69    0.69    0.68    0.67
     95          QI    0.67    0.66    0.66    0.65    0.65    0.64    0.64    0.63    0.63    0.62
     96          QI    0.62    0.61    0.61     0.6     0.6    0.59    0.59    0.59    0.58    0.58
     97          QI    0.57    0.57    0.56    0.56    0.56    0.55    0.55    0.54    0.54    0.53
     98          QI    0.53    0.53    0.52    0.52    0.52    0.51    0.51     0.5     0.5     0.5
     99          QI    0.49    0.49    0.48    0.48    0.48    0.47    0.47    0.47    0.46    0.46
    100          QI    0.45    0.45    0.45    0.44    0.44    0.44    0.43    0.43    0.43    0.42
    101          QI    0.42    0.42    0.41    0.41    0.41     0.4     0.4     0.4     0.4    0.39
    102          QI    0.39    0.39
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1                                        HEC-1 INPUT                                          PAGE  3

   LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


    103          KK    SB01   BASIN
    104          BA   0.112
    105          LG    0.25    0.25    4.10    0.55      45
    106          UC   0.318   0.253
    107          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
    108          UA     100
                 *


    109          KK    CP-1 COMBINE
    110          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
    111          HC       2
                 *


    112          KK    R1-2   ROUTE
    113          KM        MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
    114          RK    2104  0.0015   0.03             TRAP      66       4
                 *


    115          KK    SB02   BASIN
    116          BA   0.157
    117          LG    0.15    0.25    4.15    0.58      56
    118          UC   0.328   0.240
    119          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
    120          UA     100
                 *
```

```
 121          KK    CP-2 COMBINE
 122          KM        SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)
 123          HC       2
              *

 124          KK    R2-3   ROUTE
 125          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
 126          RK    1260  0.0015   0.03             TRAP      92       4
              *

 127          KK    SB03   BASIN
 128          BA   0.048
 129          LG    0.15    0.25    4.50    0.47      55
 130          UC   0.364   0.294
 131          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 132          UA     100
              *

 133          KK    CP-3 COMBINE
 134          KM        MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)
 135          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 136          KK    R3-5   ROUTE
 137          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 138          RK    2396  0.0015   0.03             TRAP      98       4
              *

 139          KK    SB04   BASIN
 140          BA   0.144
 141          LG    0.14    0.25    4.60    0.44      61
 142          UC   0.305   0.199
 143          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 144          UA     100
              *

 145          KK    R4-5   ROUTE
 146          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 147          RK    2005  0.0013   0.03             TRAP      39       4
              *

 148          KK    SB05   BASIN
 149          BA   0.126
 150          LG    0.22    0.25    4.50    0.44      48
 151          UC   0.327   0.226
 152          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 153          UA     100
              *

 154          KK    CP-5 COMBINE
 155          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 156          HC       3
              *

 157          KK    R5-6   ROUTE
 158          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 159          RK    1550  0.0015   0.03             TRAP     188       4
              *

 160          KK    SB06   BASIN
 161          BA   0.136
 162          LG    0.16    0.25    4.55    0.45      53
 163          UC   0.321   0.246
 164          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 165          UA     100
              *

 166          KK    CP-6 COMBINE
 167          KM        PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)
 168          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 169          KK    SB07   BASIN
 170          BA   0.074
 171          LG    0.21    0.25    4.00    0.58      49
 172          UC   0.206   0.113
 173          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 174          UA     100
              *

 175          KK    R7-8   ROUTE
 176          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 177          RK    2778  0.0014   0.03             TRAP      46       4
              *
```

```
178          KK    SB08   BASIN
179          BA   0.224
180          LG    0.14    0.25    4.10    0.59      59
181          UC   0.338   0.195
182          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
183          UA     100
             *

184          KK    CP-8 COMBINE
185          KM        SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)
186          HC       2
             *

187          KK    R8-9   ROUTE
188          KM        HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R
189          RK    1250  0.0013   0.03             TRAP      67       4
             *

190          KK    SB09   BASIN
191          BA   0.052
192          LG    0.15    0.25    4.00    0.61      55
193          UC   0.254   0.230
194          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
195          UA     100
             *

196          KK    CP-9 COMBINE
197          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
198          HC       2
             *

199          KK   PWRCH
200          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
201          KM        FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL
202          BA     7.0
203          QI       0       0       0       0       0       0       0       0       0       0
204          QI       0       0       0       0       0       0       0       0       0       0
205          QI       0       0       0       0       0       0       0       0       0       0
206          QI       0       0       0       0       0       0       0       0       0       0
207          QI       0       0       0       0       0       0       0       0       0       0
208          QI       0       0       0       0       0       0       0       0       0       0
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LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

209          QI       0       0       0       0       0       0       0       0       0       0
210          QI       0       0       0       0       0       0       0       0       0       0
211          QI       0       0       0       0       0       0       0       0       0       0
212          QI       0       0       0       0       0       0       0       0       0       0
213          QI       0       0       0       0       0       0       0       0       0       0
214          QI       0       0       0       0       0       0       0       0       0       0
215          QI       0       0       0       0       0       0       0       0       0       0
216          QI       0       0       0       0       0       0       0       0       0       0
217          QI       0       0       0       0       0       0       0       0       0       0
218          QI       0       0       0       0       0       0       0       0       0       0
219          QI       0       0       0       0       0       0       0       0       0       0
220          QI       0       0       0       0       0       0       0       0       0       0
221          QI       0       0       0       0       0       0       0       0       0       0
222          QI       0       0       0       0       0       0       0       0       0       0
223          QI       0       0       0       0       0       0       0       0       0       0
224          QI       0       0       0       0       0       0       0       0       0       0
225          QI       0       0       1       1       1       1       1       1       1       1
226          QI       1       2       2       2       3       3       5       9      18      28
227          QI      43      50      65      87     194     495     872     967    1051    1095
228          QI    1099    1091    1093    1100    1117    1198    1243    1370    1495    1777
229          QI    2055    2422    2906    3246    3546    3747    3874    3884    3837    3741
230          QI    3658    3562    3456    3370    3270    3175    3085    3024    2955    2888
231          QI    2822    2744    2640    2543    2461    2378    2309    2239    2183    2132
232          QI    2084    2045    2005    1973    1933    1898    1860    1821    1779    1740
233          QI    1699    1659    1619    1576    1544    1499    1461    1432    1397    1364
234          QI    1331    1298    1268    1237    1206    1179    1152    1126    1100    1074
235          QI    1047    1023    1000     979     959     940     918     901     882     867
236          QI     851     834     818     803     789     773     759     744     731     719
237          QI     705     693     683     670     657     645     635     627     617     608
238          QI     597     588     581     573     566     559     553     545     537     529
239          QI     521     514     507     501     495     488     482     476     471     465
240          QI     460     456     450     444     440     435     429     424     419     414
241          QI     410     404     400     396     393     387     385     381     377     375
242          QI     370     367     364     362     360     356     352     349     346     343
243          QI     339     338     334     333     330     328     326     322     318     315
244          QI     317     313     308     306     305     303     300     298     295     294
245          QI     293     291     288     285     286     281     278     276     275     276
246          QI     270     265     269     267     264     257     265     257     255     255
247          QI     258     251     251     253     245     248     247     242     246     239
248          QI     240     241     236     238     232     237     231     231     228     231
249          QI     223     227     223     223     221     220     219     215     219     215
250          QI     214     215     211     215     211     209     213     209     207     208
251          QI     205     201     207     200     200     201     201     199     197     193
252          QI     192     190     190     191     189     188     187     185     186     184
253          QI     180     179     180     173     173     179     169     172     164     169
254          QI     164     165     163     161     156     158     155     158     153     158
255          QI     149     153     146     144     146     142     149     139     136     138
256          QI     137     143     131     130     132     126     126     124     123     133
257          QI     120     119     124     117     116     117     114     111     113     109
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 258          QI     107     109     105     106     104     102     104     100      99     103
 259          QI      97      96     100      94      93      99      91      90      97      88
 260          QI      86      90      84      85      87      83      83      85      80      79
 261          QI      82      78      75      82      74      74      82      72      71      76
 262          QI      70      71      70      68      72      66      67      65      64      69
 263          QI      62      65      61      61      63      59      65      58      58      60
1                                        HEC-1 INPUT                                        PAGE  7

        LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 264          QI      57      63      56      55      58      55      58      54      52      58
 265          QI      52      52      53      50      57      50      50      55      48      48
 266          QI      50      46      47      47      44      48      45      43      49      43
 267          QI      42      48      42      41      45      41      40      44      40      38
 268          QI      40      40      38      37      40      37      36      42      36      36
 269          QI      35      41      35      34      34      40      34      33      33      33
 270          QI      36      33      32      32      33      32      31      31      30      33
 271          QI      31      30      29      29      31      30      28      29      28      29
 272          QI      31      28      28      27      27      30      27      26      26      26
 273          QI      31      26      25      25      25      30      26      25      25      24
 274          QI      24      28      23      23      24      23      24      25      24      23
 275          QI      23      22

              *

 276          KK  BINFLO
 277          KM         TOTAL INFLOW INTO BASIN 53R.
 278          HC       2
              *

 279          KK   BASIN
 280          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 281          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 282          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 283          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 284          RS       1    STOR       0
 285          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 286          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 287          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 288          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 289          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 290          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 291          KK  BSNRT1
 292          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 293          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 294          KM        EXCESS CAPACITY.
 295          RK     550  0.0052   0.024            CIRC     7.0
              *

 296          KK  BSNRT2
 297          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL
 298          RK    1200  0.0077   0.013            CIRC     7.0
              *

 299          KK    SB10   BASIN
 300          BA   0.040
 301          LG    0.15    0.25    4.25    0.55      55
 302          UC   0.233   0.161
 303          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 304          UA     100
              *
1                                        HEC-1 INPUT                                        PAGE  8

        LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 305          KK   CP-10 COMBINE
 306          KM         UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 307          HC       2
              *

 308          KK  R10-11   ROUTE
 309          KM         UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 310          RK    1277  0.0014   0.03             TRAP     220       4
              *

 311          KK    SB11   BASIN
 312          BA   0.071
 313          LG    0.15    0.25    4.15    0.58      55
 314          UC   0.296   0.232
 315          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 316          UA     100
              *

 317          KK   CP-11 COMBINE
 318          KM         UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 319          HC       2
              *
 320          ZZ
1
      SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
```

```
LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW
 NO.      (.) CONNECTOR        (<----) RETURN OF DIVERTED OR PUMPED FLOW

  26      76THST
               .
               .
 103           .        SB01
               .          .
               .          .
 109         CP-1.............
                V
                V
 112         R1-2
               .
               .
 115           .        SB02
               .          .
               .          .
 121         CP-2.............
                V
                V
 124         R2-3
               .
               .
 127           .        SB03
               .          .
               .          .
 133         CP-3.............
                V
                V
 136         R3-5
               .
               .
 139           .        SB04
               .          V
               .          V
 145           .        R4-5
               .          .
               .          .
 148           .          .        SB05
               .          .          .
               .          .          .
 154         CP-5.........................
                V
                V
 157         R5-6
               .
               .
 160           .        SB06
               .          .
               .          .
 166         CP-6.............
               .
               .
 169           .        SB07
               .          V
               .          V
 175           .        R7-8
               .          .
               .          .
 178           .          .        SB08
               .          .          .
               .          .          .
 184           .        CP-8.............
               .          V
               .          V
 187           .        R8-9
               .          .
               .          .
 190           .          .        SB09
               .          .          .
               .          .          .
 196           .        CP-9.............
               .          .
               .          .
 199           .          .       PWRCH
               .          .          .
               .          .          .
 276           .      BINFLO.............
               .          V
               .          V
 279           .       BASIN
               .          V
               .          V
 291           .      BSNRT1
               .          V
               .          V
 296           .      BSNRT2
               .          .
               .          .
 299           .          .        SB10
               .          .          .
               .          .          .
```

```
   305           .       CP-10.....
                 .          V
                 .          V
   308           .      R10-11
                 .          .
                 .          .
   311           .          .        SB11
                 .          .          .
                 .          .          .
   317           .       CP-11.....

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
****************************************
 *                                      *                                        *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                        *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                        *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                        *          609 SECOND STREET
  *
 *                                      *                                        *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   12SEP14  TIME  11:45:27  *                                        *           (916) 756-1104
  *
 *                                      *                                        *
  *
 ****************************************
****************************************
```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND PIMA ROAD FLOWS)

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

```
   12 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                        NMIN           3  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL    0.05 HOURS
                         TOTAL TIME BASE   49.95 HOURS

            ENGLISH UNITS
                 DRAINAGE AREA         SQUARE MILES
                 PRECIPITATION DEPTH   INCHES
                 LENGTH, ELEVATION     FEET
                 FLOW                  CUBIC FEET PER SECOND
                 STORAGE VOLUME        ACRE-FEET
                 SURFACE AREA          ACRES
                 TEMPERATURE           DEGREES FAHRENHEIT

   13 JD           INDEX STORM NO. 1
                        STRM        3.85  PRECIPITATION DEPTH
                        TRDA        0.00  TRANSPOSITION DRAINAGE AREA

   14 PI             PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.01      0.01      0.00      0.01      0.00      0.01
                        0.01      0.00      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.02      0.02      0.02      0.03      0.10      0.28      0.04      0.03
                        0.02      0.02      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00

   24 JD           INDEX STORM NO. 2
                        STRM        3.66  PRECIPITATION DEPTH
                        TRDA       10.00  TRANSPOSITION DRAINAGE AREA

    0 PI             PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.01
0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.02	0.02	0.03	0.10	0.28	0.04	0.03
0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00				

25 JD INDEX STORM NO. 3
STRM 3.53 PRECIPITATION DEPTH
TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.01
0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.02	0.02	0.03	0.10	0.28	0.04	0.03
0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00				

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
	HYDROGRAPH AT									
+		76THST	69.	12.50	23.	8.	4.	0.24		
	HYDROGRAPH AT									
+		SB01	278.	2.55	30.	8.	4.	0.11		
	2 COMBINED AT									

+	CP-1	276.	2.55	30.	15.	8.	0.35
ROUTED TO							
+	R1-2	273.	2.70	30.	15.	8.	0.35
HYDROGRAPH AT							
+	SB02	410.	2.55	46.	12.	6.	0.16
2 COMBINED AT							
+	CP-2	627.	2.65	76.	26.	13.	0.51
ROUTED TO							
+	R2-3	618.	2.70	76.	26.	13.	0.51
HYDROGRAPH AT							
+	SB03	111.	2.60	14.	4.	2.	0.05
2 COMBINED AT							
+	CP-3	720.	2.70	90.	30.	15.	0.56
ROUTED TO							
+	R3-5	713.	2.80	90.	30.	15.	0.56
HYDROGRAPH AT							
+	SB04	440.	2.55	45.	11.	5.	0.14
ROUTED TO							
+	R4-5	432.	2.65	45.	11.	5.	0.14
HYDROGRAPH AT							
+	SB05	340.	2.55	36.	9.	4.	0.13
3 COMBINED AT							
+	CP-5	1265.	2.75	170.	50.	25.	0.83
ROUTED TO							
+	R5-6	1242.	2.80	169.	50.	25.	0.83
HYDROGRAPH AT							
+	SB06	355.	2.55	40.	10.	5.	0.14
2 COMBINED AT							
+	CP-6	1466.	2.80	208.	60.	29.	0.96
HYDROGRAPH AT							
+	SB07	322.	2.50	21.	5.	2.	0.07
ROUTED TO							
+	R7-8	310.	2.65	21.	5.	3.	0.07
HYDROGRAPH AT							
+	SB08	660.	2.55	68.	17.	8.	0.22
2 COMBINED AT							
+	CP-8	903.	2.65	89.	22.	11.	0.30
ROUTED TO							
+	R8-9	880.	2.70	89.	22.	11.	0.30
HYDROGRAPH AT							
+	SB09	147.	2.55	15.	4.	2.	0.05
2 COMBINED AT							
+	CP-9	985.	2.70	104.	26.	12.	0.35
HYDROGRAPH AT							
+	PWRCH	3884.	13.35	1547.	503.	248.	7.00
2 COMBINED AT							
+	BINFLO	3884.	13.35	1547.	503.	260.	7.35
ROUTED TO							
+	BASIN	463.	18.45	458.	399.	251.	7.35
ROUTED TO							
+	BSNRT1	463.	18.50	458.	399.	251.	7.35
ROUTED TO							
+	BSNRT2	463.	18.50	458.	399.	251.	7.35
HYDROGRAPH AT							
+	SB10	141.	2.50	12.	3.	1.	0.04
2 COMBINED AT							
+	CP-10	463.	18.50	458.	399.	252.	7.39
ROUTED TO							
+	R10-11	463.	18.55	458.	399.	252.	7.39
HYDROGRAPH AT							
+	SB11	195.	2.55	21.	5.	3.	0.07
2 COMBINED AT							
+	CP-11	463.	18.55	458.	399.	254.	7.46

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1-2	MANE	3.00	287.35	160.24	1.72	3.00	284.38	162.00	1.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3222E+02 EXCESS=0.0000E+00 OUTFLOW=0.3226E+02 BASIN STORAGE=0.5145E-01 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R1-2	MANE	3.00	270.30	162.31	1.67	3.00	267.71	162.00	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3132E+02 EXCESS=0.0000E+00 OUTFLOW=0.3135E+02 BASIN STORAGE=0.5145E-01 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 20.00									
R1-2	MANE	3.00	259.93	162.15	1.64	3.00	259.40	162.00	1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3073E+02 EXCESS=0.0000E+00 OUTFLOW=0.3080E+02 BASIN STORAGE=0.5496E-01 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R2-3	MANE	1.51	651.07	161.96	2.07	3.00	651.05	162.00	2.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5609E+02 EXCESS=0.0000E+00 OUTFLOW=0.5610E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R2-3	MANE	1.68	617.22	162.52	1.98	3.00	607.09	162.00	1.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5389E+02 EXCESS=0.0000E+00 OUTFLOW=0.5385E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00									
R2-3	MANE	1.57	606.67	162.84	1.93	3.00	594.12	162.00	1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5252E+02 EXCESS=0.0000E+00 OUTFLOW=0.5252E+02 BASIN STORAGE=0.3881E-01 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	2.90	746.61	169.74	2.14	3.00	740.89	168.00	2.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6349E+02 EXCESS=0.0000E+00 OUTFLOW=0.6368E+02 BASIN STORAGE=0.7132E-01 PERCENT ERROR=
-0.4

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R3-5	MANE	2.99	705.69	168.12	2.05	3.00	703.45	168.00	2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6077E+02 EXCESS=0.0000E+00 OUTFLOW=0.6099E+02 BASIN STORAGE=0.7609E-01 PERCENT ERROR=
-0.5

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R3-5	MANE	2.97	683.83	168.92	2.00	3.00	669.67	168.00	2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5920E+02 EXCESS=0.0000E+00 OUTFLOW=0.5943E+02 BASIN STORAGE=0.7619E-01 PERCENT ERROR=
-0.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.44	447.26	159.45	3.02	3.00	444.07	159.00	3.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2308E+02 EXCESS=0.0000E+00 OUTFLOW=0.2320E+02 BASIN STORAGE=0.4656E-04 PERCENT ERROR=
-0.5

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R4-5	MANE	2.59	429.78	158.16	2.87	3.00	425.33	159.00	2.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2182E+02 EXCESS=0.0000E+00 OUTFLOW=0.2203E+02 BASIN STORAGE=0.4483E-04 PERCENT ERROR=
-1.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R4-5	MANE	2.60	410.95	158.84	2.76	3.00	410.03	159.00	2.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2100E+02 EXCESS=0.0000E+00 OUTFLOW=0.2116E+02 BASIN STORAGE=0.3691E-04 PERCENT ERROR=
-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	1.77	1321.25	168.17	2.39	3.00	1316.26	168.00	2.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1051E+03 EXCESS=0.0000E+00 OUTFLOW=0.1053E+03 BASIN STORAGE=0.6328E-01 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R5-6	MANE	1.94	1236.19	169.97	2.28	3.00	1225.73	171.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1002E+03 EXCESS=0.0000E+00 OUTFLOW=0.1004E+03 BASIN STORAGE=0.6753E-01 PERCENT ERROR=-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R5-6	MANE	1.82	1180.28	168.70	2.20	3.00	1169.55	171.00	2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9721E+02 EXCESS=0.0000E+00 OUTFLOW=0.9718E+02 BASIN STORAGE=0.6757E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7-8	MANE	2.98	320.52	158.47	2.78	3.00	316.88	159.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1062E+02 EXCESS=0.0000E+00 OUTFLOW=0.1097E+02 BASIN STORAGE=0.1432E-03 PERCENT ERROR=-3.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7-8	MANE	2.87	305.35	159.01	2.61	3.00	304.85	159.00	2.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1001E+02 EXCESS=0.0000E+00 OUTFLOW=0.1032E+02 BASIN STORAGE=0.1568E-03 PERCENT ERROR=-3.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7-8	MANE	3.00	287.36	160.28	2.59	3.00	278.18	159.00	2.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9623E+01 EXCESS=0.0000E+00 OUTFLOW=0.1023E+02 BASIN STORAGE=0.1386E-03 PERCENT ERROR=-6.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8-9	MANE	1.46	914.50	162.26	2.88	3.00	911.54	162.00	2.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4580E+02 EXCESS=0.0000E+00 OUTFLOW=0.4583E+02 BASIN STORAGE=0.2113E-03 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8-9	MANE	1.32	877.55	161.38	2.73	3.00	866.18	162.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4326E+02 EXCESS=0.0000E+00 OUTFLOW=0.4337E+02 BASIN STORAGE=0.2285E-03 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8-9	MANE	1.49	824.02	161.14	2.64	3.00	818.74	162.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4190E+02 EXCESS=0.0000E+00 OUTFLOW=0.4192E+02 BASIN STORAGE=0.2053E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.33	462.77	1107.64	2.65	3.00	462.77	1110.00	2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.9252E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.33	462.63	1107.74	2.64	3.00	462.63	1110.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1035E+04 EXCESS=0.0000E+00 OUTFLOW=0.1035E+04 BASIN STORAGE=0.9241E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.34	462.54	1107.73	2.64	3.00	462.54	1110.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1033E+04 EXCESS=0.0000E+00 OUTFLOW=0.1033E+04 BASIN STORAGE=0.9237E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.48	462.77	1110.07	2.65	3.00	462.77	1110.00	2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.1054E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.37	462.63	1110.22	2.64	3.00	462.63	1110.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1035E+04 EXCESS=0.0000E+00 OUTFLOW=0.1035E+04 BASIN STORAGE=0.1056E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.33	462.54	1110.65	2.64	3.00	462.54	1110.00	2.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1033E+04 EXCESS=0.0000E+00 OUTFLOW=0.1033E+04 BASIN STORAGE=0.1056E+00 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.40	462.77	1113.47	2.64	3.00	462.77	1113.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1043E+04 EXCESS=0.0000E+00 OUTFLOW=0.1042E+04 BASIN STORAGE=0.1560E+01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.40	462.63	1113.70	2.64	3.00	462.62	1116.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1040E+04 EXCESS=0.0000E+00 OUTFLOW=0.1039E+04 BASIN STORAGE=0.1557E+01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.47	462.54	1114.58	2.63	3.00	462.54	1113.00	2.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.1559E+01 PERCENT ERROR=0.0

*** NORMAL END OF HEC-1 ***

```
1****************************************
****************************************
 *                                      *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
  *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   12SEP14  TIME  11:47:04  *                                                    *           (916) 756-1104
  *
 *                                      *                                                    *
  *
 ****************************************
****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE ALTERNATIVES
            2           ID        RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            3           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            4           ID       100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            5           ID           PIMA ROAD FLOWS)
            6           ID        PHASE 2 BASIN - SIDESLOPES STEEPENED FROM ~5:1 TO 3:1
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           IT       3       0       0    1000
           12           IO       3
                        *DIAGRAM
                        *
           13           JD   2.755  0.0001
           14           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           16           PC   0.962   0.972   0.983   0.991   1.000
           17           JD   2.738  0.5000
           18           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           19           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           20           PC   0.962   0.972   0.983   0.991   1.000
           21           JD   2.686     2.8
           22           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           23           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           24           PC   0.950   0.963   0.975   0.988   1.000
           25           JD   2.540    16.0
           26           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
           27           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
           28           PC   0.946   0.960   0.973   0.987   1.000
           29           JD   2.232    90.0
           30           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
           31           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
           32           PC   0.927   0.945   0.964   0.982   1.000
                        *

           33           KK  76THST
           34           KM        76TH STREET CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           35           KM        100-YR, 6-HR FLO-2D MODEL (XS 98)
           36           BA    0.24
           37           QI       0       0       0       0       0       0       0       0       0
           38           QI       0       0       0       0       0       0       0       0       0
           39           QI       0       0       0       0       0       0       0       0       0
           40           QI       0       0       0       0       0       0       0       0       0
           41           QI       0       0       0       0       0       0       0       0       0
           42           QI       0       0    0.01       0       0       0       0       0       0
           43           QI    0.01       0       0    0.01    0.01    0.01    0.02    0.03    0.05    0.07
```

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   44          QI    0.09    0.16    0.27    0.42    0.63     0.9    2.34    3.89    7.48   10.26
   45          QI    12.7   14.07   17.67   27.43   38.25   42.26   42.56   42.35   43.77   48.39
   46          QI   49.92   51.19   50.98   50.52   49.38    48.6   44.64   42.62   39.72   36.96
   47          QI   34.49   32.83   31.02    29.6   28.15   26.72   25.66   24.48   23.53   22.56
   48          QI   21.55   20.83   19.46   20.34   18.32   17.51   16.55   16.22   15.59   15.15
   49          QI   14.81   14.23   13.72   13.18   13.21   12.84   12.36   12.34   12.16      12
   50          QI   11.63   11.31   11.37   11.23   11.13   10.56   10.63   10.27    9.98    9.86
   51          QI    9.58    9.02    9.34    8.67    8.51    8.32    8.08    7.75    7.43    7.37
1                                        HEC-1 INPUT                                        PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   52          QI    7.29    7.19    7.08       7    6.89    6.73    6.55     6.4    6.23    6.02
   53          QI    5.83    5.66    5.06    4.57    4.75    4.76    4.65    4.55    4.44    4.32
   54          QI    4.23    4.15    4.05    3.95    3.87    3.81    3.68    3.54    3.48    3.42
   55          QI     3.4    2.42    2.38     3.4    3.61    3.55    3.49    2.89    2.36    2.36
   56          QI    2.36    2.37    2.44    3.67    2.44    2.51    2.49    2.47    2.42    2.37
   57          QI    2.32    2.29    2.26    2.23    2.19    2.16    2.13     2.1    2.07    2.05
   58          QI    2.02    1.99    1.96    1.91    1.86    1.83    1.78    1.69    1.58    1.54
   59          QI    1.58    1.65    1.69    1.67    1.59     1.5    1.36    1.41    1.51    1.54
   60          QI    1.52    1.35    1.43    1.37    1.25    1.21     1.2     1.2    1.23    1.28
   61          QI    1.31    1.34    1.35    1.35    1.34    1.34    1.33    1.33    1.26    1.09
   62          QI    1.09    1.11    1.16    1.22    1.06    1.07    1.15    1.06    1.05    1.05
   63          QI    1.04    1.02    1.01       1    0.98    0.97    0.96    0.95    0.94    0.92
   64          QI    0.91     0.9    0.89    0.88    0.87    0.86    0.85    0.85    0.84    0.84
   65          QI    0.83    0.82    0.81     0.8    0.79    0.79    0.78    0.77    0.77    0.76
   66          QI    0.76    0.75    0.74    0.74    0.73    0.72    0.71    0.71     0.7    0.69
   67          QI    0.69    0.68    0.68    0.67    0.67    0.67    0.66    0.66    0.65    0.65
   68          QI    0.65    0.64    0.64    0.63    0.63    0.62    0.62    0.62    0.61    0.61
   69          QI     0.6     0.6    0.59    0.59    0.58    0.58    0.57    0.57    0.56    0.56
   70          QI    0.55    0.55    0.54    0.54    0.54    0.53    0.53    0.52    0.52    0.52
   71          QI    0.51    0.51     0.5     0.5     0.5    0.49    0.49    0.48    0.48    0.48
   72          QI    0.47    0.47    0.46    0.46    0.46    0.45    0.45    0.45    0.44    0.44
   73          QI    0.44
               *

   74          KK    SB01   BASIN
   75          BA   0.112
   76          LG    0.25    0.25    4.10    0.55      45
   77          UC   0.317   0.252
   78          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   79          UA     100
               *

   80          KK    CP-1 COMBINE
   81          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   82          HC       2
               *

   83          KK    R1-2   ROUTE
   84          KM        MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
   85          RK    2104  0.0015   0.03             TRAP      66       4
               *

   86          KK    SB02   BASIN
   87          BA   0.157
   88          LG    0.15    0.25    4.15    0.58      56
   89          UC   0.324   0.237
   90          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   91          UA     100
               *
1                                        HEC-1 INPUT                                        PAGE  3

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   92          KK    CP-2 COMBINE
   93          KM        SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)
   94          HC       2
               *

   95          KK    R2-3   ROUTE
   96          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
   97          RK    1260  0.0015   0.03             TRAP      92       4
               *

   98          KK    SB03   BASIN
   99          BA   0.048
  100          LG    0.15    0.25    4.50    0.47      55
  101          UC   0.360   0.290
  102          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  103          UA     100
               *

  104          KK    CP-3 COMBINE
  105          KM        MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)
  106          HC       2
               *

  107          KK    R3-5   ROUTE
  108          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
  109          RK    2396  0.0015   0.03             TRAP      98       4
               *
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 110          KK    SB04   BASIN
 111          BA   0.144
 112          LG    0.14    0.25    4.60    0.44      61
 113          UC   0.301   0.196
 114          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 115          UA     100
              *

 116          KK    R4-5   ROUTE
 117          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 118          RK    2005  0.0013   0.03             TRAP      39       4
              *

 119          KK    SB05   BASIN
 120          BA   0.126
 121          LG    0.22    0.25    4.50    0.44      48
 122          UC   0.326   0.224
 123          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 124          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 125          KK    CP-5 COMBINE
 126          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 127          HC       3
              *

 128          KK    R5-6   ROUTE
 129          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 130          RK    1550  0.0015   0.03             TRAP     188       4
              *

 131          KK    SB06   BASIN
 132          BA   0.136
 133          LG    0.16    0.25    4.55    0.45      53
 134          UC   0.318   0.243
 135          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 136          UA     100
              *

 137          KK    CP-6 COMBINE
 138          KM        PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)
 139          HC       2
              *

 140          KK    SB07   BASIN
 141          BA   0.074
 142          LG    0.21    0.25    4.00    0.58      49
 143          UC   0.204   0.113
 144          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 145          UA     100
              *

 146          KK    R7-8   ROUTE
 147          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 148          RK    2778  0.0014   0.03             TRAP      46       4
              *

 149          KK    SB08   BASIN
 150          BA   0.224
 151          LG    0.14    0.25    4.10    0.59      59
 152          UC   0.333   0.193
 153          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 154          UA     100
              *

 155          KK    CP-8 COMBINE
 156          KM        SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)
 157          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 158          KK    R8-9   ROUTE
 159          KM        HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R
 160          RK    1250  0.0013   0.03             TRAP      67       4
              *

 161          KK    SB09   BASIN
 162          BA   0.052
 163          LG    0.15    0.25    4.00    0.61      55
 164          UC   0.251   0.227
 165          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 166          UA     100
              *

 167          KK    CP-9 COMBINE
 168          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 169          HC       2
```

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             *
 170         KK  PIMACH
 171         KM        PIMA ROAD CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
 172         KM        100-YR, 6-HR FLO-2D MODEL (XS 183)
 173         BA    12.3
 174         QI       0       0       0       0       0       0       0       0       0       0
 175         QI       0       0       0       0       0       0       0       0       0       0
 176         QI       0       0       0       0       0       0       0       0       0       0
 177         QI       0       0       0       0       0       0       0       0       0       0
 178         QI       0       0       0       0       0       0       0       0       0       0
 179         QI       0       0       0       0       0       0       0       0       0       0
 180         QI       0       0       0       0       0       0    0.01    0.01    0.01    0.01
 181         QI    0.02    0.06    0.12    0.19    0.29    0.43    1.62    3.73    6.28   13.12
 182         QI   19.17   18.99   20.23   23.44    37.1    65.6  118.28  536.07  740.49  784.96
 183         QI  795.73  792.08  785.39  784.16  826.86  835.79  839.66  856.83  890.85 1074.56
 184         QI 1522.8 1924.46 2612.09 2761.62 3125.86 3450.94 3565.35 3786.18 3953.42 4005.23
 185         QI 4017.2 3956.42 3828.66 3704.96 3584.74 3457.47 3327.91 3209.52  3068.2 2902.83
 186         QI 2698.1 2519.92 2353.91 2218.47 2091.25 1970.95 1868.74 1749.96 1656.67 1564.23
 187         QI 1473.2 1392.42 1326.33 1253.44 1190.18 1121.44 1068.33  1012.4  961.04  907.15
 188         QI    859  817.16  777.05  741.05  708.67  676.64  650.15     620  595.68  569.46
 189         QI  552.9  528.08  508.87  488.92  471.15  456.27  440.43  424.35  410.65  396.26
 190         QI 384.05   374.5  363.39  351.31  341.86  332.93  325.13  317.66  308.91  300.01
 191         QI 291.96  282.64   276.3  270.44  264.03  257.52  251.57  244.49  238.62  232.96
 192         QI 227.38  223.46  217.91  210.73  207.24  202.22  197.15  192.34  189.04  184.57
 193         QI 178.93   173.7  170.95   166.9  162.57  158.97  155.56  151.97  149.46  146.92
 194         QI  143.8  141.62  138.05  136.38   130.4  128.32  123.98  120.84   117.3  114.09
 195         QI 113.28  110.56  108.01  104.98  103.24  100.82   98.69   97.77    95.8   93.56
 196         QI   92.8   91.19   88.35   86.44   84.49   82.18    80.7   78.31   76.07   74.85
 197         QI  73.81   73.17   71.94   70.66   69.66   69.54   67.38   67.61   65.17   62.74
 198         QI  61.41   60.29   61.36   59.06   56.97   56.32   55.01   53.88   52.91   52.23
 199         QI  52.11   50.68   50.15    49.6   48.36    47.6   46.82    46.4   45.54   44.69
 200         QI  43.67   43.34   42.77    41.9   41.04   40.86   40.39   39.72   38.49   38.26
 201         QI  37.01   36.83   36.64   35.35   35.64   34.94   35.17    33.9    33.7   33.71
 202         QI  33.78   32.55   32.35   31.97   31.61   31.38   31.21   30.84   30.41      30
 203         QI  29.61   29.27   28.72   28.17   27.62   27.26   26.95   26.26   25.93   25.66
 204         QI   25.7   25.62    25.7   25.39   24.94   24.57   24.28   23.92   23.55   22.97
 205         QI   22.7   22.79   22.23   21.94   21.87    21.6    21.3   21.18   21.05   20.75
1                                          HEC-1 INPUT                                        PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 206         QI  20.64    20.4   20.19   19.93    19.9   19.01   18.72    18.7   18.37   18.27
 207         QI   18.1   18.05    17.3   17.39   17.27   17.09   16.86   16.81   16.73    16.6
 208         QI  16.55   16.33   16.05   15.82   15.63   15.43   15.38   15.42   15.17   14.98
 209         QI  14.82   14.78   14.76   14.57   14.24   14.01   13.85   13.94   13.77   13.77
 210         QI   12.6
             *
 211         KK  PIMAIN
 212         KM    BYPASS ALONG SE SIDE OF BASIN 53R TO ADOT CULVERT NEAR UNION HILLS DR
 213         DT  PIMABY
 214         DI       0    1000   10000
 215         DQ       0    1000    1000
             *
 216         KK   PWRCH
 217         KM        POWERLINE CHANNEL HYDROGRAPH FROM FLO-2D
 218         KM        100-YR, 6-HR FLO-2D MODEL (XS 107)
 219         BA     7.0
 220         QI       0       0       0       0       0       0       0       0       0       0
 221         QI       0       0       0       0       0       0       0       0       0       0
 222         QI       0       0       0       0       0       0       0       0       0       0
 223         QI       0       0       0       0       0       0       0       0       0       0
 224         QI       0       0       0       0       0       0       0       0       0       0
 225         QI       0       0       0       0       0       0       0       0       0       0
 226         QI       0       0       0       0       0       0       0       0       0       0
 227         QI       0       0    0.03    0.05    0.08    0.11    0.58    1.13    1.62    2.35
 228         QI   17.74   24.61   32.43    41.1      46   50.91  131.64  355.54   399.7  422.85
 229         QI  433.53  433.73  422.44  409.12  397.71  391.08  388.91   381.3  371.02  361.84
 230         QI  359.13  372.83  390.54  400.38  398.98  391.64  390.01  419.65  505.31  577.51
 231         QI  616.52   654.6  689.73   713.7  727.81  737.85  739.81  733.87  725.12  714.86
 232         QI  699.64  690.12  677.33  666.62  655.55  645.41  637.05  633.81  630.71  627.88
 233         QI  621.52  616.56  611.87  606.82  603.07  599.48  598.68  597.46  596.17  595.28
 234         QI  594.12  590.26  586.44  582.19  576.08  570.84  564.08  555.83  546.74  537.07
 235         QI  525.86  516.15  505.83  495.17  484.12  472.45  462.13  451.31  441.83  429.35
 236         QI  419.09  410.42  401.94   394.3  384.43  375.56  366.51  358.68  350.24   342.9
 237         QI     335  326.95  320.66  313.52  306.21  299.42  294.88  279.13  274.41  272.37
 238         QI   270.9  258.49  256.83  252.87  239.19  235.68  236.09  226.97  221.44  220.04
 239         QI  211.13  213.73  201.19  203.88   194.6  196.81  183.61  188.47  178.11  181.39
 240         QI  172.83  170.18  168.28  163.33  169.45  155.83  153.79  154.42  148.45  145.47
 241         QI  146.04  140.33  138.63  140.19  133.49  130.23  135.24  122.64  121.61  121.05
 242         QI   120.9  117.47  115.13  113.28   116.6  110.32  107.03  105.71  109.02  101.22
 243         QI   99.25   97.86   99.48  103.28   92.95    90.9   89.54   87.83   91.59   84.19
 244         QI   82.93    81.6   80.75   79.42   82.41   77.68   75.61   74.44   74.51   72.29
 245         QI    79.3   70.93   70.15   69.48   68.44   67.58   66.72   72.25   65.21   64.67
 246         QI    63.5   62.83    62.6   62.06   61.31   64.86   60.25   59.05   58.48   55.87
 247         QI   56.01   55.72    54.8   54.06   53.38   51.64   51.71   50.75   49.83    49.2
 248         QI   48.75   46.82   45.85   45.55    47.8   43.99   43.77   43.28   42.64   42.31
 249         QI   42.04   41.65   41.41   40.69    40.3   40.09   39.93   39.53   42.18   38.64
 250         QI   37.99   37.44   37.13   36.96    36.8   36.19   35.56   35.28   34.71    33.9
 251         QI   33.42   33.14   32.73   39.25   32.39   31.56   30.95   30.66    30.3      30
 252         QI   29.22   28.72   29.47   28.39   28.32   28.13   28.24   28.22   27.67   27.34
 253         QI   27.15   27.03   26.51   25.94   25.77   31.57   25.38   25.06   25.04   24.52
```

```
 254          QI   24.31   24.43   24.27   23.35   23.93    23.1   22.66   22.71   22.57   22.79
 255          QI   22.09   21.91   21.94   21.84   21.71   21.66   21.87   21.85   21.36   21.06
 256          QI   20.95
              *
1                                        HEC-1 INPUT                                        PAGE  7

         LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


 257          KK  BINFLO
 258          KM         TOTAL INFLOW INTO BASIN 53R.
 259          HC       3
              *

 260          KK   BASIN
 261          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 262          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 263          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 264          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 265          RS       1    STOR       0
 266          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 267          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 268          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 269          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 270          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 271          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 272          KK  BSNRT1
 273          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 274          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 275          KM        EXCESS CAPACITY.
 276          RK     550  0.0052   0.024            CIRC     7.0
              *

 277          KK  BSNRT2
 278          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL
 279          RK    1200  0.0077   0.013            CIRC     7.0
              *

 280          KK  PIMABY
 281          KM    RETRIEVE PIMA BYPASS CHANNEL HYDROGRAPH
 282          DR  PIMABY
              *

 283          KK  PMB-RT
 284          KM        UNION HILLS DR CHANNEL FROM SR 101L FREEWAY TO 82ND ST
 285          RK    3157  0.0082   0.013       0    TRAP      24       4
              *

 286          KK    SB10   BASIN
 287          BA   0.040
 288          LG    0.15    0.25    4.25    0.55      55
 289          UC   0.230   0.159
 290          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 291          UA     100
              *
1                                        HEC-1 INPUT                                        PAGE  8

         LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


 292          KK   CP-10 COMBINE
 293          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 294          HC       3
              *

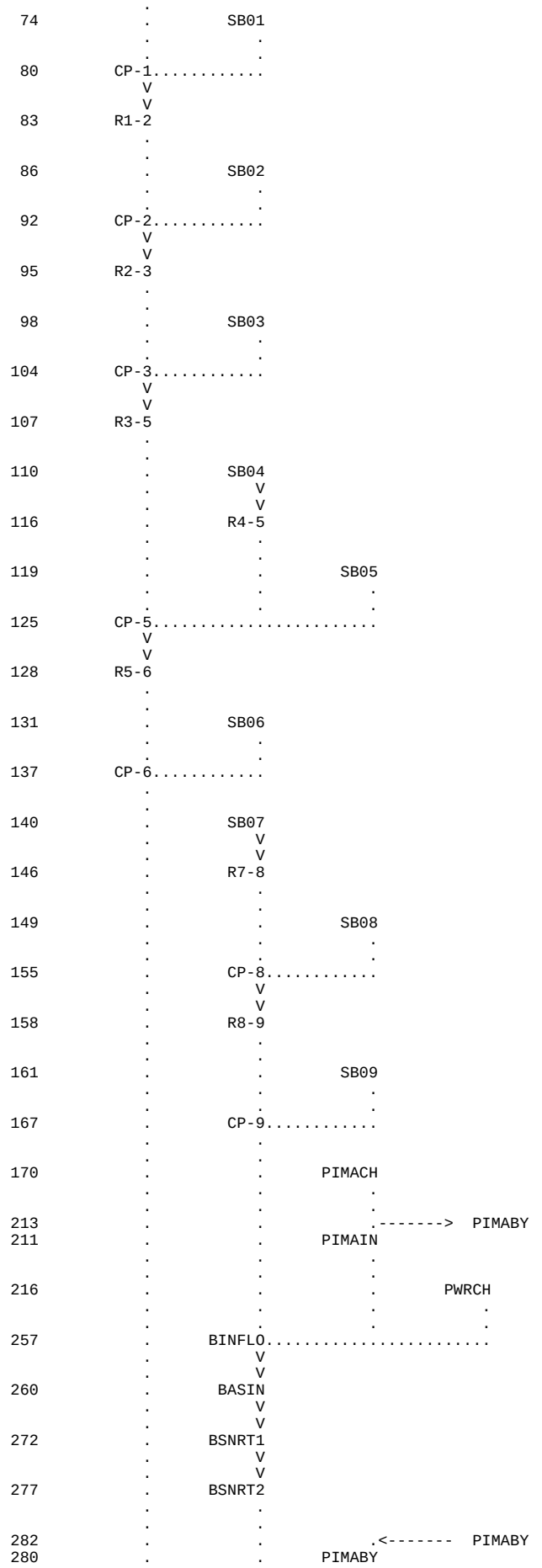
 295          KK  R10-11   ROUTE
 296          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 297          RK    1277  0.0014   0.03             TRAP     220       4
              *

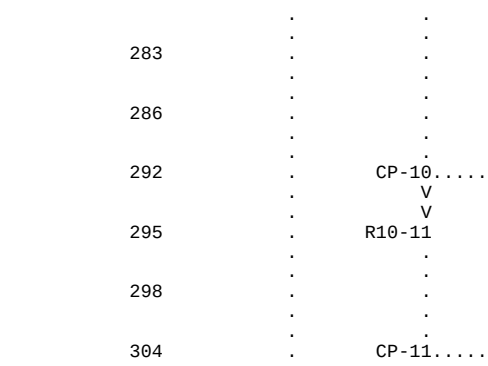
 298          KK    SB11   BASIN
 299          BA   0.071
 300          LG    0.15    0.25    4.15    0.58      55
 301          UC   0.292   0.229
 302          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 303          UA     100
              *

 304          KK   CP-11 COMBINE
 305          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 306          HC       2
              *
 307          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     33     76THST
              .
```


74 SB01
80 CP-1
83 R1-2
86 SB02
92 CP-2
95 R2-3
98 SB03
104 CP-3
107 R3-5
110 SB04
116 R4-5
119 SB05
125 CP-5
128 R5-6
131 SB06
137 CP-6
140 SB07
146 R7-8
149 SB08
155 CP-8
158 R8-9
161 SB09
167 CP-9
170 PIMACH
213 PIMABY
211 PIMAIN
216 PWRCH
257 BINFLO
260 BASIN
272 BSNRT1
277 BSNRT2
282 PIMABY
280 PIMABY



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

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* * *

* FLOOD HYDROGRAPH PACKAGE (HEC-1) * * U.S. ARMY CORPS OF ENGINEERS

* JUN 1998 * * HYDROLOGIC ENGINEERING CENTER

* VERSION 4.1 * * 609 SECOND STREET

* * * DAVIS, CALIFORNIA 95616

* RUN DATE 12SEP14 TIME 11:47:04 * * (916) 756-1104

* * *

****

****

CROSS ROADS EAST DRAINAGE ALTERNATIVES
RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS)
PHASE 2 BASIN - SIDESLOPES STEEPENED FROM ~5:1 TO 3:1

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

12 IO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 3 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 3 0 ENDING DATE
NDTIME 0157 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 49.95 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1
STRM 2.76 PRECIPITATION DEPTH
TRDA 0.00 TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN
0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
0.01 0.02 0.02 0.08 0.16 0.46 0.08 0.02 0.02 0.01
0.01 0.01 0.01 0.01

17 JD INDEX STORM NO. 2
STRM 2.74 PRECIPITATION DEPTH
TRDA 0.50 TRANSPOSITION DRAINAGE AREA

18 PI PRECIPITATION PATTERN

```
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.02      0.02      0.08      0.16      0.46      0.08      0.02      0.02      0.01
                    0.01      0.01      0.01      0.01

   21 JD          INDEX STORM NO. 3
                        STRM        2.69  PRECIPITATION DEPTH
                        TRDA        2.80  TRANSPOSITION DRAINAGE AREA

   22 PI            PRECIPITATION PATTERN
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.02      0.04      0.09      0.20      0.24      0.14      0.06      0.04      0.01
                    0.01      0.01      0.01      0.01

   25 JD          INDEX STORM NO. 4
                        STRM        2.54  PRECIPITATION DEPTH
                        TRDA       16.00  TRANSPOSITION DRAINAGE AREA

   26 PI            PRECIPITATION PATTERN
                    0.01      0.00      0.01      0.02      0.02      0.01      0.01      0.01      0.01      0.02
                    0.02      0.02      0.05      0.08      0.17      0.20      0.13      0.07      0.04      0.03
                    0.01      0.01      0.01      0.01

   29 JD          INDEX STORM NO. 5
                        STRM        2.23  PRECIPITATION DEPTH
                        TRDA       90.00  TRANSPOSITION DRAINAGE AREA

   30 PI            PRECIPITATION PATTERN
                    0.02      0.01      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                    0.02      0.03      0.05      0.08      0.14      0.16      0.12      0.07      0.05      0.04
                    0.02      0.02      0.02      0.02


 *** *** ***
```

	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION 76THST
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 51.	4.55	15.	4.	2.	2.
	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION 76THST
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 51.	4.55	15.	4.	2.	2.
	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT 76THST

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 51.	4.55	15.	4.	2.	2.
	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *

15.	58.	129.	172.	167.	153.	134.	112.	91.	75.
61.	50.	41.	34.	28.	23.	19.	15.	12.	10.
8.	7.	6.	5.	4.	3.	3.	2.	2.	1.

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.59, TOTAL EXCESS = 2.17

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 326.	0.95	26.	7.	3.	3.
		(INCHES) 2.159	2.159	2.159	2.159
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.59, TOTAL EXCESS = 2.15

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 323.	0.95	26.	6.	3.	3.
		(INCHES) 2.143	2.143	2.143	2.143
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.63, TOTAL EXCESS = 2.05

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 287.	1.00	25.	6.	3.	3.
		(INCHES) 2.044	2.044	2.044	2.044
		(AC-FT) 12.	12.	12.	12.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.68, TOTAL EXCESS = 1.86

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 241.	1.00	22.	6.	3.	3.
		(INCHES) 1.850	1.850	1.850	1.850
		(AC-FT) 11.	11.	11.	11.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.72, TOTAL EXCESS = 1.52

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 182.	1.00	18.	5.	2.	2.
		(INCHES) 1.510	1.510	1.510	1.510
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB01

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 324.	0.95	26.	6.	3.	3.
		(INCHES) 2.146	2.146	2.146	2.146
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-1
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 182.	1.00	29.	9.	4.	4.
		(INCHES) 0.776	0.927	0.977	0.977
		(AC-FT) 15.	17.	18.	18.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-1

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 323.	0.95	37.	11.	5.	5.
		(INCHES) 0.982	1.128	1.178	1.178
		(AC-FT) 18.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	321.94	63.70	1.18	3.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2212E+02 EXCESS=0.0000E+00 OUTFLOW=0.2223E+02 BASIN STORAGE=0.5936E-01 PERCENT ERROR=-0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00		314.95	66.00	1.18

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
315.	1.10	37.	11.	5.	5.
		(INCHES) 0.988	1.134	1.184	1.184
		(AC-FT) 19.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	281.88	67.46	1.15	3.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2153E+02 EXCESS=0.0000E+00 OUTFLOW=0.2160E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00		280.31	66.00	1.15

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
280.	1.10	36.	10.	5.	5.
		(INCHES) 0.955	1.100	1.149	1.149
		(AC-FT) 18.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	239.43	66.99	1.09	3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2036E+02 EXCESS=0.0000E+00 OUTFLOW=0.2044E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.7

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00		234.05	69.00	1.09

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 234.	1.15	34.	10.	5.	5.
		(INCHES) 0.887	1.038	1.087	1.087
		(AC-FT) 17.	19.	20.	20.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	2.91	526.00	179.26	70.19	0.98	3.16

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1834E+02 EXCESS=0.0000E+00 OUTFLOW=0.1842E+02 BASIN STORAGE=0.6416E-01 PERCENT ERROR= -0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	178.38	69.00	0.98

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 178.	1.15	30.	9.	4.	4.
		(INCHES) 0.780	0.932	0.981	0.981
		(AC-FT) 15.	17.	18.	18.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R1-2

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 315.	1.10	37.	11.	5.	5.
		(INCHES) 0.989	1.134	1.184	1.184
		(AC-FT) 19.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *

90 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

***

UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.32 HR, R= 0.24 HR
SNYDER TP= 0.19 HR, CP= 0.49

UNIT HYDROGRAPH
28 END-OF-PERIOD ORDINATES

21.	81.	185.	250.	242.	220.	192.	160.	129.	104.
85.	68.	55.	45.	36.	29.	24.	19.	16.	13.
10.	8.	7.	5.	4.	4.	3.	2.		

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.45, TOTAL EXCESS = 2.30

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 492.	0.95	39.	10.	5.	5.
		(INCHES) 2.292	2.292	2.292	2.292
		(AC-FT) 19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.45, TOTAL EXCESS = 2.29

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 488.	0.95	38.	10.	5.	5.
		(INCHES) 2.276	2.276	2.276	2.276
		(AC-FT) 19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.49, TOTAL EXCESS = 2.19

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 433.	1.00	37.	9.	4.	4.
		(INCHES) 2.183	2.183	2.183	2.183
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.16 SQ MI

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HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.00

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 365.	1.00	34.	8.	4.	4.
		(INCHES) 1.994	1.994	1.994	1.994
		(AC-FT) 17.	17.	17.	17.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.56, TOTAL EXCESS = 1.67

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 278.	1.00	28.	7.	3.	3.
		(INCHES) 1.660	1.660	1.660	1.660
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.16 SQ MI

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INTERPOLATED HYDROGRAPH AT SB02

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 489.	0.95	38.	10.	5.	5.
		(INCHES) 2.278	2.278	2.278	2.278
		(AC-FT) 19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

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HYDROGRAPH AT STATION CP-2
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 556.	1.10	66.	18.	9.	9.
		(INCHES) 1.207	1.332	1.367	1.367
		(AC-FT) 33.	36.	37.	37.

CUMULATIVE AREA = 0.51 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-2
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 422.	1.10	56.	16.	8.	8.
		(INCHES) 1.028	1.156	1.190	1.190
		(AC-FT) 28.	31.	32.	32.

CUMULATIVE AREA = 0.51 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-2

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 731.	1.05	75.	20.	10.	10.
		(INCHES) 1.362	1.485	1.520	1.520
		(AC-FT) 37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

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HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 726.	1.10	75.	20.	10.	10.
		(INCHES) 1.373	1.495	1.529	1.529
		(AC-FT) 37.	41.	42.	42.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.61	420.00	719.73	65.75	1.52	4.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4128E+02 EXCESS=0.0000E+00 OUTFLOW=0.4128E+02 BASIN STORAGE=0.4197E-01 PERCENT ERROR= -0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		719.25	66.00	1.52

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 719.	1.10	75.	20.	10.	10.
		(INCHES) 1.364	1.486	1.521	1.521
		(AC-FT) 37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.65	420.00	650.44	66.16	1.47	4.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3985E+02 EXCESS=0.0000E+00 OUTFLOW=0.3986E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR= -0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		647.31	66.00	1.47

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 647.	1.10	72.	20.	10.	10.
		(INCHES) 1.313	1.435	1.469	1.469
		(AC-FT) 36.	39.	40.	40.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.61	420.00	553.64	68.36	1.37	4.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3711E+02 EXCESS=0.0000E+00 OUTFLOW=0.3710E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR= -0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		550.82	69.00	1.37

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 551.	1.15	66.	18.	9.	9.
		(INCHES) 1.206	1.332	1.366	1.366
		(AC-FT) 33.	36.	37.	37.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.77	420.00	421.93	69.46	1.19	3.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3232E+02 EXCESS=0.0000E+00 OUTFLOW=0.3234E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR= -0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		418.11	69.00	1.19

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 418.	1.15	56.	16.	8.	8.
		(INCHES) 1.029	1.157	1.192	1.192
		(AC-FT) 28.	31.	32.	32.

CUMULATIVE AREA = 0.51 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R2-3

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 719.	1.10	75.	20.	10.	10.
		(INCHES) 1.363	1.486	1.520	1.520
		(AC-FT) 37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

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  100 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.15  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.50  WETTING FRONT SUCTION
                        XKSAT        0.47  HYDRAULIC CONDUCTIVITY
                        RTIMP       55.00  PERCENT IMPERVIOUS AREA

  101 UC          CLARK UNITGRAPH
                           TC        0.36  TIME OF CONCENTRATION
                            R        0.29  STORAGE COEFFICIENT

  102 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

                                                      ***

                                                UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  0.36 HR,       R=  0.29 HR
                                            SNYDER   TP=  0.21 HR,      CP=  0.43

                                                   UNIT HYDROGRAPH
                                            34 END-OF-PERIOD ORDINATES
                      5.       17.       43.       62.       64.       61.       56.       49.       42.       35.
                     30.       25.       21.       18.       15.       12.       10.        9.        7.        6.
                      5.        4.        4.        3.        3.        2.        2.        2.        1.        1.
                      1.        1.        1.        1.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.44, TOTAL EXCESS =    2.31

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      130.      1.00                   12.          3.          1.          1.
                          (INCHES)     2.302       2.302       2.302       2.302
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.44, TOTAL EXCESS =    2.30

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      129.      1.00                   12.          3.          1.          1.
                          (INCHES)     2.286       2.286       2.286       2.286
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.48, TOTAL EXCESS =    2.21

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      117.      1.00                   11.          3.          1.          1.
                          (INCHES)     2.198       2.198       2.198       2.198
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.52, TOTAL EXCESS =    2.02

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
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+      99.      1.05                    10.          3.          1.          1.
                          (INCHES)     2.014       2.014       2.014       2.014
                           (AC-FT)       5.          5.          5.          5.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     SB03
                        TRANSPOSITION AREA     90.0 SQ MI

     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.54, TOTAL EXCESS =    1.69

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+      77.      1.05                    9.          2.          1.          1.
                          (INCHES)     1.679       1.679       1.679       1.679
                           (AC-FT)       4.          4.          4.          4.

                           CUMULATIVE AREA =    0.05 SQ MI

       ***             ***             ***             ***             ***


                           INTERPOLATED HYDROGRAPH AT     SB03

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     129.      1.00                   12.          3.          1.          1.
                          (INCHES)     2.290       2.290       2.290       2.290
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI



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TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 755.	1.10	83.	22.	11.	11.
		(INCHES) 1.385	1.500	1.532	1.532
		(AC-FT) 41.	45.	46.	46.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-3
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 638.	1.15	76.	21.	10.	10.
		(INCHES) 1.271	1.390	1.422	1.422
		(AC-FT) 38.	41.	42.	42.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-3
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 487.	1.15	65.	18.	9.	9.
		(INCHES) 1.080	1.202	1.234	1.234
		(AC-FT) 32.	36.	37.	37.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-3

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 828.	1.10	86.	23.	11.	11.
		(INCHES) 1.435	1.552	1.583	1.583
		(AC-FT) 43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *

MAIN	0.12	1.58	2.78	798.67	817.36	73.14	1.60	5.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4741E+02 EXCESS=0.0000E+00 OUTFLOW=0.4763E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		816.94	72.00	1.60

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 817.	1.20	87.	24.	12.	12.
		(INCHES) 1.450	1.571	1.602	1.602
		(AC-FT) 43.	47.	48.	48.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.12	1.58	2.79	798.67	810.60	70.45	1.59	4.99

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4713E+02 EXCESS=0.0000E+00 OUTFLOW=0.4736E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.7

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		810.54	72.00	1.59

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 811.	1.20	86.	23.	11.	11.
		(INCHES) 1.440	1.562	1.593	1.593
		(AC-FT) 43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.12	1.58	2.90	798.67	742.52	73.90	1.54	4.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4551E+02 EXCESS=0.0000E+00 OUTFLOW=0.4571E+02 BASIN STORAGE=0.8226E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		740.16	72.00	1.54

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 740.	1.20	83.	23.	11.	11.
		(INCHES) 1.385	1.506	1.537	1.537

(AC-FT) 41. 45. 46. 46.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.12	1.58	3.00	798.67	634.55	73.70	1.43	4.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4224E+02 EXCESS=0.0000E+00 OUTFLOW=0.4240E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR= -0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		626.49	75.00	1.43

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
626.	1.25	76.	21.	10.	10.
		(INCHES) 1.271	1.396	1.427	1.427
		(AC-FT) 38.	41.	42.	42.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.12	1.58	3.00	798.67	478.66	74.64	1.24	4.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3665E+02 EXCESS=0.0000E+00 OUTFLOW=0.3688E+02 BASIN STORAGE=0.8233E-01 PERCENT ERROR= -0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		478.05	75.00	1.24

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
478.	1.25	65.	18.	9.	9.
		(INCHES) 1.082	1.210	1.242	1.242
		(AC-FT) 32.	36.	37.	37.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R3-5

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
806.	1.20	86.	23.	11.	11.
		(INCHES) 1.437	1.558	1.589	1.589
		(AC-FT) 43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

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            *            *
  110 KK    *      SB04  *        BASIN
            *            *
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               SUBBASIN RUNOFF DATA

  111 BA          SUBBASIN CHARACTERISTICS
                        TAREA        0.14  SUBBASIN AREA

  112 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.14  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.60  WETTING FRONT SUCTION
                        XKSAT        0.44  HYDRAULIC CONDUCTIVITY
                        RTIMP       61.00  PERCENT IMPERVIOUS AREA

  113 UC          CLARK UNITGRAPH
                           TC        0.30  TIME OF CONCENTRATION
                            R        0.20  STORAGE COEFFICIENT

  114 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

                                                        ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=  0.30 HR,       R=  0.20 HR
                                         SNYDER   TP=  0.18 HR,      CP=  0.54

                                                    UNIT HYDROGRAPH
                                                24 END-OF-PERIOD ORDINATES
                    26.      107.      218.      267.      245.      215.      177.      137.      106.       82.
                    63.       49.       38.       29.       23.       18.       14.       11.        8.        6.
                     5.        4.        3.        2.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB04
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.38, TOTAL EXCESS =    2.38

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     528.      0.95                37.          9.          4.          4.
                         (INCHES)     2.369       2.369       2.369       2.369
                          (AC-FT)       18.         18.         18.         18.

                           CUMULATIVE AREA =    0.14 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB04
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.37, TOTAL EXCESS =    2.36

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     524.      0.95                36.          9.          4.          4.
                         (INCHES)     2.353       2.353       2.353       2.353
                          (AC-FT)       18.         18.         18.         18.

                           CUMULATIVE AREA =    0.14 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB04
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.40, TOTAL EXCESS =    2.28

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     452.      0.95                35.          9.          4.          4.
                         (INCHES)     2.272       2.272       2.272       2.272
                          (AC-FT)       17.         17.         17.         17.

                           CUMULATIVE AREA =    0.14 SQ MI
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       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     SB04
                        TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.44, TOTAL EXCESS =    2.10

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     382.      1.00                   32.          8.          4.          4.
                         (INCHES)     2.095       2.095       2.095       2.095
                          (AC-FT)       16.         16.         16.         16.

                          CUMULATIVE AREA =    0.14 SQ MI


       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     SB04
                        TRANSPOSITION AREA     90.0 SQ MI

     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.46, TOTAL EXCESS =    1.77

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     293.      1.00                   27.          7.          3.          3.
                         (INCHES)     1.763       1.763       1.763       1.763
                          (AC-FT)       14.         14.         14.         14.

                          CUMULATIVE AREA =    0.14 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     SB04

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     525.      0.95                   36.          9.          4.          4.
                         (INCHES)     2.356       2.356       2.356       2.356
                          (AC-FT)       18.         18.         18.         18.

                          CUMULATIVE AREA =    0.14 SQ MI



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INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		513.38	63.00	2.40

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 513.	1.05	37.	9.	4.	4.
		(INCHES) 2.401	2.402	2.402	2.402
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.42	668.33	516.56	62.40	2.38	4.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1807E+02 EXCESS=0.0000E+00 OUTFLOW=0.1825E+02 BASIN STORAGE=0.4744E-04 PERCENT ERROR= -1.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		510.06	63.00	2.39

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 510.	1.05	37.	9.	4.	4.
		(INCHES) 2.386	2.386	2.386	2.386
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.55	668.33	451.64	62.77	2.29	4.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1745E+02 EXCESS=0.0000E+00 OUTFLOW=0.1762E+02 BASIN STORAGE=0.4583E-04 PERCENT ERROR= -1.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		451.16	63.00	2.30

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 451.	1.05	36.	9.	4.	4.
		(INCHES) 2.301	2.302	2.302	2.302
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.73	668.33	379.50	64.90	2.12	4.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1609E+02 EXCESS=0.0000E+00 OUTFLOW=0.1629E+02 BASIN STORAGE=0.4132E-04 PERCENT ERROR=-1.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		374.76	63.00	2.12

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
375.	1.05	33.	8.	4.	4.
		(INCHES) 2.115	2.116	2.116	2.116
		(AC-FT) 16.	16.	16.	16.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.87	668.33	291.80	65.24	1.78	3.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1354E+02 EXCESS=0.0000E+00 OUTFLOW=0.1370E+02 BASIN STORAGE=0.4337E-04 PERCENT ERROR=-1.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		288.81	66.00	1.78

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
289.	1.10	28.	7.	3.	3.
		(INCHES) 1.782	1.782	1.782	1.782
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R4-5

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
511.	1.05	37.	9.	4.	4.
		(INCHES) 2.388	2.388	2.388	2.388
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *

SUBBASIN RUNOFF DATA

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  120 BA          SUBBASIN CHARACTERISTICS
                        TAREA        0.13  SUBBASIN AREA

  121 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.22  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.50  WETTING FRONT SUCTION
                        XKSAT        0.44  HYDRAULIC CONDUCTIVITY
                        RTIMP       48.00  PERCENT IMPERVIOUS AREA

  122 UC          CLARK UNITGRAPH
                           TC        0.33  TIME OF CONCENTRATION
                            R        0.22  STORAGE COEFFICIENT

  123 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0
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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.33 HR, R= 0.22 HR
SNYDER TP= 0.19 HR, CP= 0.50

UNIT HYDROGRAPH
27 END-OF-PERIOD ORDINATES

18.	67.	154.	208.	200.	181.	156.	129.	103.	82.
66.	53.	42.	34.	27.	21.	17.	14.	11.	9.
7.	6.	4.	4.	3.	2.	2.			

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.23

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 402.	0.95	30.	8.	4.	4.
		(INCHES) 2.223	2.223	2.223	2.223
		(AC-FT) 15.	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.22

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 399.	0.95	30.	7.	4.	4.
		(INCHES) 2.208	2.208	2.208	2.208
		(AC-FT) 15.	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.56, TOTAL EXCESS = 2.13

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 352.	1.00	29.	7.	3.	3.
		(INCHES) 2.118	2.118	2.118	2.118
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.60, TOTAL EXCESS = 1.94

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 296.	1.00	26.	7.	3.	3.
		(INCHES) 1.930	1.930	1.930	1.930
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.63, TOTAL EXCESS = 1.60

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 225.	1.00	22.	5.	3.	3.
		(INCHES) 1.593	1.593	1.593	1.593
		(AC-FT) 11.	11.	11.	11.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB05

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 399.	0.95	30.	7.	4.	4.
		(INCHES) 2.210	2.210	2.210	2.210
		(AC-FT) 15.	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

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       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     CP-5
                        TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1335.      1.15                146.         39.         19.          19.
                        (INCHES)     1.638       1.737       1.759        1.759
                         (AC-FT)       72.         77.         78.          78.

                          CUMULATIVE AREA =    0.83 SQ MI


       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     CP-5
                        TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1121.      1.15                133.         36.         17.          17.
                        (INCHES)     1.499       1.602       1.623        1.623
                         (AC-FT)       66.         71.         72.          72.

                          CUMULATIVE AREA =    0.83 SQ MI


       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     CP-5
                        TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     844.      1.20                112.         30.         15.          15.
                        (INCHES)     1.262       1.368       1.389        1.389
                         (AC-FT)       56.         60.         61.          61.

                          CUMULATIVE AREA =    0.83 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     CP-5

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1410.      1.15                150.         40.         19.          19.
                        (INCHES)     1.684       1.784       1.805        1.805
                         (AC-FT)       74.         79.         80.          80.

                          CUMULATIVE AREA =    0.83 SQ MI



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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.71	516.67	1430.15	73.26	1.84	5.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8096E+02 EXCESS=0.0000E+00 OUTFLOW=0.8101E+02 BASIN STORAGE=0.7278E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00		1428.13	72.00	1.84	

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1428.	1.20	153.	40.	20.	20.
		(INCHES) 1.715	1.815	1.836	1.836
		(AC-FT) 76.	80.	81.	81.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.72	516.67	1417.75	71.63	1.82	5.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8047E+02 EXCESS=0.0000E+00 OUTFLOW=0.8049E+02 BASIN STORAGE=0.7282E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00		1417.68	72.00	1.82	

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1418.	1.20	151.	40.	19.	19.
		(INCHES) 1.703	1.803	1.824	1.824
		(AC-FT) 75.	80.	80.	80.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.83	516.67	1320.58	72.30	1.76	4.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7757E+02 EXCESS=0.0000E+00 OUTFLOW=0.7762E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00		1310.29	72.00	1.76	

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR

+	(CFS)	(HR)				
			(CFS)			
+	1310.	1.20	146.	39.	19.	19.
		(INCHES)	1.639	1.739	1.760	1.760
		(AC-FT)	72.	77.	78.	78.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.92	516.67	1120.07	73.97	1.62	4.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7160E+02 EXCESS=0.0000E+00 OUTFLOW=0.7164E+02 BASIN STORAGE=0.7274E-01 PERCENT ERROR= -0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	1117.54	75.00	1.62

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1118.	1.25	133.	36.	17.	17.
		(INCHES)	1.500	1.603	1.624	1.624
		(AC-FT)	66.	71.	72.	72.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	2.16	516.67	837.38	77.35	1.39	4.17

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6127E+02 EXCESS=0.0000E+00 OUTFLOW=0.6143E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR= -0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	834.70	75.00	1.39

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 90.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	835.	1.25	112.	30.	15.	15.
		(INCHES)	1.264	1.371	1.392	1.392
		(AC-FT)	56.	60.	61.	61.

CUMULATIVE AREA = 0.83 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R5-6

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1386.	1.20	150.	40.	19.	19.
		(INCHES)	1.684	1.785	1.806	1.806
		(AC-FT)	74.	79.	80.	80.

CUMULATIVE AREA = 0.83 SQ MI

*** *** *** *

(AC-FT) 16. 16. 16. 16.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB06
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.53, TOTAL EXCESS = 2.01

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 316.	1.00	29.	7.	4.	4.
		(INCHES) 1.997	1.997	1.997	1.997
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB06
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.56, TOTAL EXCESS = 1.67

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 241.	1.00	24.	6.	3.	3.
		(INCHES) 1.661	1.661	1.661	1.661
		(AC-FT) 12.	12.	12.	12.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB06

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 420.	0.95	33.	8.	4.	4.
		(INCHES) 2.272	2.272	2.272	2.272
		(AC-FT) 16.	16.	16.	16.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *

TRANSPOSITION AREA 0.5 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1650.	1.20	183.	48.	23.	23.
			(INCHES) 1.769	1.869	1.887	1.887
			(AC-FT) 91.	96.	97.	97.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-6
TRANSPOSITION AREA 2.8 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1542.	1.20	176.	47.	23.	23.
			(INCHES) 1.702	1.801	1.820	1.820
			(AC-FT) 87.	93.	93.	93.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-6
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1308.	1.20	161.	43.	21.	21.
			(INCHES) 1.555	1.659	1.677	1.677
			(AC-FT) 80.	85.	86.	86.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-6
TRANSPOSITION AREA 90.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	982.	1.25	135.	37.	18.	18.
			(INCHES) 1.305	1.412	1.430	1.430
			(AC-FT) 67.	73.	73.	73.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-6

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1609.	1.20	181.	48.	23.	23.
			(INCHES) 1.743	1.843	1.862	1.862
			(AC-FT) 90.	95.	96.	96.

CUMULATIVE AREA = 0.96 SQ MI

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  142 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.21  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.00  WETTING FRONT SUCTION
                        XKSAT        0.58  HYDRAULIC CONDUCTIVITY
                        RTIMP       49.00  PERCENT IMPERVIOUS AREA

  143 UC          CLARK UNITGRAPH
                           TC        0.20  TIME OF CONCENTRATION
                            R        0.11  STORAGE COEFFICIENT

  144 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

                                                      ***

                                                  UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  0.20 HR,       R=  0.11 HR
                                            SNYDER   TP=  0.13 HR,      CP=  0.62

                                                      UNIT HYDROGRAPH
                                                14 END-OF-PERIOD ORDINATES
                    39.      156.      219.      180.      130.       84.       53.       34.       22.       14.
                     9.        6.        4.        2.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.54, TOTAL EXCESS =    2.22

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      386.      0.90                   18.          4.          2.          2.
                         (INCHES)     2.209       2.209       2.209       2.209
                          (AC-FT)        9.          9.          9.          9.

                           CUMULATIVE AREA =    0.07 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.54, TOTAL EXCESS =    2.20

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      384.      0.90                   17.          4.          2.          2.
                         (INCHES)     2.193       2.193       2.193       2.193
                          (AC-FT)        9.          9.          9.          9.

                           CUMULATIVE AREA =    0.07 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.58, TOTAL EXCESS =    2.10

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      308.      0.90                   17.          4.          2.          2.
                         (INCHES)     2.095       2.095       2.095       2.095
                          (AC-FT)        8.          8.          8.          8.

                           CUMULATIVE AREA =    0.07 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.63, TOTAL EXCESS =    1.91

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      249.      0.90                   15.          4.          2.          2.
                         (INCHES)     1.901       1.901       1.901       1.901
                          (AC-FT)        8.          8.          8.          8.
```

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB07
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.66, TOTAL EXCESS = 1.57

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 181.	0.90	12.	3.	1.	1.
		(INCHES) 1.563	1.563	1.563	1.563
		(AC-FT) 6.	6.	6.	6.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB07

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 384.	0.90	17.	4.	2.	2.
		(INCHES) 2.197	2.197	2.197	2.197
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *

(INCHES)	2.311	2.314	2.314	2.314
(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	2.80	694.50	373.06	62.02	2.31	4.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8655E+01 EXCESS=0.0000E+00 OUTFLOW=0.9098E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=
-5.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00		359.23	63.00	2.30

*** *** *** *** ***

HYDROGRAPH AT STATION R7-8
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
+ 359.	1.05	18.	5.	2.	2.
	(INCHES)	2.295	2.298	2.298	2.298
	(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	3.00	694.50	300.60	62.65	2.18	4.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8267E+01 EXCESS=0.0000E+00 OUTFLOW=0.8591E+01 BASIN STORAGE=0.1511E-03 PERCENT ERROR=
-3.9

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00		299.77	63.00	2.18

*** *** *** *** ***

HYDROGRAPH AT STATION R7-8
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
+ 300.	1.05	17.	4.	2.	2.
	(INCHES)	2.176	2.178	2.179	2.179
	(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	3.00	694.50	243.19	65.55	1.99	3.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7502E+01 EXCESS=0.0000E+00 OUTFLOW=0.7866E+01 BASIN STORAGE=0.1118E-03 PERCENT ERROR=
-4.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00		238.95	66.00	2.00

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      ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     R7-8
                      TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                              (CFS)
+     239.      1.10                16.          4.          2.           2.
                            (INCHES)     1.995       1.997       1.997        1.997
                             (AC-FT)        8.          8.          8.           8.

                             CUMULATIVE AREA =    0.07 SQ MI

                                      COMPUTED KINEMATIC PARAMETERS
                                           VARIABLE TIME STEP
                                       (DT SHOWN IS A MINIMUM)

                        ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                                        PEAK                CELERITY
                                                                    (MIN)      (FT)     (CFS)     (MIN)       (IN)      (FPS)

                       MAIN          0.21      1.53       2.82    555.60    178.83     67.24      1.61      3.33


 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6168E+01  EXCESS=0.0000E+00 OUTFLOW=0.6362E+01 BASIN STORAGE=0.1260E-03 PERCENT ERROR=
-3.1


                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL


                       MAIN          0.21      1.53       3.00              176.29     66.00      1.61

      ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     R7-8
                      TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                              (CFS)
+     176.      1.10                13.          3.          2.           2.
                            (INCHES)     1.609       1.611       1.611        1.611
                             (AC-FT)        6.          6.          6.           6.

                             CUMULATIVE AREA =    0.07 SQ MI

      ***            ***            ***            ***            ***


                         INTERPOLATED HYDROGRAPH AT     R7-8

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                              (CFS)
+     360.      1.05                18.          5.          2.           2.
                            (INCHES)     2.299       2.301       2.301        2.301
                             (AC-FT)        9.          9.          9.           9.

                             CUMULATIVE AREA =    0.07 SQ MI



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R 0.19 STORAGE COEFFICIENT

153 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.33 HR, R= 0.19 HR
SNYDER TP= 0.19 HR, CP= 0.55

UNIT HYDROGRAPH
24 END-OF-PERIOD ORDINATES
35. 127. 298. 409. 385. 339. 288. 232. 179. 138.
106. 82. 63. 49. 37. 29. 22. 17. 13. 10.
8. 6. 5. 4.

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.42, TOTAL EXCESS = 2.34

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 796.	0.95	56.	14.	7.	7.
		(INCHES) 2.325	2.325	2.325	2.325
		(AC-FT) 28.	28.	28.	28.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.42, TOTAL EXCESS = 2.32

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 791.	0.95	56.	14.	7.	7.
		(INCHES) 2.309	2.309	2.309	2.309
		(AC-FT) 28.	28.	28.	28.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.23

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 686.	1.00	53.	13.	6.	6.
		(INCHES) 2.218	2.218	2.218	2.218
		(AC-FT) 26.	26.	26.	26.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.04

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 577.	1.00	49.	12.	6.	6.
		(INCHES) 2.032	2.032	2.032	2.032
		(AC-FT) 24.	24.	24.	24.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 90.0 SQ MI

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     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.53, TOTAL EXCESS =    1.71

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     439.      1.00                41.         10.          5.           5.
                         (INCHES)    1.699       1.699       1.699        1.699
                          (AC-FT)      20.         20.         20.          20.

                          CUMULATIVE AREA =    0.22 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     SB08

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     792.      0.95                56.         14.          7.           7.
                         (INCHES)    2.311       2.311       2.311        2.311
                          (AC-FT)      28.         28.         28.          28.

                          CUMULATIVE AREA =    0.22 SQ MI



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                         HYDROGRAPH AT STATION     CP-8
                       TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     783.      1.05                65.         16.          8.           8.
                        (INCHES)     2.023       2.023       2.023        2.023
                         (AC-FT)      32.         32.         32.          32.

                          CUMULATIVE AREA =    0.30 SQ MI


       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     CP-8
                       TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     561.      1.10                54.         13.          6.           6.
                        (INCHES)     1.676       1.677       1.677        1.677
                         (AC-FT)      27.         27.         27.          27.

                          CUMULATIVE AREA =    0.30 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     CP-8

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1035.      1.05                74.         18.          9.           9.
                        (INCHES)     2.307       2.308       2.308        2.308
                         (AC-FT)      37.         37.         37.          37.

                          CUMULATIVE AREA =    0.30 SQ MI



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MAIN	0.15	1.56	3.00	1013.13	66.00	2.33

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HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1013.	1.10	75.	19.	9.	9.
		(INCHES) 2.329	2.330	2.330	2.330
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.33	416.67	1027.12	65.64	2.31	5.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3678E+02 BASIN STORAGE=0.2024E-03 PERCENT ERROR=
-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	1010.29	66.00	2.32

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1010.	1.10	74.	19.	9.	9.
		(INCHES) 2.314	2.315	2.316	2.316
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.45	416.67	913.69	66.38	2.21	5.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3510E+02 EXCESS=0.0000E+00 OUTFLOW=0.3519E+02 BASIN STORAGE=0.1735E-03 PERCENT ERROR=
-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	911.34	66.00	2.21

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 911.	1.10	71.	18.	9.	9.
		(INCHES) 2.212	2.214	2.214	2.214
		(AC-FT) 35.	35.	35.	35.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)

MAIN	0.15	1.56	1.48	416.67	772.14	65.64	2.03	5.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3216E+02 EXCESS=0.0000E+00 OUTFLOW=0.3228E+02 BASIN STORAGE=0.1954E-03 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00		769.23	66.00	2.03

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 769.	1.10	65.	16.	8.	8.
		(INCHES) 2.031	2.033	2.033	2.033
		(AC-FT) 32.	32.	32.	32.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.59	416.67	554.15	67.90	1.68	4.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2666E+02 EXCESS=0.0000E+00 OUTFLOW=0.2676E+02 BASIN STORAGE=0.1898E-03 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00		554.05	69.00	1.68

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 554.	1.15	54.	13.	6.	6.
		(INCHES) 1.682	1.684	1.684	1.684
		(AC-FT) 27.	27.	27.	27.

CUMULATIVE AREA = 0.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R8-9

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1010.	1.10	74.	19.	9.	9.
		(INCHES) 2.315	2.316	2.316	2.316
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

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  162 BA          SUBBASIN CHARACTERISTICS
                        TAREA        0.05  SUBBASIN AREA

  163 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.15  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.00  WETTING FRONT SUCTION
                        XKSAT        0.61  HYDRAULIC CONDUCTIVITY
                        RTIMP       55.00  PERCENT IMPERVIOUS AREA

  164 UC          CLARK UNITGRAPH
                          TC        0.25  TIME OF CONCENTRATION
                           R        0.23  STORAGE COEFFICIENT

  165 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                     100.0

                                                      ***

                                                 UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  0.25 HR,       R=  0.23 HR
                                            SNYDER   TP=  0.15 HR,      CP=  0.42

                                                    UNIT HYDROGRAPH
                                                27 END-OF-PERIOD ORDINATES
                    11.       51.       86.       89.       82.       70.       56.       45.       36.       29.
                    23.       19.       15.       12.       10.        8.        6.        5.        4.        3.
                     3.        2.        2.        1.        1.        1.        1.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB09
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.47, TOTAL EXCESS =    2.29

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      174.      0.95                   13.          3.          2.          2.
                         (INCHES)     2.280       2.280       2.280       2.280
                          (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB09
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.46, TOTAL EXCESS =    2.27

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      173.      0.95                   13.          3.          2.          2.
                         (INCHES)     2.264       2.264       2.264       2.264
                          (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB09
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.51, TOTAL EXCESS =    2.18

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      153.      0.95                   12.          3.          1.          1.
                         (INCHES)     2.168       2.168       2.168       2.168
                          (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB09
                          TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.55, TOTAL EXCESS =    1.99

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
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                          (CFS)
+     127.      0.95                  11.          3.          1.          1.
                       (INCHES)     1.978       1.978       1.978       1.978
                        (AC-FT)       5.          5.          5.          5.

                        CUMULATIVE AREA =    0.05 SQ MI


       ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     SB09
                      TRANSPOSITION AREA     90.0 SQ MI

     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.58, TOTAL EXCESS =    1.65

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+      96.      0.95                  9.          2.          1.          1.
                       (INCHES)     1.642       1.642       1.642       1.642
                        (AC-FT)       5.          5.          5.          5.

                        CUMULATIVE AREA =    0.05 SQ MI

       ***            ***            ***            ***            ***


                        INTERPOLATED HYDROGRAPH AT     SB09

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     173.      0.95                  13.          3.          2.          2.
                       (INCHES)     2.269       2.269       2.269       2.269
                        (AC-FT)       6.          6.          6.          6.

                        CUMULATIVE AREA =    0.05 SQ MI



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HYDROGRAPH AT STATION CP-9
TRANSPOSITION AREA 2.8 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1023.	1.10	83.	21.	10.	10.
			(INCHES) 2.206	2.207	2.207	2.207
			(AC-FT) 41.	41.	41.	41.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-9
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	869.	1.10	76.	19.	9.	9.
			(INCHES) 2.023	2.024	2.025	2.025
			(AC-FT) 38.	38.	38.	38.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-9
TRANSPOSITION AREA 90.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	622.	1.15	63.	16.	8.	8.
			(INCHES) 1.676	1.678	1.678	1.678
			(AC-FT) 31.	31.	31.	31.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-9

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1124.	1.10	87.	22.	10.	10.
			(INCHES) 2.307	2.309	2.309	2.309
			(AC-FT) 43.	43.	43.	43.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *

	(AC-FT)	541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PIMACH

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

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BYPASS ALONG SE SIDE OF BASIN 53R TO ADOT CULVERT NEAR UNION HILLS DR

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      DT          DIVERSION
                       ISTAD      PIMABY  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW        0.00   1000.00  10000.00

      DQ      DIVERTED FLOW        0.00   1000.00   1000.00

                                                                        ***

       ***            ***            ***            ***            ***

                          DIVERSION HYDROGRAPH   PIMABY
                         TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    1000.      4.95                605.        171.         88.          88.
                     (INCHES)     0.458       0.516       0.551        0.551
                      (AC-FT)      300.        338.        361.         361.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          HYDROGRAPH AT STATION   PIMAIN
                         TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    3017.      5.50                486.        122.         58.          58.
                     (INCHES)     0.368       0.368       0.368        0.368
                      (AC-FT)      241.        241.        241.         241.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          DIVERSION HYDROGRAPH   PIMABY
                         TRANSPOSITION AREA      0.5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    1000.      4.95                605.        171.         88.          88.
                     (INCHES)     0.458       0.516       0.551        0.551
                      (AC-FT)      300.        338.        361.         361.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          HYDROGRAPH AT STATION   PIMAIN
                         TRANSPOSITION AREA      0.5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    3017.      5.50                486.        122.         58.          58.
                     (INCHES)     0.368       0.368       0.368        0.368
                      (AC-FT)      241.        241.        241.         241.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          DIVERSION HYDROGRAPH   PIMABY
                         TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    1000.      4.95                605.        171.         88.          88.
                     (INCHES)     0.458       0.516       0.551        0.551
                      (AC-FT)      300.        338.        361.         361.

                       CUMULATIVE AREA =   12.30 SQ MI


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HYDROGRAPH AT STATION PIMAIN
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH PIMABY
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMAIN
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH PIMABY
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMAIN
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED DIVERSION HYDROGRAPH AT PIMABY

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PIMAIN

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)				
		(CFS)			
3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *

		(CFS)				
+	740.	5.80	432.	136.	75.	75.
		(INCHES)	0.574	0.724	0.826	0.826
		(AC-FT)	214.	270.	308.	308.

CUMULATIVE AREA = 7.00 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PWRCH
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 740.	5.80	432.	136.	75.	75.
	(INCHES)	0.574	0.724	0.826	0.826
	(AC-FT)	214.	270.	308.	308.

CUMULATIVE AREA = 7.00 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PWRCH

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 740.	5.80	432.	136.	75.	75.
	(INCHES)	0.574	0.724	0.826	0.826
	(AC-FT)	214.	270.	308.	308.

CUMULATIVE AREA = 7.00 SQ MI

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        275.        143.         143.
                (INCHES)           0.435       0.521       0.564        0.564
                 (AC-FT)           456.        546.        591.         591.

                 CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                   HYDROGRAPH AT STATION   BINFLO
                  TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        274.        142.         142.
                (INCHES)           0.435       0.518       0.560        0.560
                 (AC-FT)           456.        543.        587.         587.

                 CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                   HYDROGRAPH AT STATION   BINFLO
                  TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        270.        141.         141.
                (INCHES)           0.435       0.512       0.554        0.554
                 (AC-FT)           456.        536.        581.         581.

                 CUMULATIVE AREA =   19.65 SQ MI

       ***            ***             ***             ***             ***


                   INTERPOLATED HYDROGRAPH AT   BINFLO

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        273.        142.         142.
                (INCHES)           0.435       0.517       0.560        0.560
                 (AC-FT)           456.        542.        587.         587.

                 CUMULATIVE AREA =   19.65 SQ MI



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  270 SQ          DISCHARGE          0.       95.      153.      210.      244.      265.      284.      303.      320.
337.
                                   353.      369.      384.      398.      412.      426.      439.      452.      465.
477.

                                                                                                        ***

       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     363.      8.30                  355.        250.        141.         141.
                          (INCHES)    0.168       0.474       0.556        0.556
                          (AC-FT)     176.        496.        582.         582.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+  (AC-FT)      (HR)
      351.      8.30                  332.        189.        101.         101.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+   (FEET)      (HR)
   1606.68      8.30               1606.11     1601.55     1598.29      1598.29

                           CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA      0.5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     363.      8.30                  355.        250.        141.         141.
                          (INCHES)    0.168       0.474       0.555        0.555
                          (AC-FT)     176.        496.        582.         582.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+  (AC-FT)      (HR)
      351.      8.30                  332.        189.        100.         100.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+   (FEET)      (HR)
   1606.67      8.30               1606.11     1601.55     1598.28      1598.28

                           CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     363.      8.30                  354.        250.        141.         141.
                          (INCHES)    0.168       0.473       0.553        0.553
                          (AC-FT)     176.        495.        580.         580.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+  (AC-FT)      (HR)
      350.      8.30                  331.        188.        100.         100.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+   (FEET)      (HR)
   1606.65      8.30               1606.08     1601.53     1598.27      1598.27

                           CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
```

+							
+	362.	8.30		353.	249.	140.	140.
			(INCHES)	0.167	0.471	0.550	0.550
			(AC-FT)	175.	494.	577.	577.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (AC-FT)	(HR)				
349.	8.35	330.	187.	99.	99.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (FEET)	(HR)				
1606.61	8.30	1606.04	1601.50	1598.24	1598.24

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION BASIN
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 361.	8.35	352.	247.	138.	138.
		(INCHES) 0.167	0.468	0.544	0.544
		(AC-FT) 175.	491.	570.	570.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (AC-FT)	(HR)				
346.	8.35	327.	185.	98.	98.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (FEET)	(HR)				
1606.52	8.35	1605.96	1601.44	1598.18	1598.18

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT BASIN

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 362.	8.30	353.	249.	140.	140.
		(INCHES) 0.167	0.471	0.550	0.550
		(AC-FT) 175.	493.	576.	576.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.29	183.33	363.48	498.70	0.56	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5822E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.48	501.00	0.56

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 0.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	363.	8.35	355.	250.	141.	141.
		(INCHES)	0.168	0.474	0.556	0.556
		(AC-FT)	176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.29	183.33	363.42	498.84	0.56	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5819E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.42	501.00	0.56

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 0.5 SQ MI

	PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	363.	8.35	(CFS) 355.	250.	141.	141.
			(INCHES) 0.168	0.474	0.555	0.555
			(AC-FT) 176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.45	183.33	363.06	498.87	0.55	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5801E+03 EXCESS=0.0000E+00 OUTFLOW=0.5800E+03 BASIN STORAGE=0.3288E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.06	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
363.	8.35	354. (CFS)	250.	141.	141.
		0.168 (INCHES)	0.473	0.553	0.553
		176. (AC-FT)	495.	580.	580.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.38	183.33	362.38	500.88	0.55	10.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5767E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3287E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	362.38	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
362.	8.35	353. (CFS)	249.	140.	140.
		0.167 (INCHES)	0.471	0.550	0.550
		175. (AC-FT)	494.	577.	577.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.34	183.33	361.10	501.33	0.54	10.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5702E+03 BASIN STORAGE=0.3284E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	361.10	501.00	0.54

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 361.	8.35	352.	248.	138.	138.
		(INCHES) 0.167	0.468	0.544	0.544
		(AC-FT) 175.	491.	570.	570.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT BSNRT1

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 362.	8.35	353.	249.	140.	140.
		(INCHES) 0.167	0.471	0.549	0.549
		(AC-FT) 175.	494.	576.	576.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *

						PEAK		CELERITY
		(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.44	400.00	363.42	501.35	0.56	20.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5818E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		363.42	501.00	0.56

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)			
+ 363.	8.35	355.	250.	141.	141.
		(INCHES) 0.168	0.474	0.555	0.555
		(AC-FT) 176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.36	400.00	363.06	501.42	0.55	20.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5800E+03 EXCESS=0.0000E+00 OUTFLOW=0.5799E+03 BASIN STORAGE=0.3755E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		363.06	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)			
+ 363.	8.35	354.	250.	140.	140.
		(INCHES) 0.168	0.473	0.553	0.553
		(AC-FT) 176.	495.	580.	580.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.48	400.00	362.38	501.44	0.55	20.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5766E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3753E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		362.38	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)			

+ 362.	8.35		353.	249.	140.	140.	
		(INCHES)	0.167	0.471	0.550	0.550	
		(AC-FT)	175.	494.	577.	577.	

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.51	1.25	0.38	400.00	361.10	501.56	0.54	20.36

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5701E+03 BASIN STORAGE=0.3750E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		361.09	501.00	0.54

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 361.	8.35		352.	248.	138.	138.
		(INCHES)	0.167	0.468	0.544	0.544
		(AC-FT)	175.	491.	570.	570.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT BSNRT2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 362.	8.35		353.	249.	139.	139.
		(INCHES)	0.167	0.471	0.549	0.549
		(AC-FT)	175.	494.	576.	576.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PIMABY

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *

L	3157.	CHANNEL LENGTH
S	0.0082	SLOPE
N	0.013	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	24.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=
0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=
0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=
0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PMB-RT

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *

HYDROGRAPH AT STATION SB10
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.19

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 142.	0.95	9.	2.	1.	1.
		(INCHES) 2.179	2.179	2.179	2.179
		(AC-FT) 5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB10
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.00

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 118.	0.95	9.	2.	1.	1.
		(INCHES) 1.990	1.990	1.990	1.990
		(AC-FT) 4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB10
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.57, TOTAL EXCESS = 1.66

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 88.	0.95	7.	2.	1.	1.
		(INCHES) 1.655	1.655	1.655	1.655
		(AC-FT) 4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB10

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 169.	0.90	10.	2.	1.	1.
		(INCHES) 2.276	2.276	2.276	2.276
		(AC-FT) 5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *

+ (CFS)	(HR)					
		(CFS)				
+ 1355.	6.85		909.	420.	230.	230.
		(INCHES)	0.429	0.794	0.903	0.903
		(AC-FT)	451.	834.	948.	948.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1355.	6.85		909.	420.	230.	230.
		(INCHES)	0.429	0.794	0.903	0.903
		(AC-FT)	451.	834.	948.	948.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1355.	6.85		909.	420.	229.	229.
		(INCHES)	0.429	0.793	0.901	0.901
		(AC-FT)	451.	833.	946.	946.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1354.	6.85		907.	419.	228.	228.
		(INCHES)	0.429	0.791	0.897	0.897
		(AC-FT)	450.	831.	942.	942.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1353.	6.85		905.	417.	226.	226.
		(INCHES)	0.427	0.788	0.890	0.890
		(AC-FT)	449.	828.	935.	935.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-10

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1354.	6.85		907.	419.	228.	228.
		(INCHES)	0.428	0.791	0.896	0.896
		(AC-FT)	450.	831.	941.	941.

CUMULATIVE AREA = 19.69 SQ MI

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              **************
              *            *
  295 KK      *    R10-11  *        ROUTE
              *            *
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UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD

HYDROGRAPH ROUTING DATA

297 RK KINEMATIC WAVE STREAM ROUTING

L	1277.	CHANNEL LENGTH
S	0.0014	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	220.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.62	425.67	1355.03	412.64	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9482E+03 EXCESS=0.0000E+00 OUTFLOW=0.9474E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1354.77	411.00	0.90

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 1355.	6.85	909.	420.	229.	229.
	(INCHES)	0.429	0.794	0.902	0.902
	(AC-FT)	451.	834.	947.	947.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.56	425.67	1354.98	412.72	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9479E+03 EXCESS=0.0000E+00 OUTFLOW=0.9473E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1354.72	411.00	0.90

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 1355.	6.85	909.	420.	229.	229.
	(INCHES)	0.429	0.794	0.902	0.902
	(AC-FT)	451.	834.	947.	947.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.57	425.67	1354.58	412.38	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9458E+03 EXCESS=0.0000E+00 OUTFLOW=0.9450E+03 BASIN STORAGE=0.9164E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1354.33	411.00	0.90	

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 2.8 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	1354.	6.85	908.	420.	229.	229.
		(INCHES)	0.429	0.793	0.900	0.900
		(AC-FT)	450.	833.	945.	945.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.67	425.67	1353.83	412.54	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9420E+03 EXCESS=0.0000E+00 OUTFLOW=0.9412E+03 BASIN STORAGE=0.9165E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1353.59	411.00	0.90	

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	1354.	6.85	907.	419.	228.	228.
		(INCHES)	0.428	0.791	0.896	0.896
		(AC-FT)	450.	831.	941.	941.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.66	425.67	1352.40	412.19	0.89	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9349E+03 EXCESS=0.0000E+00 OUTFLOW=0.9341E+03 BASIN STORAGE=0.9161E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1352.18	411.00	0.89	

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR

```
+   (CFS)       (HR)
                  (CFS)
+    1352.      6.85                904.        417.        226.         226.
                (INCHES)     0.427       0.788       0.889        0.889
                 (AC-FT)      448.        828.        934.         934.

                 CUMULATIVE AREA =   19.69 SQ MI

       ***            ***            ***            ***            ***


                 INTERPOLATED HYDROGRAPH AT   R10-11

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    1353.      6.85                906.        419.        228.         228.
                (INCHES)     0.428       0.791       0.895        0.895
                 (AC-FT)      449.        831.        940.         940.

                 CUMULATIVE AREA =   19.69 SQ MI


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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 231.	0.95	17.	4.	2.	2.
		(INCHES) 2.267	2.267	2.267	2.267
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB11
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.18

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 201.	1.00	17.	4.	2.	2.
		(INCHES) 2.172	2.172	2.172	2.172
		(AC-FT) 8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB11
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.55, TOTAL EXCESS = 1.99

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 169.	1.00	15.	4.	2.	2.
		(INCHES) 1.982	1.982	1.982	1.982
		(AC-FT) 8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB11
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.58, TOTAL EXCESS = 1.65

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 129.	1.00	13.	3.	2.	2.
		(INCHES) 1.647	1.647	1.647	1.647
		(AC-FT) 6.	6.	6.	6.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB11

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 231.	0.95	17.	4.	2.	2.
		(INCHES) 2.270	2.270	2.270	2.270
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *

306 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1355.	6.85	909.	420.	232.	232.
		(INCHES) 0.428	0.791	0.907	0.907
		(AC-FT) 451.	834.	956.	956.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1355.	6.85	909.	420.	232.	232.
		(INCHES) 0.428	0.791	0.907	0.907
		(AC-FT) 451.	834.	956.	956.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1354.	6.85	908.	420.	231.	231.
		(INCHES) 0.427	0.790	0.904	0.904
		(AC-FT) 450.	833.	953.	953.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1354.	6.85	907.	419.	230.	230.
		(INCHES) 0.427	0.789	0.900	0.900
		(AC-FT) 450.	831.	949.	949.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1352.	6.85	904.	417.	228.	228.
		(INCHES) 0.425	0.785	0.892	0.892
		(AC-FT) 448.	828.	940.	940.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-11

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR

+	1353.	6.85		906.	419.	230.	230.
			(INCHES)	0.426	0.788	0.899	0.899
			(AC-FT)	449.	831.	948.	948.

CUMULATIVE AREA = 19.76 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	76THST	51.	4.55	15.	4.	2.	0.24		
+	HYDROGRAPH AT	SB01	324.	0.95	26.	6.	3.	0.11		
+	2 COMBINED AT	CP-1	323.	0.95	37.	11.	5.	0.35		
+	ROUTED TO	R1-2	315.	1.10	37.	11.	5.	0.35		
+	HYDROGRAPH AT	SB02	489.	0.95	38.	10.	5.	0.16		
+	2 COMBINED AT	CP-2	731.	1.05	75.	20.	10.	0.51		
+	ROUTED TO	R2-3	719.	1.10	75.	20.	10.	0.51		
+	HYDROGRAPH AT	SB03	129.	1.00	12.	3.	1.	0.05		
+	2 COMBINED AT	CP-3	828.	1.10	86.	23.	11.	0.56		
+	ROUTED TO	R3-5	806.	1.20	86.	23.	11.	0.56		
+	HYDROGRAPH AT	SB04	525.	0.95	36.	9.	4.	0.14		
+	ROUTED TO	R4-5	511.	1.05	37.	9.	4.	0.14		
+	HYDROGRAPH AT	SB05	399.	0.95	30.	7.	4.	0.13		
+	3 COMBINED AT	CP-5	1410.	1.15	150.	40.	19.	0.83		
+	ROUTED TO	R5-6	1386.	1.20	150.	40.	19.	0.83		
+	HYDROGRAPH AT	SB06	420.	0.95	33.	8.	4.	0.14		
+	2 COMBINED AT	CP-6	1609.	1.20	181.	48.	23.	0.96		
+	HYDROGRAPH AT	SB07	384.	0.90	17.	4.	2.	0.07		
+	ROUTED TO	R7-8	360.	1.05	18.	5.	2.	0.07		
+	HYDROGRAPH AT	SB08	792.	0.95	56.	14.	7.	0.22		
+	2 COMBINED AT	CP-8	1035.	1.05	74.	18.	9.	0.30		
+	ROUTED TO	R8-9	1010.	1.10	74.	19.	9.	0.30		
+	HYDROGRAPH AT	SB09	173.	0.95	13.	3.	2.	0.05		
+	2 COMBINED AT	CP-9	1124.	1.10	87.	22.	10.	0.35		
+	HYDROGRAPH AT	PIMACH	4017.	5.50	1092.	292.	146.	12.30		
+	DIVERSION TO	PIMABY	1000.	4.95	605.	171.	88.	12.30		
	HYDROGRAPH AT									

+	PIMAIN	3017.	5.50	486.	122.	58.	12.30
	HYDROGRAPH AT						
+	PWRCH	740.	5.80	432.	136.	75.	7.00
	3 COMBINED AT						
+	BINFLO	3634.	5.50	919.	273.	142.	19.65
	ROUTED TO						
+	BASIN	362.	8.30	353.	249.	140.	19.65
	ROUTED TO						
+	BSNRT1	362.	8.35	353.	249.	140.	19.65
	ROUTED TO						
+	BSNRT2	362.	8.35	353.	249.	139.	19.65
	HYDROGRAPH AT						
+	PIMABY	1000.	4.95	605.	171.	88.	12.30
	ROUTED TO						
+	PMB-RT	1000.	5.00	605.	171.	87.	12.30
	HYDROGRAPH AT						
+	SB10	169.	0.90	10.	2.	1.	0.04
	3 COMBINED AT						
+	CP-10	1354.	6.85	907.	419.	228.	19.69
	ROUTED TO						
+	R10-11	1353.	6.85	906.	419.	228.	19.69
	HYDROGRAPH AT						
+	SB11	231.	0.95	17.	4.	2.	0.07
	2 COMBINED AT						
+	CP-11	1353.	6.85	906.	419.	230.	19.76

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) =			0.00						
R1-2	MANE	3.00	324.42	63.63	1.19	3.00	317.42	66.00	1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2221E+02 EXCESS=0.0000E+00 OUTFLOW=0.2234E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=
-0.8

FOR STORM = 2 STORM AREA (SQ MI) =			0.50						
R1-2	MANE	3.00	321.94	63.70	1.18	3.00	314.95	66.00	1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2212E+02 EXCESS=0.0000E+00 OUTFLOW=0.2223E+02 BASIN STORAGE=0.5936E-01 PERCENT ERROR=
-0.8

FOR STORM = 3 STORM AREA (SQ MI) =			2.80						
R1-2	MANE	3.00	281.88	67.46	1.15	3.00	280.31	66.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2153E+02 EXCESS=0.0000E+00 OUTFLOW=0.2160E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=

-0.6

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1-2	MANE	3.00	239.43	66.99	1.09	3.00	234.05	69.00	1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2036E+02 EXCESS=0.0000E+00 OUTFLOW=0.2044E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=
-0.7

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1-2	MANE	2.91	179.26	70.19	0.98	3.00	178.38	69.00	0.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1834E+02 EXCESS=0.0000E+00 OUTFLOW=0.1842E+02 BASIN STORAGE=0.6416E-01 PERCENT ERROR=
-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	1.61	726.00	65.69	1.53	3.00	725.57	66.00	1.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4152E+02 EXCESS=0.0000E+00 OUTFLOW=0.4152E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	1.61	719.73	65.75	1.52	3.00	719.25	66.00	1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4128E+02 EXCESS=0.0000E+00 OUTFLOW=0.4128E+02 BASIN STORAGE=0.4197E-01 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	1.65	650.44	66.16	1.47	3.00	647.31	66.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3985E+02 EXCESS=0.0000E+00 OUTFLOW=0.3986E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	1.61	553.64	68.36	1.37	3.00	550.82	69.00	1.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3711E+02 EXCESS=0.0000E+00 OUTFLOW=0.3710E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	1.77	421.93	69.46	1.19	3.00	418.11	69.00	1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3232E+02 EXCESS=0.0000E+00 OUTFLOW=0.3234E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	2.78	817.36	73.14	1.60	3.00	816.94	72.00	1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4741E+02 EXCESS=0.0000E+00 OUTFLOW=0.4763E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=
-0.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	2.79	810.60	70.45	1.59	3.00	810.54	72.00	1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4713E+02 EXCESS=0.0000E+00 OUTFLOW=0.4736E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=
-0.7

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	2.90	742.52	73.90	1.54	3.00	740.16	72.00	1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4551E+02 EXCESS=0.0000E+00 OUTFLOW=0.4571E+02 BASIN STORAGE=0.8226E-01 PERCENT ERROR=
-0.6

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R3-5	MANE	3.00	634.55	73.70	1.43	3.00	626.49	75.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4224E+02 EXCESS=0.0000E+00 OUTFLOW=0.4240E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=
-0.6

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R3-5	MANE	3.00	478.66	74.64	1.24	3.00	478.05	75.00	1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3665E+02 EXCESS=0.0000E+00 OUTFLOW=0.3688E+02 BASIN STORAGE=0.8233E-01 PERCENT ERROR=
-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.41	520.58	62.34	2.39	3.00	513.38	63.00	2.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1819E+02 EXCESS=0.0000E+00 OUTFLOW=0.1838E+02 BASIN STORAGE=0.3179E-04 PERCENT ERROR=
-1.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5 MANE 2.42 516.56 62.40 2.38 3.00 510.06 63.00 2.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1807E+02 EXCESS=0.0000E+00 OUTFLOW=0.1825E+02 BASIN STORAGE=0.4744E-04 PERCENT ERROR=
-1.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5 MANE 2.55 451.64 62.77 2.29 3.00 451.16 63.00 2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1745E+02 EXCESS=0.0000E+00 OUTFLOW=0.1762E+02 BASIN STORAGE=0.4583E-04 PERCENT ERROR=
-1.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5 MANE 2.73 379.50 64.90 2.12 3.00 374.76 63.00 2.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1609E+02 EXCESS=0.0000E+00 OUTFLOW=0.1629E+02 BASIN STORAGE=0.4132E-04 PERCENT ERROR=
-1.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5 MANE 2.87 291.80 65.24 1.78 3.00 288.81 66.00 1.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1354E+02 EXCESS=0.0000E+00 OUTFLOW=0.1370E+02 BASIN STORAGE=0.4337E-04 PERCENT ERROR=
-1.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6 MANE 1.71 1430.15 73.26 1.84 3.00 1428.13 72.00 1.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8096E+02 EXCESS=0.0000E+00 OUTFLOW=0.8101E+02 BASIN STORAGE=0.7278E-01 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6 MANE 1.72 1417.75 71.63 1.82 3.00 1417.68 72.00 1.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8047E+02 EXCESS=0.0000E+00 OUTFLOW=0.8049E+02 BASIN STORAGE=0.7282E-01 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6 MANE 1.83 1320.58 72.30 1.76 3.00 1310.29 72.00 1.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7757E+02 EXCESS=0.0000E+00 OUTFLOW=0.7762E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=
-0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R5-6	MANE	1.92	1120.07	73.97	1.62	3.00	1117.54	75.00	1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7160E+02 EXCESS=0.0000E+00 OUTFLOW=0.7164E+02 BASIN STORAGE=0.7274E-01 PERCENT ERROR=-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R5-6	MANE	2.16	837.38	77.35	1.39	3.00	834.70	75.00	1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6127E+02 EXCESS=0.0000E+00 OUTFLOW=0.6143E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7-8	MANE	2.79	374.54	61.97	2.32	3.00	360.59	63.00	2.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8717E+01 EXCESS=0.0000E+00 OUTFLOW=0.9160E+01 BASIN STORAGE=0.1297E-03 PERCENT ERROR=-5.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7-8	MANE	2.80	373.06	62.02	2.31	3.00	359.23	63.00	2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8655E+01 EXCESS=0.0000E+00 OUTFLOW=0.9098E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=-5.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7-8	MANE	3.00	300.60	62.65	2.18	3.00	299.77	63.00	2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8267E+01 EXCESS=0.0000E+00 OUTFLOW=0.8591E+01 BASIN STORAGE=0.1511E-03 PERCENT ERROR=-3.9

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7-8	MANE	3.00	243.19	65.55	1.99	3.00	238.95	66.00	2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7502E+01 EXCESS=0.0000E+00 OUTFLOW=0.7866E+01 BASIN STORAGE=0.1118E-03 PERCENT ERROR=-4.8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7-8	MANE	2.82	178.83	67.24	1.61	3.00	176.29	66.00	1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6168E+01 EXCESS=0.0000E+00 OUTFLOW=0.6362E+01 BASIN STORAGE=0.1260E-03 PERCENT ERROR=
-3.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8-9	MANE	1.32	1031.83	65.57	2.33	3.00	1013.13	66.00	2.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3691E+02 EXCESS=0.0000E+00 OUTFLOW=0.3702E+02 BASIN STORAGE=0.1702E-03 PERCENT ERROR=
-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8-9	MANE	1.33	1027.12	65.64	2.31	3.00	1010.29	66.00	2.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3678E+02 BASIN STORAGE=0.2024E-03 PERCENT ERROR=
-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8-9	MANE	1.45	913.69	66.38	2.21	3.00	911.34	66.00	2.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3510E+02 EXCESS=0.0000E+00 OUTFLOW=0.3519E+02 BASIN STORAGE=0.1735E-03 PERCENT ERROR=
-0.3

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8-9	MANE	1.48	772.14	65.64	2.03	3.00	769.23	66.00	2.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3216E+02 EXCESS=0.0000E+00 OUTFLOW=0.3228E+02 BASIN STORAGE=0.1954E-03 PERCENT ERROR=
-0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8-9	MANE	1.59	554.15	67.90	1.68	3.00	554.05	69.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2666E+02 EXCESS=0.0000E+00 OUTFLOW=0.2676E+02 BASIN STORAGE=0.1898E-03 PERCENT ERROR=
-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.29	363.48	498.70	0.56	3.00	363.48	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5822E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.29	363.42	498.84	0.56	3.00	363.42	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5819E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.45	363.06	498.87	0.55	3.00	363.06	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5801E+03 EXCESS=0.0000E+00 OUTFLOW=0.5800E+03 BASIN STORAGE=0.3288E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.38	362.38	500.88	0.55	3.00	362.38	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5767E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3287E-01 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.34	361.10	501.33	0.54	3.00	361.10	501.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5702E+03 BASIN STORAGE=0.3284E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	363.48	501.11	0.56	3.00	363.48	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5821E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	363.42	501.35	0.56	3.00	363.42	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5818E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.36	363.06	501.42	0.55	3.00	363.06	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5800E+03 EXCESS=0.0000E+00 OUTFLOW=0.5799E+03 BASIN STORAGE=0.3755E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.48	362.38	501.44	0.55	3.00	362.38	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5766E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3753E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.38	361.10	501.56	0.54	3.00	361.09	501.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5701E+03 BASIN STORAGE=0.3750E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=

0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	1.62	1355.03	412.64	0.90	3.00	1354.77	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9482E+03 EXCESS=0.0000E+00 OUTFLOW=0.9474E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	1.56	1354.98	412.72	0.90	3.00	1354.72	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9479E+03 EXCESS=0.0000E+00 OUTFLOW=0.9473E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	1.57	1354.58	412.38	0.90	3.00	1354.33	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9458E+03 EXCESS=0.0000E+00 OUTFLOW=0.9450E+03 BASIN STORAGE=0.9164E+00 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	1.67	1353.83	412.54	0.90	3.00	1353.59	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9420E+03 EXCESS=0.0000E+00 OUTFLOW=0.9412E+03 BASIN STORAGE=0.9165E+00 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	1.66	1352.40	412.19	0.89	3.00	1352.18	411.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9349E+03 EXCESS=0.0000E+00 OUTFLOW=0.9341E+03 BASIN STORAGE=0.9161E+00 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

Appendix C
Cavasson HEC-1 Data
Cavasson

ID	Method	Duration	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
DEFAULT	NOAA14	5 MIN	0.258	0.349	0.418	0.511	0.583	0.656
	NOAA14	10 MIN	0.393	0.530	0.636	0.778	0.887	0.998
	NOAA14	15 MIN	0.487	0.658	0.789	0.965	1.099	1.237
	NOAA14	30 MIN	0.656	0.886	1.063	1.299	1.480	1.666
	NOAA14	1 HOUR	0.812	1.096	1.315	1.608	1.832	2.062
	NOAA14	2 HOUR	0.939	1.251	1.490	1.814	2.060	2.315
	NOAA14	3 HOUR	1.024	1.339	1.588	1.936	2.212	2.498
	NOAA14	6 HOUR	1.215	1.549	1.817	2.182	2.465	2.760
	NOAA14	12 HOUR	1.374	1.734	2.016	2.399	2.690	2.993
	NOAA14	24 HOUR	1.622	2.097	2.476	3.005	3.425	3.865

Soil Map—Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties



Map Scale: 1:17,700 if printed on B landscape (17" x 11") sheet.

N

Meters: 0, 250, 500, 1000, 1500

Feet: 0, 500, 1000, 2000, 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties
Survey Area Data: Version 11, Sep 11, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 31, 2014—Dec 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
55	Gilman loams	768.3	30.2%
90	Momoli gravelly sandy loam, 1 to 5 percent slopes	1,778.8	69.8%
Totals for Area of Interest		**2,547.2**	**100.0%**

Appendix D
Cavasson HEC-1 Existing
Cavasson

```
1*************************************                 *************************************
 *                                   *                 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *             *    U.S. ARMY CORPS OF ENGINEERS     *
 *              JUN   1998           *                 *    HYDROLOGIC ENGINEERING CENTER    *
 *            VERSION 4.1            *                 *         609 SECOND STREET           *
 *                                   *                 *       DAVIS, CALIFORNIA 95616       *
 *  RUN DATE   26NOV18  TIME  12:12:06   *             *          (916) 756-1104             *
 *                                   *                 *                                   *
 *************************************                 *************************************

                                X     X  XXXXXXX   XXXXX          X
                                X     X  X        X     X        XX
                                X     X  X        X              X
                                XXXXXXX  XXXX     X        XXXXX  X
                                X     X  X        X              X
                                X     X  X        X     X        X
                                X     X  XXXXXXX   XXXXX        XXX

 THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

 THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                        HEC-1 INPUT                                        PAGE  1

          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS.
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/20/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           NEW EXISTING CONDITION MODEL, POST-BASIN
           15           ID
           16           ID
           17           IT       3       0       0    1000
           18           IN      15
           19           IO       5
                        *DIAGRAM
                        *
           20           JD   3.849  0.0001
           21           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
           22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
           23           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
           24           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
           25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
           26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
           27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
           28           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
           29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
           30           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
           31           JD   3.657    10.0
           32           JD   3.533    20.0
                        *

           33           KK  76THST
           34           KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           35           KM        100-YR, 24-HR FLO-2D MODEL (XS 98)
           36           BA    0.24
           37           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
           38           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
           39           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.01
           40           QI    0.00    0.00    0.00    0.00    0.01    0.00    0.00    0.02    0.03    0.05
           41           QI    0.09    0.11    0.14    0.21    0.34    0.51    0.76    3.70   17.69   47.79
           42           QI   68.57   54.61   42.75   35.61   32.34   29.25   26.13   22.83   19.41   18.11
           43           QI   16.15   14.54   13.75   12.53   12.00   11.44   10.52    9.81    9.34    9.09
           44           QI    9.11    8.71    8.37    8.05    7.67    7.75    7.47    7.08    6.97    6.77
           45           QI    6.59    6.44    6.32    6.12    5.95    5.87    5.70    5.84    5.41    5.44
           46           QI    4.56    4.81    4.75    4.78    4.69    4.67    4.61    4.36    4.20    4.00
           47           QI    3.75    3.51    2.49    3.43    3.61    3.65    2.48    2.36    2.19    2.07
           48           QI    1.94    1.72    1.71    1.36    1.48    1.13    1.13    1.20    1.10    1.06
           49           QI    1.06    1.00    0.94    0.89    0.85    0.81    0.78    0.74    0.72    0.70
           50           QI    0.67    0.64    0.62    0.59    0.57    0.55    0.53    0.51    0.49    0.47
           51           QI    0.45    0.44    0.42    0.40    0.39
                        *
```

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  52          KK   SB01A   BASIN
  53          BA   0.055
  54          PB   2.721
  55          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
  56          PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
  57          PC   0.956   0.968   0.979   0.990   1.000
  58          LG    0.10    0.25    4.72    0.51       0
  59          UC   0.439   0.231
  60          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  61          UA     100
              *

  62          KK    CP-1 COMBINE
  63          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
  64          HC       2   0.295
              *

  65          KK   R1A-2   ROUTE
  66          RK    2139  0.0180   0.020            TRAP   2.000    0.00
              *

  67          KK   SB01B   BASIN
  68          BA   0.022
  69          LG    0.10    0.25    4.72    0.51       0
  70          UC   0.490   0.471
  71          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  72          UA     100
              *

  73          KK   R1B-2   ROUTE
  74          RK    2636  0.0015   0.030            TRAP   2.000    0.00
              *

  75          KK   SB01C   BASIN
  76          BA   0.032
  77          LG    0.10    0.25    4.72    0.51       0
  78          UC   0.581   0.550
  79          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  80          UA     100
              *

  81          KK   R1C-2   ROUTE
  82          RK    3046  0.0015   0.030            TRAP   2.000    0.00
              *

  83          KK   SB02E   BASIN
  84          BA   0.100
  85          LG    0.10    0.25    4.03    0.74       0
  86          UC   0.859   0.688
  87          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  88          UA     100
              *
```



```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  89          KK   SB02W   BASIN
  90          BA   0.060
  91          LG    0.10    0.25    4.33    0.61       0
  92          UC   0.686   0.535
  93          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  94          UA     100
              *

  95          KK   CP-02 COMBINE
  96          HC       5
              *

  97          KK    R2-3   ROUTE
  98          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
  99          RK    1260  0.0015   0.03             TRAP      92       4
              *

 100          KK    SB03   BASIN
 101          BA   0.048
 102          LG    0.15    0.25    4.50    0.47      55
 103          UC   0.364   0.294
 104          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 105          UA     100
              *

 106          KK   CP-03 COMBINE
 107          HC       2
              *

 108          KK    R3-5   ROUTE
 109          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 110          RK    2396  0.0015   0.03             TRAP      98       4
```

```
                *
  111           KK    SB05   BASIN
  112           BA   0.126
  113           LG    0.22    0.25    4.50    0.44      48
  114           UC   0.327   0.226
  115           UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  116           UA     100
                *

  117           KK   CP-5A COMBINE
  118           HC       2
                *

  119           KK   SB07W   BASIN
  120           BA   0.048
  121           LG    0.10    0.25    4.03    0.74       0
  122           UC   0.677   0.558
  123           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  124           UA     100
                *
1                                       HEC-1 INPUT                                             PAGE  4

 LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  125           KK  R7W-8W   ROUTE
  126           KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
  127           KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
  128           RK    3721  0.0013   0.03             TRAP      46       4
                *

  129           KK  SB08W   BASIN
  130           KM        HE MODIFIED TO SPLIT BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
  131           BA   0.112
  132           LG    0.10    0.25    4.08    0.71       0
  133           UC   0.784   0.547
  134           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  135           UA     100
                *

  136           KK  CP-08W COMBINE
  137           KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
  138           HC       2
                *

  139           KK   R8W-4   ROUTE
  140           KM        SR 101L FREEWAY TO CP4
  141           KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
  142           RK    3137  0.0130   0.030            TRAP   2.000    0.00
                *

  143           KK    SB04   BASIN
  144           BA   0.144
  145           LG    0.14    0.25    4.60    0.44      61
  146           UC   0.305   0.199
  147           UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  148           UA     100
                *

  149           KK    CP-4 COMBINE
  150           KM        PRINCESS BLVD AND EAST OF 77TH ST
  151           HC       2
                *

  152           KK    R4-5   ROUTE
  153           KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
  154           RK    1992  0.0013   0.03             TRAP      39       4
                *

  155           KK   CP-05 COMBINE
  156           KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
  157           KM        COMBINE CP-05A AND R4-5
  158           HC       2
                *
1                                       HEC-1 INPUT                                             PAGE  5

 LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  159           KK    R5-6   ROUTE
  160           KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
  161           RK    1694  0.0015   0.03             TRAP     188       4
                *

  162           KK    SB06   BASIN
  163           BA   0.136
  164           LG    0.16    0.25    4.55    0.45      53
  165           UC   0.321   0.246
  166           UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  167           UA     100
                *

  168           KK   CP-06 COMBINE
```

```
 169          HC       2
              *
              *
              * END WEST RUN
              *
              *
              * BEGIN EAST SIDE OF HAYDEN
              *
              *

 170          KK   SB07E   BASIN
 171          BA   0.026
 172          LG    0.10    0.25    4.03    0.74       0
 173          UC   0.574   0.527
 174          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 175          UA     100
              *

 176          KK  R7E-8E   ROUTE
 177          RK    3662  0.0130   0.030            TRAP   2.000    0.00
              *

 178          KK  SB08E   BASIN
 179          BA   0.078
 180          LG    0.10    0.25    4.08    0.72       0
 181          UC   0.798   0.652
 182          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 183          UA     100
              *

 184          KK  SB09N   BASIN
 185          BA   0.028
 186          LG    0.10    0.25    4.79    0.49       0
 187          UC   0.740   1.111
 188          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 189          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 190          KK  R9N-R9   ROUTE
 191          RK    2586  0.0013   0.020            TRAP   2.000    0.00
              *

 192          KK  CP-08E COMBINE
 193          HC       3
              *

 194          KK  R8E-R9   ROUTE
 195          RK     501  0.0013   0.020            TRAP   2.000    0.00
              *

 196          KK    SB09   BASIN
 197          BA   0.086
 198          LG    0.10    0.25    4.79    0.49       0
 199          UC   0.683   0.518
 200          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 201          UA     100
              *

 202          KK   CP-09 COMBINE
 203          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 204          HC       2
              *
 205          KM

 206          KK   PWRCH
 207          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
 208          KM        100-YR, 24-HR FLO-2D MODEL (XS 107)
 209          KM        FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL
 210          BA     7.0
 211          QI       0       0       0       0       0       0       0       0       0       0
 212          QI       0       0       0       0       0       0       0       0       0       0
 213          QI       0       0       0       0       0       0       0       0       0       0
 214          QI       0       0       0       0       0       0       0       0       0       0
 215          QI       0       0       0       0       0       1       1       3      43     495
 216          QI    1099    1198    2055    3747    3658    3175    2822    2378    2084    1898
 217          QI    1699    1499    1331    1179    1047     940     851     773     705     645
 218          QI     597     559     521     488     460     435     410     387     370     356
 219          QI     339     328     317     303     293     281     270     257     258     248
 220          QI     240     237     223     220     214     209     205     201     192     188
 221          QI     180     179     164     158     149     142     137     126     120     117
 222          QI     107     102      97      99      86      83      82      74      70      66
 223          QI      62      59      57      55      52      50      50      48      42      41
 224          QI      40      37      35      40      36      32      31      30      31      30
 225          QI      31      30      24      23      23
              *

 226          KK  BINFLO
 227          KM        TOTAL INFLOW INTO BASIN 53R.
 228          HC       2
              *
```

```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            229          KK   BASIN
            230          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
            231          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
            232          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
            233          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
            234          RS       1    STOR       0
            235          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
            236          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
            237          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
            238          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
            239          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
            240          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
                         *

            241          KK  BSNRT1
            242          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
            243          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
            244          KM        EXCESS CAPACITY.
            245          RK     550  0.0052   0.024            CIRC     7.0
                         *

            246          KK  BSNRT2
            247          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
            248          RK    1200  0.0077   0.013            CIRC     7.0
                         *

            249          KK    SB10   BASIN
            250          BA   0.040
            251          LG    0.15    0.25    4.25    0.55      55
            252          UC   0.233   0.161
            253          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
            254          UA     100
                         *

            255          KK   CP-10 COMBINE
            256          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
            257          HC       2
                         *

            258          KK  R10-11   ROUTE
            259          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
            260          RK    1277  0.0014   0.03             TRAP     220       4
                         *

            261          KK    SB11   BASIN
            262          BA   0.071
            263          LG    0.15    0.25    4.15    0.58      55
            264          UC   0.296   0.232
            265          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
            266          UA     100
                         *
```

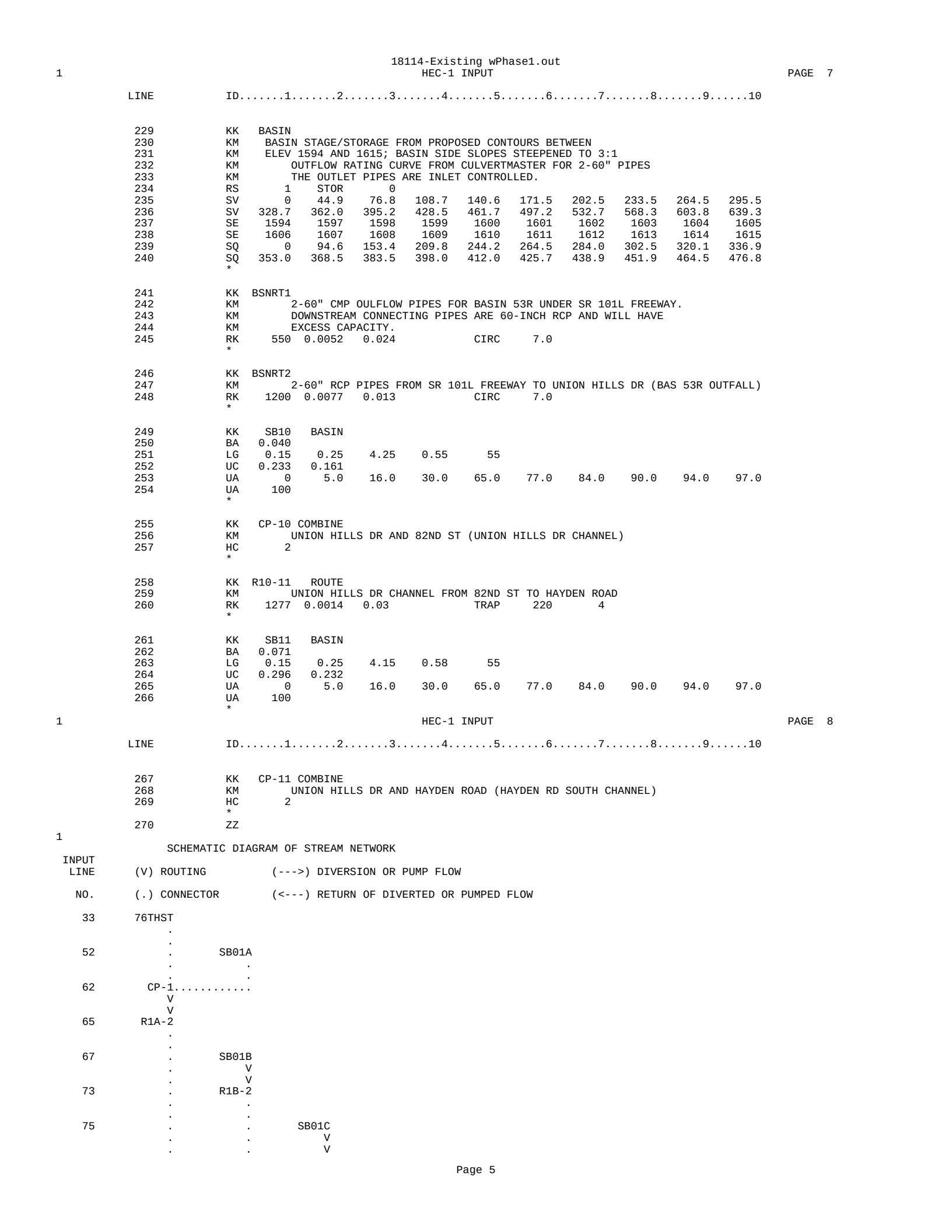


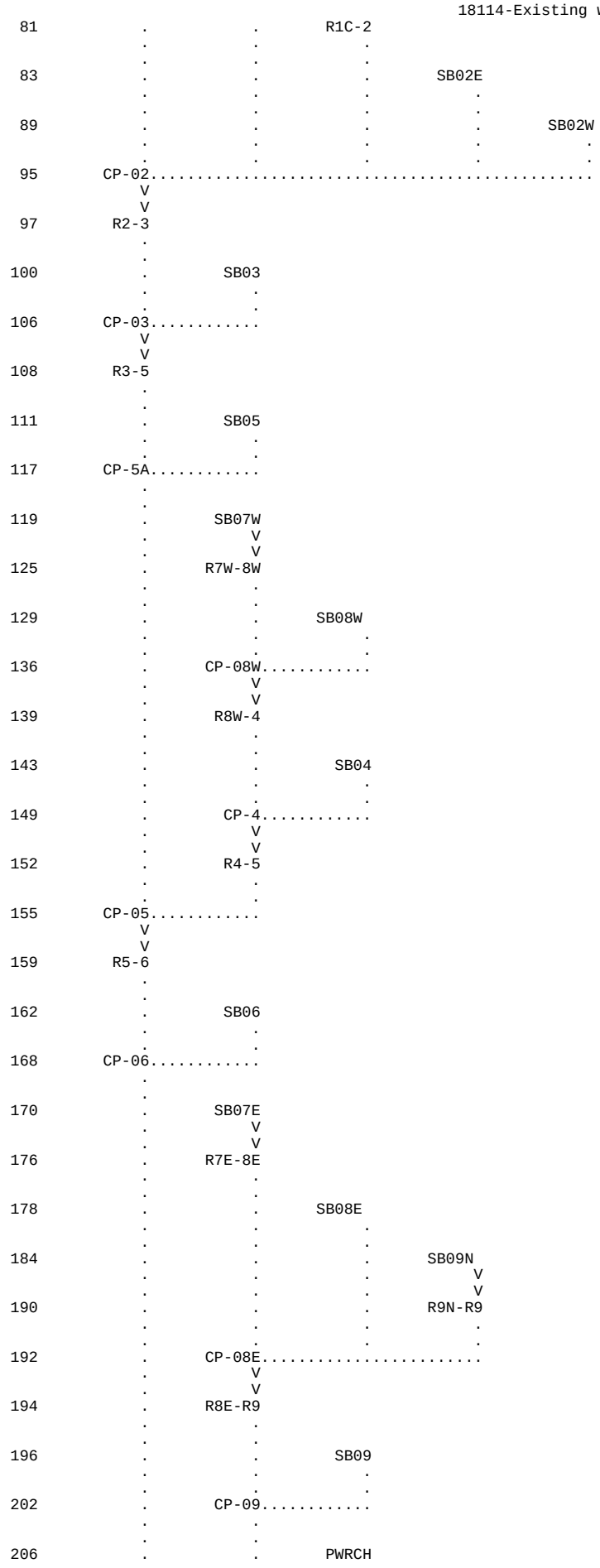
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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

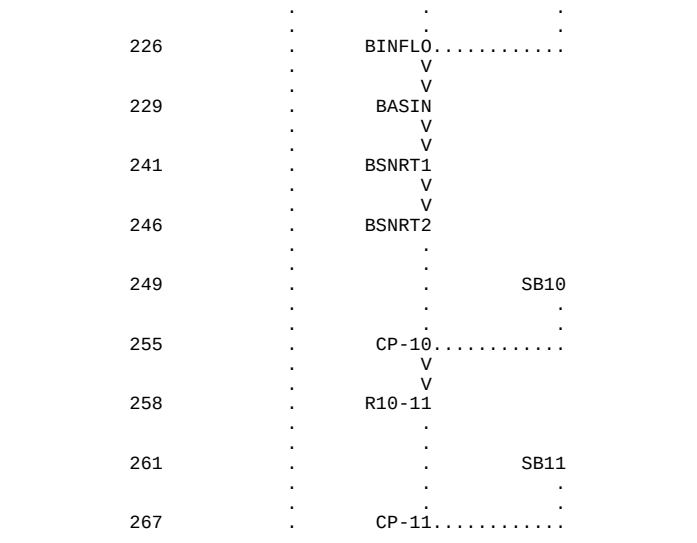
            267          KK   CP-11 COMBINE
            268          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
            269          HC       2
                         *
            270          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK




R1C-2
SB02E
SB02W
CP-02
R2-3
SB03
CP-03
R3-5
SB05
CP-5A
SB07W
R7W-8W
SB08W
CP-08W
R8W-4
SB04
CP-4
R4-5
CP-05
R5-6
SB06
CP-06
SB07E
R7E-8E
SB08E
SB09N
R9N-R9
CP-08E
R8E-R9
SB09
CP-09
PWRCH



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

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* *

* *

* FLOOD HYDROGRAPH PACKAGE (HEC-1) * * U.S. ARMY CORPS OF ENGINEERS

* *

* JUN 1998 * * HYDROLOGIC ENGINEERING CENTER

* *

* VERSION 4.1 * * 609 SECOND STREET

* *

* * * DAVIS, CALIFORNIA 95616

* *

* RUN DATE 26NOV18 TIME 12:12:06 * * (916) 756-1104

* *

* * *

* *

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****

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS.

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/20/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
NEW EXISTING CONDITION MODEL, POST-BASIN

19 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE 1	0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	1000	NUMBER OF HYDROGRAPH ORDINATES
NDDATE 3	0	ENDING DATE
NDTIME	0157	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 49.95 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

```
20 JD          INDEX STORM NO. 1
                     STRM        3.85  PRECIPITATION DEPTH
                     TRDA        0.00  TRANSPOSITION DRAINAGE AREA

21 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

+	HYDROGRAPH AT	SB01C	22.	12.40	3.	1.	0.	0.03
+	ROUTED TO	R1C-2	22.	12.50	3.	1.	0.	0.03
+	HYDROGRAPH AT	SB02E	46.	12.60	8.	2.	1.	0.10
+	HYDROGRAPH AT	SB02W	38.	12.45	5.	1.	1.	0.06
+	5 COMBINED AT	CP-02	213.	12.50	47.	14.	7.	0.51
+	ROUTED TO	R2-3	212.	12.55	47.	14.	7.	0.51
+	HYDROGRAPH AT	SB03	65.	12.15	10.	3.	2.	0.05
+	2 COMBINED AT	CP-03	238.	12.55	55.	17.	8.	0.56
+	ROUTED TO	R3-5	238.	12.70	55.	17.	8.	0.56
+	HYDROGRAPH AT	SB05	190.	12.10	24.	8.	4.	0.13
+	2 COMBINED AT	CP-5A	276.	12.65	76.	24.	12.	0.68
+	HYDROGRAPH AT	SB07W	27.	12.45	4.	1.	0.	0.05
+	ROUTED TO	R7W-8W	27.	13.05	5.	1.	1.	0.05
+	HYDROGRAPH AT	SB08W	63.	12.55	9.	2.	1.	0.11
+	2 COMBINED AT	CP-08W	63.	12.55	14.	3.	2.	0.16
+	ROUTED TO	R8W-4	62.	12.55	14.	3.	2.	0.16
+	HYDROGRAPH AT	SB04	241.	12.10	31.	10.	5.	0.14
+	2 COMBINED AT	CP-4	244.	12.10	44.	14.	7.	0.30
+	ROUTED TO	R4-5	239.	12.20	44.	14.	7.	0.30
+	2 COMBINED AT	CP-05	419.	12.20	119.	37.	19.	0.99
+	ROUTED TO	R5-6	415.	12.30	119.	37.	18.	0.99
+	HYDROGRAPH AT	SB06	202.	12.10	27.	9.	4.	0.14
+	2 COMBINED AT	CP-06	564.	12.25	145.	46.	23.	1.12
+	HYDROGRAPH AT	SB07E	16.	12.40	2.	1.	0.	0.03
+	ROUTED TO	R7E-8E	16.	12.45	2.	1.	0.	0.03
+	HYDROGRAPH AT	SB08E	39.	12.55	6.	2.	1.	0.08
+	HYDROGRAPH AT	SB09N	11.	12.55	3.	1.	0.	0.03
+	ROUTED TO	R9N-R9	11.	12.65	3.	1.	0.	0.03
+	3 COMBINED AT	CP-08E	63.	12.55	11.	3.	1.	0.13
+	ROUTED TO	R8E-R9	63.	12.55	11.	3.	1.	0.13
+	HYDROGRAPH AT	SB09	60.	12.45	9.	2.	1.	0.09

2 COMBINED AT							
+	CP-09	120.	12.50	20.	5.	2.	0.22
HYDROGRAPH AT							
+	PWRCH	3747.	13.25	1540.	502.	248.	7.00
2 COMBINED AT							
+	BINFLO	3788.	13.25	1558.	507.	250.	7.22
ROUTED TO							
+	BASIN	462.	18.45	458.	399.	241.	7.22
ROUTED TO							
+	BSNRT1	462.	18.50	458.	399.	241.	7.22
ROUTED TO							
+	BSNRT2	462.	18.50	458.	399.	241.	7.22
HYDROGRAPH AT							
+	SB10	72.	12.05	8.	3.	1.	0.04
2 COMBINED AT							
+	CP-10	463.	18.50	459.	400.	242.	7.26
ROUTED TO							
+	R10-11	463.	18.55	459.	400.	241.	7.26
HYDROGRAPH AT							
+	SB11	107.	12.10	14.	5.	2.	0.07
2 COMBINED AT							
+	CP-11	465.	18.55	460.	401.	244.	7.33

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.36	117.01	738.51	1.23	3.00	116.71	738.00	1.23

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1943E+02 EXCESS=0.0000E+00 OUTFLOW=0.1943E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R1A-2	MANE	0.42	112.05	738.79	1.22	3.00	111.68	738.00	1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1919E+02 EXCESS=0.0000E+00 OUTFLOW=0.1918E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00									
R1A-2	MANE	0.38	108.92	738.78	1.21	3.00	108.42	738.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1903E+02 EXCESS=0.0000E+00 OUTFLOW=0.1903E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.54	17.90	743.39	0.96	3.00	17.89	744.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1124E+01 EXCESS=0.0000E+00 OUTFLOW=0.1126E+01 BASIN STORAGE=0.3296E-04 PERCENT ERROR=-0.2

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	2.69	16.41	744.91	0.88	3.00	16.26	744.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1027E+01 EXCESS=0.0000E+00 OUTFLOW=0.1029E+01 BASIN STORAGE=0.3545E-04 PERCENT ERROR=-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	2.72	15.48	745.80	0.82	3.00	15.39	744.00	0.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9639E+00 EXCESS=0.0000E+00 OUTFLOW=0.9659E+00 BASIN STORAGE=0.3993E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.68	22.92	749.78	0.96	3.00	22.87	750.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1636E+01 EXCESS=0.0000E+00 OUTFLOW=0.1638E+01 BASIN STORAGE=0.6351E-04 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	2.74	20.97	748.38	0.88	3.00	20.87	750.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1494E+01 EXCESS=0.0000E+00 OUTFLOW=0.1496E+01 BASIN STORAGE=0.4987E-04 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	2.88	19.87	749.59	0.82	3.00	19.80	750.00	0.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1402E+01 EXCESS=0.0000E+00 OUTFLOW=0.1405E+01 BASIN STORAGE=0.5140E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.35	223.01	753.28	1.08	3.00	222.83	753.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2933E+02 EXCESS=0.0000E+00 OUTFLOW=0.2925E+02 BASIN STORAGE=0.3881E-01 PERCENT ERROR=0.2

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.40	209.27	754.34	1.03	3.00	208.88	753.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2813E+02 EXCESS=0.0000E+00 OUTFLOW=0.2804E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR= 0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.42	200.30	755.08	1.01	3.00	200.07	753.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2737E+02 EXCESS=0.0000E+00 OUTFLOW=0.2729E+02 BASIN STORAGE=0.3881E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.14	250.16	759.11	1.20	3.00	250.02	762.00	1.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3577E+02 EXCESS=0.0000E+00 OUTFLOW=0.3564E+02 BASIN STORAGE=0.8213E-01 PERCENT ERROR= 0.2

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R3-5	MANE	3.00	234.14	759.87	1.15	3.00	233.71	762.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3422E+02 EXCESS=0.0000E+00 OUTFLOW=0.3408E+02 BASIN STORAGE=0.8213E-01 PERCENT ERROR= 0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R3-5	MANE	3.32	224.17	761.35	1.11	3.00	223.70	762.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3322E+02 EXCESS=0.0000E+00 OUTFLOW=0.3310E+02 BASIN STORAGE=0.8213E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	28.00	782.83	0.94	3.00	27.96	783.00	0.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+01 EXCESS=0.0000E+00 OUTFLOW=0.2397E+01 BASIN STORAGE=0.4467E-03 PERCENT ERROR= -16.7

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	25.40	781.83	0.85	3.00	25.36	783.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1840E+01 EXCESS=0.0000E+00 OUTFLOW=0.2168E+01 BASIN STORAGE=0.4706E-03 PERCENT ERROR=
-17.9

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	23.58	785.70	0.80	3.00	23.51	786.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1708E+01 EXCESS=0.0000E+00 OUTFLOW=0.2041E+01 BASIN STORAGE=0.4689E-03 PERCENT ERROR=
-19.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.94	66.42	755.01	0.86	3.00	66.02	753.00	0.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7318E+01 EXCESS=0.0000E+00 OUTFLOW=0.7318E+01 BASIN STORAGE=0.1932E-03 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	1.05	60.07	755.23	0.77	3.00	59.67	753.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6586E+01 EXCESS=0.0000E+00 OUTFLOW=0.6585E+01 BASIN STORAGE=0.2022E-03 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	1.08	56.00	754.64	0.72	3.00	55.67	756.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6138E+01 EXCESS=0.0000E+00 OUTFLOW=0.6137E+01 BASIN STORAGE=0.1893E-03 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.95	251.81	732.85	1.75	3.00	250.31	732.00	1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2832E+02 EXCESS=0.0000E+00 OUTFLOW=0.2832E+02 BASIN STORAGE=0.6307E-03 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	233.73	730.48	1.63	3.00	233.61	732.00	1.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2645E+02 EXCESS=0.0000E+00 OUTFLOW=0.2644E+02 BASIN STORAGE=0.5510E-03 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	225.81	733.09	1.56	3.00	224.55	732.00	1.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2526E+02 EXCESS=0.0000E+00 OUTFLOW=0.2527E+02 BASIN STORAGE=0.6276E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.95	442.96	735.96	1.51	3.00	439.15	738.00	1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7986E+02 EXCESS=0.0000E+00 OUTFLOW=0.7974E+02 BASIN STORAGE=0.6927E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R5-6	MANE	2.96	413.00	736.50	1.43	3.00	408.79	738.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7549E+02 EXCESS=0.0000E+00 OUTFLOW=0.7535E+02 BASIN STORAGE=0.6928E-01 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.00	396.02	737.35	1.38	3.00	393.07	738.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7273E+02 EXCESS=0.0000E+00 OUTFLOW=0.7260E+02 BASIN STORAGE=0.6927E-01 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.93	16.43	748.32	0.80	3.00	16.39	747.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1113E+01 EXCESS=0.0000E+00 OUTFLOW=0.1112E+01 BASIN STORAGE=0.1951E-04 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	1.94	14.90	748.28	0.72	3.00	14.82	747.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9964E+00 EXCESS=0.0000E+00 OUTFLOW=0.9968E+00 BASIN STORAGE=0.1628E-04 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.13	13.91	748.07	0.67	3.00	13.81	747.00	0.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9248E+00 EXCESS=0.0000E+00 OUTFLOW=0.9254E+00 BASIN STORAGE=0.1626E-04 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.43	11.87	758.35	0.97	3.00	11.83	759.00	0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1453E+01 EXCESS=0.0000E+00 OUTFLOW=0.1451E+01 BASIN STORAGE=0.2431E-04 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.57	10.88	757.62	0.89	3.00	10.84	759.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1330E+01 EXCESS=0.0000E+00 OUTFLOW=0.1328E+01 BASIN STORAGE=0.2146E-04 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.61	10.25	758.60	0.84	3.00	10.23	759.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1249E+01 EXCESS=0.0000E+00 OUTFLOW=0.1248E+01 BASIN STORAGE=0.2338E-04 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8E-R9	MANE	0.31	67.27	753.42	0.85	3.00	67.12	753.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5955E+01 EXCESS=0.0000E+00 OUTFLOW=0.5955E+01 BASIN STORAGE=0.1051E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8E-R9	MANE	0.38	60.94	753.41	0.76	3.00	60.79	753.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5368E+01 EXCESS=0.0000E+00 OUTFLOW=0.5368E+01 BASIN STORAGE=0.1067E-04 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8E-R9	MANE	0.36	56.87	753.51	0.71	3.00	56.68	753.00	0.71

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4995E+01 EXCESS=0.0000E+00 OUTFLOW=0.4995E+01 BASIN STORAGE=0.1021E-04 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.38	462.76	1109.87	2.58	3.00	462.76	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9944E+03 EXCESS=0.0000E+00 OUTFLOW=0.9943E+03 BASIN STORAGE=0.9346E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.38	462.49	1110.02	2.58	3.00	462.49	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9936E+03 EXCESS=0.0000E+00 OUTFLOW=0.9935E+03 BASIN STORAGE=0.9328E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.38	462.32	1110.01	2.58	3.00	462.32	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9930E+03 EXCESS=0.0000E+00 OUTFLOW=0.9929E+03 BASIN STORAGE=0.9316E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.38	462.76	1110.48	2.58	3.00	462.76	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9943E+03 EXCESS=0.0000E+00 OUTFLOW=0.9941E+03 BASIN STORAGE=0.1069E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.38	462.49	1110.30	2.58	3.00	462.49	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9935E+03 EXCESS=0.0000E+00 OUTFLOW=0.9933E+03 BASIN STORAGE=0.1067E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.38	462.32	1110.49	2.58	3.00	462.32	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9929E+03 EXCESS=0.0000E+00 OUTFLOW=0.9927E+03 BASIN STORAGE=0.1065E+00 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.34	463.63	1114.77	2.58	3.00	463.63	1113.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9994E+03 EXCESS=0.0000E+00 OUTFLOW=0.9982E+03 BASIN STORAGE=0.1212E+01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.39	463.32	1113.19	2.58	3.00	463.32	1113.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9983E+03 EXCESS=0.0000E+00 OUTFLOW=0.9972E+03 BASIN STORAGE=0.1068E+01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.35	463.12	1115.43	2.57	3.00	463.12	1113.00	2.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9977E+03 EXCESS=0.0000E+00 OUTFLOW=0.9964E+03 BASIN STORAGE=0.1562E+01 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

```
1****************************************
****************************************
 *                                      *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
  *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   16NOV18  TIME  06:54:25  *                                                    *           (916) 756-1104
  *
 *                                      *                                                    *
  *
 ****************************************
****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   1          ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
   2          ID        POWERLINE CORRIDOR
   3          ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
   4          ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
   5          ID       10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
   6          ID           PIMA ROAD FLOWS.
   7          ID
   8          ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
   9          ID       MODELERS: RK, MW
  10          ID
  11          ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
  12          ID       MODELERS: MSW, ES
  13          ID       REVISIONS NOTED WITH HE
  14          ID           NEW EX CONDITION MODEL,WITH POWERLINE AND BASIN 53R
  15          ID           THIS IS THE PRE-DEVELOPMENT MODEL
  16          ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
  17          ID
  18          IT       3       0       0    1000
  19          IN      15
  20          IO       5
              *DIAGRAM
  21          JD   1.817  0.0001
  22          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
  23          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
  24          PC   0.962   0.972   0.983   0.991   1.000
  25          JD   1.806  0.5000
  26          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
  27          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
  28          PC   0.962   0.972   0.983   0.991   1.000
  29          JD   1.772     2.8
  30          PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
  31          PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
  32          PC   0.950   0.963   0.975   0.988   1.000
              *
  33          KK  76THST
  34          KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
  35          KM        10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS
  36          BA    0.24
  37          QI       0       0       0       0       0       0       0       0       0       0
  38          QI       0       0    0.01    0.01    0.06    0.58    8.13   27.04   31.94    31.1
  39          QI   22.07   17.10   13.79   11.20    9.48    8.22    7.44    6.76    6.13    5.32
  40          QI    4.66    4.31    3.73    3.05    2.71    2.44    2.18    2.27    1.51    1.61
  41          QI    1.48    1.38    1.29    1.17    1.01    0.96    0.97    0.77    0.84    0.86
  42          QI    0.70    0.68    0.67    0.62    0.58    0.55    0.53    0.51    0.49    0.46
  43          QI    0.44    0.43    0.42    0.40    0.38    0.37    0.35    0.34    0.33    0.31
  44          QI    0.30    0.29    0.28
```

```
                *
          45    KK   SB01A   BASIN
          46    BA   0.055
          47    LG    0.10    0.25    4.72    0.51       0
          48    UC   0.439   0.231
          49    UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          50    UA     100
                *
1                                        HEC-1 INPUT                                                PAGE  2

        LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          51    KK    CP-1 COMBINE
          52    KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
          53    HC       2   0.295
                *
          54    KK   R1A-2   ROUTE
          55    RK    2139  0.0180   0.020            TRAP   2.000    0.00
                *
          56    KK   SB01B   BASIN
          57    BA   0.022
          58    LG    0.10    0.25    4.72    0.51       0
          59    UC   0.490   0.471
          60    UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          61    UA     100
                *
          62    KK   R1B-2   ROUTE
          63    RK    2636  0.0015   0.030            TRAP   2.000    0.00
                *
          64    KK   SB01C   BASIN
          65    BA   0.032
          66    LG    0.10    0.25    4.72    0.51       0
          67    UC   0.581   0.550
          68    UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          69    UA     100
                *
          70    KK   R1C-2   ROUTE
          71    RK    3046  0.0015   0.030            TRAP   2.000    0.00
                *
          72    KK   SB02E   BASIN
          73    BA   0.100
          74    LG    0.10    0.25    4.03    0.74       0
          75    UC   0.859   0.688
          76    UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          77    UA     100
                *
          78    KK   SB02W   BASIN
          79    BA   0.060
          80    LG    0.10    0.25    4.33    0.61       0
          81    UC   0.686   0.535
          82    UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          83    UA     100
                *
1                                        HEC-1 INPUT                                                PAGE  3

        LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          84    KK   CP-02 COMBINE
          85    HC       5
                *
          86    KK    R2-3   ROUTE
          87    KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
          88    RK    1260  0.0015   0.03             TRAP      92       4
                *
          89    KK    SB03   BASIN
          90    BA   0.048
          91    LG    0.15    0.25    4.50    0.47      55
          92    UC   0.364   0.294
          93    UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          94    UA     100
                *
          95    KK   CP-03 COMBINE
          96    HC       2
                *
          97    KK    R3-5   ROUTE
          98    KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
          99    RK    2396  0.0015   0.03             TRAP      98       4
                *
```

```
 100          KK    SB05   BASIN
 101          BA   0.126
 102          LG    0.22    0.25    4.50    0.44      48
 103          UC   0.327   0.226
 104          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 105          UA     100
              *

 106          KK   CP-5A COMBINE
 107          HC       2
              *

 108          KK   SB07W   BASIN
 109          BA   0.048
 110          LG    0.10    0.25    4.03    0.74       0
 111          UC   0.677   0.558
 112          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 113          UA     100
              *

 114          KK  R7W-8W   ROUTE
 115          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 116          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 117          RK    3721  0.0013   0.03             TRAP      46       4
              *
```



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         LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 118          KK  SB08W   BASIN
 119          KM        HE MODIFIED TO SPLIT BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 120          BA   0.112
 121          LG    0.10    0.25    4.08    0.71       0
 122          UC   0.784   0.547
 123          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 124          UA     100
              *

 125          KK  CP-08W COMBINE
 126          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 127          HC       2
              *

 128          KK   R8W-4   ROUTE
 129          KM        SR 101L FREEWAY TO CP4
 130          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 131          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 132          KK    SB04   BASIN
 133          BA   0.144
 134          LG    0.14    0.25    4.60    0.44      61
 135          UC   0.305   0.199
 136          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 137          UA     100
              *

 138          KK    CP-4 COMBINE
 139          KM        PRINCESS BLVD AND EAST OF 77TH ST
 140          HC       2
              *

 141          KK    R4-5   ROUTE
 142          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 143          RK    1992  0.0013   0.03             TRAP      39       4
              *

 144          KK   CP-05 COMBINE
 145          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 146          KM        COMBINE CP-05A AND R4-5
 147          HC       2
              *

 148          KK    R5-6   ROUTE
 149          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 150          RK    1694  0.0015   0.03             TRAP     188       4
              *
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         LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 151          KK    SB06   BASIN
 152          BA   0.136
 153          LG    0.16    0.25    4.55    0.45      53
 154          UC   0.321   0.246
 155          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 156          UA     100
              *

 157          KK   CP-06 COMBINE
 158          HC       2
              *
```

```
*
* END WEST RUN
*
*
* BEGIN EAST SIDE OF HAYDEN
*
*

KK   SB07E   BASIN
BA   0.026
LG    0.10    0.25    4.03    0.74       0
UC   0.574   0.527
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*

KK  R7E-8E   ROUTE
RK    3662  0.0130   0.030            TRAP   2.000    0.00
*

KK  SB08E   BASIN
BA   0.078
LG    0.10    0.25    4.08    0.72       0
UC   0.798   0.652
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*

KK  SB09N   BASIN
BA   0.028
LG    0.10    0.25    4.79    0.49       0
UC   0.740   1.111
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*

KK  R9N-R9   ROUTE
RK    2586  0.0013   0.020            TRAP   2.000    0.00
*
```



```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK  CP-08E COMBINE
HC       3
*

KK  R8E-R9   ROUTE
RK     501  0.0013   0.020            TRAP   2.000    0.00
*

KK    SB09   BASIN
BA   0.086
LG    0.10    0.25    4.79    0.49       0
UC   0.683   0.518
UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
UA     100
*

KK   CP-09 COMBINE
KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
HC       2
*

KK   PWRCH
KM       POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
KM        10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS
BA     7.0
QI       0       0       0       0       0       0       0       0       0       0
QI       0       0       0       0       0    0.07   11.70   33.57  285.55  257.89
QI  236.82  258.26  406.55  486.55  461.36  425.60  409.84  395.31  391.77  376.42
QI  346.76  376.76  276.32  247.65  220.91  197.44  178.64  155.41  139.22  129.78
QI  113.97  102.76   96.30   85.88    79.7   72.75   65.45   59.94   54.69   51.22
QI    52.3   44.56   41.87   42.77   36.93   34.05   32.15   29.01   27.72   27.03
QI   25.05   23.86   22.04   20.81   19.27   18.55   17.90   20.82   16.03   15.23
QI   14.57   14.28   13.81
*

KK  BINFLO
KM        TOTAL INFLOW INTO BASIN 53R.
HC       2
*

KK   BASIN
KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
KM        THE OUTLET PIPES ARE INLET CONTROLLED.
RS       1    STOR       0
SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
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 219          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 220          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
                   *
```



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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 221          KK  BSNRT1
 222          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 223          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 224          KM        EXCESS CAPACITY.
 225          RK     550  0.0052   0.024            CIRC     7.0
                   *

 226          KK  BSNRT2
 227          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 228          RK    1200  0.0077   0.013            CIRC     7.0
                   *

 229          KK    SB10   BASIN
 230          BA   0.040
 231          LG    0.15    0.25    4.25    0.55      55
 232          UC   0.233   0.161
 233          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 234          UA     100
                   *

 235          KK   CP-10 COMBINE
 236          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 237          HC       2
                   *

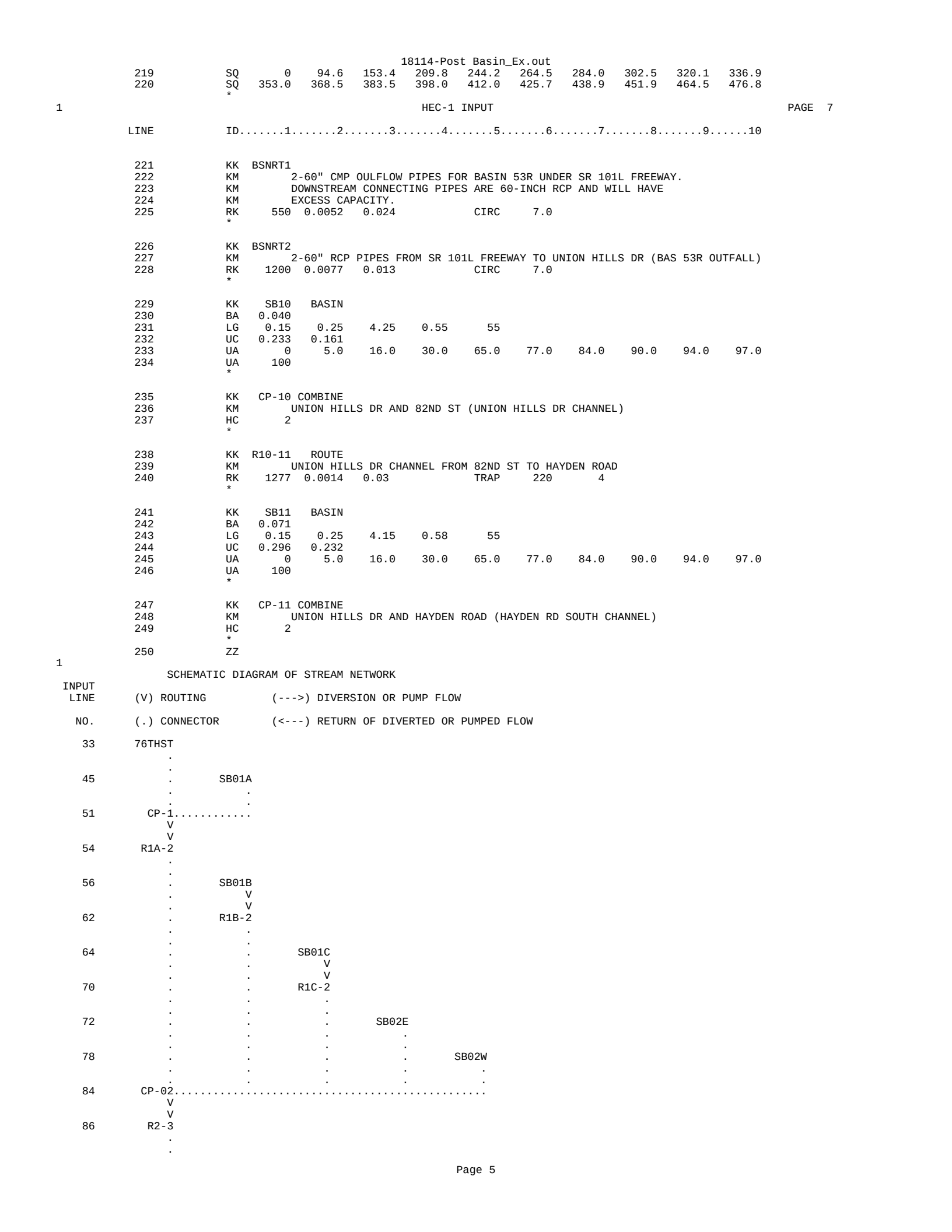
 238          KK  R10-11   ROUTE
 239          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 240          RK    1277  0.0014   0.03             TRAP     220       4
                   *

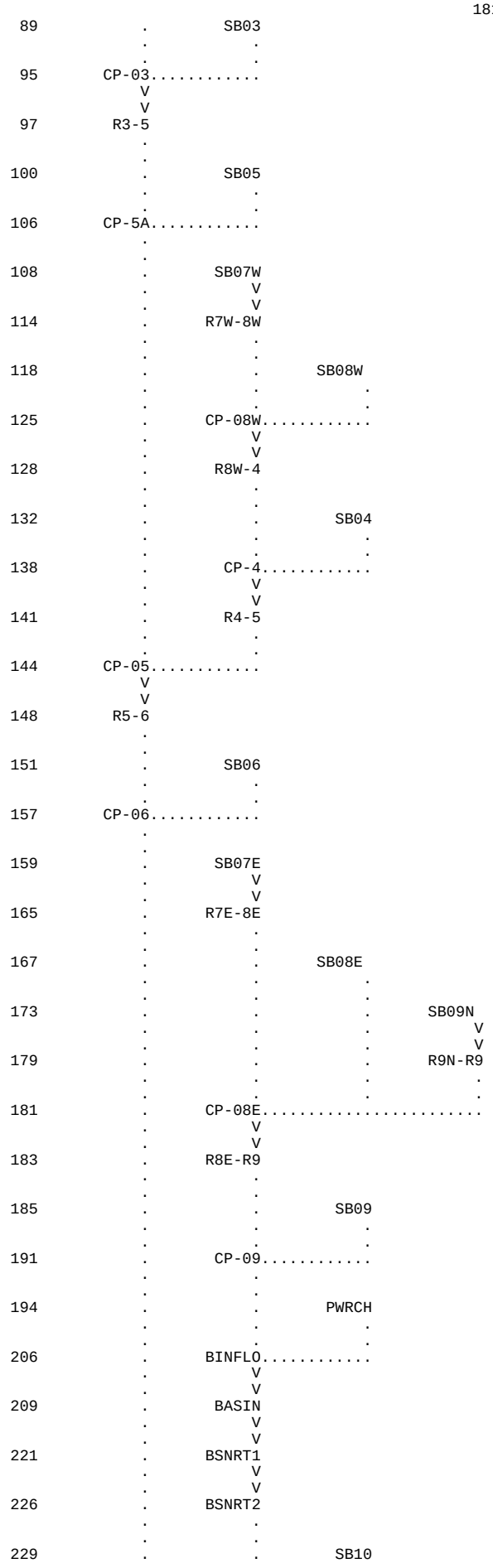
 241          KK    SB11   BASIN
 242          BA   0.071
 243          LG    0.15    0.25    4.15    0.58      55
 244          UC   0.296   0.232
 245          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 246          UA     100
                   *

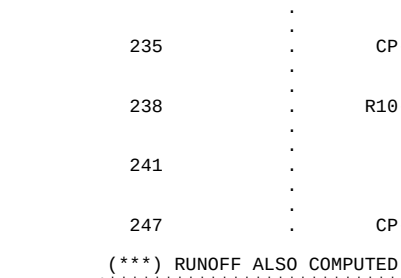
 247          KK   CP-11 COMBINE
 248          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 249          HC       2
                   *
 250          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK




89 SB03
95 CP-03
97 R3-5
100 SB05
106 CP-5A
108 SB07W
114 R7W-8W
118 SB08W
125 CP-08W
128 R8W-4
132 SB04
138 CP-4
141 R4-5
144 CP-05
148 R5-6
151 SB06
157 CP-06
159 SB07E
165 R7E-8E
167 SB08E
173 SB09N
179 R9N-R9
181 CP-08E
183 R8E-R9
185 SB09
191 CP-09
194 PWRCH
206 BINFLO
209 BASIN
221 BSNRT1
226 BSNRT2
229 SB10



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1**************************************
**************************************
 *                                    *                                        *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                    *          609 SECOND STREET
  *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   16NOV18  TIME  06:54:25   *                                    *           (916) 756-1104
  *
 *                                      *                                    *
  *
 **************************************
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CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
NEW EX CONDITION MODEL,WITH POWERLINE AND BASIN 53R
THIS IS THE PRE-DEVELOPMENT MODEL
UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

20 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE 1	0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	1000	NUMBER OF HYDROGRAPH ORDINATES
NDDATE 3	0	ENDING DATE
NDTIME	0157	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 49.95 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

21 JD INDEX STORM NO. 1

STRM	1.82	PRECIPITATION DEPTH
TRDA	0.00	TRANSPOSITION DRAINAGE AREA

22 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09

```
                0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

25 JD          INDEX STORM NO. 2
                  STRM        1.81  PRECIPITATION DEPTH
                  TRDA        0.50  TRANSPOSITION DRAINAGE AREA

26 PI            PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

29 JD          INDEX STORM NO. 3
                  STRM        1.77  PRECIPITATION DEPTH
                  TRDA        2.80  TRANSPOSITION DRAINAGE AREA

30 PI            PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.04      0.04      0.04      0.04      0.04      0.05      0.05      0.05      0.05      0.05
                0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


        *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1

1
                                                RUNOFF SUMMARY
                                            FLOW IN CUBIC FEET PER SECOND
                                          TIME IN HOURS,  AREA IN SQUARE MILES

                                    PEAK    TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD       BASIN      MAXIMUM      TIME OF
        OPERATION       STATION     FLOW     PEAK                                             AREA       STAGE      MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                        76THST       32.    4.50          10.          3.          1.       0.24
        HYDROGRAPH AT
+                         SB01A       38.    4.25           3.          1.          0.       0.05
        2 COMBINED AT
+                          CP-1       65.    4.30          13.          4.          2.       0.29
        ROUTED TO
+                         R1A-2       65.    4.30          13.          4.          2.       0.29
        HYDROGRAPH AT
+                         SB01B       10.    4.35           1.          0.          0.       0.02
        ROUTED TO
+                         R1B-2       10.    4.45           1.          0.          0.       0.02
        HYDROGRAPH AT
+                         SB01C       12.    4.40           2.          0.          0.       0.03
        ROUTED TO
+                         R1C-2       12.    4.50           2.          0.          0.       0.03
        HYDROGRAPH AT
```

+	SB02E	25.	4.60	4.	1.	1.	0.10
	HYDROGRAPH AT						
+	SB02W	21.	4.50	3.	1.	0.	0.06
	5 COMBINED AT						
+	CP-02	114.	4.50	23.	6.	3.	0.51
	ROUTED TO						
+	R2-3	114.	4.55	23.	6.	3.	0.51
	HYDROGRAPH AT						
+	SB03	47.	4.15	6.	2.	1.	0.05
	2 COMBINED AT						
+	CP-03	129.	4.55	27.	7.	4.	0.56
	ROUTED TO						
+	R3-5	127.	4.75	27.	7.	4.	0.56
	HYDROGRAPH AT						
+	SB05	134.	4.10	15.	4.	2.	0.13
	2 COMBINED AT						
+	CP-5A	137.	4.75	39.	11.	5.	0.68
	HYDROGRAPH AT						
+	SB07W	14.	4.50	2.	1.	0.	0.05
	ROUTED TO						
+	R7W-8W	14.	5.20	3.	1.	0.	0.05
	HYDROGRAPH AT						
+	SB08W	34.	4.55	5.	1.	1.	0.11
	2 COMBINED AT						
+	CP-08W	34.	4.55	8.	2.	1.	0.16
	ROUTED TO						
+	R8W-4	34.	4.60	8.	2.	1.	0.16
	HYDROGRAPH AT						
+	SB04	178.	4.10	20.	5.	2.	0.14
	2 COMBINED AT						
+	CP-4	179.	4.10	27.	7.	3.	0.30
	ROUTED TO						
+	R4-5	173.	4.20	27.	7.	3.	0.30
	2 COMBINED AT						
+	CP-05	245.	4.20	59.	16.	8.	0.99
	ROUTED TO						
+	R5-6	241.	4.30	59.	16.	8.	0.99
	HYDROGRAPH AT						
+	SB06	145.	4.10	17.	4.	2.	0.14
	2 COMBINED AT						
+	CP-06	315.	4.30	73.	20.	10.	1.12
	HYDROGRAPH AT						
+	SB07E	9.	4.40	1.	0.	0.	0.03
	ROUTED TO						
+	R7E-8E	8.	4.50	1.	0.	0.	0.03
	HYDROGRAPH AT						
+	SB08E	21.	4.55	3.	1.	0.	0.08
	HYDROGRAPH AT						
+	SB09N	6.	4.55	2.	0.	0.	0.03
	ROUTED TO						
+	R9N-R9	6.	4.65	2.	0.	0.	0.03
	3 COMBINED AT						
+	CP-08E	34.	4.60	6.	2.	1.	0.13
	ROUTED TO						
+	R8E-R9	34.	4.60	6.	2.	1.	0.13
	HYDROGRAPH AT						
+	SB09	34.	4.45	5.	1.	1.	0.09
	2 COMBINED AT						
+	CP-09	66.	4.55	11.	3.	1.	0.22
	HYDROGRAPH AT						
+	PWRCH	487.	5.75	285.	90.	49.	7.00
	2 COMBINED AT						
+	BINFLO	484.	5.75	283.	89.	49.	7.22

	ROUTED TO							
+		BASIN	171.	9.10	156.	84.	47.	7.22
	ROUTED TO							
+		BSNRT1	171.	9.10	156.	84.	47.	7.22
	ROUTED TO							
+		BSNRT2	171.	9.10	156.	84.	47.	7.22
	HYDROGRAPH AT							
+		SB10	52.	4.05	5.	1.	1.	0.04
	2 COMBINED AT							
+		CP-10	171.	9.10	156.	84.	48.	7.26
	ROUTED TO							
+		R10-11	171.	9.20	156.	84.	48.	7.26
	HYDROGRAPH AT							
+		SB11	77.	4.10	9.	2.	1.	0.07
	2 COMBINED AT							
+		CP-11	171.	9.20	156.	85.	49.	7.33

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.50	65.38	258.45	0.48	3.00	65.32	258.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7488E+01 EXCESS=0.0000E+00 OUTFLOW=0.7484E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.50	64.94	258.50	0.47	3.00	64.88	258.00	0.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7471E+01 EXCESS=0.0000E+00 OUTFLOW=0.7467E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.69	37.56	259.80	0.41	3.00	37.53	261.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6395E+01 EXCESS=0.0000E+00 OUTFLOW=0.6391E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1B-2	MANE	3.00	9.81	266.82	0.50	3.00	9.79	267.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5849E+00 EXCESS=0.0000E+00 OUTFLOW=0.5885E+00 BASIN STORAGE=0.2253E-04 PERCENT ERROR=
-0.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	3.00	9.70	266.94	0.50	3.00	9.69	267.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5778E+00 EXCESS=0.0000E+00 OUTFLOW=0.5817E+00 BASIN STORAGE=0.2912E-04 PERCENT ERROR=
-0.7

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	3.00	2.49	274.25	0.13	3.00	2.45	273.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1474E+00 EXCESS=0.0000E+00 OUTFLOW=0.1544E+00 BASIN STORAGE=0.2871E-04 PERCENT ERROR=
-4.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	3.00	12.43	270.39	0.50	3.00	12.34	270.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8509E+00 EXCESS=0.0000E+00 OUTFLOW=0.8554E+00 BASIN STORAGE=0.3760E-04 PERCENT ERROR=
-0.5

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	3.00	12.30	270.52	0.50	3.00	12.18	270.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8406E+00 EXCESS=0.0000E+00 OUTFLOW=0.8452E+00 BASIN STORAGE=0.3550E-04 PERCENT ERROR=
-0.5

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	2.95	3.12	278.23	0.13	3.00	3.12	279.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2145E+00 EXCESS=0.0000E+00 OUTFLOW=0.2240E+00 BASIN STORAGE=0.3435E-04 PERCENT ERROR=
-4.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.89	116.07	275.71	0.46	3.00	116.02	273.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1257E+02 EXCESS=0.0000E+00 OUTFLOW=0.1253E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.90	114.94	275.83	0.46	3.00	114.84	273.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+02 EXCESS=0.0000E+00 OUTFLOW=0.1244E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	3.00	46.24	285.15	0.27	3.00	46.19	285.00	0.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7244E+01 EXCESS=0.0000E+00 OUTFLOW=0.7201E+01 BASIN STORAGE=0.3394E-01 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	134.10	286.12	0.52	3.00	133.65	285.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1567E+02 EXCESS=0.0000E+00 OUTFLOW=0.1558E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	132.64	286.37	0.52	3.00	132.18	285.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1556E+02 EXCESS=0.0000E+00 OUTFLOW=0.1547E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	3.13	59.01	286.78	0.33	3.00	58.92	288.00	0.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9867E+01 EXCESS=0.0000E+00 OUTFLOW=0.9799E+01 BASIN STORAGE=0.7788E-01 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	14.40	313.41	0.52	3.00	14.38	312.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1041E+01 EXCESS=0.0000E+00 OUTFLOW=0.1321E+01 BASIN STORAGE=0.3153E-03 PERCENT ERROR=
-26.9

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	3.00	14.18	313.69	0.51	3.00	14.17	312.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1026E+01 EXCESS=0.0000E+00 OUTFLOW=0.1303E+01 BASIN STORAGE=0.3204E-03 PERCENT ERROR=
-27.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	1.36	371.04	0.07	3.00	1.36	372.00	0.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9483E-01 EXCESS=0.0000E+00 OUTFLOW=0.1766E+00 BASIN STORAGE=0.2634E-03 PERCENT ERROR=-86.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	1.31	34.46	275.00	0.45	3.00	34.41	276.00	0.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3825E+01 EXCESS=0.0000E+00 OUTFLOW=0.3823E+01 BASIN STORAGE=0.1306E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	1.31	33.99	275.15	0.44	3.00	33.90	276.00	0.44

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3771E+01 EXCESS=0.0000E+00 OUTFLOW=0.3769E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	2.94	3.99	281.21	0.05	3.00	3.98	279.00	0.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4642E+00 EXCESS=0.0000E+00 OUTFLOW=0.4634E+00 BASIN STORAGE=0.1166E-03 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	3.00	177.91	253.44	0.86	3.00	175.73	252.00	0.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1390E+02 EXCESS=0.0000E+00 OUTFLOW=0.1394E+02 BASIN STORAGE=0.3751E-03 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	3.00	175.97	253.69	0.85	3.00	173.29	252.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1377E+02 EXCESS=0.0000E+00 OUTFLOW=0.1381E+02 BASIN STORAGE=0.4271E-03 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.07	97.97	255.79	0.57	3.00	97.68	255.00	0.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9287E+01 EXCESS=0.0000E+00 OUTFLOW=0.9306E+01 BASIN STORAGE=0.4244E-03 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	3.00	298.36	257.15	0.70	3.00	296.54	258.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3713E+02 EXCESS=0.0000E+00 OUTFLOW=0.3706E+02 BASIN STORAGE=0.5642E-01 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	3.00	295.10	257.32	0.70	3.00	293.64	258.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3684E+02 EXCESS=0.0000E+00 OUTFLOW=0.3677E+02 BASIN STORAGE=0.5642E-01 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	166.98	262.26	0.48	3.00	166.82	264.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2536E+02 EXCESS=0.0000E+00 OUTFLOW=0.2528E+02 BASIN STORAGE=0.6480E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	2.48	8.47	267.86	0.41	3.00	8.45	270.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5640E+00 EXCESS=0.0000E+00 OUTFLOW=0.5642E+00 BASIN STORAGE=0.1424E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	2.49	8.36	268.11	0.40	3.00	8.32	270.00	0.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5555E+00 EXCESS=0.0000E+00 OUTFLOW=0.5565E+00 BASIN STORAGE=0.1227E-04 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	3.00	0.79	281.23	0.04	3.00	0.79	282.00	0.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5136E-01 EXCESS=0.0000E+00 OUTFLOW=0.5564E-01 BASIN STORAGE=0.1218E-04 PERCENT ERROR= -8.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	3.00	6.31	281.03	0.51	3.00	6.30	279.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7576E+00 EXCESS=0.0000E+00 OUTFLOW=0.7564E+00 BASIN STORAGE=0.1663E-04 PERCENT ERROR= 0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	3.00	6.24	281.18	0.50	3.00	6.22	279.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7487E+00 EXCESS=0.0000E+00 OUTFLOW=0.7475E+00 BASIN STORAGE=0.1891E-04 PERCENT ERROR= 0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	3.00	1.69	287.45	0.14	3.00	1.68	288.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2051E+00 EXCESS=0.0000E+00 OUTFLOW=0.2049E+00 BASIN STORAGE=0.1591E-04 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8E-R9	MANE	0.31	34.65	276.05	0.43	3.00	34.65	276.00	0.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3043E+01 EXCESS=0.0000E+00 OUTFLOW=0.3043E+01 BASIN STORAGE=0.7386E-05 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8E-R9	MANE	0.31	34.16	276.08	0.43	3.00	34.16	276.00	0.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3001E+01 EXCESS=0.0000E+00 OUTFLOW=0.3002E+01 BASIN STORAGE=0.7554E-05 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8E-R9	MANE	0.73	4.44	286.10	0.06	3.00	4.42	285.00	0.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4419E+00 EXCESS=0.0000E+00 OUTFLOW=0.4419E+00 BASIN STORAGE=0.7013E-05 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.43	176.85	541.04	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2024E+03 EXCESS=0.0000E+00 OUTFLOW=0.2023E+03 BASIN STORAGE=0.2256E-01 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.43	176.79	541.14	0.53	3.00	176.79	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2023E+03 EXCESS=0.0000E+00 OUTFLOW=0.2023E+03 BASIN STORAGE=0.2256E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.47	172.81	544.06	0.51	3.00	172.80	543.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1981E+03 EXCESS=0.0000E+00 OUTFLOW=0.1980E+03 BASIN STORAGE=0.2255E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	176.85	543.47	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2024E+03 EXCESS=0.0000E+00 OUTFLOW=0.2023E+03 BASIN STORAGE=0.2576E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	176.78	543.55	0.53	3.00	176.78	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2023E+03 EXCESS=0.0000E+00 OUTFLOW=0.2022E+03 BASIN STORAGE=0.2576E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.48	172.80	544.14	0.51	3.00	172.80	546.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1981E+03 EXCESS=0.0000E+00 OUTFLOW=0.1980E+03 BASIN STORAGE=0.2575E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.46	176.84	548.85	0.53	3.00	176.84	549.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2049E+03 EXCESS=0.0000E+00 OUTFLOW=0.2044E+03 BASIN STORAGE=0.5212E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.45	176.78	548.95	0.53	3.00	176.78	549.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2048E+03 EXCESS=0.0000E+00 OUTFLOW=0.2043E+03 BASIN STORAGE=0.5212E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.43	172.80	553.00	0.52	3.00	172.80	552.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2002E+03 EXCESS=0.0000E+00 OUTFLOW=0.1997E+03 BASIN STORAGE=0.5211E+00 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

```
1****************************************
****************************************
 *                                      *                                                *
  *                                                                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                *    U.S. ARMY CORPS OF ENGINEERS
  *                                                                                      *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *                                                                                      *
 *            VERSION 4.1               *                                                *         609 SECOND STREET
  *                                                                                      *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *                                                                                      *
 *  RUN DATE   15NOV18  TIME  10:49:38  *                                                *          (916) 756-1104
  *                                                                                      *
 *                                      *                                                *
  *                                                                                      *
 ****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS.
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           NEW EX CONDITION MODEL,WITH POWERLINE AND BASIN 53R
           15           ID           THIS IS THE PRE-DEVELOPMENT MODEL
           16           ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
           17           ID
           18           IT       3       0       0    1000
           19           IN      15
           20           IO       5
                        *DIAGRAM
           21           JD   2.755  0.0001
           22           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           23           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           24           PC   0.962   0.972   0.983   0.991   1.000
           25           JD   2.738  0.5000
           26           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           27           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           28           PC   0.962   0.972   0.983   0.991   1.000
           29           JD   2.686     2.8
           30           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           31           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           32           PC   0.950   0.963   0.975   0.988   1.000
           33           JD   2.540    16.0
           34           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
           35           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
           36           PC   0.946   0.960   0.973   0.987   1.000
           37           JD   2.232    90.0
           38           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
           39           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
           40           PC   0.927   0.945   0.964   0.982   1.000
           41           JD   3.657    10.0
           42           JD   3.533    20.0
                        *

           43           KK  76THST
           44           KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
```

```
   45          KM        100-YR, 6-HR FLO-2D MODEL (XS 98)
   46          BA    0.24
   47          QI       0       0       0       0       0       0       0       0       0       0
   48          QI       0       0    0.01    0.01    0.09     0.9    12.7   42.26   49.92    48.6
   49          QI   34.49   26.72   21.55   17.51   14.81   12.84   11.63   10.56    9.58    8.32
   50          QI    7.29    6.73    5.83    4.76    4.23    3.81     3.4    3.55    2.36    2.51
   51          QI    2.32    2.16    2.02    1.83    1.58     1.5    1.52    1.21    1.31    1.34
   52          QI    1.09    1.07    1.04    0.97    0.91    0.86    0.83    0.79    0.76    0.72
1                                          HEC-1 INPUT                                        PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   53          QI    0.69    0.67    0.65    0.62     0.6    0.58    0.55    0.53    0.51    0.49
   54          QI    0.47    0.45    0.44
               *

   55          KK   SB01A   BASIN
   56          BA   0.055
   57          PB   2.721
   58          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
   59          PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
   60          PC   0.956   0.968   0.979   0.990   1.000
   61          LG    0.10    0.25    4.72    0.51       0
   62          UC   0.439   0.231
   63          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   64          UA     100
               *

   65          KK    CP-1 COMBINE
   66          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   67          HC       2   0.295
               *

   68          KK   R1A-2   ROUTE
   69          RK    2139  0.0180   0.020            TRAP   2.000    0.00
               *

   70          KK   SB01B   BASIN
   71          BA   0.022
   72          LG    0.10    0.25    4.72    0.51       0
   73          UC   0.490   0.471
   74          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   75          UA     100
               *

   76          KK   R1B-2   ROUTE
   77          RK    2636  0.0015   0.030            TRAP   2.000    0.00
               *

   78          KK   SB01C   BASIN
   79          BA   0.032
   80          LG    0.10    0.25    4.72    0.51       0
   81          UC   0.581   0.550
   82          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   83          UA     100
               *

   84          KK   R1C-2   ROUTE
   85          RK    3046  0.0015   0.030            TRAP   2.000    0.00
               *

   86          KK   SB02E   BASIN
   87          BA   0.100
   88          LG    0.10    0.25    4.03    0.74       0
   89          UC   0.859   0.688
   90          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   91          UA     100
               *
1                                          HEC-1 INPUT                                        PAGE  3

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   92          KK   SB02W   BASIN
   93          BA   0.060
   94          LG    0.10    0.25    4.33    0.61       0
   95          UC   0.686   0.535
   96          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   97          UA     100
               *

   98          KK   CP-02 COMBINE
   99          HC       5
               *

  100          KK    R2-3   ROUTE
  101          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
  102          RK    1260  0.0015   0.03             TRAP      92       4
               *

  103          KK    SB03   BASIN
  104          BA   0.048
  105          LG    0.15    0.25    4.50    0.47      55
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 106          UC   0.364   0.294
 107          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 108          UA     100
              *

 109          KK   CP-03 COMBINE
 110          HC       2
              *

 111          KK    R3-5   ROUTE
 112          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 113          RK    2396  0.0015   0.03             TRAP      98       4
              *

 114          KK    SB05   BASIN
 115          BA   0.126
 116          LG    0.22    0.25    4.50    0.44      48
 117          UC   0.327   0.226
 118          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 119          UA     100
              *

 120          KK   CP-5A COMBINE
 121          HC       2
              *

 122          KK   SB07W   BASIN
 123          BA   0.048
 124          LG    0.10    0.25    4.03    0.74       0
 125          UC   0.677   0.558
 126          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 127          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 128          KK  R7W-8W   ROUTE
 129          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 130          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 131          RK    3721  0.0013   0.03             TRAP      46       4
              *

 132          KK  SB08W   BASIN
 133          KM        HE MODIFIED TO SPLIT BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 134          BA   0.112
 135          LG    0.10    0.25    4.08    0.71       0
 136          UC   0.784   0.547
 137          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 138          UA     100
              *

 139          KK  CP-08W COMBINE
 140          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 141          HC       2
              *

 142          KK   R8W-4   ROUTE
 143          KM        SR 101L FREEWAY TO CP4
 144          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 145          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 146          KK    SB04   BASIN
 147          BA   0.144
 148          LG    0.14    0.25    4.60    0.44      61
 149          UC   0.305   0.199
 150          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 151          UA     100
              *

 152          KK    CP-4 COMBINE
 153          KM        PRINCESS BLVD AND EAST OF 77TH ST
 154          HC       2
              *

 155          KK    R4-5   ROUTE
 156          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 157          RK    1992  0.0013   0.03             TRAP      39       4
              *

 158          KK   CP-05 COMBINE
 159          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 160          KM        COMBINE CP-05A AND R4-5
 161          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 162          KK    R5-6   ROUTE
 163          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
```

```
 164          RK    1694  0.0015   0.03             TRAP     188       4
              *

 165          KK    SB06   BASIN
 166          BA   0.136
 167          LG    0.16    0.25    4.55    0.45      53
 168          UC   0.321   0.246
 169          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 170          UA     100
              *

 171          KK   CP-06 COMBINE
 172          HC       2
              *
              *
              * END WEST RUN
              *
              *
              * BEGIN EAST SIDE OF HAYDEN
              *
              *

 173          KK   SB07E   BASIN
 174          BA   0.026
 175          LG    0.10    0.25    4.03    0.74       0
 176          UC   0.574   0.527
 177          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 178          UA     100
              *

 179          KK  R7E-8E   ROUTE
 180          RK    3662  0.0130   0.030            TRAP   2.000    0.00
              *

 181          KK  SB08E   BASIN
 182          BA   0.078
 183          LG    0.10    0.25    4.08    0.72       0
 184          UC   0.798   0.652
 185          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 186          UA     100
              *

 187          KK  SB09N   BASIN
 188          BA   0.028
 189          LG    0.10    0.25    4.79    0.49       0
 190          UC   0.740   1.111
 191          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 192          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 193          KK  R9N-R9   ROUTE
 194          RK    2586  0.0013   0.020            TRAP   2.000    0.00
              *

 195          KK  CP-08E COMBINE
 196          HC       3
              *

 197          KK  R8E-R9   ROUTE
 198          RK     501  0.0013   0.020            TRAP   2.000    0.00
              *

 199          KK    SB09   BASIN
 200          BA   0.086
 201          LG    0.10    0.25    4.79    0.49       0
 202          UC   0.683   0.518
 203          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 204          UA     100
              *

 205          KK   CP-09 COMBINE
 206          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 207          HC       2
              *

 208          KK   PWRCH
 209          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
 210          KM        100-YR, 6-HR FLO-2D MODEL (XS 107), UPDATED 11/14/18
 211          BA     7.0
 212          QI       0       0       0       0       0       0       0       0       0       0
 213          QI       0       0       0       0       0    0.11   17.74   50.91  433.53  391.08
 214          QI  359.13  391.64  616.52  737.85  699.64  645.41  621.52  599.48  594.12  570.84
 215          QI  525.86  472.45  419.04  375.56     335  299.45   270.9  235.68  211.13  196.81
 216          QI  172.83  155.83  146.04  130.32   120.9  110.32   99.25    90.9   82.93   77.68
 217          QI    79.3   67.58    63.5   64.86   56.01   51.64   48.75   43.99   42.04   40.99
 218          QI   37.99   36.19   33.42   31.56   29.22   28.13   27.15   31.57   24.31    23.1
 219          QI   22.09   21.66   20.95
              *

 220          KK  BINFLO
```

```
          221          KM         TOTAL INFLOW INTO BASIN 53R.
          222          HC       2
                       *

          223          KK   BASIN
          224          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
          225          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
          226          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
          227          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
          228          RS       1    STOR       0
          229          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
          230          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
          231          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
          232          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
1                                                  HEC-1 INPUT                                                PAGE  7

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          233          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
          234          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
                       *

          235          KK  BSNRT1
          236          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
          237          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
          238          KM        EXCESS CAPACITY.
          239          RK     550  0.0052   0.024            CIRC     7.0
                       *

          240          KK  BSNRT2
          241          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
          242          RK    1200  0.0077   0.013            CIRC     7.0
                       *

          243          KK    SB10   BASIN
          244          BA   0.040
          245          LG    0.15    0.25    4.25    0.55      55
          246          UC   0.233   0.161
          247          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          248          UA     100
                       *

          249          KK   CP-10 COMBINE
          250          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
          251          HC       2
                       *

          252          KK  R10-11   ROUTE
          253          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
          254          RK    1277  0.0014   0.03             TRAP     220       4
                       *

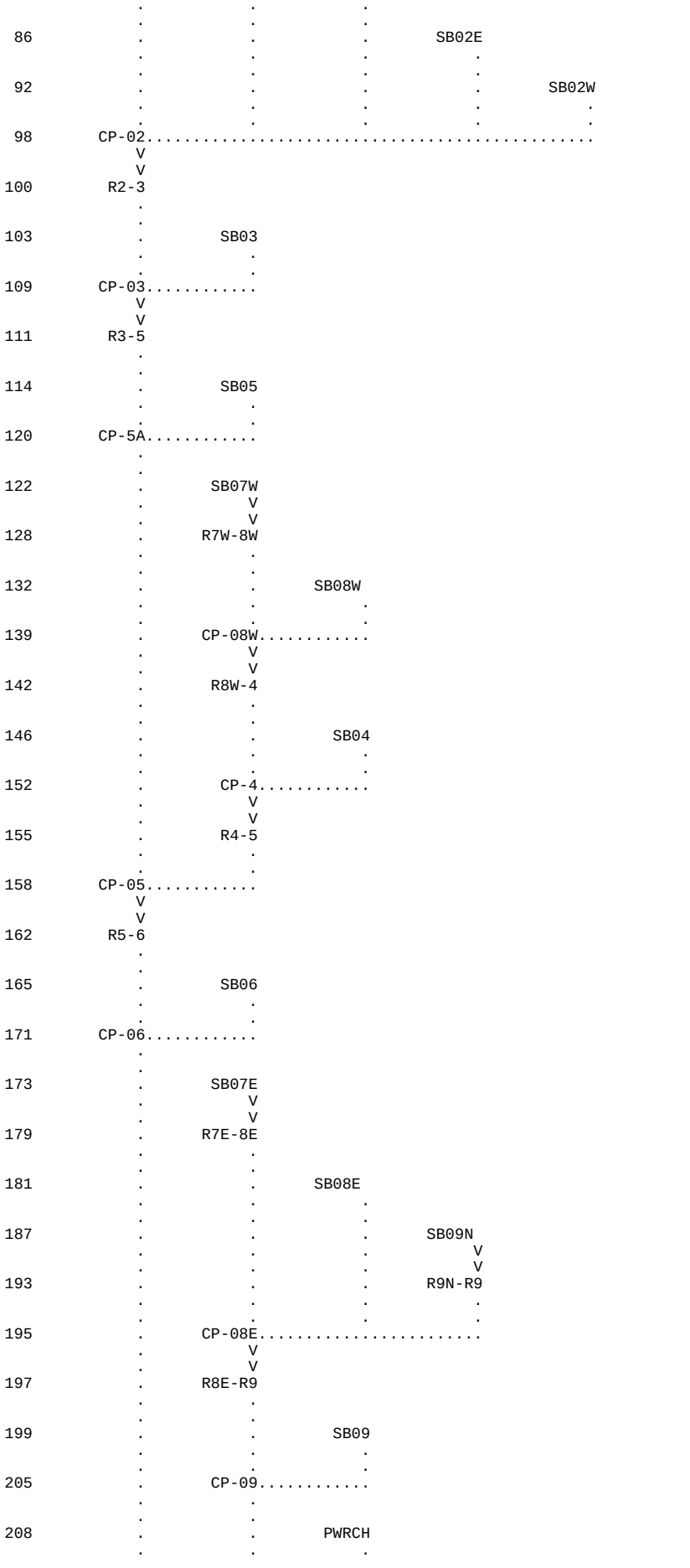
          255          KK    SB11   BASIN
          256          BA   0.071
          257          LG    0.15    0.25    4.15    0.58      55
          258          UC   0.296   0.232
          259          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          260          UA     100
                       *

          261          KK   CP-11 COMBINE
          262          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
          263          HC       2
                       *
          264          ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    43      76THST
                 .
                 .
    55           .       SB01A
                 .          .
                 .          .
    65         CP-1.............
                  V
                  V
    68        R1A-2
                 .
                 .
    70           .       SB01B
                 .          V
                 .          V
    76           .       R1B-2
                 .          .
                 .          .
    78           .          .       SB01C
                 .          .          V
                 .          .          V
    84           .          .       R1C-2
```


86 SB02E
92 SB02W
98 CP-02
100 R2-3
103 SB03
109 CP-03
111 R3-5
114 SB05
120 CP-5A
122 SB07W
128 R7W-8W
132 SB08W
139 CP-08W
142 R8W-4
146 SB04
152 CP-4
155 R4-5
158 CP-05
162 R5-6
165 SB06
171 CP-06
173 SB07E
179 R7E-8E
181 SB08E
187 SB09N
193 R9N-R9
195 CP-08E
197 R8E-R9
199 SB09
205 CP-09
208 PWRCH

```
                .           .           .
   220          .      BINFLO.....      .
                .           V           .
                .           V           .
   223          .       BASIN           .
                .           V           .
                .           V           .
   235          .      BSNRT1           .
                .           V           .
                .           V           .
   240          .      BSNRT2           .
                .           .           .
                .           .           .
   243          .           .        SB10
                .           .           .
                .           .           .
   249          .       CP-10.....      .
                .           V           .
                .           V           .
   252          .      R10-11           .
                .           .           .
                .           .           .
   255          .           .        SB11
                .           .           .
                .           .           .
   261          .       CP-11.....      .

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
**************************************
 *                                    *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                *          609 SECOND STREET
  *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   15NOV18  TIME  10:49:38   *                                                *           (916) 756-1104
  *
 *                                      *                                                *
  *
 ****************************************
**************************************
```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
  100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
   PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
  MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
  MODELERS: MSW, ES
  REVISIONS NOTED WITH HE
   NEW EX CONDITION MODEL,WITH POWERLINE AND BASIN 53R
   THIS IS THE PRE-DEVELOPMENT MODEL
   UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

```
   20 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                        NMIN           3  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                       NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL    0.05 HOURS
                         TOTAL TIME BASE   49.95 HOURS

            ENGLISH UNITS
                 DRAINAGE AREA         SQUARE MILES
                 PRECIPITATION DEPTH   INCHES
                 LENGTH, ELEVATION     FEET
                 FLOW                  CUBIC FEET PER SECOND
                 STORAGE VOLUME        ACRE-FEET
                 SURFACE AREA          ACRES
                 TEMPERATURE           DEGREES FAHRENHEIT
```

```
21 JD          INDEX STORM NO. 1
                     STRM        2.76  PRECIPITATION DEPTH
                     TRDA        0.00  TRANSPOSITION DRAINAGE AREA

22 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                    0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

25 JD          INDEX STORM NO. 2
                     STRM        2.74  PRECIPITATION DEPTH
                     TRDA        0.50  TRANSPOSITION DRAINAGE AREA

26 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                    0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

29 JD          INDEX STORM NO. 3
                     STRM        2.69  PRECIPITATION DEPTH
                     TRDA        2.80  TRANSPOSITION DRAINAGE AREA

30 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.04      0.04      0.04      0.04      0.04      0.05      0.05      0.05      0.05      0.05
                    0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

33 JD          INDEX STORM NO. 4
                     STRM        2.54  PRECIPITATION DEPTH
                     TRDA       16.00  TRANSPOSITION DRAINAGE AREA

34 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.04      0.04      0.04      0.04      0.04
                    0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

37 JD          INDEX STORM NO. 5
                     STRM        2.23  PRECIPITATION DEPTH
                     TRDA       90.00  TRANSPOSITION DRAINAGE AREA

38 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                    0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

41 JD          INDEX STORM NO. 6
                     STRM        3.66  PRECIPITATION DEPTH
                     TRDA       10.00  TRANSPOSITION DRAINAGE AREA
```

```
 0 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                    0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

42 JD          INDEX STORM NO. 7
                  STRM        3.53  PRECIPITATION DEPTH
                  TRDA       20.00  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                    0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

       *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT


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       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


       *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1
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*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

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1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	76THST	50.	4.50	15.	4.	2.	0.24		
+	HYDROGRAPH AT	SB01A	77.	4.25	6.	2.	1.	0.05		
+	2 COMBINED AT	CP-1	119.	4.25	21.	6.	3.	0.29		
+	ROUTED TO	R1A-2	119.	4.30	21.	6.	3.	0.29		
+	HYDROGRAPH AT	SB01B	20.	4.35	2.	1.	0.	0.02		
+	ROUTED TO	R1B-2	20.	4.40	2.	1.	0.	0.02		
+	HYDROGRAPH AT	SB01C	26.	4.40	4.	1.	0.	0.03		
+	ROUTED TO	R1C-2	26.	4.50	4.	1.	0.	0.03		
+	HYDROGRAPH AT	SB02E	56.	4.60	10.	2.	1.	0.10		
+	HYDROGRAPH AT	SB02W	45.	4.45	6.	2.	1.	0.06		
+	5 COMBINED AT	CP-02	227.	4.45	44.	11.	6.	0.51		
+	ROUTED TO	R2-3	226.	4.55	43.	11.	6.	0.51		
+	HYDROGRAPH AT	SB03	78.	4.15	10.	3.	1.	0.05		
+	2 COMBINED AT	CP-03	255.	4.50	52.	14.	7.	0.56		
+	ROUTED TO	R3-5	254.	4.65	52.	14.	7.	0.56		
+	HYDROGRAPH AT	SB05	229.	4.10	25.	6.	3.	0.13		
+	2 COMBINED AT	CP-5A	291.	4.60	73.	20.	10.	0.68		
+	HYDROGRAPH AT	SB07W	33.	4.45	5.	1.	1.	0.05		
+	ROUTED TO	R7W-8W	32.	5.00	5.	1.	1.	0.05		
+	HYDROGRAPH AT	SB08W	76.	4.55	11.	3.	1.	0.11		
+	2 COMBINED AT	CP-08W	76.	4.55	16.	4.	2.	0.16		

+	ROUTED TO	R8W-4	75.	4.55	16.	4.	2.	0.16
+	HYDROGRAPH AT	SB04	292.	4.10	32.	8.	4.	0.14
+	2 COMBINED AT	CP-4	296.	4.10	48.	12.	6.	0.30
+	ROUTED TO	R4-5	290.	4.20	48.	12.	6.	0.30
+	2 COMBINED AT	CP-05	440.	4.20	113.	30.	15.	0.99
+	ROUTED TO	R5-6	436.	4.30	113.	30.	15.	0.99
+	HYDROGRAPH AT	SB06	243.	4.10	29.	7.	3.	0.14
+	2 COMBINED AT	CP-06	583.	4.25	137.	36.	18.	1.12
+	HYDROGRAPH AT	SB07E	19.	4.40	3.	1.	0.	0.03
+	ROUTED TO	R7E-8E	19.	4.45	3.	1.	0.	0.03
+	HYDROGRAPH AT	SB08E	46.	4.55	8.	2.	1.	0.08
+	HYDROGRAPH AT	SB09N	13.	4.55	3.	1.	0.	0.03
+	ROUTED TO	R9N-R9	13.	4.65	3.	1.	0.	0.03
+	3 COMBINED AT	CP-08E	76.	4.55	13.	3.	2.	0.13
+	ROUTED TO	R8E-R9	76.	4.55	13.	3.	2.	0.13
+	HYDROGRAPH AT	SB09	71.	4.45	10.	2.	1.	0.09
+	2 COMBINED AT	CP-09	144.	4.50	23.	6.	3.	0.22
+	HYDROGRAPH AT	PWRCH	738.	5.75	429.	135.	74.	7.00
+	2 COMBINED AT	BINFLO	749.	5.75	439.	138.	76.	7.22
+	ROUTED TO	BASIN	241.	9.20	228.	130.	73.	7.22
+	ROUTED TO	BSNRT1	241.	9.25	228.	130.	73.	7.22
+	ROUTED TO	BSNRT2	241.	9.25	228.	130.	73.	7.22
+	HYDROGRAPH AT	SB10	87.	4.05	8.	2.	1.	0.04
+	2 COMBINED AT	CP-10	241.	9.25	228.	130.	74.	7.26
+	ROUTED TO	R10-11	241.	9.35	228.	130.	74.	7.26
+	HYDROGRAPH AT	SB11	130.	4.10	15.	4.	2.	0.07
+	2 COMBINED AT	CP-11	241.	9.35	228.	132.	75.	7.33

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME

		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.48	119.91	256.11	0.80	3.00	119.46	258.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+02 EXCESS=0.0000E+00 OUTFLOW=0.1254E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.42	119.22	255.86	0.79	3.00	118.75	258.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1251E+02 EXCESS=0.0000E+00 OUTFLOW=0.1250E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.58	81.25	258.88	0.73	3.00	81.04	258.00	0.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1153E+02 EXCESS=0.0000E+00 OUTFLOW=0.1152E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00									
R1A-2	MANE	0.52	67.10	261.13	0.68	3.00	67.10	261.00	0.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1070E+02 EXCESS=0.0000E+00 OUTFLOW=0.1070E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00									
R1A-2	MANE	0.48	54.97	271.02	0.62	3.00	54.71	270.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9775E+01 EXCESS=0.0000E+00 OUTFLOW=0.9770E+01 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00									
R1A-2	MANE	0.42	83.01	261.73	0.76	3.00	82.95	261.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1204E+02 EXCESS=0.0000E+00 OUTFLOW=0.1203E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00									
R1A-2	MANE	0.57	80.42	262.10	0.75	3.00	80.39	264.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1180E+02 EXCESS=0.0000E+00 OUTFLOW=0.1180E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.50	20.29	263.98	1.06	3.00	20.29	264.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+01 EXCESS=0.0000E+00 OUTFLOW=0.1249E+01 BASIN STORAGE=0.2433E-04 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	2.50	20.08	264.08	1.05	3.00	20.05	264.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1234E+01 EXCESS=0.0000E+00 OUTFLOW=0.1236E+01 BASIN STORAGE=0.2811E-04 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	3.00	10.87	266.68	0.72	3.00	10.86	267.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8411E+00 EXCESS=0.0000E+00 OUTFLOW=0.8438E+00 BASIN STORAGE=0.2415E-04 PERCENT ERROR=-0.3

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1B-2	MANE	2.83	6.71	269.53	0.44	3.00	6.70	270.00	0.44

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5121E+00 EXCESS=0.0000E+00 OUTFLOW=0.5135E+00 BASIN STORAGE=0.2415E-04 PERCENT ERROR=-0.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1B-2	MANE	3.00	2.03	275.34	0.13	3.00	2.03	276.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1411E+00 EXCESS=0.0000E+00 OUTFLOW=0.1471E+00 BASIN STORAGE=0.2502E-04 PERCENT ERROR=-4.3

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	3.00	11.83	269.61	0.89	3.00	11.82	270.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1046E+01 EXCESS=0.0000E+00 OUTFLOW=0.1049E+01 BASIN STORAGE=0.2272E-04 PERCENT ERROR=-0.3

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	3.00	10.93	271.61	0.81	3.00	10.93	270.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9521E+00 EXCESS=0.0000E+00 OUTFLOW=0.9546E+00 BASIN STORAGE=0.2783E-04 PERCENT ERROR=-0.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.55	25.89	269.81	1.06	3.00	25.84	270.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1816E+01 EXCESS=0.0000E+00 OUTFLOW=0.1817E+01 BASIN STORAGE=0.4172E-04 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	2.55	25.59	269.98	1.05	3.00	25.58	270.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1796E+01 EXCESS=0.0000E+00 OUTFLOW=0.1796E+01 BASIN STORAGE=0.3850E-04 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	3.00	14.30	273.36	0.72	3.00	14.29	273.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1224E+01 EXCESS=0.0000E+00 OUTFLOW=0.1226E+01 BASIN STORAGE=0.3538E-04 PERCENT ERROR=-0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1C-2	MANE	2.95	8.76	273.52	0.44	3.00	8.74	276.00	0.44

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7451E+00 EXCESS=0.0000E+00 OUTFLOW=0.7460E+00 BASIN STORAGE=0.4282E-04 PERCENT ERROR=-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1C-2	MANE	3.00	2.62	282.58	0.13	3.00	2.62	282.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2053E+00 EXCESS=0.0000E+00 OUTFLOW=0.2143E+00 BASIN STORAGE=0.3926E-04 PERCENT ERROR=-4.4

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	3.00	15.86	276.40	0.89	3.00	15.85	276.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1522E+01 EXCESS=0.0000E+00 OUTFLOW=0.1525E+01 BASIN STORAGE=0.4584E-04 PERCENT ERROR=-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	3.00	14.65	275.66	0.81	3.00	14.64	276.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1385E+01 EXCESS=0.0000E+00 OUTFLOW=0.1388E+01 BASIN STORAGE=0.4160E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.34	228.97	271.30	0.87	3.00	228.37	273.00	0.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2367E+02 EXCESS=0.0000E+00 OUTFLOW=0.2359E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.34	227.18	271.44	0.86	3.00	226.52	273.00	0.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2351E+02 EXCESS=0.0000E+00 OUTFLOW=0.2343E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	2.71	148.53	276.65	0.67	3.00	148.53	276.00	0.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1817E+02 EXCESS=0.0000E+00 OUTFLOW=0.1810E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	3.00	105.37	276.63	0.52	3.00	105.09	276.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1416E+02 EXCESS=0.0000E+00 OUTFLOW=0.1411E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	2.76	60.80	284.26	0.38	3.00	60.60	285.00	0.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+02 EXCESS=0.0000E+00 OUTFLOW=0.1032E+02 BASIN STORAGE=0.4519E-01 PERCENT ERROR=0.2

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.58	162.71	275.61	0.74	3.00	162.65	276.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2019E+02 EXCESS=0.0000E+00 OUTFLOW=0.2013E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.59	153.29	277.15	0.70	3.00	153.13	276.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1918E+02 EXCESS=0.0000E+00 OUTFLOW=0.1912E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	261.24	277.60	0.96	3.00	260.94	279.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2871E+02 EXCESS=0.0000E+00 OUTFLOW=0.2859E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	259.11	277.83	0.96	3.00	258.76	279.00	0.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2852E+02 EXCESS=0.0000E+00 OUTFLOW=0.2838E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR=0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	2.96	177.37	284.28	0.76	3.00	177.05	282.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2275E+02 EXCESS=0.0000E+00 OUTFLOW=0.2263E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R3-5	MANE	3.00	127.53	286.24	0.61	3.00	127.16	288.00	0.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1823E+02 EXCESS=0.0000E+00 OUTFLOW=0.1812E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R3-5	MANE	2.86	73.77	298.84	0.46	3.00	73.74	297.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1363E+02 EXCESS=0.0000E+00 OUTFLOW=0.1355E+02 BASIN STORAGE=0.1036E+00 PERCENT ERROR=-0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R3-5	MANE	2.80	195.18	285.79	0.88	3.00	195.08	285.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2638E+02 EXCESS=0.0000E+00 OUTFLOW=0.2626E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R3-5	MANE	2.86	184.12	286.24	0.84	3.00	184.04	285.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2510E+02 EXCESS=0.0000E+00 OUTFLOW=0.2497E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	32.77	298.93	1.00	3.00	32.62	300.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2342E+01 EXCESS=0.0000E+00 OUTFLOW=0.2564E+01 BASIN STORAGE=0.3130E-03 PERCENT ERROR=-9.5

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	3.00	32.07	301.61	1.05	3.00	31.92	300.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2316E+01 EXCESS=0.0000E+00 OUTFLOW=0.2688E+01 BASIN STORAGE=0.3032E-03 PERCENT ERROR=-16.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	14.87	311.91	0.57	3.00	14.87	312.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1246E+01 EXCESS=0.0000E+00 OUTFLOW=0.1472E+01 BASIN STORAGE=0.3233E-03 PERCENT ERROR=-18.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7W-8W	MANE	3.00	6.94	323.79	0.28	3.00	6.94	324.00	0.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5387E+00 EXCESS=0.0000E+00 OUTFLOW=0.7168E+00 BASIN STORAGE=0.3046E-03 PERCENT ERROR=-33.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7W-8W	MANE	3.00	0.43	422.52	0.03	3.00	0.43	423.00	0.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E-01 EXCESS=0.0000E+00 OUTFLOW=0.7130E-01 BASIN STORAGE=0.2531E-03 PERCENT ERROR=-135.3

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	16.98	313.67	0.64	3.00	16.96	312.00	0.64	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1535E+01 EXCESS=0.0000E+00 OUTFLOW=0.1644E+01 BASIN STORAGE=0.3257E-03 PERCENT ERROR=-7.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	15.35	314.59	0.59	3.00	15.33	315.00	0.59	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1383E+01 EXCESS=0.0000E+00 OUTFLOW=0.1512E+01 BASIN STORAGE=0.3118E-03 PERCENT ERROR=-9.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.91	76.41	274.52	0.95	3.00	75.78	273.00	0.95	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8134E+01 EXCESS=0.0000E+00 OUTFLOW=0.8134E+01 BASIN STORAGE=0.1353E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	0.91	75.63	274.66	0.96	3.00	74.94	273.00	0.96	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8194E+01 EXCESS=0.0000E+00 OUTFLOW=0.8194E+01 BASIN STORAGE=0.1361E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	1.17	36.44	275.09	0.53	3.00	36.44	276.00	0.54	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4567E+01 EXCESS=0.0000E+00 OUTFLOW=0.4565E+01 BASIN STORAGE=0.1284E-03 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8W-4	MANE	1.64	17.79	276.86	0.25	3.00	17.77	276.00	0.25	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2148E+01 EXCESS=0.0000E+00 OUTFLOW=0.2148E+01 BASIN STORAGE=0.1231E-03 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8W-4	MANE	3.00	1.78	282.44	0.02	3.00	1.77	282.00	0.02	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1989E+00 EXCESS=0.0000E+00 OUTFLOW=0.2021E+00 BASIN STORAGE=0.1382E-03 PERCENT ERROR=
-1.7

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	1.21	41.27	279.23	0.63	3.00	41.26	279.00	0.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5401E+01 EXCESS=0.0000E+00 OUTFLOW=0.5400E+01 BASIN STORAGE=0.1375E-03 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	1.22	37.53	279.27	0.58	3.00	37.52	279.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4917E+01 EXCESS=0.0000E+00 OUTFLOW=0.4915E+01 BASIN STORAGE=0.1316E-03 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.81	293.83	250.71	1.50	3.00	291.21	252.00	1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2436E+02 EXCESS=0.0000E+00 OUTFLOW=0.2438E+02 BASIN STORAGE=0.4071E-03 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	2.81	292.48	250.89	1.50	3.00	289.58	252.00	1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2430E+02 EXCESS=0.0000E+00 OUTFLOW=0.2432E+02 BASIN STORAGE=0.3916E-03 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.40	176.59	253.32	1.20	3.00	175.06	252.00	1.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1951E+02 EXCESS=0.0000E+00 OUTFLOW=0.1953E+02 BASIN STORAGE=0.4254E-03 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5	MANE	2.91	129.65	254.09	0.96	3.00	129.15	255.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1557E+02 EXCESS=0.0000E+00 OUTFLOW=0.1560E+02 BASIN STORAGE=0.4175E-03 PERCENT ERROR=
-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5	MANE	3.00	83.68	255.19	0.70	3.00	83.55	255.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1122E+02 EXCESS=0.0000E+00 OUTFLOW=0.1128E+02 BASIN STORAGE=0.4210E-03 PERCENT ERROR=
-0.5

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	171.73	255.74	1.58	3.00	171.30	258.00	1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2553E+02 EXCESS=0.0000E+00 OUTFLOW=0.2559E+02 BASIN STORAGE=0.3898E-03 PERCENT ERROR=
-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	163.43	257.29	1.50	3.00	163.20	258.00	1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2423E+02 EXCESS=0.0000E+00 OUTFLOW=0.2429E+02 BASIN STORAGE=0.3752E-03 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.71	519.33	255.12	1.24	3.00	518.09	255.00	1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6562E+02 EXCESS=0.0000E+00 OUTFLOW=0.6552E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	2.72	515.40	255.33	1.24	3.00	512.37	255.00	1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6527E+02 EXCESS=0.0000E+00 OUTFLOW=0.6515E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	360.48	280.22	1.01	3.00	358.60	279.00	1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5351E+02 EXCESS=0.0000E+00 OUTFLOW=0.5340E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=
0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R5-6	MANE	2.76	257.44	285.25	0.83	3.00	257.08	285.00	0.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4364E+02 EXCESS=0.0000E+00 OUTFLOW=0.4355E+02 BASIN STORAGE=0.8565E-01 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R5-6	MANE	3.00	152.13	267.25	0.62	3.00	152.11	267.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3263E+02 EXCESS=0.0000E+00 OUTFLOW=0.3254E+02 BASIN STORAGE=0.8565E-01 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R5-6	MANE	2.98	411.09	279.23	1.27	3.00	410.78	279.00	1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6712E+02 EXCESS=0.0000E+00 OUTFLOW=0.6706E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.00	386.20	279.84	1.21	3.00	384.72	279.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6385E+02 EXCESS=0.0000E+00 OUTFLOW=0.6379E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.76	19.03	266.67	0.91	3.00	19.02	267.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+01 EXCESS=0.0000E+00 OUTFLOW=0.1268E+01 BASIN STORAGE=0.1101E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	1.77	18.85	266.81	0.90	3.00	18.84	267.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+01 EXCESS=0.0000E+00 OUTFLOW=0.1254E+01 BASIN STORAGE=0.1092E-04 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	2.41	8.57	268.50	0.49	3.00	8.54	270.00	0.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6750E+00 EXCESS=0.0000E+00 OUTFLOW=0.6756E+00 BASIN STORAGE=0.1319E-04 PERCENT ERROR= -0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7E-8E	MANE	3.00	3.99	269.13	0.21	3.00	3.99	270.00	0.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2917E+00 EXCESS=0.0000E+00 OUTFLOW=0.2928E+00 BASIN STORAGE=0.1256E-04 PERCENT ERROR= -0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7E-8E	MANE	3.00	0.26	292.33	0.01	3.00	0.25	294.00	0.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E-01 EXCESS=0.0000E+00 OUTFLOW=0.2054E-01 BASIN STORAGE=0.1096E-04 PERCENT ERROR=-24.8

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	2.36	9.61	272.07	0.60	3.00	9.60	273.00	0.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8313E+00 EXCESS=0.0000E+00 OUTFLOW=0.8321E+00 BASIN STORAGE=0.1454E-04 PERCENT ERROR=-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.43	8.70	271.22	0.54	3.00	8.69	273.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7492E+00 EXCESS=0.0000E+00 OUTFLOW=0.7500E+00 BASIN STORAGE=0.1049E-04 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.26	13.31	278.00	1.08	3.00	13.26	279.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1613E+01 EXCESS=0.0000E+00 OUTFLOW=0.1611E+01 BASIN STORAGE=0.2018E-04 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	2.27	13.16	278.20	1.07	3.00	13.12	279.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1595E+01 EXCESS=0.0000E+00 OUTFLOW=0.1593E+01 BASIN STORAGE=0.1743E-04 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	2.76	8.13	284.79	0.74	3.00	8.13	285.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1103E+01 EXCESS=0.0000E+00 OUTFLOW=0.1102E+01 BASIN STORAGE=0.2044E-04 PERCENT ERROR=0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9N-R9	MANE	3.00	5.05	284.63	0.46	3.00	5.05	285.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6843E+00 EXCESS=0.0000E+00 OUTFLOW=0.6838E+00 BASIN STORAGE=0.2050E-04 PERCENT ERROR= 0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9N-R9	MANE	3.00	1.59	293.56	0.14	3.00	1.59	294.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+00 EXCESS=0.0000E+00 OUTFLOW=0.2079E+00 BASIN STORAGE=0.1894E-04 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.65	9.46	288.90	0.92	3.00	9.46	288.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1380E+01 EXCESS=0.0000E+00 OUTFLOW=0.1379E+01 BASIN STORAGE=0.1805E-04 PERCENT ERROR= 0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.68	8.74	288.39	0.84	3.00	8.73	288.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1261E+01 EXCESS=0.0000E+00 OUTFLOW=0.1260E+01 BASIN STORAGE=0.1932E-04 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8E-R9	MANE	0.32	77.02	273.53	0.96	3.00	76.82	273.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6728E+01 EXCESS=0.0000E+00 OUTFLOW=0.6728E+01 BASIN STORAGE=0.7838E-05 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8E-R9	MANE	0.32	76.18	273.66	0.95	3.00	75.99	273.00	0.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6652E+01 EXCESS=0.0000E+00 OUTFLOW=0.6653E+01 BASIN STORAGE=0.7629E-05 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8E-R9	MANE	0.45	38.17	276.54	0.55	3.00	38.13	276.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3882E+01 EXCESS=0.0000E+00 OUTFLOW=0.3882E+01 BASIN STORAGE=0.7462E-05 PERCENT ERROR= 0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8E-R9	MANE	0.52	19.07	276.61	0.27	3.00	19.04	276.00	0.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1925E+01 EXCESS=0.0000E+00 OUTFLOW=0.1925E+01 BASIN STORAGE=0.7540E-05 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8E-R9	MANE	0.94	2.52	293.35	0.04	3.00	2.51	294.00	0.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3008E+00 EXCESS=0.0000E+00 OUTFLOW=0.3008E+00 BASIN STORAGE=0.6726E-05 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R8E-R9	MANE	0.36	44.12	279.67	0.68	3.00	44.08	279.00	0.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4782E+01 EXCESS=0.0000E+00 OUTFLOW=0.4782E+01 BASIN STORAGE=0.7472E-05 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R8E-R9	MANE	0.43	40.11	279.56	0.62	3.00	40.07	279.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4334E+01 EXCESS=0.0000E+00 OUTFLOW=0.4334E+01 BASIN STORAGE=0.7666E-05 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.39	244.41	552.63	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3084E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.39	244.36	552.54	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3083E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.41	241.71	552.95	0.79	3.00	241.71	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3039E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.33	239.65	552.95	0.78	3.00	239.64	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3008E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.44	237.69	555.51	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2977E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3151E-01 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.46	242.84	552.79	0.79	3.00	242.84	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.37	242.32	552.68	0.79	3.00	242.32	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.50	244.41	552.74	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3083E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.43	244.36	552.89	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3082E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.49	241.71	553.29	0.79	3.00	241.71	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3039E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.36	239.64	555.76	0.78	3.00	239.64	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3007E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3599E-01 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.37	237.69	555.79	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2976E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3598E-01 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.50	242.84	553.18	0.79	3.00	242.83	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.36	242.32	552.92	0.79	3.00	242.31	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3048E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.04	244.41	557.55	0.81	3.00	244.41	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3125E+03 EXCESS=0.0000E+00 OUTFLOW=0.3119E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.07	244.36	558.85	0.81	3.00	244.35	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3124E+03 EXCESS=0.0000E+00 OUTFLOW=0.3117E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.00	241.71	559.89	0.79	3.00	241.70	561.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3077E+03 EXCESS=0.0000E+00 OUTFLOW=0.3071E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	3.00	239.64	561.16	0.78	3.00	239.64	561.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3034E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	3.07	237.68	560.85	0.77	3.00	237.68	561.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3003E+03 EXCESS=0.0000E+00 OUTFLOW=0.2996E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R10-11	MANE	3.07	242.83	560.81	0.80	3.00	242.83	558.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3108E+03 EXCESS=0.0000E+00 OUTFLOW=0.3102E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R10-11	MANE	3.00	242.31	558.78	0.80	3.00	242.31	561.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3097E+03 EXCESS=0.0000E+00 OUTFLOW=0.3090E+03 BASIN STORAGE=0.6745E+00 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

Appendix E
Cavasson HEC-1 Proposed
Cavasson

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1****************************************
****************************************
 *                                      *                                                *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                *          609 SECOND STREET
  *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   16NOV18  TIME  07:00:44  *                                                *           (916) 756-1104
  *
 *                                      *                                                *
  *
 ****************************************
****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS.
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
           15           ID           THIS IS THE POST-DEVELOPMENT MODEL.
           16           ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
           17           ID
           18           IT       3       0       0    1000
           19           IN      15
           20           IO       5
                        *DIAGRAM
           21           JD   1.817  0.0001
           22           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           23           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           24           PC   0.962   0.972   0.983   0.991   1.000
           25           JD   1.806  0.5000
           26           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           27           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           28           PC   0.962   0.972   0.983   0.991   1.000
           29           JD   1.772     2.8
           30           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           31           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           32           PC   0.950   0.963   0.975   0.988   1.000
                        *
           33           KK  76THST
           34           KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           35           KM        10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS
           36           BA    0.24
           37           QI       0       0       0       0       0       0       0       0       0       0
           38           QI       0       0    0.01    0.01    0.06    0.58    8.13   27.04   31.94    31.1
           39           QI   22.07   17.10   13.79   11.20    9.48    8.22    7.44    6.76    6.13    5.32
           40           QI    4.66    4.31    3.73    3.05    2.71    2.44    2.18    2.27    1.51    1.61
           41           QI    1.48    1.38    1.29    1.17    1.01    0.96    0.97    0.77    0.84    0.86
           42           QI    0.70    0.68    0.67    0.62    0.58    0.55    0.53    0.51    0.49    0.46
           43           QI    0.44    0.43    0.42    0.40    0.38    0.37    0.35    0.34    0.33    0.31
           44           QI    0.30    0.29    0.28
```

```
                *
           45   KK   SB01A   BASIN
           46   BA   0.055
           47   LG    0.10    0.25    4.72    0.51       0
           48   UC   0.439   0.231
           49   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
           50   UA     100
                *
1                                          HEC-1 INPUT                                          PAGE  2

      LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

           51   KK    CP-1 COMBINE
           52   KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
           53   HC       2   0.295
                *
           54   KK   R1A-2   ROUTE
           55   RK    2139  0.0180   0.020            TRAP   2.000    0.00
                *
           56   KK   SB01B   BASIN
           57   BA   0.022
           58   LG    0.10    0.25    4.72    0.51      00
           59   UC   0.490   0.471
           60   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
           61   UA     100
                *
           62   KK   R1B-2   ROUTE
           63   RK    2636  0.0015   0.030            TRAP   2.000    0.00
                *
           64   KK   SB01C   BASIN
           65   BA   0.032
           66   LG    0.10    0.25    4.72    0.51      00
           67   UC   0.581   0.550
           68   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
           69   UA     100
                *
           70   KK   R1C-2   ROUTE
           71   RK    3046  0.0015   0.030            TRAP   2.000    0.00
                *
           72   KK   SB02E   BASIN
           73   KM        IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
           74   BA   0.100
           75   LG    0.10    0.25    4.03    0.74       85
           76   UC   0.859   0.688
           77   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
           78   UA     100
                *
           79   KK   SB02W   BASIN
           80   BA   0.060
           81   LG    0.10    0.25    4.33    0.61       0
           82   UC   0.686   0.535
           83   UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
           84   UA     100
                *
1                                          HEC-1 INPUT                                          PAGE  3

      LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

           85   KK   CP-02 COMBINE
           86   HC       5
                *
           87   KK    R2-3   ROUTE
           88   KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
           89   RK    1260  0.0015   0.03             TRAP      92       4
                *
           90   KK    SB03   BASIN
           91   BA   0.048
           92   LG    0.15    0.25    4.50    0.47      55
           93   UC   0.364   0.294
           94   UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           95   UA     100
                *
           96   KK   CP-03 COMBINE
           97   HC       2
                *
           98   KK    R3-5   ROUTE
           99   KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
          100   RK    2396  0.0015   0.03             TRAP      98       4
                *
```

```
 101          KK    SB05   BASIN
 102          BA   0.126
 103          LG    0.22    0.25    4.50    0.44      48
 104          UC   0.327   0.226
 105          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 106          UA     100
              *

 107          KK   CP-5A COMBINE
 108          HC       2
              *
 109          KM
              *

 110          KK   SB07W   BASIN
 111          BA   0.048
 112          LG    0.10    0.25    4.03    0.74       0
 113          UC   0.677   0.558
 114          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 115          UA     100
              *

 116          KK  R7W-8W   ROUTE
 117          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 118          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 119          RK    3721  0.0013   0.03            TRAP      46       4
              *
1                                        HEC-1 INPUT                                        PAGE  4

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 120          KK  SB08W   BASIN
 121          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
 122          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 123          BA   0.112
 124          LG    0.10    0.25    4.08    0.71       85
 125          UC   0.784   0.547
 126          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 127          UA     100
              *

 128          KK  CP-08W COMBINE
 129          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 130          HC       2
              *

 131          KK   R8W-4   ROUTE
 132          KM        SR 101L FREEWAY TO CP4
 133          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 134          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 135          KK    SB04   BASIN
 136          BA   0.144
 137          LG    0.14    0.25    4.60    0.44      61
 138          UC   0.305   0.199
 139          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 140          UA     100
              *

 141          KK    CP-4 COMBINE
 142          KM        PRINCESS BLVD AND EAST OF 77TH ST
 143          HC       2
              *

 144          KK    R4-5   ROUTE
 145          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 146          RK    1992  0.0013   0.03            TRAP      39       4
              *

 147          KK   CP-05 COMBINE
 148          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 149          KM        COMBINE CP-05A AND R4-5
 150          HC       2
              *

 151          KK    R5-6   ROUTE
 152          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 153          RK    1694  0.0015   0.03            TRAP     188       4
              *
1                                        HEC-1 INPUT                                        PAGE  5

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 154          KK    SB06   BASIN
 155          BA   0.136
 156          LG    0.16    0.25    4.55    0.45      53
 157          UC   0.321   0.246
 158          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 159          UA     100
              *
```

```
160          KK   CP-06 COMBINE
161          HC       2
             *
             *
             * END WEST RUN
             *
             *
             * BEGIN EAST SIDE OF HAYDEN
             *

162          KK  SB07E   BASIN
163          BA   0.026
164          LG    0.10    0.25    4.03    0.74       0
165          UC   0.574   0.527
166          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
167          UA     100
             *

168          KK  R7E-8E   ROUTE
169          RK    3662  0.0130   0.030            TRAP   2.000    0.00
             *

170          KK  SB08E   BASIN
171          BA   0.078
172          LG    0.10    0.25    4.08    0.72       0
173          UC   0.798   0.652
174          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
175          UA     100
             *

176          KK  SB09N   BASIN
177          BA   0.028
178          LG    0.10    0.25    4.79    0.49       0
179          UC   0.740   1.111
180          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
181          UA     100
             *

182          KK  R9N-R9   ROUTE
183          RK    2586  0.0013   0.020            TRAP   2.000    0.00
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

184          KK  CP-08E COMBINE
185          KM       SB07E, SB08E, SB09N
186          HC       3
             *

187          KK   SB09   BASIN
188          BA   0.086
189          LG    0.10    0.25    4.79    0.49       0
190          UC   0.683   0.518
191          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
192          UA     100
             *

193          KK  8E-R9   ROUTE
194          RK     501  0.0013   0.020            TRAP   2.000    0.00
             *

195          KK   CP-09 COMBINE
196          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
197          HC       2
             *

198          KK   PWRCH
199          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
200          KM        10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS
201          BA     7.0
202          QI       0       0       0       0       0       0       0       0       0       0
203          QI       0       0       0       0       0    0.07   11.70   33.57  285.55  257.89
204          QI  236.82  258.26  406.55  486.55  461.36  425.60  409.84  395.31  391.77  376.42
205          QI  346.76  376.76  276.32  247.65  220.91  197.44  178.64  155.41  139.22  129.78
206          QI  113.97  102.76   96.30   85.88    79.7   72.75   65.45   59.94   54.69   51.22
207          QI    52.3   44.56   41.87   42.77   36.93   34.05   32.15   29.01   27.72   27.03
208          QI   25.05   23.86   22.04   20.81   19.27   18.55   17.90   20.82   16.03   15.23
209          QI   14.57   14.28   13.81
             *

210          KK  BINFLO
211          KM         TOTAL INFLOW INTO BASIN 53R.
212          HC       2
             *

213          KK   BASIN
214          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
215          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
216          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
217          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
218          RS       1    STOR       0
```

```
 219          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 220          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 221          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 222          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 223          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 224          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *
```



```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 225          KK  BSNRT1
 226          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 227          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 228          KM        EXCESS CAPACITY.
 229          RK     550  0.0052   0.024            CIRC     7.0
              *

 230          KK  BSNRT2
 231          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 232          RK    1200  0.0077   0.013            CIRC     7.0
              *

 233          KK    SB10   BASIN
 234          BA   0.040
 235          LG    0.15    0.25    4.25    0.55      55
 236          UC   0.233   0.161
 237          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 238          UA     100
              *

 239          KK   CP-10 COMBINE
 240          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 241          HC       2
              *

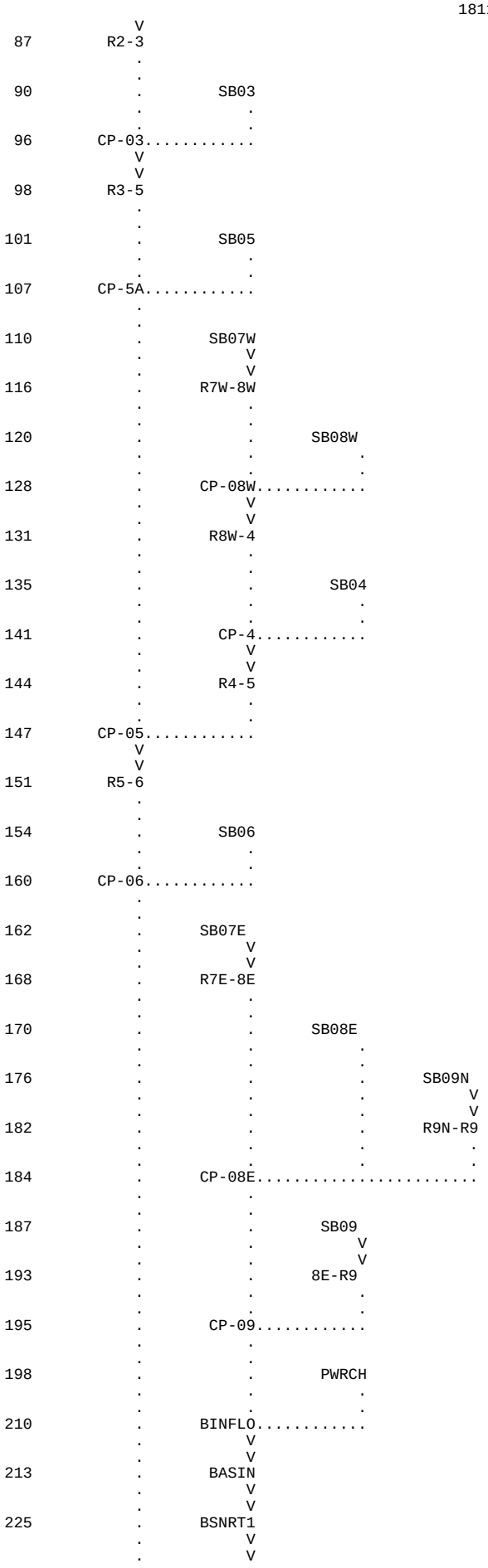
 242          KK  R10-11   ROUTE
 243          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 244          RK    1277  0.0014   0.03             TRAP     220       4
              *

 245          KK    SB11   BASIN
 246          BA   0.071
 247          LG    0.15    0.25    4.15    0.58      55
 248          UC   0.296   0.232
 249          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 250          UA     100
              *

 251          KK   CP-11 COMBINE
 252          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 253          HC       2
              *
 254          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK


V
87 R2-3
90 SB03
96 CP-03
98 R3-5
101 SB05
107 CP-5A
110 SB07W
116 R7W-8W
120 SB08W
128 CP-08W
131 R8W-4
135 SB04
141 CP-4
144 R4-5
147 CP-05
151 R5-6
154 SB06
160 CP-06
162 SB07E
168 R7E-8E
170 SB08E
176 SB09N
182 R9N-R9
184 CP-08E
187 SB09
193 8E-R9
195 CP-09
198 PWRCH
210 BINFLO
213 BASIN
225 BSNRT1

```
  230           .      BSNRT2
                .           .
                .           .
  233           .           .        SB10
                .           .           .
                .           .           .
  239           .       CP-10............
                .           V
                .           V
  242           .      R10-11
                .           .
                .           .
  245           .           .        SB11
                .           .           .
                .           .           .
  251           .       CP-11............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
****************************************
 *                                      *                                                *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                *          609 SECOND STREET
  *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   16NOV18  TIME  07:00:44  *                                                *           (916) 756-1104
  *
 *                                      *                                                *
  *
 ****************************************
****************************************
```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
THIS IS THE POST-DEVELOPMENT MODEL.
UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

```
  20 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           3  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME        0157  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL    0.05 HOURS
                       TOTAL TIME BASE   49.95 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

  21 JD          INDEX STORM NO. 1
                        STRM        1.82  PRECIPITATION DEPTH
                        TRDA        0.00  TRANSPOSITION DRAINAGE AREA

  22 PI            PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

25 JD INDEX STORM NO. 2
STRM 1.81 PRECIPITATION DEPTH
TRDA 0.50 TRANSPOSITION DRAINAGE AREA

26 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

29 JD INDEX STORM NO. 3
STRM 1.77 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

30 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
	HYDROGRAPH AT									
+		76THST	32.	4.50	10.	3.	1.	0.24		
	HYDROGRAPH AT									
+		SB01A	38.	4.25	3.	1.	0.	0.05		
	2 COMBINED AT									
+		CP-1	65.	4.30	13.	4.	2.	0.29		

+	ROUTED TO R1A-2	65.	4.30	13.	4.	2.	0.29
+	HYDROGRAPH AT SB01B	10.	4.35	1.	0.	0.	0.02
+	ROUTED TO R1B-2	10.	4.45	1.	0.	0.	0.02
+	HYDROGRAPH AT SB01C	12.	4.40	2.	0.	0.	0.03
+	ROUTED TO R1C-2	12.	4.50	2.	0.	0.	0.03
+	HYDROGRAPH AT SB02E	29.	4.60	5.	1.	1.	0.10
+	HYDROGRAPH AT SB02W	21.	4.50	3.	1.	0.	0.06
+	5 COMBINED AT CP-02	118.	4.50	24.	6.	3.	0.51
+	ROUTED TO R2-3	117.	4.60	24.	6.	3.	0.51
+	HYDROGRAPH AT SB03	47.	4.15	6.	2.	1.	0.05
+	2 COMBINED AT CP-03	131.	4.55	29.	8.	4.	0.56
+	ROUTED TO R3-5	130.	4.75	28.	8.	4.	0.56
+	HYDROGRAPH AT SB05	134.	4.10	15.	4.	2.	0.13
+	2 COMBINED AT CP-5A	140.	4.75	40.	11.	5.	0.68
+	HYDROGRAPH AT SB07W	14.	4.50	2.	1.	0.	0.05
+	ROUTED TO R7W-8W	14.	5.20	3.	1.	0.	0.05
+	HYDROGRAPH AT SB08W	39.	4.55	6.	2.	1.	0.11
+	2 COMBINED AT CP-08W	39.	4.55	9.	2.	1.	0.16
+	ROUTED TO R8W-4	39.	4.60	9.	2.	1.	0.16
+	HYDROGRAPH AT SB04	178.	4.10	20.	5.	2.	0.14
+	2 COMBINED AT CP-4	182.	4.10	28.	7.	3.	0.30
+	ROUTED TO R4-5	179.	4.20	28.	7.	4.	0.30
+	2 COMBINED AT CP-05	251.	4.20	62.	17.	8.	0.99
+	ROUTED TO R5-6	246.	4.30	62.	17.	8.	0.99
+	HYDROGRAPH AT SB06	145.	4.10	17.	4.	2.	0.14
+	2 COMBINED AT CP-06	320.	4.30	75.	20.	10.	1.12
+	HYDROGRAPH AT SB07E	9.	4.40	1.	0.	0.	0.03
+	ROUTED TO R7E-8E	8.	4.50	1.	0.	0.	0.03
+	HYDROGRAPH AT SB08E	21.	4.55	3.	1.	0.	0.08
+	HYDROGRAPH AT SB09N	6.	4.55	2.	0.	0.	0.03
+	ROUTED TO R9N-R9	6.	4.65	2.	0.	0.	0.03

3 COMBINED AT							
+	CP-08E	34.	4.60	6.	2.	1.	0.13
HYDROGRAPH AT							
+	SB09	34.	4.45	5.	1.	1.	0.09
ROUTED TO							
+	8E-R9	34.	4.50	5.	1.	1.	0.09
2 COMBINED AT							
+	CP-09	67.	4.55	11.	3.	1.	0.22
HYDROGRAPH AT							
+	PWRCH	487.	5.75	285.	90.	49.	7.00
2 COMBINED AT							
+	BINFLO	484.	5.75	283.	89.	49.	7.22
ROUTED TO							
+	BASIN	171.	9.10	156.	84.	47.	7.22
ROUTED TO							
+	BSNRT1	171.	9.10	156.	84.	47.	7.22
ROUTED TO							
+	BSNRT2	171.	9.10	156.	84.	47.	7.22
HYDROGRAPH AT							
+	SB10	52.	4.05	5.	1.	1.	0.04
2 COMBINED AT							
+	CP-10	171.	9.10	156.	84.	48.	7.26
ROUTED TO							
+	R10-11	171.	9.20	156.	84.	48.	7.26
HYDROGRAPH AT							
+	SB11	77.	4.10	9.	2.	1.	0.07
2 COMBINED AT							
+	CP-11	171.	9.20	156.	85.	49.	7.33

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.50	65.38	258.45	0.48	3.00	65.32	258.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7488E+01 EXCESS=0.0000E+00 OUTFLOW=0.7484E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.50	64.94	258.50	0.47	3.00	64.88	258.00	0.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7471E+01 EXCESS=0.0000E+00 OUTFLOW=0.7467E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.69	37.56	259.80	0.41	3.00	37.53	261.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6395E+01 EXCESS=0.0000E+00 OUTFLOW=0.6391E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	3.00	9.81	266.82	0.50	3.00	9.79	267.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5849E+00 EXCESS=0.0000E+00 OUTFLOW=0.5885E+00 BASIN STORAGE=0.2253E-04 PERCENT ERROR=
-0.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	3.00	9.70	266.94	0.50	3.00	9.69	267.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5778E+00 EXCESS=0.0000E+00 OUTFLOW=0.5817E+00 BASIN STORAGE=0.2912E-04 PERCENT ERROR=
-0.7

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	3.00	2.49	274.25	0.13	3.00	2.45	273.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1474E+00 EXCESS=0.0000E+00 OUTFLOW=0.1544E+00 BASIN STORAGE=0.2871E-04 PERCENT ERROR=
-4.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	3.00	12.43	270.39	0.50	3.00	12.34	270.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8509E+00 EXCESS=0.0000E+00 OUTFLOW=0.8554E+00 BASIN STORAGE=0.3760E-04 PERCENT ERROR=
-0.5

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	3.00	12.30	270.52	0.50	3.00	12.18	270.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8406E+00 EXCESS=0.0000E+00 OUTFLOW=0.8452E+00 BASIN STORAGE=0.3550E-04 PERCENT ERROR=
-0.5

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	2.95	3.12	278.23	0.13	3.00	3.12	279.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2145E+00 EXCESS=0.0000E+00 OUTFLOW=0.2240E+00 BASIN STORAGE=0.3435E-04 PERCENT ERROR=
-4.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.91	119.89	274.10	0.48	3.00	119.18	276.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1317E+02 EXCESS=0.0000E+00 OUTFLOW=0.1313E+02 BASIN STORAGE=0.3148E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.91	118.74	274.25	0.48	3.00	118.05	276.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1308E+02 EXCESS=0.0000E+00 OUTFLOW=0.1303E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	3.01	50.42	286.40	0.29	3.00	50.38	285.00	0.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7980E+01 EXCESS=0.0000E+00 OUTFLOW=0.7934E+01 BASIN STORAGE=0.3394E-01 PERCENT ERROR=
0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	136.49	286.56	0.54	3.00	136.18	285.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1626E+02 EXCESS=0.0000E+00 OUTFLOW=0.1618E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	135.06	286.77	0.54	3.00	134.79	285.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1615E+02 EXCESS=0.0000E+00 OUTFLOW=0.1607E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	3.00	62.76	287.97	0.35	3.00	62.76	288.00	0.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1060E+02 EXCESS=0.0000E+00 OUTFLOW=0.1053E+02 BASIN STORAGE=0.7788E-01 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	14.40	313.41	0.52	3.00	14.38	312.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1041E+01 EXCESS=0.0000E+00 OUTFLOW=0.1321E+01 BASIN STORAGE=0.3153E-03 PERCENT ERROR=
-26.9

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	3.00	14.18	313.69	0.51	3.00	14.17	312.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1026E+01 EXCESS=0.0000E+00 OUTFLOW=0.1303E+01 BASIN STORAGE=0.3204E-03 PERCENT ERROR=-27.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	1.36	371.04	0.07	3.00	1.36	372.00	0.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9483E-01 EXCESS=0.0000E+00 OUTFLOW=0.1766E+00 BASIN STORAGE=0.2634E-03 PERCENT ERROR=-86.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	1.21	39.57	275.81	0.53	3.00	39.51	276.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4489E+01 EXCESS=0.0000E+00 OUTFLOW=0.4490E+01 BASIN STORAGE=0.1359E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	1.22	39.05	274.79	0.52	3.00	39.01	276.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4432E+01 EXCESS=0.0000E+00 OUTFLOW=0.4434E+01 BASIN STORAGE=0.1348E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	2.04	9.71	278.36	0.15	3.00	9.70	279.00	0.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1284E+01 EXCESS=0.0000E+00 OUTFLOW=0.1285E+01 BASIN STORAGE=0.1209E-03 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	3.00	182.76	252.58	0.90	3.00	180.69	252.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1456E+02 EXCESS=0.0000E+00 OUTFLOW=0.1461E+02 BASIN STORAGE=0.3964E-03 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	3.00	181.85	252.73	0.89	3.00	179.39	252.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1444E+02 EXCESS=0.0000E+00 OUTFLOW=0.1448E+02 BASIN STORAGE=0.3841E-03 PERCENT ERROR=
-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.00	100.70	255.56	0.62	3.00	100.37	255.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1011E+02 EXCESS=0.0000E+00 OUTFLOW=0.1013E+02 BASIN STORAGE=0.4384E-03 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	3.00	304.58	256.29	0.73	3.00	302.54	258.00	0.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3842E+02 EXCESS=0.0000E+00 OUTFLOW=0.3833E+02 BASIN STORAGE=0.5642E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	3.00	301.88	256.50	0.72	3.00	299.84	258.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3813E+02 EXCESS=0.0000E+00 OUTFLOW=0.3802E+02 BASIN STORAGE=0.5642E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	171.04	264.80	0.51	3.00	170.81	264.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2692E+02 EXCESS=0.0000E+00 OUTFLOW=0.2685E+02 BASIN STORAGE=0.6479E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	2.48	8.47	267.86	0.41	3.00	8.45	270.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5640E+00 EXCESS=0.0000E+00 OUTFLOW=0.5642E+00 BASIN STORAGE=0.1424E-04 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	2.49	8.36	268.11	0.40	3.00	8.32	270.00	0.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5555E+00 EXCESS=0.0000E+00 OUTFLOW=0.5565E+00 BASIN STORAGE=0.1227E-04 PERCENT ERROR=
-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	3.00	0.79	281.23	0.04	3.00	0.79	282.00	0.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5136E-01 EXCESS=0.0000E+00 OUTFLOW=0.5564E-01 BASIN STORAGE=0.1218E-04 PERCENT ERROR=
-8.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	3.00	6.31	281.03	0.51	3.00	6.30	279.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7576E+00 EXCESS=0.0000E+00 OUTFLOW=0.7564E+00 BASIN STORAGE=0.1663E-04 PERCENT ERROR=
0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	3.00	6.24	281.18	0.50	3.00	6.22	279.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7487E+00 EXCESS=0.0000E+00 OUTFLOW=0.7475E+00 BASIN STORAGE=0.1891E-04 PERCENT ERROR=
0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	3.00	1.69	287.45	0.14	3.00	1.68	288.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2051E+00 EXCESS=0.0000E+00 OUTFLOW=0.2049E+00 BASIN STORAGE=0.1591E-04 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.35	34.25	268.03	0.51	3.00	34.25	270.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2328E+01 EXCESS=0.0000E+00 OUTFLOW=0.2328E+01 BASIN STORAGE=0.2472E-06 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

8E-R9	MANE	0.35	33.85	267.79	0.50	3.00	33.85	270.00	0.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2300E+01 EXCESS=0.0000E+00 OUTFLOW=0.2301E+01 BASIN STORAGE=0.3157E-06 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

8E-R9	MANE	0.52	9.15	270.59	0.14	3.00	9.14	270.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6300E+00 EXCESS=0.0000E+00 OUTFLOW=0.6303E+00 BASIN STORAGE=0.3069E-06 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.43	176.85	541.21	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2024E+03 EXCESS=0.0000E+00 OUTFLOW=0.2023E+03 BASIN STORAGE=0.2256E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.43	176.79	540.88	0.53	3.00	176.79	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2023E+03 EXCESS=0.0000E+00 OUTFLOW=0.2023E+03 BASIN STORAGE=0.2256E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.47	172.81	544.06	0.51	3.00	172.80	543.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1981E+03 EXCESS=0.0000E+00 OUTFLOW=0.1981E+03 BASIN STORAGE=0.2255E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	176.85	543.46	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2023E+03 EXCESS=0.0000E+00 OUTFLOW=0.2023E+03 BASIN STORAGE=0.2576E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	176.78	543.53	0.53	3.00	176.78	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2023E+03 EXCESS=0.0000E+00 OUTFLOW=0.2022E+03 BASIN STORAGE=0.2576E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.42	172.80	543.94	0.51	3.00	172.80	546.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1981E+03 EXCESS=0.0000E+00 OUTFLOW=0.1980E+03 BASIN STORAGE=0.2575E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.46	176.84	548.84	0.53	3.00	176.84	549.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2049E+03 EXCESS=0.0000E+00 OUTFLOW=0.2044E+03 BASIN STORAGE=0.5212E+00 PERCENT ERROR=

0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.45	176.78	548.94	0.53	3.00	176.78	549.00	0.53	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2048E+03 EXCESS=0.0000E+00 OUTFLOW=0.2043E+03 BASIN STORAGE=0.5212E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.43	172.80	553.01	0.52	3.00	172.80	552.00	0.52	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2002E+03 EXCESS=0.0000E+00 OUTFLOW=0.1997E+03 BASIN STORAGE=0.5211E+00 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

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1****************************************
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 *                                      *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
  *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   14NOV18  TIME  11:27:10  *                                                    *           (916) 756-1104
  *
 *                                      *                                                    *
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS.
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
           15           ID           THIS IS THE POST-DEVELOPMENT MODEL.
           16           ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
           17           ID
           18           IT       3       0       0    1000
           19           IN      15
           20           IO       5
                        *DIAGRAM
                        *
           21           JD   2.755  0.0001
           22           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           23           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           24           PC   0.962   0.972   0.983   0.991   1.000
           25           JD   2.738  0.5000
           26           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           27           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           28           PC   0.962   0.972   0.983   0.991   1.000
           29           JD   2.686     2.8
           30           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           31           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           32           PC   0.950   0.963   0.975   0.988   1.000
           33           JD   2.540    16.0
           34           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
           35           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
           36           PC   0.946   0.960   0.973   0.987   1.000
           37           JD   2.232    90.0
           38           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
           39           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
           40           PC   0.927   0.945   0.964   0.982   1.000
           41           JD   3.657    10.0
           42           JD   3.533    20.0
                        *

           43           KK  76THST
```

```
   44          KM       76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
   45          KM       100-YR, 6-HR FLO-2D MODEL (XS 98)
   46          BA    0.24
   47          QI       0       0       0       0       0       0       0       0       0       0
   48          QI       0       0    0.01    0.01    0.09     0.9    12.7   42.26   49.92    48.6
   49          QI   34.49   26.72   21.55   17.51   14.81   12.84   11.63   10.56    9.58    8.32
   50          QI    7.29    6.73    5.83    4.76    4.23    3.81     3.4    3.55    2.36    2.51
   51          QI    2.32    2.16    2.02    1.83    1.58     1.5    1.52    1.21    1.31    1.34
1                                          HEC-1 INPUT                                        PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   52          QI    1.09    1.07    1.04    0.97    0.91    0.86    0.83    0.79    0.76    0.72
   53          QI    0.69    0.67    0.65    0.62     0.6    0.58    0.55    0.53    0.51    0.49
   54          QI    0.47    0.45    0.44

               *

   55          KK   SB01A   BASIN
   56          BA   0.055
   57          PB   2.721
   58          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
   59          PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
   60          PC   0.956   0.968   0.979   0.990   1.000
   61          LG    0.10    0.25    4.72    0.51       0
   62          UC   0.439   0.231
   63          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   64          UA     100
               *

   65          KK    CP-1 COMBINE
   66          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   67          HC       2   0.295
               *

   68          KK   R1A-2   ROUTE
   69          RK    2139  0.0180   0.020            TRAP   2.000    0.00
               *

   70          KK   SB01B   BASIN
   71          BA   0.022
   72          LG    0.10    0.25    4.72    0.51      00
   73          UC   0.490   0.471
   74          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   75          UA     100
               *

   76          KK   R1B-2   ROUTE
   77          RK    2636  0.0015   0.030            TRAP   2.000    0.00
               *

   78          KK   SB01C   BASIN
   79          BA   0.032
   80          LG    0.10    0.25    4.72    0.51      00
   81          UC   0.581   0.550
   82          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   83          UA     100
               *

   84          KK   R1C-2   ROUTE
   85          RK    3046  0.0015   0.030            TRAP   2.000    0.00
               *
1                                          HEC-1 INPUT                                        PAGE  3

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   86          KK   SB02E   BASIN
   87          KM         IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
   88          BA   0.100
   89          LG    0.10    0.25    4.03    0.74       85
   90          UC   0.859   0.688
   91          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   92          UA     100
               *

   93          KK   SB02W   BASIN
   94          BA   0.060
   95          LG    0.10    0.25    4.33    0.61       0
   96          UC   0.686   0.535
   97          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   98          UA     100
               *

   99          KK   CP-02 COMBINE
  100          HC       5
               *

  101          KK    R2-3   ROUTE
  102          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
  103          RK    1260  0.0015   0.03             TRAP      92       4
               *

  104          KK    SB03   BASIN
```

```
105          BA   0.048
106          LG    0.15    0.25    4.50    0.47      55
107          UC   0.364   0.294
108          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
109          UA     100
             *

110          KK   CP-03 COMBINE
111          HC       2
             *

112          KK    R3-5   ROUTE
113          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
114          RK    2396  0.0015   0.03             TRAP      98       4
             *

115          KK    SB05   BASIN
116          BA   0.126
117          LG    0.22    0.25    4.50    0.44      48
118          UC   0.327   0.226
119          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
120          UA     100
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

121          KK   CP-5A COMBINE
122          HC       2
             *
123          KM
             *

124          KK   SB07W   BASIN
125          BA   0.048
126          LG    0.10    0.25    4.03    0.74       0
127          UC   0.677   0.558
128          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
129          UA     100
             *

130          KK  R7W-8W   ROUTE
131          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
132          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
133          RK    3721  0.0013   0.03             TRAP      46       4
             *

134          KK  SB08W   BASIN
135          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
136          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
137          BA   0.112
138          LG    0.10    0.25    4.08    0.71       85
139          UC   0.784   0.547
140          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
141          UA     100
             *

142          KK  CP-08W COMBINE
143          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
144          HC       2
             *

145          KK   R8W-4   ROUTE
146          KM        SR 101L FREEWAY TO CP4
147          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
148          RK    3137  0.0130   0.030            TRAP   2.000    0.00
             *

149          KK    SB04   BASIN
150          BA   0.144
151          LG    0.14    0.25    4.60    0.44      61
152          UC   0.305   0.199
153          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
154          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

155          KK    CP-4 COMBINE
156          KM        PRINCESS BLVD AND EAST OF 77TH ST
157          HC       2
             *

158          KK    R4-5   ROUTE
159          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
160          RK    1992  0.0013   0.03             TRAP      39       4
             *

161          KK   CP-05 COMBINE
162          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
163          KM        COMBINE CP-05A AND R4-5
```

```
 164          HC       2
              *

 165          KK    R5-6   ROUTE
 166          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 167          RK    1694  0.0015   0.03             TRAP     188       4
              *

 168          KK    SB06   BASIN
 169          BA   0.136
 170          LG    0.16    0.25    4.55    0.45      53
 171          UC   0.321   0.246
 172          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 173          UA     100
              *

 174          KK   CP-06 COMBINE
 175          HC       2
              *
              *
              * END WEST RUN
              *
              *
              * BEGIN EAST SIDE OF HAYDEN
              *

 176          KK  SB07E   BASIN
 177          BA   0.026
 178          LG    0.10    0.25    4.03    0.74       0
 179          UC   0.574   0.527
 180          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 181          UA     100
              *

 182          KK  R7E-8E   ROUTE
 183          RK    3662  0.0130   0.030            TRAP   2.000    0.00
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 184          KK  SB08E   BASIN
 185          BA   0.078
 186          LG    0.10    0.25    4.08    0.72       0
 187          UC   0.798   0.652
 188          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 189          UA     100
              *

 190          KK  SB09N   BASIN
 191          BA   0.028
 192          LG    0.10    0.25    4.79    0.49       0
 193          UC   0.740   1.111
 194          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 195          UA     100
              *

 196          KK  R9N-R9   ROUTE
 197          RK    2586  0.0013   0.020            TRAP   2.000    0.00
              *

 198          KK  CP-08E COMBINE
 199          KM       SB07E, SB08E, SB09N
 200          HC       3
              *

 201          KK   SB09   BASIN
 202          BA   0.086
 203          LG    0.10    0.25    4.79    0.49       0
 204          UC   0.683   0.518
 205          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 206          UA     100
              *

 207          KK  8E-R9   ROUTE
 208          RK     501  0.0013   0.020            TRAP   2.000    0.00
              *

 209          KK   CP-09 COMBINE
 210          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 211          HC       2
              *

 212          KK   PWRCH
 213          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
 214          KM        100-YR, 6-HR FLO-2D MODEL (XS 107)
 215          BA     7.0
 216          QI       0       0       0       0       0       0       0       0       0       0
 217          QI       0       0       0       0       0    0.11   17.74   50.91  433.53  391.08
 218          QI  359.13  391.64  616.52  737.85  699.64  645.41  621.52  599.48  594.12  570.84
 219          QI  525.86  472.45  419.04  375.56     335  299.45   270.9  235.68  211.13  196.81
 220          QI  172.83  155.83  146.04  130.32   120.9  110.32   99.25    90.9   82.93   77.68
 221          QI    79.3   67.58    63.5   64.86   56.01   51.64   48.75   43.99   42.04   40.99
```

```
 222          QI   37.99   36.19   33.42   31.56   29.22   28.13   27.15   31.57   24.31    23.1
 223          QI   22.09   21.66   20.95
              *
1                                        HEC-1 INPUT                                        PAGE  7

         LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 224          KK  BINFLO
 225          KM         TOTAL INFLOW INTO BASIN 53R.
 226          HC       2
              *

 227          KK   BASIN
 228          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 229          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 230          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 231          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 232          RS       1    STOR       0
 233          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 234          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 235          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 236          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 237          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 238          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 239          KK  BSNRT1
 240          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 241          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 242          KM        EXCESS CAPACITY.
 243          RK     550  0.0052   0.024            CIRC     7.0
              *

 244          KK  BSNRT2
 245          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 246          RK    1200  0.0077   0.013            CIRC     7.0
              *

 247          KK    SB10   BASIN
 248          BA   0.040
 249          LG    0.15    0.25    4.25    0.55      55
 250          UC   0.233   0.161
 251          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 252          UA     100
              *

 253          KK   CP-10 COMBINE
 254          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 255          HC       2
              *

 256          KK  R10-11   ROUTE
 257          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 258          RK    1277  0.0014   0.03             TRAP     220       4
              *
1                                        HEC-1 INPUT                                        PAGE  8

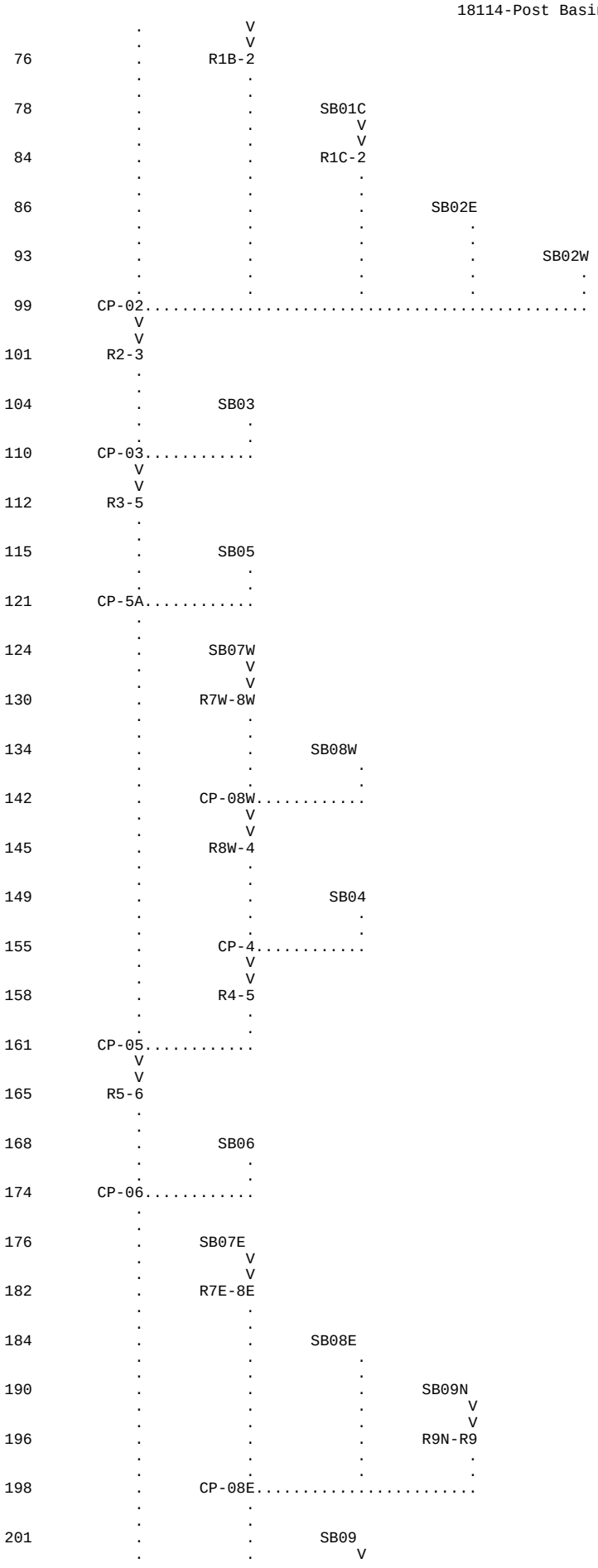
         LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

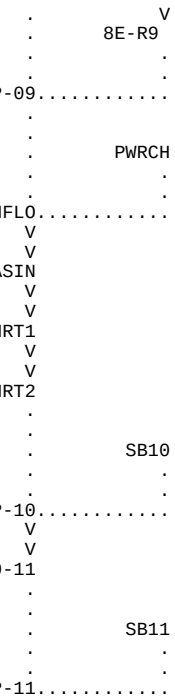

 259          KK    SB11   BASIN
 260          BA   0.071
 261          LG    0.15    0.25    4.15    0.58      55
 262          UC   0.296   0.232
 263          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 264          UA     100
              *

 265          KK   CP-11 COMBINE
 266          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 267          HC       2
              *
 268          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    43      76THST
                 .
                 .
    55           .       SB01A
                 .           .
                 .           .
    65         CP-1.............
                 V
                 V
    68        R1A-2
                 .
                 .
    70           .       SB01B
```


R1B-2
SB01C
R1C-2
SB02E
SB02W
CP-02
R2-3
SB03
CP-03
R3-5
SB05
CP-5A
SB07W
R7W-8W
SB08W
CP-08W
R8W-4
SB04
CP-4
R4-5
CP-05
R5-6
SB06
CP-06
SB07E
R7E-8E
SB08E
SB09N
R9N-R9
CP-08E
SB09



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*************************************
**************************************
 *                                    *                                        *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                    *         609 SECOND STREET
  *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   14NOV18  TIME  11:27:10   *                                    *           (916) 756-1104
  *
 *                                      *                                    *
  *
 **************************************
**************************************
```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
  100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
   PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
  MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/05/18
  MODELERS: MSW, ES
  REVISIONS NOTED WITH HE
   NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
   THIS IS THE POST-DEVELOPMENT MODEL.
   UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

```
   20 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                         NMIN           3  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1    0  STARTING DATE
                        ITIME        0000  STARTING TIME
                           NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL    0.05 HOURS
                         TOTAL TIME BASE   49.95 HOURS
```

```
ENGLISH UNITS
     DRAINAGE AREA         SQUARE MILES
     PRECIPITATION DEPTH   INCHES
     LENGTH, ELEVATION     FEET
     FLOW                  CUBIC FEET PER SECOND
     STORAGE VOLUME        ACRE-FEET
     SURFACE AREA          ACRES
     TEMPERATURE           DEGREES FAHRENHEIT

21 JD          INDEX STORM NO. 1
                     STRM        2.76  PRECIPITATION DEPTH
                     TRDA        0.00  TRANSPOSITION DRAINAGE AREA

22 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                    0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

25 JD          INDEX STORM NO. 2
                     STRM        2.74  PRECIPITATION DEPTH
                     TRDA        0.50  TRANSPOSITION DRAINAGE AREA

26 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                    0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

29 JD          INDEX STORM NO. 3
                     STRM        2.69  PRECIPITATION DEPTH
                     TRDA        2.80  TRANSPOSITION DRAINAGE AREA

30 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.04      0.04      0.04      0.04      0.04      0.05      0.05      0.05      0.05      0.05
                    0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

33 JD          INDEX STORM NO. 4
                     STRM        2.54  PRECIPITATION DEPTH
                     TRDA       16.00  TRANSPOSITION DRAINAGE AREA

34 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.03      0.03      0.03      0.03      0.03      0.04      0.04      0.04      0.04      0.04
                    0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

37 JD          INDEX STORM NO. 5
                     STRM        2.23  PRECIPITATION DEPTH
                     TRDA       90.00  TRANSPOSITION DRAINAGE AREA

38 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
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                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

41 JD          INDEX STORM NO. 6
                     STRM        3.66  PRECIPITATION DEPTH
                     TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

42 JD          INDEX STORM NO. 7
                     STRM        3.53  PRECIPITATION DEPTH
                     TRDA       20.00  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

      *** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT


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      *** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION=  1


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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	76THST	50.	4.50	15.	4.	2.	0.24		
HYDROGRAPH AT	SB01A	77.	4.25	6.	2.	1.	0.05		
2 COMBINED AT	CP-1	119.	4.25	21.	6.	3.	0.29		
ROUTED TO	R1A-2	119.	4.30	21.	6.	3.	0.29		
HYDROGRAPH AT	SB01B	20.	4.35	2.	1.	0.	0.02		
ROUTED TO	R1B-2	20.	4.40	2.	1.	0.	0.02		
HYDROGRAPH AT	SB01C	26.	4.40	4.	1.	0.	0.03		
ROUTED TO	R1C-2	26.	4.50	4.	1.	0.	0.03		
HYDROGRAPH AT	SB02E	61.	4.60	11.	3.	1.	0.10		
HYDROGRAPH AT	SB02W	45.	4.45	6.	2.	1.	0.06		
5 COMBINED AT	CP-02	231.	4.45	45.	12.	6.	0.51		
ROUTED TO	R2-3	231.	4.55	45.	12.	6.	0.51		
HYDROGRAPH AT	SB03	78.	4.15	10.	3.	1.	0.05		
2 COMBINED AT	CP-03	260.	4.50	53.	14.	7.	0.56		

	ROUTED TO						
+	R3-5	258.	4.65	53.	14.	7.	0.56
	HYDROGRAPH AT						
+	SB05	229.	4.10	25.	6.	3.	0.13
	2 COMBINED AT						
+	CP-5A	295.	4.60	75.	20.	10.	0.68
	HYDROGRAPH AT						
+	SB07W	33.	4.45	5.	1.	1.	0.05
	ROUTED TO						
+	R7W-8W	32.	5.00	5.	1.	1.	0.05
	HYDROGRAPH AT						
+	SB08W	82.	4.55	13.	3.	2.	0.11
	2 COMBINED AT						
+	CP-08W	82.	4.55	18.	5.	2.	0.16
	ROUTED TO						
+	R8W-4	81.	4.55	18.	5.	2.	0.16
	HYDROGRAPH AT						
+	SB04	292.	4.10	32.	8.	4.	0.14
	2 COMBINED AT						
+	CP-4	301.	4.10	49.	13.	6.	0.30
	ROUTED TO						
+	R4-5	297.	4.20	49.	13.	6.	0.30
	2 COMBINED AT						
+	CP-05	449.	4.20	117.	31.	15.	0.99
	ROUTED TO						
+	R5-6	446.	4.25	117.	31.	15.	0.99
	HYDROGRAPH AT						
+	SB06	243.	4.10	29.	7.	3.	0.14
	2 COMBINED AT						
+	CP-06	594.	4.25	141.	37.	18.	1.12
	HYDROGRAPH AT						
+	SB07E	19.	4.40	3.	1.	0.	0.03
	ROUTED TO						
+	R7E-8E	19.	4.45	3.	1.	0.	0.03
	HYDROGRAPH AT						
+	SB08E	46.	4.55	8.	2.	1.	0.08
	HYDROGRAPH AT						
+	SB09N	13.	4.55	3.	1.	0.	0.03
	ROUTED TO						
+	R9N-R9	13.	4.65	3.	1.	0.	0.03
	3 COMBINED AT						
+	CP-08E	76.	4.55	13.	3.	2.	0.13
	HYDROGRAPH AT						
+	SB09	71.	4.45	10.	2.	1.	0.09
	ROUTED TO						
+	8E-R9	70.	4.45	10.	2.	1.	0.09
	2 COMBINED AT						
+	CP-09	145.	4.50	23.	6.	3.	0.22
	HYDROGRAPH AT						
+	PWRCH	738.	5.75	429.	135.	74.	7.00
	2 COMBINED AT						
+	BINFLO	749.	5.75	439.	138.	76.	7.22
	ROUTED TO						
+	BASIN	241.	9.20	228.	130.	73.	7.22
	ROUTED TO						
+	BSNRT1	241.	9.25	228.	130.	73.	7.22
	ROUTED TO						
+	BSNRT2	241.	9.25	228.	130.	73.	7.22
	HYDROGRAPH AT						
+	SB10	87.	4.05	8.	2.	1.	0.04
	2 COMBINED AT						
+	CP-10	241.	9.25	228.	130.	74.	7.26

ROUTED TO
+ R10-11 241. 9.35 228. 130. 74. 7.26

HYDROGRAPH AT
+ SB11 130. 4.10 15. 4. 2. 0.07

2 COMBINED AT
+ CP-11 241. 9.35 228. 132. 75. 7.33
1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.48	119.91	256.11	0.80	3.00	119.46	258.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+02 EXCESS=0.0000E+00 OUTFLOW=0.1254E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.42	119.22	255.86	0.79	3.00	118.75	258.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1251E+02 EXCESS=0.0000E+00 OUTFLOW=0.1250E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.58	81.25	258.88	0.73	3.00	81.04	258.00	0.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1153E+02 EXCESS=0.0000E+00 OUTFLOW=0.1152E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00									
R1A-2	MANE	0.52	67.10	261.13	0.68	3.00	67.10	261.00	0.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1070E+02 EXCESS=0.0000E+00 OUTFLOW=0.1070E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00									
R1A-2	MANE	0.48	54.97	271.02	0.62	3.00	54.71	270.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9775E+01 EXCESS=0.0000E+00 OUTFLOW=0.9770E+01 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1A-2	MANE	0.42	83.01	261.73	0.76	3.00	82.95	261.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1204E+02 EXCESS=0.0000E+00 OUTFLOW=0.1203E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1A-2	MANE	0.57	80.42	262.10	0.75	3.00	80.39	264.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1180E+02 EXCESS=0.0000E+00 OUTFLOW=0.1180E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.50	20.29	263.98	1.06	3.00	20.29	264.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+01 EXCESS=0.0000E+00 OUTFLOW=0.1249E+01 BASIN STORAGE=0.2433E-04 PERCENT ERROR= -0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	2.50	20.08	264.08	1.05	3.00	20.05	264.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1234E+01 EXCESS=0.0000E+00 OUTFLOW=0.1236E+01 BASIN STORAGE=0.2811E-04 PERCENT ERROR= -0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	3.00	10.87	266.68	0.72	3.00	10.86	267.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8411E+00 EXCESS=0.0000E+00 OUTFLOW=0.8438E+00 BASIN STORAGE=0.2415E-04 PERCENT ERROR= -0.3

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1B-2	MANE	2.83	6.71	269.53	0.44	3.00	6.70	270.00	0.44

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5121E+00 EXCESS=0.0000E+00 OUTFLOW=0.5135E+00 BASIN STORAGE=0.2415E-04 PERCENT ERROR= -0.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1B-2	MANE	3.00	2.03	275.34	0.13	3.00	2.03	276.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1411E+00 EXCESS=0.0000E+00 OUTFLOW=0.1471E+00 BASIN STORAGE=0.2502E-04 PERCENT ERROR=
-4.3

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	3.00	11.83	269.61	0.89	3.00	11.82	270.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1046E+01 EXCESS=0.0000E+00 OUTFLOW=0.1049E+01 BASIN STORAGE=0.2272E-04 PERCENT ERROR=
-0.3

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	3.00	10.93	271.61	0.81	3.00	10.93	270.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9521E+00 EXCESS=0.0000E+00 OUTFLOW=0.9546E+00 BASIN STORAGE=0.2783E-04 PERCENT ERROR=
-0.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.55	25.89	269.81	1.06	3.00	25.84	270.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1816E+01 EXCESS=0.0000E+00 OUTFLOW=0.1817E+01 BASIN STORAGE=0.4172E-04 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	2.55	25.59	269.98	1.05	3.00	25.58	270.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1796E+01 EXCESS=0.0000E+00 OUTFLOW=0.1796E+01 BASIN STORAGE=0.3850E-04 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	3.00	14.30	273.36	0.72	3.00	14.29	273.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1224E+01 EXCESS=0.0000E+00 OUTFLOW=0.1226E+01 BASIN STORAGE=0.3538E-04 PERCENT ERROR=
-0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1C-2	MANE	2.95	8.76	273.52	0.44	3.00	8.74	276.00	0.44

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7451E+00 EXCESS=0.0000E+00 OUTFLOW=0.7460E+00 BASIN STORAGE=0.4282E-04 PERCENT ERROR=
-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1C-2	MANE	3.00	2.62	282.58	0.13	3.00	2.62	282.00	0.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2053E+00 EXCESS=0.0000E+00 OUTFLOW=0.2143E+00 BASIN STORAGE=0.3926E-04 PERCENT ERROR=-4.4

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	3.00	15.86	276.40	0.89	3.00	15.85	276.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1522E+01 EXCESS=0.0000E+00 OUTFLOW=0.1525E+01 BASIN STORAGE=0.4584E-04 PERCENT ERROR=-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	3.00	14.65	275.66	0.81	3.00	14.64	276.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1385E+01 EXCESS=0.0000E+00 OUTFLOW=0.1388E+01 BASIN STORAGE=0.4160E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.23	233.99	271.70	0.90	3.00	233.32	273.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2445E+02 EXCESS=0.0000E+00 OUTFLOW=0.2439E+02 BASIN STORAGE=0.4189E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.24	231.97	271.87	0.89	3.00	231.43	273.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2429E+02 EXCESS=0.0000E+00 OUTFLOW=0.2423E+02 BASIN STORAGE=0.4190E-01 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	2.58	153.90	274.41	0.70	3.00	153.60	276.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1910E+02 EXCESS=0.0000E+00 OUTFLOW=0.1904E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	3.05	110.01	277.07	0.56	3.00	109.65	276.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1515E+02 EXCESS=0.0000E+00 OUTFLOW=0.1509E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	2.79	65.15	284.59	0.41	3.00	65.04	285.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1132E+02 EXCESS=0.0000E+00 OUTFLOW=0.1126E+02 BASIN STORAGE=0.4519E-01 PERCENT ERROR= 0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.65	167.58	275.62	0.79	3.00	167.51	276.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2149E+02 EXCESS=0.0000E+00 OUTFLOW=0.2143E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.56	158.21	276.78	0.75	3.00	157.98	276.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2045E+02 EXCESS=0.0000E+00 OUTFLOW=0.2039E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	266.08	279.88	0.99	3.00	265.81	279.00	0.99

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2952E+02 EXCESS=0.0000E+00 OUTFLOW=0.2940E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	263.63	280.08	0.98	3.00	263.36	279.00	0.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2931E+02 EXCESS=0.0000E+00 OUTFLOW=0.2921E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	2.89	182.47	282.34	0.79	3.00	182.25	282.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2369E+02 EXCESS=0.0000E+00 OUTFLOW=0.2356E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR= 0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R3-5	MANE	3.00	132.20	286.19	0.64	3.00	131.80	288.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1921E+02 EXCESS=0.0000E+00 OUTFLOW=0.1909E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R3-5	MANE	3.00	78.16	296.76	0.49	3.00	78.14	297.00	0.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1458E+02 EXCESS=0.0000E+00 OUTFLOW=0.1449E+02 BASIN STORAGE=0.1003E+00 PERCENT ERROR=-0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R3-5	MANE	2.74	200.16	285.41	0.93	3.00	200.07	285.00	0.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2767E+02 EXCESS=0.0000E+00 OUTFLOW=0.2756E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R3-5	MANE	2.80	189.25	284.88	0.88	3.00	189.21	285.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2637E+02 EXCESS=0.0000E+00 OUTFLOW=0.2626E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	32.77	298.93	1.00	3.00	32.62	300.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2342E+01 EXCESS=0.0000E+00 OUTFLOW=0.2564E+01 BASIN STORAGE=0.3130E-03 PERCENT ERROR=-9.5

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	3.00	32.07	301.61	1.05	3.00	31.92	300.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2316E+01 EXCESS=0.0000E+00 OUTFLOW=0.2688E+01 BASIN STORAGE=0.3032E-03 PERCENT ERROR=-16.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	14.87	311.91	0.57	3.00	14.87	312.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1246E+01 EXCESS=0.0000E+00 OUTFLOW=0.1472E+01 BASIN STORAGE=0.3233E-03 PERCENT ERROR=-18.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7W-8W	MANE	3.00	6.94	323.79	0.28	3.00	6.94	324.00	0.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5387E+00 EXCESS=0.0000E+00 OUTFLOW=0.7168E+00 BASIN STORAGE=0.3046E-03 PERCENT ERROR=-33.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7W-8W	MANE	3.00	0.43	422.52	0.03	3.00	0.43	423.00	0.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E-01 EXCESS=0.0000E+00 OUTFLOW=0.7130E-01 BASIN STORAGE=0.2531E-03 PERCENT ERROR=-135.3

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	16.98	313.67	0.64	3.00	16.96	312.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1535E+01 EXCESS=0.0000E+00 OUTFLOW=0.1644E+01 BASIN STORAGE=0.3257E-03 PERCENT ERROR=-7.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	15.35	314.59	0.59	3.00	15.33	315.00	0.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1383E+01 EXCESS=0.0000E+00 OUTFLOW=0.1512E+01 BASIN STORAGE=0.3118E-03 PERCENT ERROR=-9.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.98	82.06	274.16	1.05	3.00	81.62	273.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8999E+01 EXCESS=0.0000E+00 OUTFLOW=0.9001E+01 BASIN STORAGE=0.1363E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	0.98	81.24	274.34	1.06	3.00	80.77	273.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9055E+01 EXCESS=0.0000E+00 OUTFLOW=0.9057E+01 BASIN STORAGE=0.1392E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	1.17	42.66	275.93	0.66	3.00	42.66	276.00	0.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5596E+01 EXCESS=0.0000E+00 OUTFLOW=0.5598E+01 BASIN STORAGE=0.1390E-03 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8W-4	MANE	1.40	23.78	276.46	0.38	3.00	23.77	276.00	0.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3241E+01 EXCESS=0.0000E+00 OUTFLOW=0.3242E+01 BASIN STORAGE=0.1343E-03 PERCENT ERROR= 0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8W-4	MANE	2.31	7.22	279.79	0.15	3.00	7.21	279.00	0.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1250E+01 EXCESS=0.0000E+00 OUTFLOW=0.1251E+01 BASIN STORAGE=0.1132E-03 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	1.22	47.13	278.23	0.80	3.00	47.13	279.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6839E+01 EXCESS=0.0000E+00 OUTFLOW=0.6840E+01 BASIN STORAGE=0.1361E-03 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	1.09	43.39	279.12	0.74	3.00	43.38	279.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6324E+01 EXCESS=0.0000E+00 OUTFLOW=0.6327E+01 BASIN STORAGE=0.1347E-03 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.85	300.52	251.32	1.56	3.00	298.03	252.00	1.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2523E+02 EXCESS=0.0000E+00 OUTFLOW=0.2528E+02 BASIN STORAGE=0.4048E-03 PERCENT ERROR= -0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	2.84	298.86	251.39	1.55	3.00	296.48	252.00	1.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2517E+02 EXCESS=0.0000E+00 OUTFLOW=0.2521E+02 BASIN STORAGE=0.4262E-03 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.00	180.91	252.10	1.27	3.00	180.70	252.00	1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+02 EXCESS=0.0000E+00 OUTFLOW=0.2058E+02 BASIN STORAGE=0.4299E-03 PERCENT ERROR= -0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5	MANE	2.82	134.26	255.25	1.03	3.00	134.16	255.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1667E+02 EXCESS=0.0000E+00 OUTFLOW=0.1669E+02 BASIN STORAGE=0.4479E-03 PERCENT ERROR=-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5	MANE	3.00	86.72	256.77	0.76	3.00	86.19	255.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1227E+02 EXCESS=0.0000E+00 OUTFLOW=0.1233E+02 BASIN STORAGE=0.4382E-03 PERCENT ERROR=-0.5

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	177.25	256.91	1.67	3.00	176.96	258.00	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2698E+02 EXCESS=0.0000E+00 OUTFLOW=0.2704E+02 BASIN STORAGE=0.4339E-03 PERCENT ERROR=-0.3

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	169.07	255.36	1.59	3.00	168.78	255.00	1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2564E+02 EXCESS=0.0000E+00 OUTFLOW=0.2571E+02 BASIN STORAGE=0.3789E-03 PERCENT ERROR=-0.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.69	530.06	254.36	1.28	3.00	529.45	255.00	1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6737E+02 EXCESS=0.0000E+00 OUTFLOW=0.6725E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	2.77	526.42	254.80	1.27	3.00	526.15	255.00	1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6699E+02 EXCESS=0.0000E+00 OUTFLOW=0.6691E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	369.43	280.64	1.05	3.00	368.96	279.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5550E+02 EXCESS=0.0000E+00 OUTFLOW=0.5543E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R5-6	MANE	3.00	266.55	283.90	0.87	3.00	265.42	285.00	0.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4570E+02 EXCESS=0.0000E+00 OUTFLOW=0.4566E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R5-6	MANE	3.00	161.12	290.53	0.66	3.00	160.98	291.00	0.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3463E+02 EXCESS=0.0000E+00 OUTFLOW=0.3456E+02 BASIN STORAGE=0.8564E-01 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R5-6	MANE	2.95	421.92	278.65	1.33	3.00	421.53	279.00	1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6988E+02 EXCESS=0.0000E+00 OUTFLOW=0.6986E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.00	396.60	280.87	1.26	3.00	396.53	279.00	1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6657E+02 EXCESS=0.0000E+00 OUTFLOW=0.6653E+02 BASIN STORAGE=0.7457E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.76	19.03	266.67	0.91	3.00	19.02	267.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+01 EXCESS=0.0000E+00 OUTFLOW=0.1268E+01 BASIN STORAGE=0.1101E-04 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	1.77	18.85	266.81	0.90	3.00	18.84	267.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+01 EXCESS=0.0000E+00 OUTFLOW=0.1254E+01 BASIN STORAGE=0.1092E-04 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	2.41	8.57	268.50	0.49	3.00	8.54	270.00	0.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6750E+00 EXCESS=0.0000E+00 OUTFLOW=0.6756E+00 BASIN STORAGE=0.1319E-04 PERCENT ERROR=-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7E-8E	MANE	3.00	3.99	269.13	0.21	3.00	3.99	270.00	0.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2917E+00 EXCESS=0.0000E+00 OUTFLOW=0.2928E+00 BASIN STORAGE=0.1256E-04 PERCENT ERROR=-0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7E-8E	MANE	3.00	0.26	292.33	0.01	3.00	0.25	294.00	0.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E-01 EXCESS=0.0000E+00 OUTFLOW=0.2054E-01 BASIN STORAGE=0.1096E-04 PERCENT ERROR=-24.8

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	2.36	9.61	272.07	0.60	3.00	9.60	273.00	0.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8313E+00 EXCESS=0.0000E+00 OUTFLOW=0.8321E+00 BASIN STORAGE=0.1454E-04 PERCENT ERROR=-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.43	8.70	271.22	0.54	3.00	8.69	273.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7492E+00 EXCESS=0.0000E+00 OUTFLOW=0.7500E+00 BASIN STORAGE=0.1049E-04 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.26	13.31	278.00	1.08	3.00	13.26	279.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1613E+01 EXCESS=0.0000E+00 OUTFLOW=0.1611E+01 BASIN STORAGE=0.2018E-04 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	2.27	13.16	278.20	1.07	3.00	13.12	279.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1595E+01 EXCESS=0.0000E+00 OUTFLOW=0.1593E+01 BASIN STORAGE=0.1743E-04 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	2.76	8.13	284.79	0.74	3.00	8.13	285.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1103E+01 EXCESS=0.0000E+00 OUTFLOW=0.1102E+01 BASIN STORAGE=0.2044E-04 PERCENT ERROR= 0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9N-R9	MANE	3.00	5.05	284.63	0.46	3.00	5.05	285.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6843E+00 EXCESS=0.0000E+00 OUTFLOW=0.6838E+00 BASIN STORAGE=0.2050E-04 PERCENT ERROR= 0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9N-R9	MANE	3.00	1.59	293.56	0.14	3.00	1.59	294.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+00 EXCESS=0.0000E+00 OUTFLOW=0.2079E+00 BASIN STORAGE=0.1894E-04 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.65	9.46	288.90	0.92	3.00	9.46	288.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1380E+01 EXCESS=0.0000E+00 OUTFLOW=0.1379E+01 BASIN STORAGE=0.1805E-04 PERCENT ERROR= 0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.68	8.74	288.39	0.84	3.00	8.73	288.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1261E+01 EXCESS=0.0000E+00 OUTFLOW=0.1260E+01 BASIN STORAGE=0.1932E-04 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.36	71.32	267.92	1.08	3.00	70.88	267.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4954E+01 EXCESS=0.0000E+00 OUTFLOW=0.4955E+01 BASIN STORAGE=0.3084E-06 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

8E-R9	MANE	0.23	70.66	267.60	1.07	3.00	70.16	267.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4899E+01 EXCESS=0.0000E+00 OUTFLOW=0.4900E+01 BASIN STORAGE=0.2753E-06 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

8E-R9	MANE	0.41	40.20	270.51	0.74	3.00	40.14	270.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3390E+01 EXCESS=0.0000E+00 OUTFLOW=0.3390E+01 BASIN STORAGE=0.2408E-06 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

8E-R9	MANE	0.40	25.09	270.68	0.46	3.00	25.04	270.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2102E+01 EXCESS=0.0000E+00 OUTFLOW=0.2103E+01 BASIN STORAGE=0.2729E-06 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

8E-R9	MANE	0.63	8.15	271.55	0.14	3.00	8.13	273.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6388E+00 EXCESS=0.0000E+00 OUTFLOW=0.6390E+00 BASIN STORAGE=0.2619E-06 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

8E-R9	MANE	0.44	44.57	273.86	0.92	3.00	44.54	273.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4240E+01 EXCESS=0.0000E+00 OUTFLOW=0.4241E+01 BASIN STORAGE=0.2577E-06 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

8E-R9	MANE	0.40	41.30	273.54	0.84	3.00	41.26	273.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3873E+01 EXCESS=0.0000E+00 OUTFLOW=0.3874E+01 BASIN STORAGE=0.2900E-06 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.39	244.41	552.32	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3084E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.39	244.36	552.62	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3083E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.37	241.71	552.79	0.79	3.00	241.71	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3040E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.41	239.65	553.20	0.78	3.00	239.65	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3008E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.44	237.69	555.44	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2977E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3151E-01 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.46	242.84	552.46	0.79	3.00	242.84	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.36	242.32	552.59	0.79	3.00	242.32	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	244.41	552.57	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3083E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	244.36	552.69	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3082E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.41	241.71	553.15	0.79	3.00	241.71	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3039E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.43	239.64	555.63	0.78	3.00	239.64	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3007E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3599E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.48	237.69	555.77	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2976E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3598E-01 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.36	242.84	552.83	0.79	3.00	242.83	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.46	242.32	552.87	0.79	3.00	242.31	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.07	244.41	558.64	0.81	3.00	244.41	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3125E+03 EXCESS=0.0000E+00 OUTFLOW=0.3119E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.07	244.36	558.85	0.81	3.00	244.35	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3124E+03 EXCESS=0.0000E+00 OUTFLOW=0.3117E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.00	241.71	559.89	0.79	3.00	241.70	561.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3077E+03 EXCESS=0.0000E+00 OUTFLOW=0.3071E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR= 0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	3.00	239.64	561.16	0.78	3.00	239.64	561.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3034E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR= 0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	3.07	237.69	560.84	0.77	3.00	237.69	561.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3003E+03 EXCESS=0.0000E+00 OUTFLOW=0.2996E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R10-11	MANE	3.07	242.83	560.81	0.80	3.00	242.83	558.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3108E+03 EXCESS=0.0000E+00 OUTFLOW=0.3102E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R10-11	MANE	3.00	242.31	558.78	0.80	3.00	242.31	561.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3097E+03 EXCESS=0.0000E+00 OUTFLOW=0.3090E+03 BASIN STORAGE=0.6745E+00 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

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1****************************************                ****************************************
 *                                      *                *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                *         609 SECOND STREET            *
 *                                      *                *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   26NOV18  TIME  12:12:06  *                *           (916) 756-1104             *
 *                                      *                *                                      *
 ****************************************                ****************************************

                                X     X  XXXXXXX   XXXXX          X
                                X     X  X        X     X        XX
                                X     X  X        X              X
                                XXXXXXX  XXXX     X        XXXXX  X
                                X     X  X        X              X
                                X     X  X        X     X        X
                                X     X  XXXXXXX   XXXXX        XXX

 THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

 THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVe ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 08/07/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R
           15           ID           THIS IS THE POST-DEVELOPMENT MODEL
           16           ID
           17           IT       3       0       0    1000
           18           IN      15
           19           IO       5
                        *DIAGRAM
                        *
           20           JD   3.849  0.0001
           21           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
           22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
           23           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
           24           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
           25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
           26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
           27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
           28           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
           29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
           30           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
           31           JD   3.657    10.0
           32           JD   3.533    20.0
                        *

           33           KK  76THST
           34           KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           35           KM        100-YR, 24-HR FLO-2D MODEL (XS 98)
           36           BA    0.24
           37           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
           38           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
           39           QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.01
           40           QI    0.00    0.00    0.00    0.00    0.01    0.00    0.00    0.02    0.03    0.05
           41           QI    0.09    0.11    0.14    0.21    0.34    0.51    0.76    3.70   17.69   47.79
           42           QI   68.57   54.61   42.75   35.61   32.34   29.25   26.13   22.83   19.41   18.11
           43           QI   16.15   14.54   13.75   12.53   12.00   11.44   10.52    9.81    9.34    9.09
           44           QI    9.11    8.71    8.37    8.05    7.67    7.75    7.47    7.08    6.97    6.77
           45           QI    6.59    6.44    6.32    6.12    5.95    5.87    5.70    5.84    5.41    5.44
           46           QI    4.56    4.81    4.75    4.78    4.69    4.67    4.61    4.36    4.20    4.00
           47           QI    3.75    3.51    2.49    3.43    3.61    3.65    2.48    2.36    2.19    2.07
           48           QI    1.94    1.72    1.71    1.36    1.48    1.13    1.13    1.20    1.10    1.06
           49           QI    1.06    1.00    0.94    0.89    0.85    0.81    0.78    0.74    0.72    0.70
           50           QI    0.67    0.64    0.62    0.59    0.57    0.55    0.53    0.51    0.49    0.47
           51           QI    0.45    0.44    0.42    0.40    0.39
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                *
1                                        HEC-1 INPUT                                                    PAGE  2

          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

            52      KK   SB01A   BASIN
            53      BA   0.055
            54      PB   2.721
            55      PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
            56      PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
            57      PC   0.956   0.968   0.979   0.990   1.000
            58      LG    0.10    0.25    4.72    0.51       0
            59      UC   0.439   0.231
            60      UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
            61      UA     100
                    *

            62      KK    CP-1 COMBINE
            63      KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
            64      HC       2   0.295
                    *

            65      KK   R1A-2   ROUTE
            66      RK    2139  0.0180   0.020            TRAP   2.000    0.00
                    *

            67      KK   SB01B   BASIN
            68      BA   0.022
            69      LG    0.10    0.25    4.72    0.51      00
            70      UC   0.490   0.471
            71      UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
            72      UA     100
                    *

            73      KK   R1B-2   ROUTE
            74      RK    2636  0.0015   0.030            TRAP   2.000    0.00
                    *

            75      KK   SB01C   BASIN
            76      BA   0.032
            77      LG    0.10    0.25    4.72    0.51      00
            78      UC   0.581   0.550
            79      UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
            80      UA     100
                    *

            81      KK   R1C-2   ROUTE
            82      RK    3046  0.0015   0.030            TRAP   2.000    0.00
                    *

            83      KK   SB02E   BASIN
            84      KM        IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
            85      BA   0.100
            86      LG    0.10    0.25    4.03    0.74       85
            87      UC   0.859   0.688
            88      UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
            89      UA     100
                    *
1                                        HEC-1 INPUT                                                    PAGE  3

          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

            90      KK   SB02W   BASIN
            91      BA   0.060
            92      LG    0.10    0.25    4.33    0.61       0
            93      UC   0.686   0.535
            94      UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
            95      UA     100
                    *

            96      KK   CP-02 COMBINE
            97      HC       5
                    *

            98      KK    R2-3   ROUTE
            99      KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
           100      RK    1260  0.0015   0.03             TRAP      92       4
                    *

           101      KK    SB03   BASIN
           102      BA   0.048
           103      LG    0.15    0.25    4.50    0.47      55
           104      UC   0.364   0.294
           105      UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           106      UA     100
                    *

           107      KK   CP-03 COMBINE
           108      HC       2
                    *

           109      KK    R3-5   ROUTE
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 110          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 111          RK    2396  0.0015   0.03             TRAP      98       4
              *

 112          KK    SB05   BASIN
 113          BA   0.126
 114          LG    0.22    0.25    4.50    0.44      48
 115          UC   0.327   0.226
 116          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 117          UA     100
              *

 118          KK   CP-5A COMBINE
 119          HC       2
              *
 120          KM
              *

 121          KK   SB07W   BASIN
 122          BA   0.048
 123          LG    0.10    0.25    4.03    0.74       0
 124          UC   0.677   0.558
 125          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 126          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 127          KK  R7W-8W   ROUTE
 128          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 129          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 130          RK    3721  0.0013   0.03             TRAP      46       4
              *

 131          KK  SB08W   BASIN
 132          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
 133          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 134          BA   0.112
 135          LG    0.10    0.25    4.08    0.71       85
 136          UC   0.784   0.547
 137          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 138          UA     100
              *

 139          KK  CP-08W COMBINE
 140          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 141          HC       2
              *

 142          KK   R8W-4   ROUTE
 143          KM        SR 101L FREEWAY TO CP4
 144          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 145          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 146          KK    SB04   BASIN
 147          BA   0.144
 148          LG    0.14    0.25    4.60    0.44      61
 149          UC   0.305   0.199
 150          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 151          UA     100
              *

 152          KK    CP-4 COMBINE
 153          KM        PRINCESS BLVD AND EAST OF 77TH ST
 154          HC       2
              *

 155          KK    R4-5   ROUTE
 156          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 157          RK    1992  0.0013   0.03             TRAP      39       4
              *

 158          KK   CP-05 COMBINE
 159          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 160          KM        COMBINE CP-05A AND R4-5
 161          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 162          KK    R5-6   ROUTE
 163          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 164          RK    1694  0.0015   0.03             TRAP     188       4
              *

 165          KK    SB06   BASIN
 166          BA   0.136
 167          LG    0.16    0.25    4.55    0.45      53
 168          UC   0.321   0.246
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```
169          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
170          UA     100
             *

171          KK   CP-06 COMBINE
172          HC       2
             *
             *
             * END WEST RUN
             *
             *
             * BEGIN EAST SIDE OF HAYDEN
             *

173          KK  SB07E   BASIN
174          BA   0.026
175          LG    0.10    0.25    4.03    0.74       0
176          UC   0.574   0.527
177          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
178          UA     100
             *

179          KK  R7E-8E   ROUTE
180          RK    3662  0.0130   0.030            TRAP   2.000    0.00
             *

181          KK  SB08E   BASIN
182          BA   0.078
183          LG    0.10    0.25    4.08    0.72       0
184          UC   0.798   0.652
185          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
186          UA     100
             *

187          KK  SB09N   BASIN
188          BA   0.028
189          LG    0.10    0.25    4.79    0.49       0
190          UC   0.740   1.111
191          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
192          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

193          KK  R9N-R9   ROUTE
194          RK    2586  0.0013   0.020            TRAP   2.000    0.00
             *

195          KK  CP-08E COMBINE
196          KM       SB07E, SB08E, SB09N
197          HC       3
             *

198          KK   SB09   BASIN
199          BA   0.086
200          LG    0.10    0.25    4.79    0.49       0
201          UC   0.683   0.518
202          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
203          UA     100
             *

204          KK  8E-R9   ROUTE
205          RK     501  0.0013   0.020            TRAP   2.000    0.00
             *

206          KK   CP-09 COMBINE
207          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
208          HC       2
             *

209          KK   PWRCH
210          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
211          KM        100-YR, 24-HR FLO-2D MODEL (XS 107)
212          KM        FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL
213          BA     7.0
214          QI       0       0       0       0       0       0       0       0       0       0
215          QI       0       0       0       0       0       0       0       0       0       0
216          QI       0       0       0       0       0       0       0       0       0       0
217          QI       0       0       0       0       0       0       0       0       0       0
218          QI       0       0       0       0       0       1       1       3      43     495
219          QI    1099    1198    2055    3747    3658    3175    2822    2378    2084    1898
220          QI    1699    1499    1331    1179    1047     940     851     773     705     645
221          QI     597     559     521     488     460     435     410     387     370     356
222          QI     339     328     317     303     293     281     270     257     258     248
223          QI     240     237     223     220     214     209     205     201     192     188
224          QI     180     179     164     158     149     142     137     126     120     117
225          QI     107     102      97      99      86      83      82      74      70      66
226          QI      62      59      57      55      52      50      50      48      42      41
227          QI      40      37      35      40      36      32      31      30      31      30
228          QI      31      30      24      23      23
             *
```

```
 229          KK  BINFLO
 230          KM         TOTAL INFLOW INTO BASIN 53R.
 231          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 232          KK   BASIN
 233          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 234          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 235          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 236          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 237          RS       1    STOR       0
 238          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 239          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 240          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 241          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 242          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 243          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 244          KK  BSNRT1
 245          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 246          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 247          KM        EXCESS CAPACITY.
 248          RK     550  0.0052   0.024            CIRC     7.0
              *

 249          KK  BSNRT2
 250          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 251          RK    1200  0.0077   0.013            CIRC     7.0
              *

 252          KK    SB10   BASIN
 253          BA   0.040
 254          LG    0.15    0.25    4.25    0.55      55
 255          UC   0.233   0.161
 256          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 257          UA     100
              *

 258          KK   CP-10 COMBINE
 259          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 260          HC       2
              *

 261          KK  R10-11   ROUTE
 262          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 263          RK    1277  0.0014   0.03             TRAP     220       4
              *

 264          KK    SB11   BASIN
 265          BA   0.071
 266          LG    0.15    0.25    4.15    0.58      55
 267          UC   0.296   0.232
 268          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 269          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 270          KK   CP-11 COMBINE
 271          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 272          HC       2
              *
 273          ZZ
```

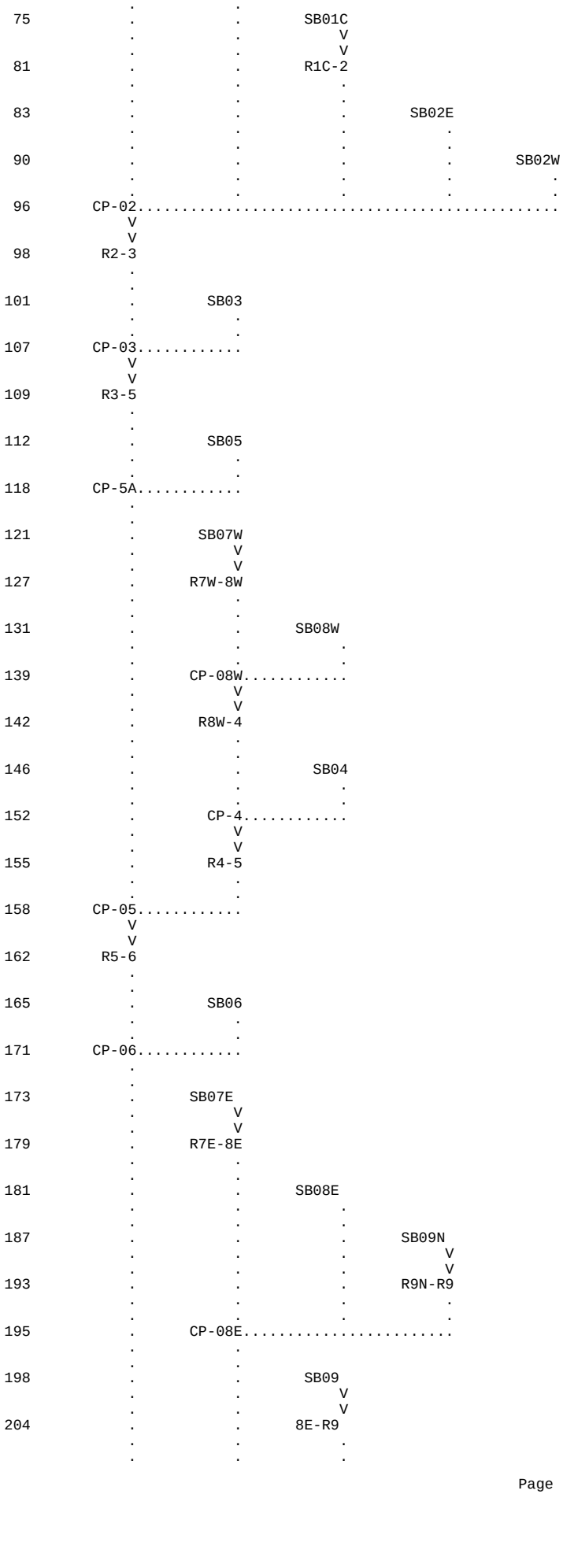
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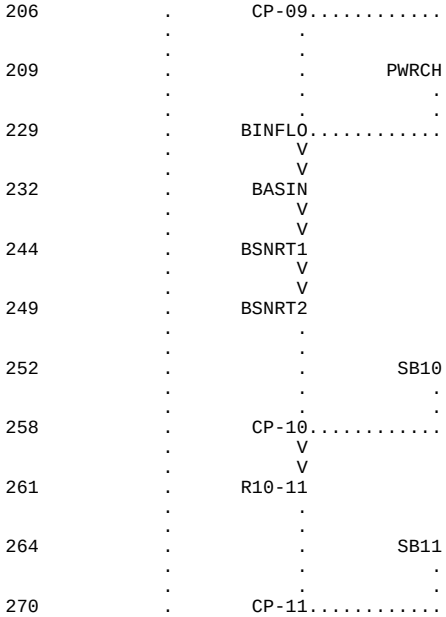
SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    33      76THST
                .
                .
    52          .       SB01A
                .          .
                .          .
    62        CP-1.............
                V
                V
    65       R1A-2
                .
                .
    67          .       SB01B
                .          V
                .          V
    73          .       R1B-2
                .          .
```


SB01C
R1C-2
SB02E
SB02W
CP-02
R2-3
SB03
CP-03
R3-5
SB05
CP-5A
SB07W
R7W-8W
SB08W
CP-08W
R8W-4
SB04
CP-4
R4-5
CP-05
R5-6
SB06
CP-06
SB07E
R7E-8E
SB08E
SB09N
R9N-R9
CP-08E
SB09
8E-R9



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

FLOOD HYDROGRAPH PACKAGE (HEC-1)

JUN 1998

VERSION 4.1

RUN DATE 26NOV18 TIME 11:54:19

U.S. ARMY CORPS OF ENGINEERS

HYDROLOGIC ENGINEERING CENTER

609 SECOND STREET

DAVIS, CALIFORNIA 95616

(916) 756-1104

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVe ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 08/07/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R
THIS IS THE POST-DEVELOPMENT MODEL

19 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE	1 0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	1000	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	3 0	ENDING DATE
NDTIME	0157	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 49.95 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET

FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

20 JD INDEX STORM NO. 1
STRM 3.85 PRECIPITATION DEPTH
TRDA 0.00 TRANSPOSITION DRAINAGE AREA

21 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

+	SB01B	17.	12.35	2.	1.	0.	0.02
ROUTED TO							
+	R1B-2	17.	12.40	2.	1.	0.	0.02
HYDROGRAPH AT							
+	SB01C	22.	12.40	3.	1.	0.	0.03
ROUTED TO							
+	R1C-2	22.	12.50	3.	1.	0.	0.03
HYDROGRAPH AT							
+	SB02E	50.	12.60	10.	3.	1.	0.10
HYDROGRAPH AT							
+	SB02W	38.	12.45	5.	1.	1.	0.06
5 COMBINED AT							
+	CP-02	217.	12.50	48.	15.	7.	0.51
ROUTED TO							
+	R2-3	216.	12.55	48.	15.	7.	0.51
HYDROGRAPH AT							
+	SB03	65.	12.15	10.	3.	2.	0.05
2 COMBINED AT							
+	CP-03	242.	12.55	57.	17.	9.	0.56
ROUTED TO							
+	R3-5	241.	12.70	56.	17.	9.	0.56
HYDROGRAPH AT							
+	SB05	190.	12.10	24.	8.	4.	0.13
2 COMBINED AT							
+	CP-5A	279.	12.65	78.	25.	12.	0.68
HYDROGRAPH AT							
+	SB07W	27.	12.45	4.	1.	0.	0.05
ROUTED TO							
+	R7W-8W	27.	13.05	5.	1.	1.	0.05
HYDROGRAPH AT							
+	SB08W	67.	12.55	11.	3.	1.	0.11
2 COMBINED AT							
+	CP-08W	67.	12.55	15.	4.	2.	0.16
ROUTED TO							
+	R8W-4	67.	12.55	15.	4.	2.	0.16
HYDROGRAPH AT							
+	SB04	241.	12.10	31.	10.	5.	0.14
2 COMBINED AT							
+	CP-4	248.	12.10	46.	14.	7.	0.30
ROUTED TO							
+	R4-5	247.	12.20	46.	14.	7.	0.30
2 COMBINED AT							
+	CP-05	431.	12.20	123.	39.	19.	0.99
ROUTED TO							
+	R5-6	427.	12.30	123.	39.	19.	0.99
HYDROGRAPH AT							
+	SB06	202.	12.10	27.	9.	4.	0.14
2 COMBINED AT							
+	CP-06	578.	12.25	148.	47.	23.	1.12
HYDROGRAPH AT							
+	SB07E	16.	12.40	2.	1.	0.	0.03
ROUTED TO							
+	R7E-8E	16.	12.45	2.	1.	0.	0.03
HYDROGRAPH AT							
+	SB08E	39.	12.55	6.	2.	1.	0.08
HYDROGRAPH AT							
+	SB09N	11.	12.55	3.	1.	0.	0.03
ROUTED TO							
+	R9N-R9	11.	12.65	3.	1.	0.	0.03
3 COMBINED AT							
+	CP-08E	63.	12.55	11.	3.	1.	0.13
HYDROGRAPH AT							
+	SB09	60.	12.45	9.	2.	1.	0.09

	ROUTED TO							
+		8E-R9	60.	12.45	9.	2.	1.	0.09
	2 COMBINED AT							
+		CP-09	121.	12.50	20.	5.	2.	0.22
	HYDROGRAPH AT							
+		PWRCH	3747.	13.25	1540.	502.	248.	7.00
	2 COMBINED AT							
+		BINFLO	3788.	13.25	1558.	507.	250.	7.22
	ROUTED TO							
+		BASIN	462.	18.45	458.	399.	241.	7.22
	ROUTED TO							
+		BSNRT1	462.	18.50	458.	399.	241.	7.22
	ROUTED TO							
+		BSNRT2	462.	18.50	458.	399.	241.	7.22
	HYDROGRAPH AT							
+		SB10	72.	12.05	8.	3.	1.	0.04
	2 COMBINED AT							
+		CP-10	463.	18.50	459.	400.	242.	7.26
	ROUTED TO							
+		R10-11	463.	18.55	459.	400.	241.	7.26
	HYDROGRAPH AT							
+		SB11	107.	12.10	14.	5.	2.	0.07
	2 COMBINED AT							
+		CP-11	465.	18.55	460.	401.	244.	7.33

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.36	117.01	738.51	1.23	3.00	116.71	738.00	1.23

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1943E+02 EXCESS=0.0000E+00 OUTFLOW=0.1943E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R1A-2	MANE	0.42	112.05	738.79	1.22	3.00	111.68	738.00	1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1919E+02 EXCESS=0.0000E+00 OUTFLOW=0.1918E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00									
R1A-2	MANE	0.38	108.92	738.78	1.21	3.00	108.42	738.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1903E+02 EXCESS=0.0000E+00 OUTFLOW=0.1903E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.54	17.90	743.39	0.96	3.00	17.89	744.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1124E+01 EXCESS=0.0000E+00 OUTFLOW=0.1126E+01 BASIN STORAGE=0.3296E-04 PERCENT ERROR=-0.2

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	2.69	16.41	744.91	0.88	3.00	16.26	744.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1027E+01 EXCESS=0.0000E+00 OUTFLOW=0.1029E+01 BASIN STORAGE=0.3545E-04 PERCENT ERROR=-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	2.72	15.48	745.80	0.82	3.00	15.39	744.00	0.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9639E+00 EXCESS=0.0000E+00 OUTFLOW=0.9659E+00 BASIN STORAGE=0.3993E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.68	22.92	749.78	0.96	3.00	22.87	750.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1636E+01 EXCESS=0.0000E+00 OUTFLOW=0.1638E+01 BASIN STORAGE=0.6351E-04 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	2.74	20.97	748.38	0.88	3.00	20.87	750.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1494E+01 EXCESS=0.0000E+00 OUTFLOW=0.1496E+01 BASIN STORAGE=0.4987E-04 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	2.88	19.87	749.59	0.82	3.00	19.80	750.00	0.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1402E+01 EXCESS=0.0000E+00 OUTFLOW=0.1405E+01 BASIN STORAGE=0.5140E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.35	226.81	752.80	1.13	3.00	226.71	753.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3062E+02 EXCESS=0.0000E+00 OUTFLOW=0.3055E+02 BASIN STORAGE=0.3879E-01 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.43	212.66	752.82	1.08	3.00	212.62	753.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2938E+02 EXCESS=0.0000E+00 OUTFLOW=0.2931E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.31	204.80	754.76	1.05	3.00	204.03	753.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2859E+02 EXCESS=0.0000E+00 OUTFLOW=0.2852E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.20	253.61	761.54	1.24	3.00	252.92	762.00	1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3709E+02 EXCESS=0.0000E+00 OUTFLOW=0.3694E+02 BASIN STORAGE=0.8213E-01 PERCENT ERROR= 0.2

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R3-5	MANE	3.00	237.75	761.78	1.19	3.00	237.48	762.00	1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3549E+02 EXCESS=0.0000E+00 OUTFLOW=0.3534E+02 BASIN STORAGE=0.8213E-01 PERCENT ERROR= 0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R3-5	MANE	3.00	227.85	760.24	1.16	3.00	227.64	762.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3445E+02 EXCESS=0.0000E+00 OUTFLOW=0.3433E+02 BASIN STORAGE=0.8577E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	28.00	782.83	0.94	3.00	27.96	783.00	0.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+01 EXCESS=0.0000E+00 OUTFLOW=0.2397E+01 BASIN STORAGE=0.4467E-03 PERCENT ERROR= -16.7

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	25.40	781.83	0.85	3.00	25.36	783.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1840E+01 EXCESS=0.0000E+00 OUTFLOW=0.2168E+01 BASIN STORAGE=0.4706E-03 PERCENT ERROR=
-17.9

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	23.58	785.70	0.80	3.00	23.51	786.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1708E+01 EXCESS=0.0000E+00 OUTFLOW=0.2041E+01 BASIN STORAGE=0.4689E-03 PERCENT ERROR=
-19.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.96	71.18	754.74	1.03	3.00	70.80	753.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8755E+01 EXCESS=0.0000E+00 OUTFLOW=0.8757E+01 BASIN STORAGE=0.1944E-03 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	1.04	64.87	755.01	0.93	3.00	64.46	753.00	0.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7972E+01 EXCESS=0.0000E+00 OUTFLOW=0.7972E+01 BASIN STORAGE=0.2012E-03 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	1.01	60.81	755.16	0.88	3.00	60.38	756.00	0.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7491E+01 EXCESS=0.0000E+00 OUTFLOW=0.7491E+01 BASIN STORAGE=0.1902E-03 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.94	256.67	731.20	1.84	3.00	254.63	732.00	1.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2976E+02 EXCESS=0.0000E+00 OUTFLOW=0.2979E+02 BASIN STORAGE=0.6490E-03 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	243.45	731.97	1.72	3.00	243.31	732.00	1.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2783E+02 EXCESS=0.0000E+00 OUTFLOW=0.2787E+02 BASIN STORAGE=0.6422E-03 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	230.28	731.46	1.64	3.00	229.11	732.00	1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2662E+02 EXCESS=0.0000E+00 OUTFLOW=0.2664E+02 BASIN STORAGE=0.5772E-03 PERCENT ERROR=-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.96	450.32	735.16	1.57	3.00	448.88	735.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8260E+02 EXCESS=0.0000E+00 OUTFLOW=0.8248E+02 BASIN STORAGE=0.6928E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R5-6	MANE	2.99	424.68	735.98	1.48	3.00	421.08	738.00	1.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7820E+02 EXCESS=0.0000E+00 OUTFLOW=0.7809E+02 BASIN STORAGE=0.6927E-01 PERCENT ERROR=0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.00	403.26	735.54	1.43	3.00	400.98	738.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7534E+02 EXCESS=0.0000E+00 OUTFLOW=0.7525E+02 BASIN STORAGE=0.6927E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.93	16.43	748.32	0.80	3.00	16.39	747.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1113E+01 EXCESS=0.0000E+00 OUTFLOW=0.1112E+01 BASIN STORAGE=0.1951E-04 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	1.94	14.90	748.28	0.72	3.00	14.82	747.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9964E+00 EXCESS=0.0000E+00 OUTFLOW=0.9968E+00 BASIN STORAGE=0.1628E-04 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.13	13.91	748.07	0.67	3.00	13.81	747.00	0.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9248E+00 EXCESS=0.0000E+00 OUTFLOW=0.9254E+00 BASIN STORAGE=0.1626E-04 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.43	11.87	758.35	0.97	3.00	11.83	759.00	0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1453E+01 EXCESS=0.0000E+00 OUTFLOW=0.1451E+01 BASIN STORAGE=0.2431E-04 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.57	10.88	757.62	0.89	3.00	10.84	759.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1330E+01 EXCESS=0.0000E+00 OUTFLOW=0.1328E+01 BASIN STORAGE=0.2146E-04 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.61	10.25	758.60	0.84	3.00	10.23	759.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1249E+01 EXCESS=0.0000E+00 OUTFLOW=0.1248E+01 BASIN STORAGE=0.2338E-04 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.34	63.16	747.57	0.97	3.00	62.82	747.00	0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4464E+01 EXCESS=0.0000E+00 OUTFLOW=0.4465E+01 BASIN STORAGE=0.3646E-06 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

8E-R9	MANE	0.34	58.05	747.58	0.89	3.00	57.70	747.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4085E+01 EXCESS=0.0000E+00 OUTFLOW=0.4085E+01 BASIN STORAGE=0.3666E-06 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

8E-R9	MANE	0.34	54.72	747.84	0.84	3.00	54.37	747.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3838E+01 EXCESS=0.0000E+00 OUTFLOW=0.3838E+01 BASIN STORAGE=0.3903E-06 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.38	462.76	1109.79	2.58	3.00	462.76	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9944E+03 EXCESS=0.0000E+00 OUTFLOW=0.9942E+03 BASIN STORAGE=0.9347E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.38	462.49	1109.94	2.58	3.00	462.49	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9936E+03 EXCESS=0.0000E+00 OUTFLOW=0.9934E+03 BASIN STORAGE=0.9329E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.43	462.32	1110.31	2.58	3.00	462.32	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9930E+03 EXCESS=0.0000E+00 OUTFLOW=0.9928E+03 BASIN STORAGE=0.9109E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.37	462.76	1110.22	2.58	3.00	462.76	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9941E+03 EXCESS=0.0000E+00 OUTFLOW=0.9941E+03 BASIN STORAGE=0.2126E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.37	462.49	1110.43	2.58	3.00	462.49	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9935E+03 EXCESS=0.0000E+00 OUTFLOW=0.9934E+03 BASIN STORAGE=0.1066E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.38	462.32	1110.42	2.58	3.00	462.32	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9927E+03 EXCESS=0.0000E+00 OUTFLOW=0.9926E+03 BASIN STORAGE=0.3689E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.34	463.63	1114.77	2.58	3.00	463.63	1113.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9995E+03 EXCESS=0.0000E+00 OUTFLOW=0.9982E+03 BASIN STORAGE=0.1343E+01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.39	463.32	1113.19	2.58	3.00	463.32	1113.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9985E+03 EXCESS=0.0000E+00 OUTFLOW=0.9973E+03 BASIN STORAGE=0.1563E+01 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.35	463.12	1115.44	2.57	3.00	463.12	1113.00	2.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9975E+03 EXCESS=0.0000E+00 OUTFLOW=0.9959E+03 BASIN STORAGE=0.1570E+01 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

Appendix F
Cavasson HEC-1 Ultimate
Cavasson

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1****************************************
****************************************
 *                                      *                                                *
  *                                                                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                *    U.S. ARMY CORPS OF ENGINEERS
  *                                                                                      *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *                                                                                      *
 *            VERSION 4.1               *                                                *          609 SECOND STREET
  *                                                                                      *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *                                                                                      *
 *  RUN DATE   15NOV18  TIME  15:22:07  *                                                *          (916) 756-1104
  *                                                                                      *
 *                                      *                                                *
  *                                                                                      *
 ****************************************
****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   1          ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
   2          ID        POWERLINE CORRIDOR
   3          ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
   4          ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
   5          ID       10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
   6          ID           PIMA ROAD FLOWS.
   7          ID
   8          ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
   9          ID       MODELERS: RK, MW
  10          ID
  11          ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
  12          ID       MODELERS: MSW, ES
  13          ID       REVISIONS NOTED WITH HE
  14          ID           ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
  15          ID           THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
  16          ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
  17          ID
  18          IT       3       0       0    1000
  19          IN      15
  20          IO       5
              *DIAGRAM
              *
  21          JD   1.817  0.0001
  22          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
  23          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
  24          PC   0.962   0.972   0.983   0.991   1.000
  25          JD   1.806  0.5000
  26          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
  27          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
  28          PC   0.962   0.972   0.983   0.991   1.000
  29          JD   1.772     2.8
  30          PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
  31          PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
  32          PC   0.950   0.963   0.975   0.988   1.000
              *

  33          KK  76THST
  34          KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
  35          KM        10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS
  36          BA    0.24
  37          QI       0       0       0       0       0       0       0       0       0       0
  38          QI       0       0    0.01    0.01    0.06    0.58    8.13   27.04   31.94    31.1
  39          QI   22.07   17.10   13.79   11.20    9.48    8.22    7.44    6.76    6.13    5.32
  40          QI    4.66    4.31    3.73    3.05    2.71    2.44    2.18    2.27    1.51    1.61
  41          QI    1.48    1.38    1.29    1.17    1.01    0.96    0.97    0.77    0.84    0.86
  42          QI    0.70    0.68    0.67    0.62    0.58    0.55    0.53    0.51    0.49    0.46
  43          QI    0.44    0.43    0.42    0.40    0.38    0.37    0.35    0.34    0.33    0.31
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   44          QI    0.30    0.29    0.28
               *
1                                    HEC-1 INPUT                                                    PAGE  2
  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   45          KK   SB01A   BASIN
   46          BA   0.055
   47          LG    0.10    0.25    4.72    0.51       0
   48          UC   0.439   0.231
   49          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   50          UA     100
               *

   51          KK    CP-1 COMBINE
   52          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   53          HC       2   0.295
               *

   54          KK   R1A-2   ROUTE
   55          RK    2139  0.0180   0.020            TRAP   2.000    0.00
               *

   56          KK   SB01B   BASIN
   57          KM       IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
   58          BA   0.022
   59          LG    0.10    0.25    4.72    0.51      73
   60          UC   0.490   0.471
   61          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   62          UA     100
               *

   63          KK   R1B-2   ROUTE
   64          RK    2636  0.0015   0.030            TRAP   2.000    0.00
               *

   65          KK   SB01C   BASIN
   66          KM       IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
   67          BA   0.032
   68          LG    0.10    0.25    4.72    0.51      73
   69          UC   0.581   0.550
   70          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   71          UA     100
               *

   72          KK   R1C-2   ROUTE
   73          RK    3046  0.0015   0.030            TRAP   2.000    0.00
               *

   74          KK   SB02E   BASIN
   75          KM       IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
   76          BA   0.100
   77          LG    0.10    0.25    4.03    0.74      85
   78          UC   0.859   0.688
   79          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   80          UA     100
               *
1                                    HEC-1 INPUT                                                    PAGE  3
  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   81          KK   SB02W   BASIN
   82          BA   0.060
   83          LG    0.10    0.25    4.33    0.61       0
   84          UC   0.686   0.535
   85          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   86          UA     100
               *

   87          KK   CP-02 COMBINE
   88          HC       5
               *

   89          KK    R2-3   ROUTE
   90          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
   91          RK    1260  0.0015   0.03             TRAP      92       4
               *

   92          KK    SB03   BASIN
   93          BA   0.048
   94          LG    0.15    0.25    4.50    0.47      55
   95          UC   0.364   0.294
   96          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   97          UA     100
               *

   98          KK   CP-03 COMBINE
   99          HC       2
               *

  100          KK    R3-5   ROUTE
```

```
 101          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 102          RK    2396  0.0015   0.03             TRAP      98       4
              *

 103          KK    SB05   BASIN
 104          BA   0.126
 105          LG    0.22    0.25    4.50    0.44      48
 106          UC   0.327   0.226
 107          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 108          UA     100
              *

 109          KK   CP-5A COMBINE
 110          HC       2
              *
 111          KM
              *

 112          KK   SB07W   BASIN
 113          KM        IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
 114          BA   0.048
 115          LG    0.10    0.25    4.03    0.74       73
 116          UC   0.677   0.558
 117          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1                                          HEC-1 INPUT                                          PAGE  4

      LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 118          UA     100
              *

 119          KK  R7W-8W   ROUTE
 120          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 121          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 122          RK    3721  0.0013   0.03             TRAP      46       4
              *

 123          KK  SB08W   BASIN
 124          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
 125          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 126          BA   0.112
 127          LG    0.10    0.25    4.08    0.71       85
 128          UC   0.784   0.547
 129          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 130          UA     100
              *

 131          KK  CP-08W COMBINE
 132          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 133          HC       2
              *

 134          KK   R8W-4   ROUTE
 135          KM        SR 101L FREEWAY TO CP4
 136          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 137          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 138          KK    SB04   BASIN
 139          BA   0.144
 140          LG    0.14    0.25    4.60    0.44      61
 141          UC   0.305   0.199
 142          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 143          UA     100
              *

 144          KK    CP-4 COMBINE
 145          KM        PRINCESS BLVD AND EAST OF 77TH ST
 146          HC       2
              *

 147          KK    R4-5   ROUTE
 148          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 149          RK    1992  0.0013   0.03             TRAP      39       4
              *

 150          KK   CP-05 COMBINE
 151          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 152          KM        COMBINE CP-05A AND R4-5
 153          HC       2
              *
1                                          HEC-1 INPUT                                          PAGE  5

      LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 154          KK    R5-6   ROUTE
 155          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 156          RK    1694  0.0015   0.03             TRAP     188       4
              *

 157          KK    SB06   BASIN
 158          BA   0.136
 159          LG    0.16    0.25    4.55    0.45      53
```

```
 160          UC   0.321   0.246
 161          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 162          UA     100
              *

 163          KK   CP-06 COMBINE
 164          HC       2
              *
              *
              * END WEST RUN
              *
              *
              * BEGIN EAST SIDE OF HAYDEN
              *

 165          KK  SB07E   BASIN
 166          BA   0.026
 167          LG    0.10    0.25    4.03    0.74       0
 168          UC   0.574   0.527
 169          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 170          UA     100
              *

 171          KK  R7E-8E   ROUTE
 172          RK    3662  0.0130   0.030            TRAP   2.000    0.00
              *

 173          KK  SB08E   BASIN
 174          BA   0.078
 175          LG    0.10    0.25    4.08    0.72       0
 176          UC   0.798   0.652
 177          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 178          UA     100
              *

 179          KK  SB09N   BASIN
 180          BA   0.028
 181          LG    0.10    0.25    4.79    0.49       0
 182          UC   0.740   1.111
 183          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 184          UA     100
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 185          KK  R9N-R9   ROUTE
 186          RK    2586  0.0013   0.020            TRAP   2.000    0.00
              *

 187          KK  CP-08E COMBINE
 188          KM       SB07E, SB08E, SB09N
 189          HC       3
              *

 190          KK   SB09   BASIN
 191          BA   0.086
 192          LG    0.10    0.25    4.79    0.49       0
 193          UC   0.683   0.518
 194          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 195          UA     100
              *

 196          KK  8E-R9   ROUTE
 197          RK     501  0.0013   0.020            TRAP   2.000    0.00
              *

 198          KK   CP-09 COMBINE
 199          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 200          HC       2
              *

 201          KK   PWRCH
 202          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
 203          KM        10-YR, 6-HR, DERIVED FROM 100-YR DATA HYDROGRAPHS
 204          BA     7.0
 205          QI       0       0       0       0       0       0       0       0       0       0
 206          QI       0       0       0       0       0    0.07   11.70   33.57  285.55  257.89
 207          QI  236.82  258.26  406.55  486.55  461.36  425.60  409.84  395.31  391.77  376.42
 208          QI  346.76  376.76  276.32  247.65  220.91  197.44  178.64  155.41  139.22  129.78
 209          QI  113.97  102.76   96.30   85.88    79.7   72.75   65.45   59.94   54.69   51.22
 210          QI    52.3   44.56   41.87   42.77   36.93   34.05   32.15   29.01   27.72   27.03
 211          QI   25.05   23.86   22.04   20.81   19.27   18.55   17.90   20.82   16.03   15.23
              *

 212          KK  BINFLO
 213          KM        TOTAL INFLOW INTO BASIN 53R.
 214          HC       2
              *

 215          KK   BASIN
 216          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 217          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
```

```
 218          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 219          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 220          RS       1    STOR       0
 221          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 222          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 223          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 224          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
1                                          HEC-1 INPUT                                          PAGE  7

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 225          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 226          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 227          KK  BSNRT1
 228          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 229          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 230          KM        EXCESS CAPACITY.
 231          RK     550  0.0052   0.024            CIRC     7.0
              *

 232          KK  BSNRT2
 233          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 234          RK    1200  0.0077   0.013            CIRC     7.0
              *

 235          KK    SB10   BASIN
 236          BA   0.040
 237          LG    0.15    0.25    4.25    0.55      55
 238          UC   0.233   0.161
 239          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 240          UA     100
              *

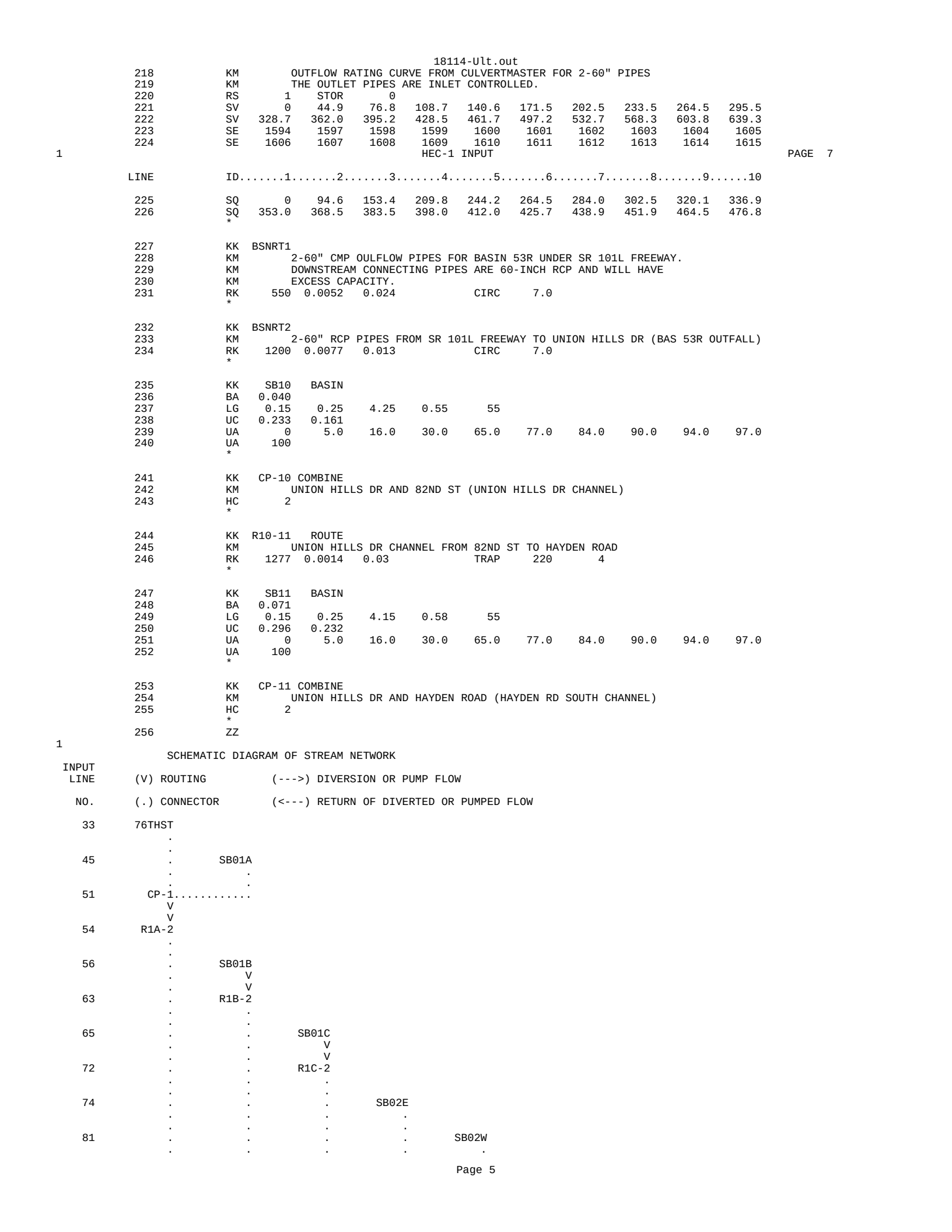
 241          KK   CP-10 COMBINE
 242          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 243          HC       2
              *

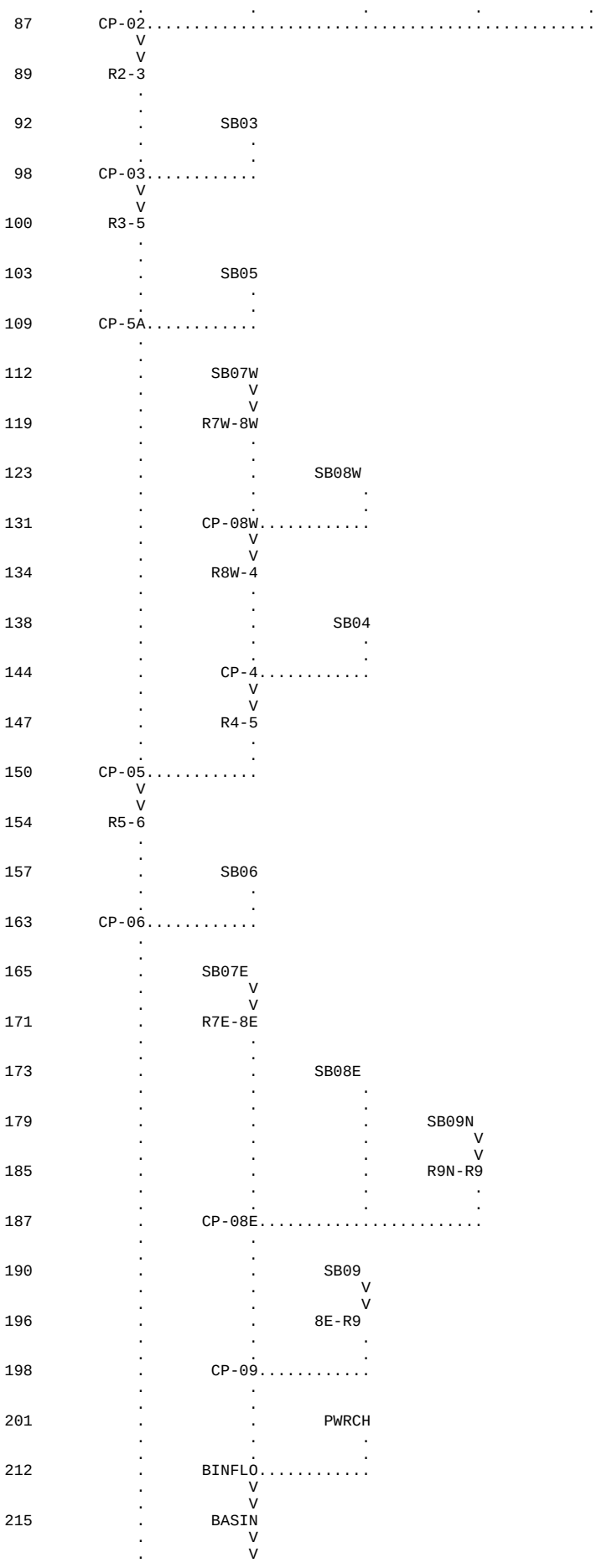
 244          KK  R10-11   ROUTE
 245          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 246          RK    1277  0.0014   0.03             TRAP     220       4
              *

 247          KK    SB11   BASIN
 248          BA   0.071
 249          LG    0.15    0.25    4.15    0.58      55
 250          UC   0.296   0.232
 251          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 252          UA     100
              *

 253          KK   CP-11 COMBINE
 254          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 255          HC       2
              *
 256          ZZ
1
```

SCHEMATIC DIAGRAM OF STREAM NETWORK




87 CP-02
89 R2-3
92 SB03
98 CP-03
100 R3-5
103 SB05
109 CP-5A
112 SB07W
119 R7W-8W
123 SB08W
131 CP-08W
134 R8W-4
138 SB04
144 CP-4
147 R4-5
150 CP-05
154 R5-6
157 SB06
163 CP-06
165 SB07E
171 R7E-8E
173 SB08E
179 SB09N
185 R9N-R9
187 CP-08E
190 SB09
196 8E-R9
198 CP-09
201 PWRCH
212 BINFLO
215 BASIN

```
   227           .      BSNRT1
                 .           V
                 .           V
   232           .      BSNRT2
                 .           .
                 .           .
   235           .           .        SB10
                 .           .           .
                 .           .           .
   241           .       CP-10............
                 .           V
                 .           V
   244           .      R10-11
                 .           .
                 .           .
   247           .           .        SB11
                 .           .           .
                 .           .           .
   253           .       CP-11............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
****************************************
 *                                      *                                      *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                      *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                      *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                      *          609 SECOND STREET
  *
 *                                      *                                      *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   15NOV18  TIME  15:22:07  *                                      *           (916) 756-1104
  *
 *                                      *                                      *
  *
 ****************************************
****************************************
```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
10-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.

```
   20 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                         NMIN           3  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1    0  STARTING DATE
                        ITIME        0000  STARTING TIME
                           NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL    0.05 HOURS
                         TOTAL TIME BASE   49.95 HOURS

            ENGLISH UNITS
                 DRAINAGE AREA         SQUARE MILES
                 PRECIPITATION DEPTH   INCHES
                 LENGTH, ELEVATION     FEET
                 FLOW                  CUBIC FEET PER SECOND
                 STORAGE VOLUME        ACRE-FEET
                 SURFACE AREA          ACRES
                 TEMPERATURE           DEGREES FAHRENHEIT

   21 JD           INDEX STORM NO. 1
                         STRM        1.82  PRECIPITATION DEPTH
                         TRDA        0.00  TRANSPOSITION DRAINAGE AREA

   22 PI             PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

25 JD INDEX STORM NO. 2
STRM 1.81 PRECIPITATION DEPTH
TRDA 0.50 TRANSPOSITION DRAINAGE AREA

26 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

29 JD INDEX STORM NO. 3
STRM 1.77 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

30 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
	HYDROGRAPH AT									
+		76THST	32.	4.50	10.	3.	1.	0.24		
	HYDROGRAPH AT									
+		SB01A	38.	4.25	3.	1.	0.	0.05		
	2 COMBINED AT									
+		CP-1	65.	4.30	13.	4.	2.	0.29		
	ROUTED TO									
+		R1A-2	65.	4.30	13.	4.	2.	0.29		
	HYDROGRAPH AT									
+		SB01B	19.	4.35	3.	1.	0.	0.02		
	ROUTED TO									
+		R1B-2	19.	4.40	3.	1.	0.	0.02		
	HYDROGRAPH AT									
+		SB01C	25.	4.40	5.	1.	1.	0.03		
	ROUTED TO									
+		R1C-2	24.	4.50	5.	1.	1.	0.03		
	HYDROGRAPH AT									
+		SB02E	29.	4.60	5.	1.	1.	0.10		
	HYDROGRAPH AT									

+	SB02W	21.	4.50	3.	1.	0.	0.06
5 COMBINED AT							
+	CP-02	139.	4.45	29.	8.	4.	0.51
ROUTED TO							
+	R2-3	139.	4.55	29.	8.	4.	0.51
HYDROGRAPH AT							
+	SB03	47.	4.15	6.	2.	1.	0.05
2 COMBINED AT							
+	CP-03	155.	4.50	34.	9.	5.	0.56
ROUTED TO							
+	R3-5	154.	4.70	34.	9.	4.	0.56
HYDROGRAPH AT							
+	SB05	134.	4.10	15.	4.	2.	0.13
2 COMBINED AT							
+	CP-5A	168.	4.65	46.	12.	6.	0.68
HYDROGRAPH AT							
+	SB07W	16.	4.50	3.	1.	0.	0.05
ROUTED TO							
+	R7W-8W	16.	5.20	3.	1.	0.	0.05
HYDROGRAPH AT							
+	SB08W	39.	4.55	6.	2.	1.	0.11
2 COMBINED AT							
+	CP-08W	39.	4.55	9.	2.	1.	0.16
ROUTED TO							
+	R8W-4	39.	4.60	9.	2.	1.	0.16
HYDROGRAPH AT							
+	SB04	178.	4.10	20.	5.	2.	0.14
2 COMBINED AT							
+	CP-4	182.	4.10	28.	7.	4.	0.30
ROUTED TO							
+	R4-5	179.	4.20	28.	7.	4.	0.30
2 COMBINED AT							
+	CP-05	256.	4.20	68.	18.	9.	0.99
ROUTED TO							
+	R5-6	252.	4.30	68.	18.	9.	0.99
HYDROGRAPH AT							
+	SB06	145.	4.10	17.	4.	2.	0.14
2 COMBINED AT							
+	CP-06	326.	4.30	82.	22.	11.	1.12
HYDROGRAPH AT							
+	SB07E	9.	4.40	1.	0.	0.	0.03
ROUTED TO							
+	R7E-8E	8.	4.50	1.	0.	0.	0.03
HYDROGRAPH AT							
+	SB08E	21.	4.55	3.	1.	0.	0.08
HYDROGRAPH AT							
+	SB09N	6.	4.55	2.	0.	0.	0.03
ROUTED TO							
+	R9N-R9	6.	4.65	2.	0.	0.	0.03
3 COMBINED AT							
+	CP-08E	34.	4.60	6.	2.	1.	0.13
HYDROGRAPH AT							
+	SB09	34.	4.45	5.	1.	1.	0.09
ROUTED TO							
+	8E-R9	34.	4.50	5.	1.	1.	0.09
2 COMBINED AT							
+	CP-09	67.	4.55	11.	3.	1.	0.22
HYDROGRAPH AT							
+	PWRCH	487.	5.75	285.	91.	50.	7.00
2 COMBINED AT							
+	BINFLO	484.	5.75	283.	90.	50.	7.22
ROUTED TO							
+	BASIN	171.	9.10	156.	85.	48.	7.22

	ROUTED TO							
+		BSNRT1	171.	9.10	156.	85.	48.	7.22
	ROUTED TO							
+		BSNRT2	171.	9.10	156.	85.	48.	7.22
	HYDROGRAPH AT							
+		SB10	52.	4.05	5.	1.	1.	0.04
	2 COMBINED AT							
+		CP-10	171.	9.10	156.	85.	49.	7.26
	ROUTED TO							
+		R10-11	171.	9.20	156.	85.	48.	7.26
	HYDROGRAPH AT							
+		SB11	77.	4.10	9.	2.	1.	0.07
	2 COMBINED AT							
+		CP-11	171.	9.20	156.	85.	49.	7.33

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.50	65.38	258.45	0.48	3.00	65.32	258.00	0.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7488E+01 EXCESS=0.0000E+00 OUTFLOW=0.7484E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.50	64.94	258.50	0.47	3.00	64.88	258.00	0.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7471E+01 EXCESS=0.0000E+00 OUTFLOW=0.7467E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.69	37.56	259.80	0.41	3.00	37.53	261.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6395E+01 EXCESS=0.0000E+00 OUTFLOW=0.6391E+01 BASIN STORAGE=0.5127E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1B-2	MANE	2.47	18.84	265.68	1.46	3.00	18.81	264.00	1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1707E+01 EXCESS=0.0000E+00 OUTFLOW=0.1711E+01 BASIN STORAGE=0.2775E-04 PERCENT ERROR= -0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	2.47	18.72	265.88	1.45	3.00	18.69	264.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1695E+01 EXCESS=0.0000E+00 OUTFLOW=0.1699E+01 BASIN STORAGE=0.2615E-04 PERCENT ERROR=-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	2.98	12.45	267.22	1.32	3.00	12.44	267.00	1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1550E+01 EXCESS=0.0000E+00 OUTFLOW=0.1554E+01 BASIN STORAGE=0.2780E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.55	24.54	270.32	1.46	3.00	24.54	270.00	1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2483E+01 EXCESS=0.0000E+00 OUTFLOW=0.2487E+01 BASIN STORAGE=0.4444E-04 PERCENT ERROR=-0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	2.56	24.36	270.41	1.45	3.00	24.36	270.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2466E+01 EXCESS=0.0000E+00 OUTFLOW=0.2470E+01 BASIN STORAGE=0.3654E-04 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	2.94	16.79	271.68	1.32	3.00	16.77	273.00	1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2255E+01 EXCESS=0.0000E+00 OUTFLOW=0.2260E+01 BASIN STORAGE=0.3993E-04 PERCENT ERROR=-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.69	141.10	272.98	0.58	3.00	141.09	273.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1592E+02 EXCESS=0.0000E+00 OUTFLOW=0.1587E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR=0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.67	139.92	273.25	0.58	3.00	139.79	273.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1582E+02 EXCESS=0.0000E+00 OUTFLOW=0.1577E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	3.00	75.89	277.27	0.42	3.00	75.67	276.00	0.42

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1142E+02 EXCESS=0.0000E+00 OUTFLOW=0.1137E+02 BASIN STORAGE=0.2947E-01 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	2.94	160.44	281.76	0.64	3.00	160.38	282.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1901E+02 EXCESS=0.0000E+00 OUTFLOW=0.1893E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	158.58	282.80	0.63	3.00	158.15	282.00	0.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1889E+02 EXCESS=0.0000E+00 OUTFLOW=0.1882E+02 BASIN STORAGE=0.7187E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	3.05	91.35	286.30	0.47	3.00	91.27	288.00	0.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1403E+02 EXCESS=0.0000E+00 OUTFLOW=0.1394E+02 BASIN STORAGE=0.7538E-01 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	16.60	309.28	0.56	3.00	16.23	312.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1292E+01 EXCESS=0.0000E+00 OUTFLOW=0.1425E+01 BASIN STORAGE=0.3266E-03 PERCENT ERROR=
-10.3

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	2.91	16.41	310.73	0.57	3.00	16.37	309.00	0.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1276E+01 EXCESS=0.0000E+00 OUTFLOW=0.1450E+01 BASIN STORAGE=0.3179E-03 PERCENT ERROR=
-13.7

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	3.53	342.29	0.18	3.00	3.53	342.00	0.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4042E+00 EXCESS=0.0000E+00 OUTFLOW=0.4529E+00 BASIN STORAGE=0.2962E-03 PERCENT ERROR=
-12.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	1.21	39.57	275.81	0.54	3.00	39.51	276.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4592E+01 EXCESS=0.0000E+00 OUTFLOW=0.4595E+01 BASIN STORAGE=0.1331E-03 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	1.22	39.05	274.79	0.54	3.00	39.01	276.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4579E+01 EXCESS=0.0000E+00 OUTFLOW=0.4581E+01 BASIN STORAGE=0.1394E-03 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	2.04	9.71	278.36	0.18	3.00	9.70	279.00	0.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1560E+01 EXCESS=0.0000E+00 OUTFLOW=0.1563E+01 BASIN STORAGE=0.1323E-03 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	3.00	182.76	252.58	0.91	3.00	180.69	252.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1467E+02 EXCESS=0.0000E+00 OUTFLOW=0.1473E+02 BASIN STORAGE=0.4403E-03 PERCENT ERROR=
-0.4

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	3.00	181.85	252.73	0.90	3.00	179.39	252.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1458E+02 EXCESS=0.0000E+00 OUTFLOW=0.1464E+02 BASIN STORAGE=0.3959E-03 PERCENT ERROR=
-0.4

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.00	100.70	255.56	0.64	3.00	100.37	255.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1039E+02 EXCESS=0.0000E+00 OUTFLOW=0.1040E+02 BASIN STORAGE=0.4758E-03 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	3.00	310.19	258.34	0.78	3.00	309.25	258.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4131E+02 EXCESS=0.0000E+00 OUTFLOW=0.4119E+02 BASIN STORAGE=0.5642E-01 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	3.00	306.65	259.02	0.78	3.00	306.29	258.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4103E+02 EXCESS=0.0000E+00 OUTFLOW=0.4099E+02 BASIN STORAGE=0.5642E-01 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	177.04	263.55	0.58	3.00	176.91	264.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3060E+02 EXCESS=0.0000E+00 OUTFLOW=0.3052E+02 BASIN STORAGE=0.6480E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	2.48	8.47	267.86	0.41	3.00	8.45	270.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5640E+00 EXCESS=0.0000E+00 OUTFLOW=0.5642E+00 BASIN STORAGE=0.1424E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	2.49	8.36	268.11	0.40	3.00	8.32	270.00	0.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5555E+00 EXCESS=0.0000E+00 OUTFLOW=0.5565E+00 BASIN STORAGE=0.1227E-04 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	3.00	0.79	281.23	0.04	3.00	0.79	282.00	0.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5136E-01 EXCESS=0.0000E+00 OUTFLOW=0.5564E-01 BASIN STORAGE=0.1218E-04 PERCENT ERROR= -8.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	3.00	6.31	281.03	0.51	3.00	6.30	279.00	0.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7576E+00 EXCESS=0.0000E+00 OUTFLOW=0.7564E+00 BASIN STORAGE=0.1663E-04 PERCENT ERROR=

0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	3.00	6.24	281.18	0.50	3.00	6.22	279.00	0.50	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7487E+00 EXCESS=0.0000E+00 OUTFLOW=0.7475E+00 BASIN STORAGE=0.1891E-04 PERCENT ERROR=
0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	3.00	1.69	287.45	0.14	3.00	1.68	288.00	0.14	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2051E+00 EXCESS=0.0000E+00 OUTFLOW=0.2049E+00 BASIN STORAGE=0.1591E-04 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.35	34.25	268.03	0.51	3.00	34.25	270.00	0.51	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2328E+01 EXCESS=0.0000E+00 OUTFLOW=0.2328E+01 BASIN STORAGE=0.2472E-06 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

8E-R9	MANE	0.35	33.85	267.79	0.50	3.00	33.85	270.00	0.50	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2300E+01 EXCESS=0.0000E+00 OUTFLOW=0.2301E+01 BASIN STORAGE=0.3157E-06 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

8E-R9	MANE	0.52	9.15	270.59	0.14	3.00	9.14	270.00	0.14	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6300E+00 EXCESS=0.0000E+00 OUTFLOW=0.6303E+00 BASIN STORAGE=0.3069E-06 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.43	176.85	541.21	0.53	3.00	176.85	543.00	0.53	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2055E+03 EXCESS=0.0000E+00 OUTFLOW=0.2055E+03 BASIN STORAGE=0.2436E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.43	176.79	540.88	0.53	3.00	176.79	543.00	0.53	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+03 EXCESS=0.0000E+00 OUTFLOW=0.2054E+03 BASIN STORAGE=0.2436E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.47	172.81	544.06	0.52	3.00	172.80	543.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2012E+03 EXCESS=0.0000E+00 OUTFLOW=0.2012E+03 BASIN STORAGE=0.2435E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	176.85	543.46	0.53	3.00	176.85	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2055E+03 EXCESS=0.0000E+00 OUTFLOW=0.2054E+03 BASIN STORAGE=0.2781E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	176.78	543.53	0.53	3.00	176.78	543.00	0.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2054E+03 EXCESS=0.0000E+00 OUTFLOW=0.2054E+03 BASIN STORAGE=0.2781E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.42	172.80	543.94	0.52	3.00	172.80	546.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2012E+03 EXCESS=0.0000E+00 OUTFLOW=0.2011E+03 BASIN STORAGE=0.2781E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.46	176.84	548.84	0.54	3.00	176.84	549.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2080E+03 EXCESS=0.0000E+00 OUTFLOW=0.2075E+03 BASIN STORAGE=0.5529E+00 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.45	176.78	548.94	0.54	3.00	176.78	549.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+03 EXCESS=0.0000E+00 OUTFLOW=0.2074E+03 BASIN STORAGE=0.5529E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.43	172.80	553.01	0.52	3.00	172.80	552.00	0.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2033E+03 EXCESS=0.0000E+00 OUTFLOW=0.2028E+03 BASIN STORAGE=0.5528E+00 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

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1****************************************
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 *                                      *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
  *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   14NOV18  TIME  11:30:17  *                                                    *           (916) 756-1104
  *
 *                                      *                                                    *
  *
 ****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS.
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
           15           ID           THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
           16           ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
           17           ID
           18           IT       3       0       0    1000
           19           IN      15
           20           IO       5
                       *DIAGRAM
                       *
           21           JD   2.755  0.0001
           22           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           23           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           24           PC   0.962   0.972   0.983   0.991   1.000
           25           JD   2.738  0.5000
           26           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           27           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           28           PC   0.962   0.972   0.983   0.991   1.000
           29           JD   2.686     2.8
           30           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           31           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           32           PC   0.950   0.963   0.975   0.988   1.000
           33           JD   2.540    16.0
           34           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
           35           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
           36           PC   0.946   0.960   0.973   0.987   1.000
           37           JD   2.232    90.0
           38           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
           39           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
           40           PC   0.927   0.945   0.964   0.982   1.000
           41           JD   3.657    10.0
           42           JD   3.533    20.0
                       *

           43           KK  76THST
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```
   44          KM       76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
   45          KM       100-YR, 6-HR FLO-2D MODEL (XS 98)
   46          BA    0.24
   47          QI       0       0       0       0       0       0       0       0       0       0
   48          QI       0       0    0.01    0.01    0.09     0.9    12.7   42.26   49.92    48.6
   49          QI   34.49   26.72   21.55   17.51   14.81   12.84   11.63   10.56    9.58    8.32
   50          QI    7.29    6.73    5.83    4.76    4.23    3.81     3.4    3.55    2.36    2.51
   51          QI    2.32    2.16    2.02    1.83    1.58     1.5    1.52    1.21    1.31    1.34
1                                          HEC-1 INPUT                                          PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   52          QI    1.09    1.07    1.04    0.97    0.91    0.86    0.83    0.79    0.76    0.72
   53          QI    0.69    0.67    0.65    0.62     0.6    0.58    0.55    0.53    0.51    0.49
   54          QI    0.47    0.45    0.44

               *

   55          KK   SB01A   BASIN
   56          BA   0.055
   57          PB   2.721
   58          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
   59          PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
   60          PC   0.956   0.968   0.979   0.990   1.000
   61          LG    0.10    0.25    4.72    0.51       0
   62          UC   0.439   0.231
   63          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   64          UA     100
               *

   65          KK    CP-1 COMBINE
   66          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   67          HC       2   0.295
               *

   68          KK   R1A-2   ROUTE
   69          RK    2139  0.0180   0.020            TRAP   2.000    0.00
               *

   70          KK   SB01B   BASIN
   71          KM        IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
   72          BA   0.022
   73          LG    0.10    0.25    4.72    0.51      73
   74          UC   0.490   0.471
   75          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   76          UA     100
               *

   77          KK   R1B-2   ROUTE
   78          RK    2636  0.0015   0.030            TRAP   2.000    0.00
               *

   79          KK   SB01C   BASIN
   80          KM         IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
   81          BA   0.032
   82          LG    0.10    0.25    4.72    0.51      73
   83          UC   0.581   0.550
   84          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   85          UA     100
               *

   86          KK   R1C-2   ROUTE
   87          RK    3046  0.0015   0.030            TRAP   2.000    0.00
               *
1                                          HEC-1 INPUT                                          PAGE  3

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   88          KK   SB02E   BASIN
   89          KM         IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
   90          BA   0.100
   91          LG    0.10    0.25    4.03    0.74      85
   92          UC   0.859   0.688
   93          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   94          UA     100
               *

   95          KK   SB02W   BASIN
   96          BA   0.060
   97          LG    0.10    0.25    4.33    0.61       0
   98          UC   0.686   0.535
   99          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  100          UA     100
               *

  101          KK   CP-02 COMBINE
  102          HC       5
               *

  103          KK    R2-3   ROUTE
  104          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
  105          RK    1260  0.0015   0.03             TRAP      92       4
               *
```

```
 106          KK    SB03   BASIN
 107          BA   0.048
 108          LG    0.15    0.25    4.50    0.47      55
 109          UC   0.364   0.294
 110          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 111          UA     100
              *

 112          KK   CP-03 COMBINE
 113          HC       2
              *

 114          KK    R3-5   ROUTE
 115          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 116          RK    2396  0.0015   0.03             TRAP      98       4
              *

 117          KK    SB05   BASIN
 118          BA   0.126
 119          LG    0.22    0.25    4.50    0.44      48
 120          UC   0.327   0.226
 121          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 122          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 123          KK   CP-5A COMBINE
 124          HC       2
              *
 125          KM
              *

 126          KK   SB07W   BASIN
 127          KM        IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
 128          BA   0.048
 129          LG    0.10    0.25    4.03    0.74       73
 130          UC   0.677   0.558
 131          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 132          UA     100
              *

 133          KK  R7W-8W   ROUTE
 134          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 135          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 136          RK    3721  0.0013   0.03             TRAP      46       4
              *

 137          KK  SB08W   BASIN
 138          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
 139          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 140          BA   0.112
 141          LG    0.10    0.25    4.08    0.71       85
 142          UC   0.784   0.547
 143          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 144          UA     100
              *

 145          KK  CP-08W COMBINE
 146          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 147          HC       2
              *

 148          KK   R8W-4   ROUTE
 149          KM        SR 101L FREEWAY TO CP4
 150          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 151          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 152          KK    SB04   BASIN
 153          BA   0.144
 154          LG    0.14    0.25    4.60    0.44      61
 155          UC   0.305   0.199
 156          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 157          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 158          KK    CP-4 COMBINE
 159          KM        PRINCESS BLVD AND EAST OF 77TH ST
 160          HC       2
              *

 161          KK    R4-5   ROUTE
 162          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 163          RK    1992  0.0013   0.03             TRAP      39       4
              *
```

```
164          KK   CP-05 COMBINE
165          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
166          KM        COMBINE CP-05A AND R4-5
167          HC       2
             *

168          KK    R5-6   ROUTE
169          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
170          RK    1694  0.0015   0.03             TRAP     188       4
             *

171          KK    SB06   BASIN
172          BA   0.136
173          LG    0.16    0.25    4.55    0.45      53
174          UC   0.321   0.246
175          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
176          UA     100
             *

177          KK   CP-06 COMBINE
178          HC       2
             *
             *
             * END WEST RUN
             *
             *
             * BEGIN EAST SIDE OF HAYDEN
             *

179          KK  SB07E   BASIN
180          BA   0.026
181          LG    0.10    0.25    4.03    0.74       0
182          UC   0.574   0.527
183          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
184          UA     100
             *

185          KK  R7E-8E   ROUTE
186          RK    3662  0.0130   0.030            TRAP   2.000    0.00
             *
```

1 HEC-1 INPUT PAGE 6

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

187          KK  SB08E   BASIN
188          BA   0.078
189          LG    0.10    0.25    4.08    0.72       0
190          UC   0.798   0.652
191          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
192          UA     100
             *

193          KK  SB09N   BASIN
194          BA   0.028
195          LG    0.10    0.25    4.79    0.49       0
196          UC   0.740   1.111
197          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
198          UA     100
             *

199          KK  R9N-R9   ROUTE
200          RK    2586  0.0013   0.020            TRAP   2.000    0.00
             *

201          KK  CP-08E COMBINE
202          KM       SB07E, SB08E, SB09N
203          HC       3
             *

204          KK   SB09   BASIN
205          BA   0.086
206          LG    0.10    0.25    4.79    0.49       0
207          UC   0.683   0.518
208          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
209          UA     100
             *

210          KK  8E-R9   ROUTE
211          RK     501  0.0013   0.020            TRAP   2.000    0.00
             *

212          KK   CP-09 COMBINE
213          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
214          HC       2
             *

215          KK   PWRCH
216          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
217          KM        100-YR, 6-HR FLO-2D MODEL (XS 107)
218          BA     7.0
219          QI       0       0       0       0       0       0       0       0       0       0
220          QI       0       0       0       0       0    0.11   17.74   50.91  433.53  391.08
221          QI  359.13  391.64  616.52  737.85  699.64  645.41  621.52  599.48  594.12  570.84
```

```
 222          QI  525.86  472.45  419.04  375.56     335  299.45   270.9  235.68  211.13  196.81
 223          QI  172.83  155.83  146.04  130.32   120.9  110.32   99.25    90.9   82.93   77.68
 224          QI    79.3   67.58    63.5   64.86   56.01   51.64   48.75   43.99   42.04   40.99
 225          QI   37.99   36.19   33.42   31.56   29.22   28.13   27.15   31.57   24.31    23.1
 226          QI   22.09   21.66   20.95
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 227          KK  BINFLO
 228          KM         TOTAL INFLOW INTO BASIN 53R.
 229          HC       2
              *

 230          KK   BASIN
 231          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 232          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 233          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 234          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 235          RS       1    STOR       0
 236          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 237          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 238          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 239          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 240          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 241          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 242          KK  BSNRT1
 243          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 244          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 245          KM        EXCESS CAPACITY.
 246          RK     550  0.0052   0.024            CIRC     7.0
              *

 247          KK  BSNRT2
 248          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 249          RK    1200  0.0077   0.013            CIRC     7.0
              *

 250          KK    SB10   BASIN
 251          BA   0.040
 252          LG    0.15    0.25    4.25    0.55      55
 253          UC   0.233   0.161
 254          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 255          UA     100
              *

 256          KK   CP-10 COMBINE
 257          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 258          HC       2
              *

 259          KK  R10-11   ROUTE
 260          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 261          RK    1277  0.0014   0.03             TRAP     220       4
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 262          KK    SB11   BASIN
 263          BA   0.071
 264          LG    0.15    0.25    4.15    0.58      55
 265          UC   0.296   0.232
 266          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 267          UA     100
              *

 268          KK   CP-11 COMBINE
 269          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 270          HC       2
              *
 271          ZZ
```

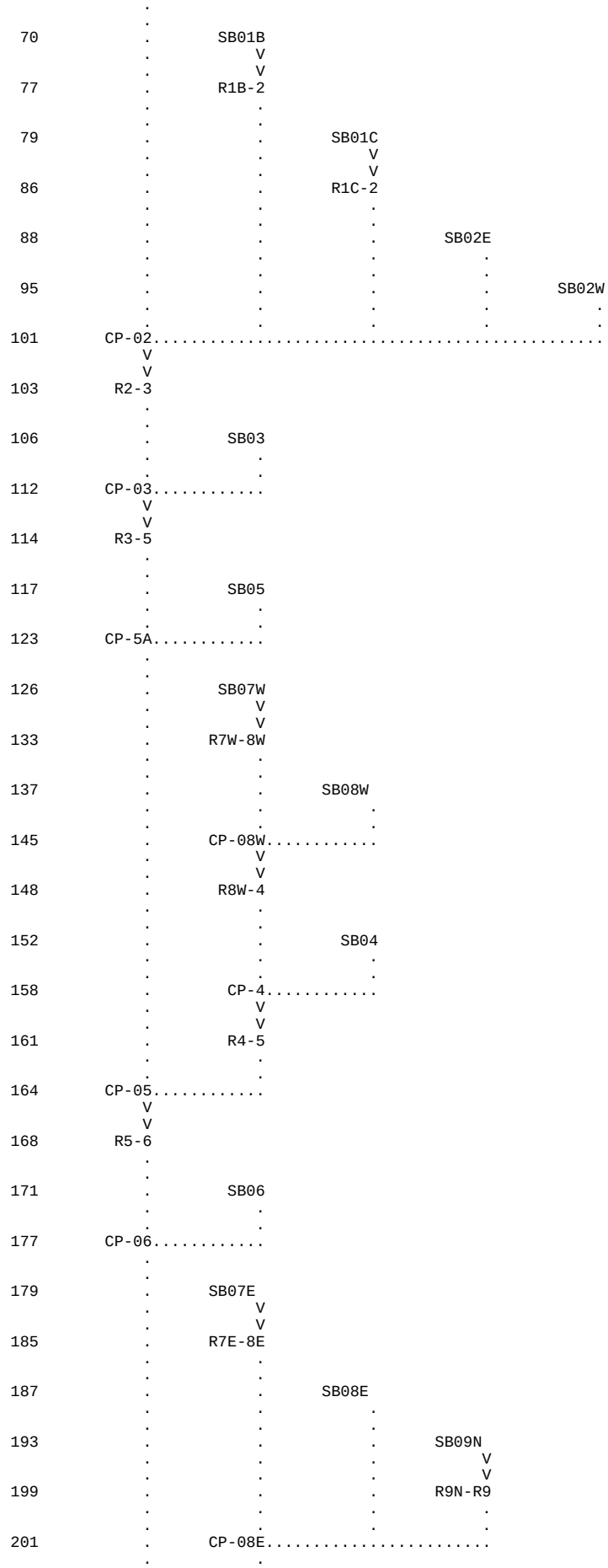
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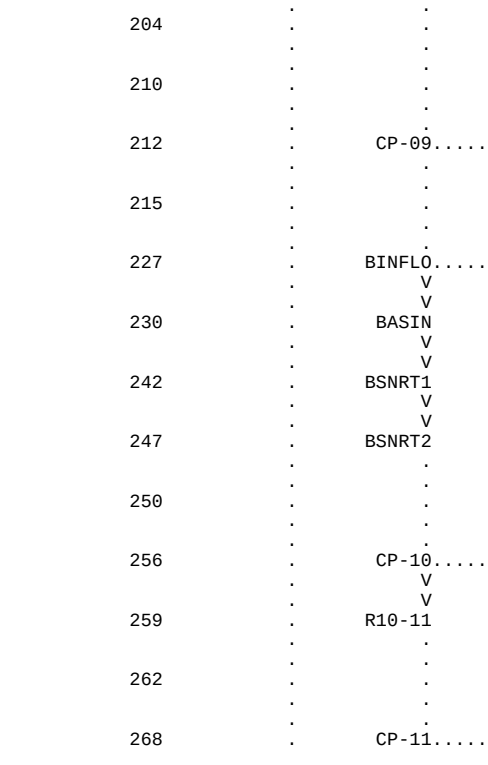
SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     43      76THST
                .
                .
     55         .       SB01A
                .          .
                .          .
     65        CP-1.............
                V
                V
     68       R1A-2
```


70 SB01B
77 R1B-2
79 SB01C
86 R1C-2
88 SB02E
95 SB02W
101 CP-02
103 R2-3
106 SB03
112 CP-03
114 R3-5
117 SB05
123 CP-5A
126 SB07W
133 R7W-8W
137 SB08W
145 CP-08W
148 R8W-4
152 SB04
158 CP-4
161 R4-5
164 CP-05
168 R5-6
171 SB06
177 CP-06
179 SB07E
185 R7E-8E
187 SB08E
193 SB09N
199 R9N-R9
201 CP-08E



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*****************************************
 *                                       *                                       *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                       *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998              *                                       *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1                *                                       *         609 SECOND STREET
  *
 *                                       *                                       *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   14NOV18  TIME  11:30:17   *                                       *           (916) 756-1104
  *
 *                                       *                                       *
  *
 *****************************************
*****************************************
```

```
                                CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
                                POWERLINE CORRIDOR
                                RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
                                INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
                                  100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
                                   PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

                                PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
                                  MODELERS: RK, MW

                                REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
                                  MODELERS: MSW, ES
                                  REVISIONS NOTED WITH HE
                                   ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
                                   THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
                                   UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.


   20 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                         NMIN           3  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1    0  STARTING DATE
                        ITIME        0000  STARTING TIME
                           NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK
```

```
               COMPUTATION INTERVAL    0.05 HOURS
                    TOTAL TIME BASE   49.95 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

21 JD            INDEX STORM NO. 1
                       STRM        2.76  PRECIPITATION DEPTH
                       TRDA        0.00  TRANSPOSITION DRAINAGE AREA

22 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                     0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                     0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

25 JD            INDEX STORM NO. 2
                       STRM        2.74  PRECIPITATION DEPTH
                       TRDA        0.50  TRANSPOSITION DRAINAGE AREA

26 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                     0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                     0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

29 JD            INDEX STORM NO. 3
                       STRM        2.69  PRECIPITATION DEPTH
                       TRDA        2.80  TRANSPOSITION DRAINAGE AREA

30 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                     0.04      0.04      0.04      0.04      0.04      0.05      0.05      0.05      0.05      0.05
                     0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                     0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

33 JD            INDEX STORM NO. 4
                       STRM        2.54  PRECIPITATION DEPTH
                       TRDA       16.00  TRANSPOSITION DRAINAGE AREA

34 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                     0.03      0.03      0.03      0.03      0.03      0.04      0.04      0.04      0.04      0.04
                     0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

37 JD            INDEX STORM NO. 5
                       STRM        2.23  PRECIPITATION DEPTH
                       TRDA       90.00  TRANSPOSITION DRAINAGE AREA

38 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

41 JD INDEX STORM NO. 6

STRM 3.66 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

42 JD INDEX STORM NO. 7

STRM 3.53 PRECIPITATION DEPTH
TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	76THST	50.	4.50	15.	4.	2.	0.24		
HYDROGRAPH AT	SB01A	77.	4.25	6.	2.	1.	0.05		
2 COMBINED AT	CP-1	119.	4.25	21.	6.	3.	0.29		
ROUTED TO	R1A-2	119.	4.30	21.	6.	3.	0.29		
HYDROGRAPH AT	SB01B	30.	4.35	5.	1.	1.	0.02		
ROUTED TO	R1B-2	30.	4.40	5.	1.	1.	0.02		
HYDROGRAPH AT	SB01C	39.	4.40	8.	2.	1.	0.03		
ROUTED TO	R1C-2	39.	4.45	8.	2.	1.	0.03		
HYDROGRAPH AT	SB02E	61.	4.60	11.	3.	1.	0.10		
HYDROGRAPH AT	SB02W	45.	4.45	6.	2.	1.	0.06		
5 COMBINED AT	CP-02	254.	4.45	51.	14.	7.	0.51		
ROUTED TO	R2-3	253.	4.55	51.	14.	7.	0.51		
HYDROGRAPH AT	SB03	78.	4.15	10.	3.	1.	0.05		
2 COMBINED AT	CP-03	283.	4.50	60.	16.	8.	0.56		
ROUTED TO	R3-5	282.	4.65	60.	16.	8.	0.56		
HYDROGRAPH AT	SB05	229.	4.10	25.	6.	3.	0.13		
2 COMBINED AT	CP-5A	324.	4.55	82.	22.	11.	0.68		
HYDROGRAPH AT									

+	SB07W	35.	4.45	5.	1.	1.	0.05
ROUTED TO							
+	R7W-8W	35.	5.00	6.	1.	1.	0.05
HYDROGRAPH AT							
+	SB08W	82.	4.55	13.	3.	2.	0.11
2 COMBINED AT							
+	CP-08W	82.	4.55	18.	5.	2.	0.16
ROUTED TO							
+	R8W-4	81.	4.55	18.	5.	2.	0.16
HYDROGRAPH AT							
+	SB04	292.	4.10	32.	8.	4.	0.14
2 COMBINED AT							
+	CP-4	301.	4.10	50.	13.	6.	0.30
ROUTED TO							
+	R4-5	297.	4.20	50.	13.	6.	0.30
2 COMBINED AT							
+	CP-05	471.	4.50	125.	33.	16.	0.99
ROUTED TO							
+	R5-6	468.	4.60	125.	33.	16.	0.99
HYDROGRAPH AT							
+	SB06	243.	4.10	29.	7.	3.	0.14
2 COMBINED AT							
+	CP-06	602.	4.25	149.	39.	19.	1.12
HYDROGRAPH AT							
+	SB07E	19.	4.40	3.	1.	0.	0.03
ROUTED TO							
+	R7E-8E	19.	4.45	3.	1.	0.	0.03
HYDROGRAPH AT							
+	SB08E	46.	4.55	8.	2.	1.	0.08
HYDROGRAPH AT							
+	SB09N	13.	4.55	3.	1.	0.	0.03
ROUTED TO							
+	R9N-R9	13.	4.65	3.	1.	0.	0.03
3 COMBINED AT							
+	CP-08E	76.	4.55	13.	3.	2.	0.13
HYDROGRAPH AT							
+	SB09	71.	4.45	10.	2.	1.	0.09
ROUTED TO							
+	8E-R9	70.	4.45	10.	2.	1.	0.09
2 COMBINED AT							
+	CP-09	145.	4.50	23.	6.	3.	0.22
HYDROGRAPH AT							
+	PWRCH	738.	5.75	429.	135.	74.	7.00
2 COMBINED AT							
+	BINFLO	749.	5.75	439.	138.	76.	7.22
ROUTED TO							
+	BASIN	241.	9.20	228.	130.	73.	7.22
ROUTED TO							
+	BSNRT1	241.	9.25	228.	130.	73.	7.22
ROUTED TO							
+	BSNRT2	241.	9.25	228.	130.	73.	7.22
HYDROGRAPH AT							
+	SB10	87.	4.05	8.	2.	1.	0.04
2 COMBINED AT							
+	CP-10	241.	9.25	228.	130.	74.	7.26
ROUTED TO							
+	R10-11	241.	9.35	228.	130.	74.	7.26
HYDROGRAPH AT							
+	SB11	130.	4.10	15.	4.	2.	0.07
2 COMBINED AT							
+	CP-11	241.	9.35	228.	132.	75.	7.33

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(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.48	119.91	256.11	0.80	3.00	119.46	258.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+02 EXCESS=0.0000E+00 OUTFLOW=0.1254E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.42	119.22	255.86	0.79	3.00	118.75	258.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1251E+02 EXCESS=0.0000E+00 OUTFLOW=0.1250E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.58	81.25	258.88	0.73	3.00	81.04	258.00	0.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1153E+02 EXCESS=0.0000E+00 OUTFLOW=0.1152E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00									
R1A-2	MANE	0.52	67.10	261.13	0.68	3.00	67.10	261.00	0.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1070E+02 EXCESS=0.0000E+00 OUTFLOW=0.1070E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00									
R1A-2	MANE	0.48	54.97	271.02	0.62	3.00	54.71	270.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9775E+01 EXCESS=0.0000E+00 OUTFLOW=0.9770E+01 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00									
R1A-2	MANE	0.42	83.01	261.73	0.76	3.00	82.95	261.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1204E+02 EXCESS=0.0000E+00 OUTFLOW=0.1203E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1A-2	MANE	0.57	80.42	262.10	0.75	3.00	80.39	264.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1180E+02 EXCESS=0.0000E+00 OUTFLOW=0.1180E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.04	30.04	264.21	2.29	3.00	30.03	264.00	2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2685E+01 EXCESS=0.0000E+00 OUTFLOW=0.2690E+01 BASIN STORAGE=0.3333E-04 PERCENT ERROR= -0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	2.05	29.84	264.42	2.28	3.00	29.83	264.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2667E+01 EXCESS=0.0000E+00 OUTFLOW=0.2671E+01 BASIN STORAGE=0.3123E-04 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	2.47	20.76	265.14	2.15	3.00	20.74	267.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2516E+01 EXCESS=0.0000E+00 OUTFLOW=0.2521E+01 BASIN STORAGE=0.2485E-04 PERCENT ERROR= -0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1B-2	MANE	2.58	16.16	267.60	1.97	3.00	16.14	267.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2303E+01 EXCESS=0.0000E+00 OUTFLOW=0.2309E+01 BASIN STORAGE=0.2779E-04 PERCENT ERROR= -0.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1B-2	MANE	2.99	11.23	270.36	1.66	3.00	11.23	270.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1940E+01 EXCESS=0.0000E+00 OUTFLOW=0.1945E+01 BASIN STORAGE=0.3280E-04 PERCENT ERROR= -0.2

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	2.38	20.70	269.45	2.90	3.00	20.68	270.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3399E+01 EXCESS=0.0000E+00 OUTFLOW=0.3405E+01 BASIN STORAGE=0.2805E-04 PERCENT ERROR=
-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	2.51	19.87	269.28	2.79	3.00	19.86	270.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3268E+01 EXCESS=0.0000E+00 OUTFLOW=0.3273E+01 BASIN STORAGE=0.3321E-04 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.23	39.13	269.34	2.29	3.00	39.04	267.00	2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3906E+01 EXCESS=0.0000E+00 OUTFLOW=0.3910E+01 BASIN STORAGE=0.3482E-04 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	2.23	38.85	267.30	2.28	3.00	38.74	267.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3880E+01 EXCESS=0.0000E+00 OUTFLOW=0.3884E+01 BASIN STORAGE=0.4813E-04 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	2.53	28.06	272.03	2.15	3.00	28.01	273.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3661E+01 EXCESS=0.0000E+00 OUTFLOW=0.3664E+01 BASIN STORAGE=0.3982E-04 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1C-2	MANE	2.64	21.97	272.96	1.97	3.00	21.97	273.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3351E+01 EXCESS=0.0000E+00 OUTFLOW=0.3356E+01 BASIN STORAGE=0.3522E-04 PERCENT ERROR=
-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1C-2	MANE	3.00	15.44	275.05	1.66	3.00	15.43	276.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2823E+01 EXCESS=0.0000E+00 OUTFLOW=0.2828E+01 BASIN STORAGE=0.4519E-04 PERCENT ERROR=
-0.2

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	2.53	28.45	274.96	2.90	3.00	28.42	276.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4945E+01 EXCESS=0.0000E+00 OUTFLOW=0.4953E+01 BASIN STORAGE=0.4355E-04 PERCENT ERROR=
-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	2.42	27.30	275.83	2.79	3.00	27.29	276.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4755E+01 EXCESS=0.0000E+00 OUTFLOW=0.4762E+01 BASIN STORAGE=0.4884E-04 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.23	256.61	271.16	1.03	3.00	255.52	273.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2798E+02 EXCESS=0.0000E+00 OUTFLOW=0.2792E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.23	254.83	271.34	1.02	3.00	253.67	273.00	1.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2781E+02 EXCESS=0.0000E+00 OUTFLOW=0.2775E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	2.47	177.72	275.33	0.85	3.00	177.33	276.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2321E+02 EXCESS=0.0000E+00 OUTFLOW=0.2316E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	2.72	132.74	274.62	0.72	3.00	132.65	276.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1956E+02 EXCESS=0.0000E+00 OUTFLOW=0.1950E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	3.00	88.58	279.06	0.58	3.00	88.57	279.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1573E+02 EXCESS=0.0000E+00 OUTFLOW=0.1569E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=

0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.47	188.88	276.72	1.00	3.00	188.78	276.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2727E+02 EXCESS=0.0000E+00 OUTFLOW=0.2723E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.50	179.95	275.74	0.96	3.00	179.89	276.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2614E+02 EXCESS=0.0000E+00 OUTFLOW=0.2610E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	289.94	278.07	1.11	3.00	288.96	279.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3305E+02 EXCESS=0.0000E+00 OUTFLOW=0.3292E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	287.78	278.27	1.10	3.00	286.96	279.00	1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3284E+02 EXCESS=0.0000E+00 OUTFLOW=0.3272E+02 BASIN STORAGE=0.9261E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	3.00	206.72	280.90	0.93	3.00	206.41	282.00	0.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2780E+02 EXCESS=0.0000E+00 OUTFLOW=0.2769E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR=
0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R3-5	MANE	3.00	155.61	283.73	0.79	3.00	155.47	285.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2363E+02 EXCESS=0.0000E+00 OUTFLOW=0.2351E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=
0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R3-5	MANE	2.92	104.14	291.39	0.64	3.00	104.14	291.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1901E+02 EXCESS=0.0000E+00 OUTFLOW=0.1888E+02 BASIN STORAGE=0.1003E+00 PERCENT ERROR=
0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R3-5	MANE	3.00	221.76	283.95	1.12	3.00	221.35	282.00	1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3347E+02 EXCESS=0.0000E+00 OUTFLOW=0.3337E+02 BASIN STORAGE=0.8863E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R3-5	MANE	3.00	211.29	283.83	1.08	3.00	210.69	282.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3209E+02 EXCESS=0.0000E+00 OUTFLOW=0.3198E+02 BASIN STORAGE=0.8863E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	34.91	298.77	1.13	3.00	34.72	300.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2670E+01 EXCESS=0.0000E+00 OUTFLOW=0.2899E+01 BASIN STORAGE=0.3555E-03 PERCENT ERROR=
-8.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	3.00	34.60	298.50	1.13	3.00	34.43	300.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2642E+01 EXCESS=0.0000E+00 OUTFLOW=0.2890E+01 BASIN STORAGE=0.3549E-03 PERCENT ERROR=
-9.4

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	17.25	308.91	0.70	3.00	17.25	309.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1638E+01 EXCESS=0.0000E+00 OUTFLOW=0.1783E+01 BASIN STORAGE=0.3231E-03 PERCENT ERROR=
-8.9

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7W-8W	MANE	3.00	9.20	319.96	0.39	3.00	9.16	321.00	0.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9540E+00 EXCESS=0.0000E+00 OUTFLOW=0.1009E+01 BASIN STORAGE=0.3062E-03 PERCENT ERROR=
-5.8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7W-8W	MANE	3.00	2.49	354.44	0.17	3.00	2.49	354.00	0.17

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4263E+00 EXCESS=0.0000E+00 OUTFLOW=0.4309E+00 BASIN STORAGE=0.2894E-03 PERCENT ERROR=-1.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	19.19	311.08	0.83	3.00	19.16	312.00	0.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2080E+01 EXCESS=0.0000E+00 OUTFLOW=0.2116E+01 BASIN STORAGE=0.3187E-03 PERCENT ERROR=-1.8

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	17.58	311.28	0.76	3.00	17.57	312.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1917E+01 EXCESS=0.0000E+00 OUTFLOW=0.1933E+01 BASIN STORAGE=0.3286E-03 PERCENT ERROR=-0.9

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.98	82.06	274.16	1.09	3.00	81.62	273.00	1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9333E+01 EXCESS=0.0000E+00 OUTFLOW=0.9334E+01 BASIN STORAGE=0.1460E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	0.98	81.24	274.34	1.09	3.00	80.77	273.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9257E+01 EXCESS=0.0000E+00 OUTFLOW=0.9258E+01 BASIN STORAGE=0.1453E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	1.17	42.66	275.93	0.69	3.00	42.66	276.00	0.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5909E+01 EXCESS=0.0000E+00 OUTFLOW=0.5909E+01 BASIN STORAGE=0.1342E-03 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8W-4	MANE	1.40	23.78	276.46	0.41	3.00	23.77	276.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3533E+01 EXCESS=0.0000E+00 OUTFLOW=0.3535E+01 BASIN STORAGE=0.1362E-03 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8W-4	MANE	2.31	7.22	279.79	0.19	3.00	7.21	279.00	0.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1610E+01 EXCESS=0.0000E+00 OUTFLOW=0.1610E+01 BASIN STORAGE=0.1291E-03 PERCENT ERROR=-0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	1.04	47.90	305.57	0.86	3.00	47.71	306.00	0.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7312E+01 EXCESS=0.0000E+00 OUTFLOW=0.7313E+01 BASIN STORAGE=0.1449E-03 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	1.25	43.86	279.03	0.79	3.00	43.86	279.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6746E+01 EXCESS=0.0000E+00 OUTFLOW=0.6747E+01 BASIN STORAGE=0.1346E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.85	300.52	251.32	1.58	3.00	298.03	252.00	1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2556E+02 EXCESS=0.0000E+00 OUTFLOW=0.2560E+02 BASIN STORAGE=0.3904E-03 PERCENT ERROR=-0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	2.84	298.86	251.39	1.57	3.00	296.48	252.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2537E+02 EXCESS=0.0000E+00 OUTFLOW=0.2540E+02 BASIN STORAGE=0.3915E-03 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.00	180.91	252.10	1.29	3.00	180.70	252.00	1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2085E+02 EXCESS=0.0000E+00 OUTFLOW=0.2087E+02 BASIN STORAGE=0.3964E-03 PERCENT ERROR=-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5	MANE	2.82	134.26	255.25	1.05	3.00	134.16	255.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1696E+02 EXCESS=0.0000E+00 OUTFLOW=0.1699E+02 BASIN STORAGE=0.4906E-03 PERCENT ERROR=
-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5	MANE	3.00	86.72	256.77	0.78	3.00	86.19	255.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1263E+02 EXCESS=0.0000E+00 OUTFLOW=0.1269E+02 BASIN STORAGE=0.4762E-03 PERCENT ERROR=
-0.4

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	177.37	256.91	1.70	3.00	177.10	258.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2745E+02 EXCESS=0.0000E+00 OUTFLOW=0.2751E+02 BASIN STORAGE=0.3839E-03 PERCENT ERROR=
-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	169.13	255.36	1.61	3.00	168.84	255.00	1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2606E+02 EXCESS=0.0000E+00 OUTFLOW=0.2612E+02 BASIN STORAGE=0.4257E-03 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.68	539.09	255.07	1.35	3.00	538.31	255.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7120E+02 EXCESS=0.0000E+00 OUTFLOW=0.7105E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	2.68	535.64	255.30	1.34	3.00	532.25	255.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7069E+02 EXCESS=0.0000E+00 OUTFLOW=0.7052E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	409.09	275.01	1.14	3.00	408.53	276.00	1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5992E+02 EXCESS=0.0000E+00 OUTFLOW=0.5984E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R5-6	MANE	3.00	301.78	280.56	0.96	3.00	300.09	282.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5040E+02 EXCESS=0.0000E+00 OUTFLOW=0.5038E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R5-6	MANE	3.00	192.19	286.35	0.75	3.00	192.01	288.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3938E+02 EXCESS=0.0000E+00 OUTFLOW=0.3932E+02 BASIN STORAGE=0.8566E-01 PERCENT ERROR=
-0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R5-6	MANE	3.00	453.67	275.96	1.45	3.00	453.64	276.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7615E+02 EXCESS=0.0000E+00 OUTFLOW=0.7611E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.00	428.70	278.22	1.38	3.00	428.59	276.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7269E+02 EXCESS=0.0000E+00 OUTFLOW=0.7264E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.76	19.03	266.67	0.91	3.00	19.02	267.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+01 EXCESS=0.0000E+00 OUTFLOW=0.1268E+01 BASIN STORAGE=0.1101E-04 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	1.77	18.85	266.81	0.90	3.00	18.84	267.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+01 EXCESS=0.0000E+00 OUTFLOW=0.1254E+01 BASIN STORAGE=0.1092E-04 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	2.41	8.57	268.50	0.49	3.00	8.54	270.00	0.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6750E+00 EXCESS=0.0000E+00 OUTFLOW=0.6756E+00 BASIN STORAGE=0.1319E-04 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7E-8E	MANE	3.00	3.99	269.13	0.21	3.00	3.99	270.00	0.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2917E+00 EXCESS=0.0000E+00 OUTFLOW=0.2928E+00 BASIN STORAGE=0.1256E-04 PERCENT ERROR=
-0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7E-8E	MANE	3.00	0.26	292.33	0.01	3.00	0.25	294.00	0.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E-01 EXCESS=0.0000E+00 OUTFLOW=0.2054E-01 BASIN STORAGE=0.1096E-04 PERCENT ERROR=
-24.8

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	2.36	9.61	272.07	0.60	3.00	9.60	273.00	0.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8313E+00 EXCESS=0.0000E+00 OUTFLOW=0.8321E+00 BASIN STORAGE=0.1454E-04 PERCENT ERROR=
-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.43	8.70	271.22	0.54	3.00	8.69	273.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7492E+00 EXCESS=0.0000E+00 OUTFLOW=0.7500E+00 BASIN STORAGE=0.1049E-04 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.26	13.31	278.00	1.08	3.00	13.26	279.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1613E+01 EXCESS=0.0000E+00 OUTFLOW=0.1611E+01 BASIN STORAGE=0.2018E-04 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	2.27	13.16	278.20	1.07	3.00	13.12	279.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1595E+01 EXCESS=0.0000E+00 OUTFLOW=0.1593E+01 BASIN STORAGE=0.1743E-04 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	2.76	8.13	284.79	0.74	3.00	8.13	285.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1103E+01 EXCESS=0.0000E+00 OUTFLOW=0.1102E+01 BASIN STORAGE=0.2044E-04 PERCENT ERROR=

0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9N-R9	MANE	3.00	5.05	284.63	0.46	3.00	5.05	285.00	0.46	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6843E+00 EXCESS=0.0000E+00 OUTFLOW=0.6838E+00 BASIN STORAGE=0.2050E-04 PERCENT ERROR=
0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9N-R9	MANE	3.00	1.59	293.56	0.14	3.00	1.59	294.00	0.14	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+00 EXCESS=0.0000E+00 OUTFLOW=0.2079E+00 BASIN STORAGE=0.1894E-04 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.65	9.46	288.90	0.92	3.00	9.46	288.00	0.92	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1380E+01 EXCESS=0.0000E+00 OUTFLOW=0.1379E+01 BASIN STORAGE=0.1805E-04 PERCENT ERROR=
0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.68	8.74	288.39	0.84	3.00	8.73	288.00	0.84	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1261E+01 EXCESS=0.0000E+00 OUTFLOW=0.1260E+01 BASIN STORAGE=0.1932E-04 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.36	71.32	267.92	1.08	3.00	70.88	267.00	1.08	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4954E+01 EXCESS=0.0000E+00 OUTFLOW=0.4955E+01 BASIN STORAGE=0.3084E-06 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

8E-R9	MANE	0.23	70.66	267.60	1.07	3.00	70.16	267.00	1.07	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4899E+01 EXCESS=0.0000E+00 OUTFLOW=0.4900E+01 BASIN STORAGE=0.2753E-06 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

8E-R9	MANE	0.41	40.20	270.51	0.74	3.00	40.14	270.00	0.74	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3390E+01 EXCESS=0.0000E+00 OUTFLOW=0.3390E+01 BASIN STORAGE=0.2408E-06 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

8E-R9	MANE	0.40	25.09	270.68	0.46	3.00	25.04	270.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2102E+01 EXCESS=0.0000E+00 OUTFLOW=0.2103E+01 BASIN STORAGE=0.2729E-06 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

8E-R9	MANE	0.63	8.15	271.55	0.14	3.00	8.13	273.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6388E+00 EXCESS=0.0000E+00 OUTFLOW=0.6390E+00 BASIN STORAGE=0.2619E-06 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

8E-R9	MANE	0.44	44.57	273.86	0.92	3.00	44.54	273.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4240E+01 EXCESS=0.0000E+00 OUTFLOW=0.4241E+01 BASIN STORAGE=0.2577E-06 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

8E-R9	MANE	0.40	41.30	273.54	0.84	3.00	41.26	273.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3873E+01 EXCESS=0.0000E+00 OUTFLOW=0.3874E+01 BASIN STORAGE=0.2900E-06 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.39	244.41	552.32	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3084E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.39	244.36	552.62	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3083E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.37	241.71	552.79	0.79	3.00	241.71	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3040E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.41	239.65	553.20	0.78	3.00	239.65	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3008E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.44	237.69	555.44	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2977E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3151E-01 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.46	242.84	552.46	0.79	3.00	242.84	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.36	242.32	552.59	0.79	3.00	242.32	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	244.41	552.57	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3083E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	244.36	552.69	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3082E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.41	241.71	553.15	0.79	3.00	241.71	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3039E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.43	239.64	555.63	0.78	3.00	239.64	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3007E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3599E-01 PERCENT ERROR= 0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.48	237.69	555.77	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2976E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3598E-01 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.36	242.84	552.83	0.79	3.00	242.83	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.46	242.32	552.87	0.79	3.00	242.31	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.07	244.41	558.64	0.81	3.00	244.41	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3125E+03 EXCESS=0.0000E+00 OUTFLOW=0.3119E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.07	244.36	558.85	0.81	3.00	244.35	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3124E+03 EXCESS=0.0000E+00 OUTFLOW=0.3117E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.00	241.71	559.89	0.79	3.00	241.70	561.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3077E+03 EXCESS=0.0000E+00 OUTFLOW=0.3071E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	3.00	239.64	561.16	0.78	3.00	239.64	561.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3034E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	3.07	237.69	560.84	0.77	3.00	237.69	561.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3003E+03 EXCESS=0.0000E+00 OUTFLOW=0.2996E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R10-11	MANE	3.07	242.83	560.81	0.80	3.00	242.83	558.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3108E+03 EXCESS=0.0000E+00 OUTFLOW=0.3102E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R10-11	MANE	3.00	242.31	558.78	0.80	3.00	242.31	561.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3097E+03 EXCESS=0.0000E+00 OUTFLOW=0.3090E+03 BASIN STORAGE=0.6745E+00 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

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1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *               JUN   1998             *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   26NOV18  TIME  12:12:06  *
 *                                      *
 ****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   1          ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
   2          ID        POWERLINE CORRIDOR
   3          ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
   4          ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
   5          ID       100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
   6          ID           PIMA ROAD FLOWS.
   7          ID
   8          ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
   9          ID       MODELERS: RK, MW
  10          ID
  11          ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 08/07/18
  12          ID       MODELERS: MSW, ES
  13          ID       REVISIONS NOTED WITH HE
  14          ID           NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R
  15          ID           THIS IS THE ULTIMATE CONDITION MODEL
  16          IT       3       0       0    1000
  17          IN      15
  18          IO       5
              *DIAGRAM
              *
  19          JD   3.849  0.0001
  20          PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
  21          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
  22          PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
  23          PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
  24          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  25          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  26          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  27          PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
  28          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
  29          PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
  30          JD   3.657    10.0
  31          JD   3.533    20.0
              *

  32          KK  76THST
  33          KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
  34          KM        100-YR, 24-HR FLO-2D MODEL (XS 98)
  35          BA    0.24
  36          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  37          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  38          QI    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.01
  39          QI    0.00    0.00    0.00    0.00    0.01    0.00    0.00    0.02    0.03    0.05
  40          QI    0.09    0.11    0.14    0.21    0.34    0.51    0.76    3.70   17.69   47.79
  41          QI   68.57   54.61   42.75   35.61   32.34   29.25   26.13   22.83   19.41   18.11
  42          QI   16.15   14.54   13.75   12.53   12.00   11.44   10.52    9.81    9.34    9.09
  43          QI    9.11    8.71    8.37    8.05    7.67    7.75    7.47    7.08    6.97    6.77
  44          QI    6.59    6.44    6.32    6.12    5.95    5.87    5.70    5.84    5.41    5.44
  45          QI    4.56    4.81    4.75    4.78    4.69    4.67    4.61    4.36    4.20    4.00
  46          QI    3.75    3.51    2.49    3.43    3.61    3.65    2.48    2.36    2.19    2.07
  47          QI    1.94    1.72    1.71    1.36    1.48    1.13    1.13    1.20    1.10    1.06
  48          QI    1.06    1.00    0.94    0.89    0.85    0.81    0.78    0.74    0.72    0.70
  49          QI    0.67    0.64    0.62    0.59    0.57    0.55    0.53    0.51    0.49    0.47
  50          QI    0.45    0.44    0.42    0.40    0.39
              *
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1 HEC-1 INPUT PAGE 2

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  51          KK   SB01A   BASIN
  52          BA   0.055
  53          PB   2.721
  54          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
  55          PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
  56          PC   0.956   0.968   0.979   0.990   1.000
  57          LG    0.10    0.25    4.72    0.51       0
  58          UC   0.439   0.231
  59          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  60          UA     100
              *

  61          KK    CP-1 COMBINE
  62          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
  63          HC       2   0.295
              *

  64          KK   R1A-2   ROUTE
  65          RK    2139  0.0180   0.020            TRAP   2.000    0.00
              *

  66          KK   SB01B   BASIN
  67          KM       IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
  68          BA   0.022
  69          LG    0.10    0.25    4.72    0.51      73
  70          UC   0.490   0.471
  71          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  72          UA     100
              *

  73          KK   R1B-2   ROUTE
  74          RK    2636  0.0015   0.030            TRAP   2.000    0.00
              *

  75          KK   SB01C   BASIN
  76          KM       IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
  77          BA   0.032
  78          LG    0.10    0.25    4.72    0.51      73
  79          UC   0.581   0.550
  80          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  81          UA     100
              *

  82          KK   R1C-2   ROUTE
  83          RK    3046  0.0015   0.030            TRAP   2.000    0.00
              *

  84          KK   SB02E   BASIN
  85          KM       IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
  86          BA   0.100
  87          LG    0.10    0.25    4.03    0.74      85
  88          UC   0.859   0.688
  89          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  90          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  91          KK   SB02W   BASIN
  92          BA   0.060
  93          LG    0.10    0.25    4.33    0.61       0
  94          UC   0.686   0.535
  95          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  96          UA     100
              *

  97          KK   CP-02 COMBINE
  98          HC       5
              *

  99          KK    R2-3   ROUTE
 100          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
 101          RK    1260  0.0015   0.03             TRAP      92       4
              *

 102          KK    SB03   BASIN
 103          BA   0.048
 104          LG    0.15    0.25    4.50    0.47      55
 105          UC   0.364   0.294
 106          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 107          UA     100
              *

 108          KK   CP-03 COMBINE
 109          HC       2
              *

 110          KK    R3-5   ROUTE
```

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 111          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 112          RK    2396  0.0015   0.03             TRAP      98       4
              *

 113          KK    SB05   BASIN
 114          BA   0.126
 115          LG    0.22    0.25    4.50    0.44      48
 116          UC   0.327   0.226
 117          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 118          UA     100
              *

 119          KK   CP-5A COMBINE
 120          HC       2
              *
 121          KM
              *

 122          KK   SB07W   BASIN
 123          KM        IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
 124          BA   0.048
 125          LG    0.10    0.25    4.03    0.74       73
 126          UC   0.677   0.558
 127          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1                                        HEC-1 INPUT                                          PAGE  4

      LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 128          UA     100
              *

 129          KK  R7W-8W   ROUTE
 130          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 131          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 132          RK    3721  0.0013   0.03             TRAP      46       4
              *

 133          KK  SB08W   BASIN
 134          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
 135          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 136          BA   0.112
 137          LG    0.10    0.25    4.08    0.71       85
 138          UC   0.784   0.547
 139          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 140          UA     100
              *

 141          KK  CP-08W COMBINE
 142          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 143          HC       2
              *

 144          KK   R8W-4   ROUTE
 145          KM        SR 101L FREEWAY TO CP4
 146          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 147          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 148          KK    SB04   BASIN
 149          BA   0.144
 150          LG    0.14    0.25    4.60    0.44      61
 151          UC   0.305   0.199
 152          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 153          UA     100
              *

 154          KK    CP-4 COMBINE
 155          KM        PRINCESS BLVD AND EAST OF 77TH ST
 156          HC       2
              *

 157          KK    R4-5   ROUTE
 158          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 159          RK    1992  0.0013   0.03             TRAP      39       4
              *

 160          KK   CP-05 COMBINE
 161          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 162          KM        COMBINE CP-05A AND R4-5
 163          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  5

      LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 164          KK    R5-6   ROUTE
 165          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 166          RK    1694  0.0015   0.03             TRAP     188       4
              *

 167          KK    SB06   BASIN
 168          BA   0.136
 169          LG    0.16    0.25    4.55    0.45      53
```

```
 170          UC   0.321   0.246
 171          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 172          UA     100
              *

 173          KK   CP-06 COMBINE
 174          HC       2
              *
              *
              * END WEST RUN
              *
              *
              * BEGIN EAST SIDE OF HAYDEN
              *
 175          KK  SB07E   BASIN
 176          BA   0.026
 177          LG    0.10    0.25    4.03    0.74       0
 178          UC   0.574   0.527
 179          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 180          UA     100
              *

 181          KK  R7E-8E   ROUTE
 182          RK    3662  0.0130   0.030            TRAP   2.000    0.00
              *

 183          KK  SB08E   BASIN
 184          BA   0.078
 185          LG    0.10    0.25    4.08    0.72       0
 186          UC   0.798   0.652
 187          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 188          UA     100
              *

 189          KK  SB09N   BASIN
 190          BA   0.028
 191          LG    0.10    0.25    4.79    0.49       0
 192          UC   0.740   1.111
 193          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 194          UA     100
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 195          KK  R9N-R9   ROUTE
 196          RK    2586  0.0013   0.020            TRAP   2.000    0.00
              *

 197          KK  CP-08E COMBINE
 198          KM       SB07E, SB08E, SB09N
 199          HC       3
              *

 200          KK   SB09   BASIN
 201          BA   0.086
 202          LG    0.10    0.25    4.79    0.49       0
 203          UC   0.683   0.518
 204          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 205          UA     100
              *

 206          KK  8E-R9   ROUTE
 207          RK     501  0.0013   0.020            TRAP   2.000    0.00
              *

 208          KK   CP-09 COMBINE
 209          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 210          HC       2
              *

 211          KK   PWRCH
 212          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
 213          KM        100-YR, 24-HR FLO-2D MODEL (XS 107)
 214          KM        FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL
 215          BA     7.0
 216          QI       0       0       0       0       0       0       0       0       0       0
 217          QI       0       0       0       0       0       0       0       0       0       0
 218          QI       0       0       0       0       0       0       0       0       0       0
 219          QI       0       0       0       0       0       0       0       0       0       0
 220          QI       0       0       0       0       0       1       1       3      43     495
 221          QI    1099    1198    2055    3747    3658    3175    2822    2378    2084    1898
 222          QI    1699    1499    1331    1179    1047     940     851     773     705     645
 223          QI     597     559     521     488     460     435     410     387     370     356
 224          QI     339     328     317     303     293     281     270     257     258     248
 225          QI     240     237     223     220     214     209     205     201     192     188
 226          QI     180     179     164     158     149     142     137     126     120     117
 227          QI     107     102      97      99      86      83      82      74      70      66
 228          QI      62      59      57      55      52      50      50      48      42      41
 229          QI      40      37      35      40      36      32      31      30      31      30
 230          QI      31      30      24      23      23
              *
```

```
231          KK  BINFLO
232          KM         TOTAL INFLOW INTO BASIN 53R.
233          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

234          KK   BASIN
235          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
236          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
237          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
238          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
239          RS       1    STOR       0
240          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
241          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
242          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
243          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
244          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
245          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
             *

246          KK  BSNRT1
247          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
248          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
249          KM        EXCESS CAPACITY.
250          RK     550  0.0052   0.024            CIRC     7.0
             *

251          KK  BSNRT2
252          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
253          RK    1200  0.0077   0.013            CIRC     7.0
             *

254          KK    SB10   BASIN
255          BA   0.040
256          LG    0.15    0.25    4.25    0.55      55
257          UC   0.233   0.161
258          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
259          UA     100
             *

260          KK   CP-10 COMBINE
261          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
262          HC       2
             *

263          KK  R10-11   ROUTE
264          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
265          RK    1277  0.0014   0.03             TRAP     220       4
             *

266          KK    SB11   BASIN
267          BA   0.071
268          LG    0.15    0.25    4.15    0.58      55
269          UC   0.296   0.232
270          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
271          UA     100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

272          KK   CP-11 COMBINE
273          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
274          HC       2
             *
275          ZZ
```

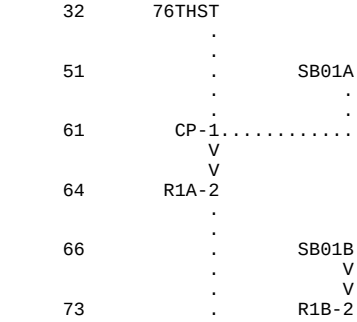
1

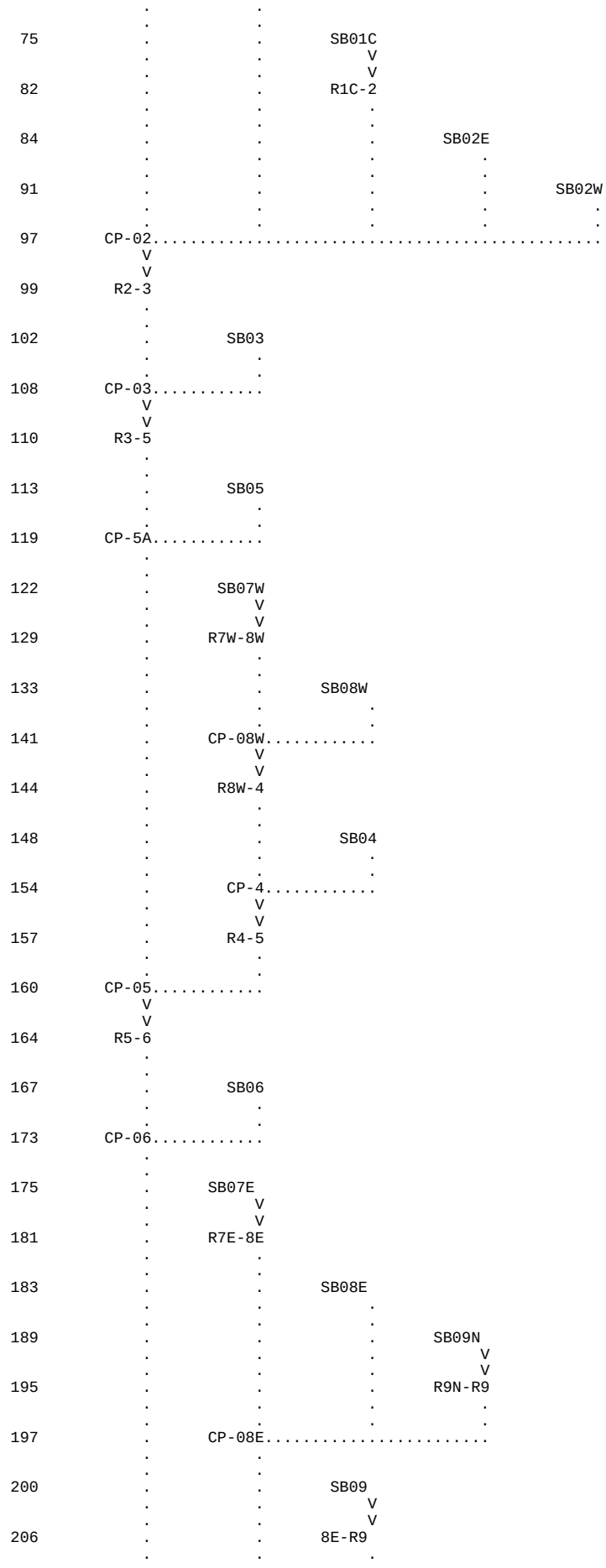
SCHEMATIC DIAGRAM OF STREAM NETWORK

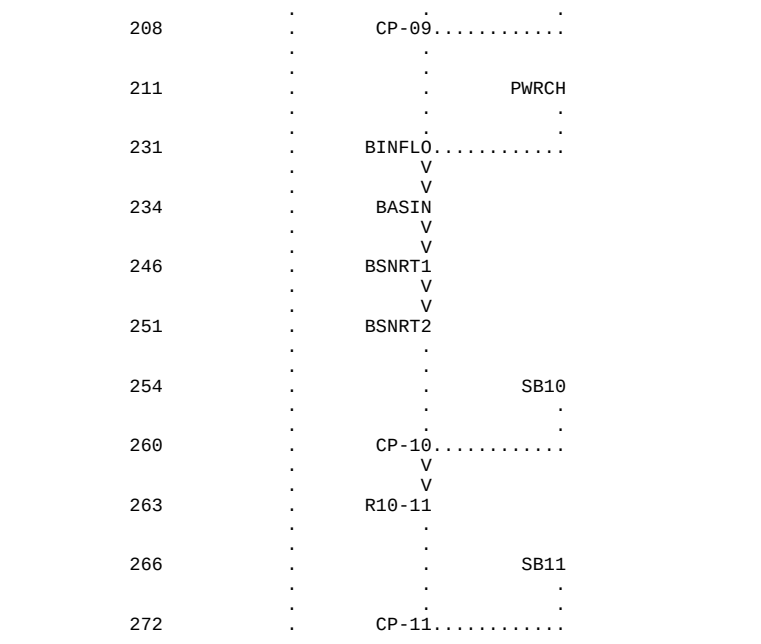
INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW




75 SB01C
82 R1C-2
84 SB02E
91 SB02W
97 CP-02
99 R2-3
102 SB03
108 CP-03
110 R3-5
113 SB05
119 CP-5A
122 SB07W
129 R7W-8W
133 SB08W
141 CP-08W
144 R8W-4
148 SB04
154 CP-4
157 R4-5
160 CP-05
164 R5-6
167 SB06
173 CP-06
175 SB07E
181 R7E-8E
183 SB08E
189 SB09N
195 R9N-R9
197 CP-08E
200 SB09
206 8E-R9



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

```
 *                                    *                                        *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1                *                                    *          609 SECOND STREET
  *
 *                                       *                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   26NOV18  TIME  11:50:41   *                                    *           (916) 756-1104
  *
 *                                       *                                    *
  *
 ****************************************
```

CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
POWERLINE CORRIDOR
RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS.

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 08/07/18
MODELERS: MSW, ES
REVISIONS NOTED WITH HE
NEW PROP CONDITION MODEL,WITH POWERLINE AND BASIN 53R
THIS IS THE ULTIMATE CONDITION MODEL

18 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE	1 0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	1000	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	3 0	ENDING DATE
NDTIME	0157	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 49.95 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET

FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

19 JD INDEX STORM NO. 1
STRM 3.85 PRECIPITATION DEPTH
TRDA 0.00 TRANSPOSITION DRAINAGE AREA

20 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

				6-HOUR	24-HOUR	72-HOUR	
+	HYDROGRAPH AT 76THST	69.	12.50	23.	8.	4.	0.24
+	HYDROGRAPH AT SB01A	65.	12.25	5.	1.	1.	0.05
+	2 COMBINED AT CP-1	114.	12.30	28.	9.	5.	0.29
+	ROUTED TO R1A-2	113.	12.30	28.	9.	5.	0.29
+	HYDROGRAPH AT SB01B	25.	12.35	5.	2.	1.	0.02
+	ROUTED TO R1B-2	25.	12.40	5.	2.	1.	0.02
+	HYDROGRAPH AT SB01C	33.	12.40	7.	3.	1.	0.03
+	ROUTED TO R1C-2	32.	12.45	7.	3.	1.	0.03
+	HYDROGRAPH AT SB02E	50.	12.60	10.	3.	1.	0.10
+	HYDROGRAPH AT SB02W	38.	12.45	5.	1.	1.	0.06
+	5 COMBINED AT CP-02	235.	12.50	55.	17.	9.	0.51
+	ROUTED TO R2-3	235.	12.55	55.	17.	9.	0.51
+	HYDROGRAPH AT SB03	65.	12.15	10.	3.	2.	0.05
+	2 COMBINED AT CP-03	261.	12.50	64.	20.	10.	0.56
+	ROUTED TO R3-5	260.	12.65	64.	20.	10.	0.56
+	HYDROGRAPH AT SB05	190.	12.10	24.	8.	4.	0.13
+	2 COMBINED AT CP-5A	300.	12.60	86.	28.	14.	0.68
+	HYDROGRAPH AT SB07W	29.	12.45	5.	1.	1.	0.05
+	ROUTED TO R7W-8W	28.	13.05	5.	1.	1.	0.05
+	HYDROGRAPH AT SB08W	67.	12.55	11.	3.	1.	0.11
+	2 COMBINED AT CP-08W	68.	12.55	16.	4.	2.	0.16
+	ROUTED TO R8W-4	67.	12.55	16.	4.	2.	0.16
+	HYDROGRAPH AT SB04	241.	12.10	31.	10.	5.	0.14
+	2 COMBINED AT CP-4	248.	12.10	46.	14.	7.	0.30
+	ROUTED TO R4-5	244.	12.20	46.	14.	7.	0.30
+	2 COMBINED AT CP-05	444.	12.20	131.	42.	21.	0.99
+	ROUTED TO R5-6	441.	12.30	131.	42.	21.	0.99
+	HYDROGRAPH AT SB06	202.	12.10	27.	9.	4.	0.14
+	2 COMBINED AT CP-06	587.	12.25	156.	50.	25.	1.12
+	HYDROGRAPH AT SB07E	16.	12.40	2.	1.	0.	0.03
+	ROUTED TO R7E-8E	16.	12.45	2.	1.	0.	0.03

+ HYDROGRAPH AT	SB08E	39.	12.55	6.	2.	1.	0.08
+ HYDROGRAPH AT	SB09N	11.	12.55	3.	1.	0.	0.03
+ ROUTED TO	R9N-R9	11.	12.65	3.	1.	0.	0.03
+ 3 COMBINED AT	CP-08E	63.	12.55	11.	3.	1.	0.13
+ HYDROGRAPH AT	SB09	60.	12.45	9.	2.	1.	0.09
+ ROUTED TO	8E-R9	60.	12.45	9.	2.	1.	0.09
+ 2 COMBINED AT	CP-09	121.	12.50	20.	5.	2.	0.22
+ HYDROGRAPH AT	PWRCH	3747.	13.25	1540.	502.	248.	7.00
+ 2 COMBINED AT	BINFLO	3788.	13.25	1558.	507.	250.	7.22
+ ROUTED TO	BASIN	462.	18.45	458.	399.	241.	7.22
+ ROUTED TO	BSNRT1	462.	18.50	458.	399.	241.	7.22
+ ROUTED TO	BSNRT2	462.	18.50	458.	399.	241.	7.22
+ HYDROGRAPH AT	SB10	72.	12.05	8.	3.	1.	0.04
+ 2 COMBINED AT	CP-10	463.	18.50	459.	400.	242.	7.26
+ ROUTED TO	R10-11	463.	18.55	459.	400.	241.	7.26
+ HYDROGRAPH AT	SB11	107.	12.10	14.	5.	2.	0.07
+ 2 COMBINED AT	CP-11	465.	18.55	460.	401.	244.	7.33

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.36	117.01	738.51	1.23	3.00	116.71	738.00	1.23

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1943E+02 EXCESS=0.0000E+00 OUTFLOW=0.1943E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R1A-2	MANE	0.42	112.05	738.79	1.22	3.00	111.68	738.00	1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1919E+02 EXCESS=0.0000E+00 OUTFLOW=0.1918E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR=

0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1A-2	MANE	0.38	108.92	738.78	1.21	3.00	108.42	738.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1903E+02 EXCESS=0.0000E+00 OUTFLOW=0.1903E+02 BASIN STORAGE=0.6254E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.16	25.53	743.49	3.06	3.00	25.50	744.00	3.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3584E+01 EXCESS=0.0000E+00 OUTFLOW=0.3586E+01 BASIN STORAGE=0.7197E-04 PERCENT ERROR= -0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	2.33	24.09	743.54	2.89	3.00	24.07	744.00	2.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3394E+01 EXCESS=0.0000E+00 OUTFLOW=0.3396E+01 BASIN STORAGE=0.7377E-04 PERCENT ERROR= -0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	2.36	23.16	744.01	2.79	3.00	23.16	744.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3271E+01 EXCESS=0.0000E+00 OUTFLOW=0.3273E+01 BASIN STORAGE=0.5643E-04 PERCENT ERROR= -0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.36	33.42	748.15	3.06	3.00	33.21	747.00	3.06

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5214E+01 EXCESS=0.0000E+00 OUTFLOW=0.5216E+01 BASIN STORAGE=0.8968E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	2.28	31.48	747.45	2.90	3.00	31.38	750.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4938E+01 EXCESS=0.0000E+00 OUTFLOW=0.4942E+01 BASIN STORAGE=0.9677E-04 PERCENT ERROR= -0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	2.33	30.35	747.95	2.79	3.00	30.18	750.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4759E+01 EXCESS=0.0000E+00 OUTFLOW=0.4762E+01 BASIN STORAGE=0.1043E-03 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.17	244.84	753.17	1.35	3.00	244.77	753.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3660E+02 BASIN STORAGE=0.3883E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.23	230.94	753.03	1.29	3.00	230.92	753.00	1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3519E+02 EXCESS=0.0000E+00 OUTFLOW=0.3513E+02 BASIN STORAGE=0.3884E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.25	222.08	752.98	1.26	3.00	222.07	753.00	1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3425E+02 EXCESS=0.0000E+00 OUTFLOW=0.3419E+02 BASIN STORAGE=0.3636E-01 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	272.63	759.84	1.45	3.00	271.95	759.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4314E+02 EXCESS=0.0000E+00 OUTFLOW=0.4299E+02 BASIN STORAGE=0.8214E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R3-5	MANE	3.14	256.74	760.19	1.39	3.00	255.63	759.00	1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4130E+02 EXCESS=0.0000E+00 OUTFLOW=0.4118E+02 BASIN STORAGE=0.8574E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R3-5	MANE	3.00	246.54	761.16	1.35	3.00	245.67	762.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4013E+02 EXCESS=0.0000E+00 OUTFLOW=0.3998E+02 BASIN STORAGE=0.8214E-01 PERCENT ERROR=
0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	29.92	779.59	1.09	3.00	29.92	780.00	1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2597E+01 EXCESS=0.0000E+00 OUTFLOW=0.2797E+01 BASIN STORAGE=0.9009E-03 PERCENT ERROR=
-7.7

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	27.11	783.50	1.01	3.00	27.07	783.00	1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2363E+01 EXCESS=0.0000E+00 OUTFLOW=0.2594E+01 BASIN STORAGE=0.8201E-03 PERCENT ERROR=
-9.8

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	25.69	782.05	0.91	3.00	25.62	783.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2218E+01 EXCESS=0.0000E+00 OUTFLOW=0.2327E+01 BASIN STORAGE=0.8770E-03 PERCENT ERROR=
-4.9

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.94	71.37	754.38	1.07	3.00	71.03	753.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9153E+01 EXCESS=0.0000E+00 OUTFLOW=0.9154E+01 BASIN STORAGE=0.3386E-03 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	0.96	65.07	755.12	0.98	3.00	64.67	753.00	0.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8396E+01 EXCESS=0.0000E+00 OUTFLOW=0.8399E+01 BASIN STORAGE=0.3250E-03 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	0.98	60.99	754.42	0.91	3.00	60.59	756.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7777E+01 EXCESS=0.0000E+00 OUTFLOW=0.7777E+01 BASIN STORAGE=0.3204E-03 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	3.00	254.27	730.74	1.86	3.00	253.06	732.00	1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3016E+02 EXCESS=0.0000E+00 OUTFLOW=0.3017E+02 BASIN STORAGE=0.1003E-02 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	241.45	731.67	1.74	3.00	240.52	732.00	1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2826E+02 EXCESS=0.0000E+00 OUTFLOW=0.2827E+02 BASIN STORAGE=0.9962E-03 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	229.28	731.11	1.66	3.00	228.02	732.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2690E+02 EXCESS=0.0000E+00 OUTFLOW=0.2690E+02 BASIN STORAGE=0.1146E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.83	464.53	735.59	1.69	3.00	464.14	738.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8904E+02 EXCESS=0.0000E+00 OUTFLOW=0.8891E+02 BASIN STORAGE=0.6945E-01 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R5-6	MANE	2.94	437.27	736.55	1.60	3.00	434.81	738.00	1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8442E+02 EXCESS=0.0000E+00 OUTFLOW=0.8425E+02 BASIN STORAGE=0.6945E-01 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.02	413.93	736.72	1.54	3.00	411.70	738.00	1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8125E+02 EXCESS=0.0000E+00 OUTFLOW=0.8113E+02 BASIN STORAGE=0.6945E-01 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.93	16.43	748.32	0.80	3.00	16.39	747.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1113E+01 EXCESS=0.0000E+00 OUTFLOW=0.1112E+01 BASIN STORAGE=0.1951E-04 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	1.94	14.90	748.28	0.72	3.00	14.82	747.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9964E+00 EXCESS=0.0000E+00 OUTFLOW=0.9968E+00 BASIN STORAGE=0.1628E-04 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.13	13.91	748.07	0.67	3.00	13.81	747.00	0.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9248E+00 EXCESS=0.0000E+00 OUTFLOW=0.9254E+00 BASIN STORAGE=0.1626E-04 PERCENT ERROR= -0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.43	11.87	758.35	0.97	3.00	11.83	759.00	0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1453E+01 EXCESS=0.0000E+00 OUTFLOW=0.1451E+01 BASIN STORAGE=0.2431E-04 PERCENT ERROR= 0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.57	10.88	757.62	0.89	3.00	10.84	759.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1330E+01 EXCESS=0.0000E+00 OUTFLOW=0.1328E+01 BASIN STORAGE=0.2146E-04 PERCENT ERROR= 0.1

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.61	10.25	758.60	0.84	3.00	10.23	759.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1249E+01 EXCESS=0.0000E+00 OUTFLOW=0.1248E+01 BASIN STORAGE=0.2338E-04 PERCENT ERROR= 0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.34	63.16	747.57	0.97	3.00	62.82	747.00	0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4464E+01 EXCESS=0.0000E+00 OUTFLOW=0.4465E+01 BASIN STORAGE=0.3646E-06 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

8E-R9	MANE	0.34	58.05	747.58	0.89	3.00	57.70	747.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4085E+01 EXCESS=0.0000E+00 OUTFLOW=0.4085E+01 BASIN STORAGE=0.3666E-06 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

8E-R9	MANE	0.34	54.72	747.84	0.84	3.00	54.37	747.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3838E+01 EXCESS=0.0000E+00 OUTFLOW=0.3838E+01 BASIN STORAGE=0.3903E-06 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.38	462.76	1109.79	2.58	3.00	462.76	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9944E+03 EXCESS=0.0000E+00 OUTFLOW=0.9942E+03 BASIN STORAGE=0.9347E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.38	462.49	1109.94	2.58	3.00	462.49	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9936E+03 EXCESS=0.0000E+00 OUTFLOW=0.9934E+03 BASIN STORAGE=0.9329E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.43	462.32	1110.31	2.58	3.00	462.32	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9930E+03 EXCESS=0.0000E+00 OUTFLOW=0.9928E+03 BASIN STORAGE=0.9109E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.37	462.76	1110.22	2.58	3.00	462.76	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9941E+03 EXCESS=0.0000E+00 OUTFLOW=0.9941E+03 BASIN STORAGE=0.2126E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.37	462.49	1110.43	2.58	3.00	462.49	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9935E+03 EXCESS=0.0000E+00 OUTFLOW=0.9934E+03 BASIN STORAGE=0.1066E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.38	462.32	1110.42	2.58	3.00	462.32	1110.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9927E+03 EXCESS=0.0000E+00 OUTFLOW=0.9926E+03 BASIN STORAGE=0.3689E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.34	463.63	1114.77	2.58	3.00	463.63	1113.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9995E+03 EXCESS=0.0000E+00 OUTFLOW=0.9982E+03 BASIN STORAGE=0.1343E+01 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.39	463.32	1113.19	2.58	3.00	463.32	1113.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9985E+03 EXCESS=0.0000E+00 OUTFLOW=0.9973E+03 BASIN STORAGE=0.1563E+01 PERCENT ERROR= 0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.35	463.12	1115.44	2.57	3.00	463.12	1113.00	2.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9975E+03 EXCESS=0.0000E+00 OUTFLOW=0.9959E+03 BASIN STORAGE=0.1570E+01 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

Appendix G
Culvert Calculations
Cavvasson

Culvert Report

Existing Frontage Culvert(E)-36-inch

Invert Elev Dn (ft)	=	1597.50
Pipe Length (ft)	=	446.00
Slope (%)	=	1.30
Invert Elev Up (ft)	=	1603.30
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	3
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

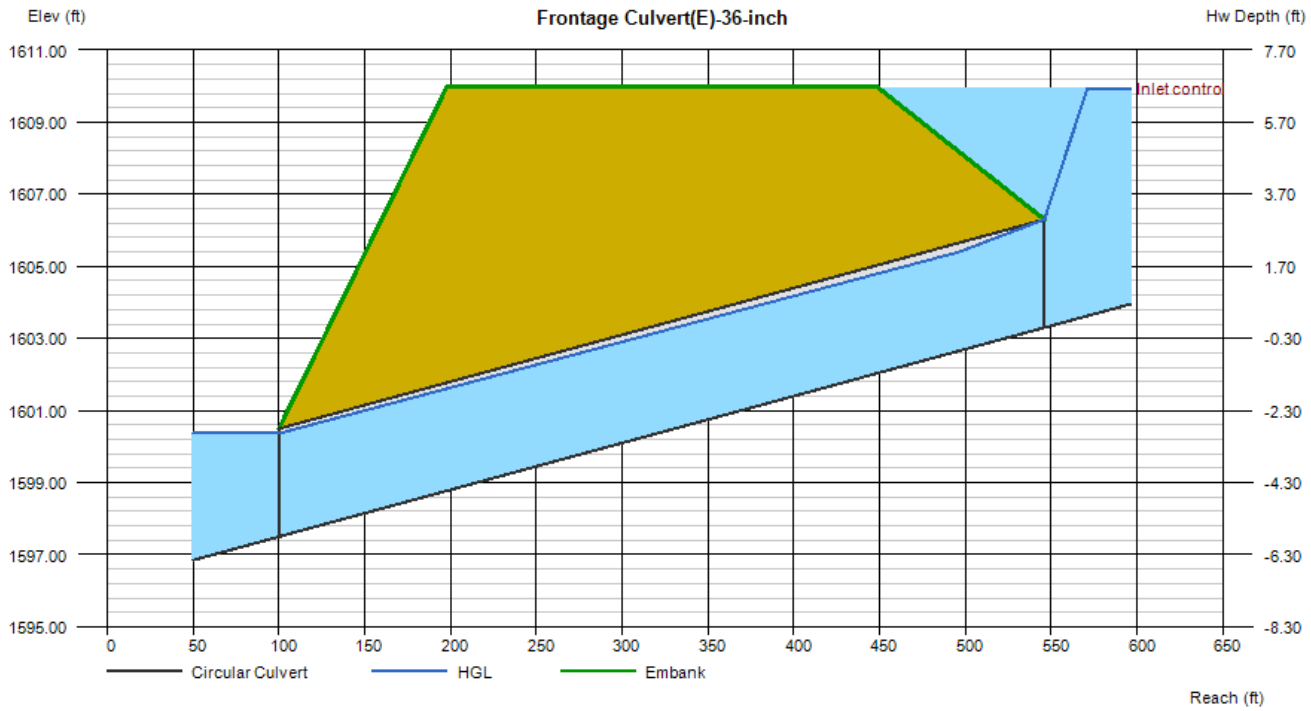
Top Elevation (ft)	=	1610.00
Top Width (ft)	=	250.00
Crest Width (ft)	=	250.00

Calculations

Qmin (cfs)	=	5.00
Qmax (cfs)	=	250.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	229.00
Qpipe (cfs)	=	229.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	10.97
Veloc Up (ft/s)	=	11.30
HGL Dn (ft)	=	1600.37
HGL Up (ft)	=	1606.03
Hw Elev (ft)	=	1609.93
Hw/D (ft)	=	2.21
Flow Regime	=	Inlet Control



Culvert Report

Existing Frontage Culvert(W)-36-inch

Invert Elev Dn (ft)	=	0.40
Pipe Length (ft)	=	334.00
Slope (%)	=	1.23
Invert Elev Up (ft)	=	4.50
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	3
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

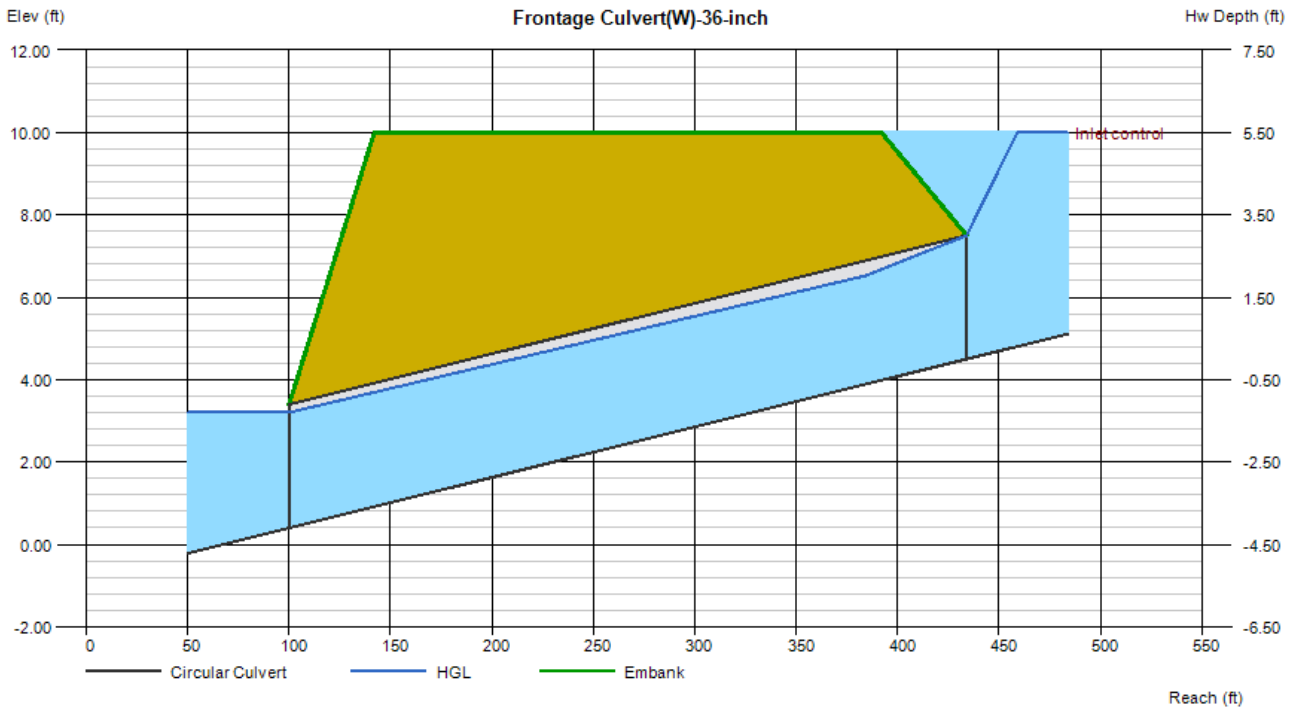
Top Elevation (ft)	=	10.00
Top Width (ft)	=	250.00
Crest Width (ft)	=	250.00

Calculations

Qmin (cfs)	=	5.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	199.00
Qpipe (cfs)	=	199.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	9.66
Veloc Up (ft/s)	=	10.18
HGL Dn (ft)	=	3.20
HGL Up (ft)	=	7.10
Hw Elev (ft)	=	10.00
Hw/D (ft)	=	1.83
Flow Regime	=	Inlet Control



Culvert Report

Existing Frontage Culvert-10'x6' (5)

Invert Elev Dn (ft)	=	1599.00
Pipe Length (ft)	=	234.00
Slope (%)	=	0.94
Invert Elev Up (ft)	=	1601.20
Rise (in)	=	36.0
Shape	=	Box
Span (in)	=	36.0
No. Barrels	=	4
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

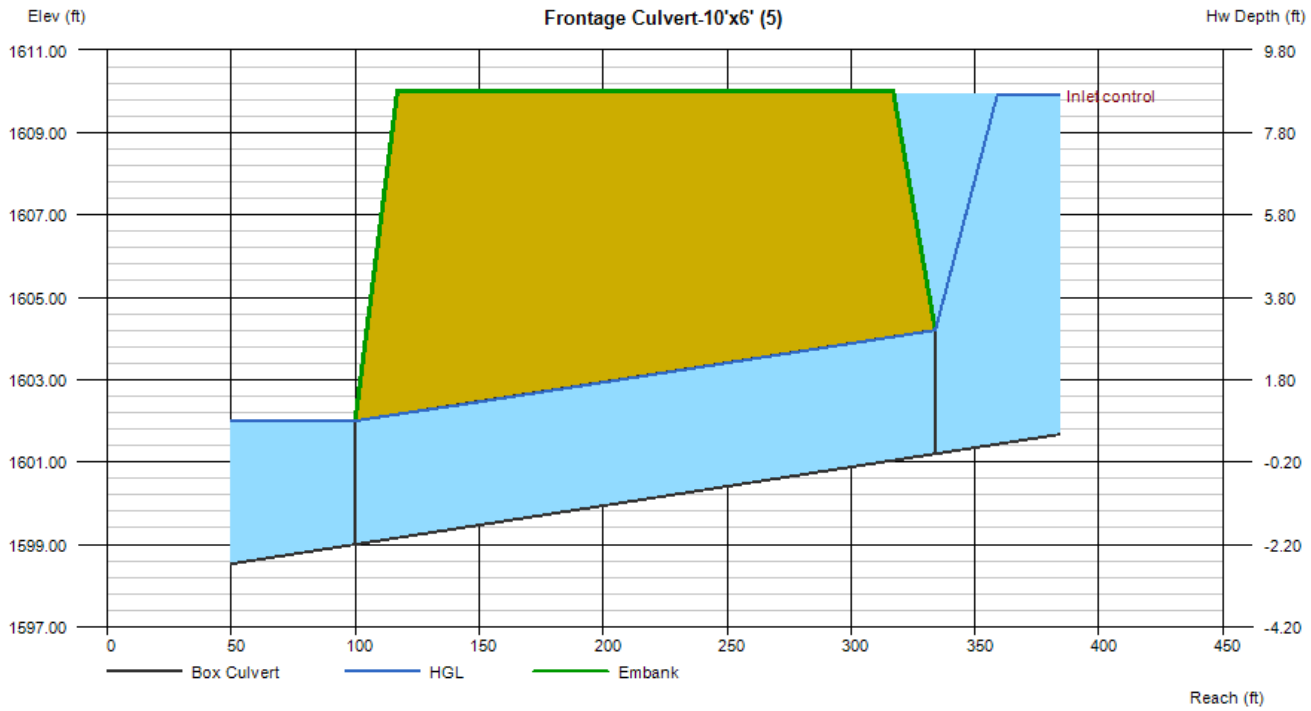
Top Elevation (ft)	=	1610.00
Top Width (ft)	=	200.00
Crest Width (ft)	=	200.00

Calculations

Qmin (cfs)	=	5.00
Qmax (cfs)	=	500.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	485.00
Qpipe (cfs)	=	485.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	13.47
Veloc Up (ft/s)	=	13.47
HGL Dn (ft)	=	1602.00
HGL Up (ft)	=	1604.20
Hw Elev (ft)	=	1609.91
Hw/D (ft)	=	2.90
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Oct 16 2018

Existing Hayden Culvert-30-inch (2)

Invert Elev Dn (ft)	=	20.20
Pipe Length (ft)	=	188.50
Slope (%)	=	1.33
Invert Elev Up (ft)	=	22.70
Rise (in)	=	30.0
Shape	=	Circular
Span (in)	=	30.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

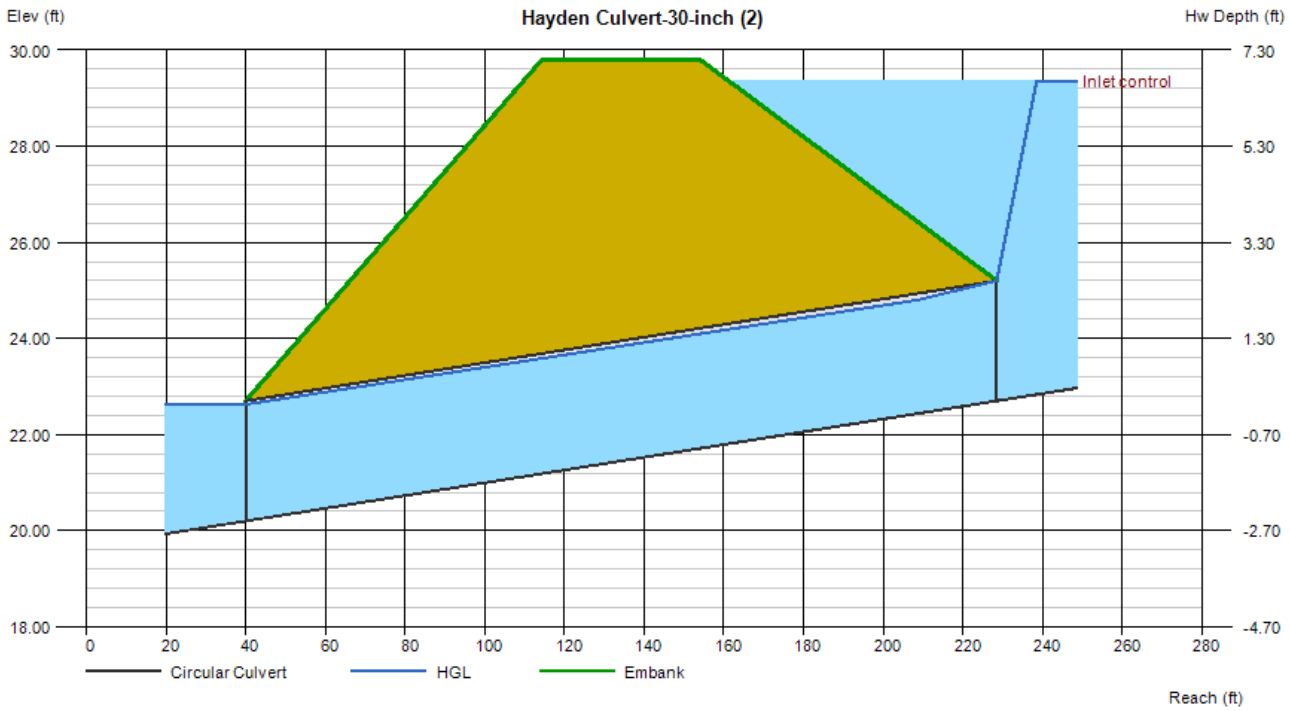
Top Elevation (ft)	=	29.79
Top Width (ft)	=	40.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	5.00
Qmax (cfs)	=	150.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	110.00
Qpipe (cfs)	=	110.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	11.30
Veloc Up (ft/s)	=	11.47
HGL Dn (ft)	=	22.63
HGL Up (ft)	=	25.06
Hw Elev (ft)	=	29.35
Hw/D (ft)	=	2.66
Flow Regime	=	Inlet Control



Culvert Report

Existing 3'x6' CBC LEGACY

Invert Elev Dn (ft)	=	48.75
Pipe Length (ft)	=	136.27
Slope (%)	=	0.21
Invert Elev Up (ft)	=	49.03
Rise (in)	=	36.0
Shape	=	Box
Span (in)	=	72.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Skewed Headwall, Chamfered or Beveled Inlet Edges
Culvert Entrance	=	3/4-in chamfers, 15D skewed headwall
Coeff. K,M,c,Y,k	=	0.522, 0.667, 0.0402, 0.68, 0.2

Embankment

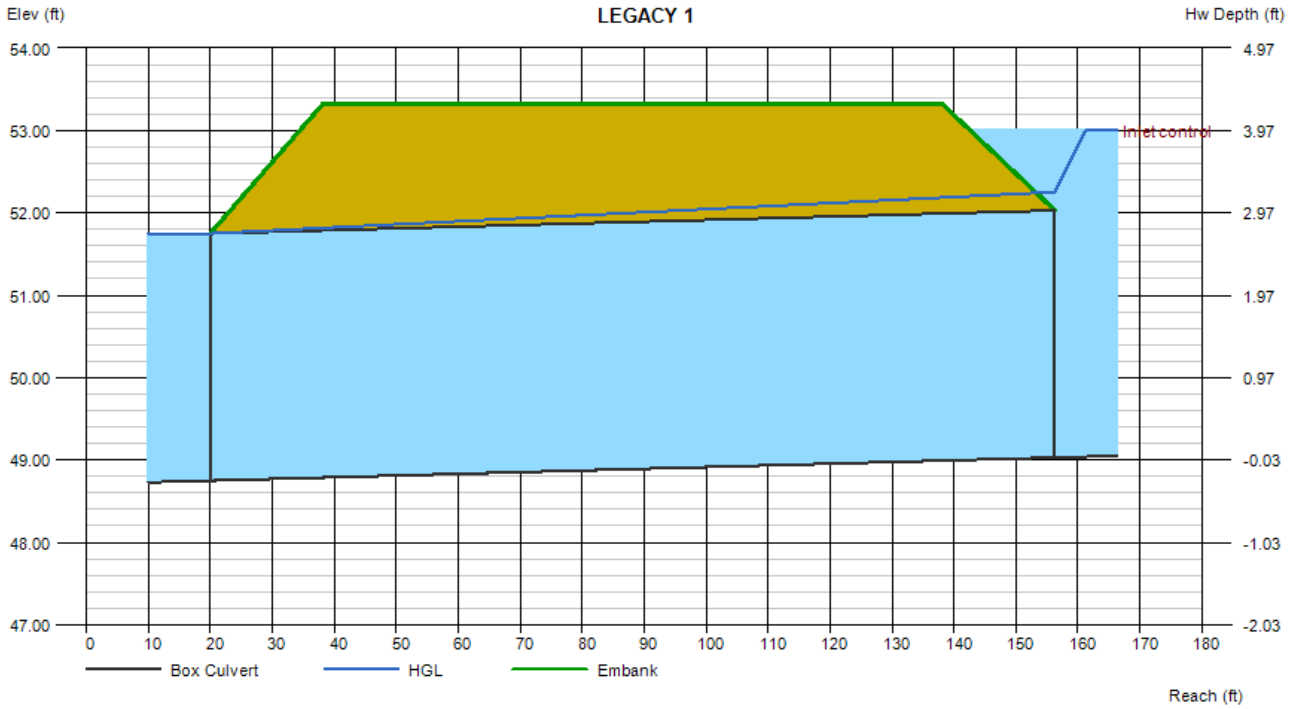
Top Elevation (ft)	=	53.32
Top Width (ft)	=	100.00
Crest Width (ft)	=	60.00

Calculations

Qmin (cfs)	=	50.00
Qmax (cfs)	=	1000.00
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	125.00
Qpipe (cfs)	=	125.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.94
Veloc Up (ft/s)	=	6.94
HGL Dn (ft)	=	51.75
HGL Up (ft)	=	52.25
Hw Elev (ft)	=	53.01
Hw/D (ft)	=	1.33
Flow Regime	=	Inlet Control



Culvert Report

Existing (2) 29 x 45 Ellipitical Conc. Culverts

Invert Elev Dn (ft)	=	1623.27
Pipe Length (ft)	=	109.00
Slope (%)	=	0.18
Invert Elev Up (ft)	=	1623.47
Rise (in)	=	29.0
Shape	=	Elliptical
Span (in)	=	45.0
No. Barrels	=	2
n-Value	=	0.015
Culvert Type	=	Horizontal Ellipse Concrete
Culvert Entrance	=	Square edge w/headwall (H)
Coeff. K,M,c,Y,k	=	0.01, 2, 0.0398, 0.67, 0.5

Embankment

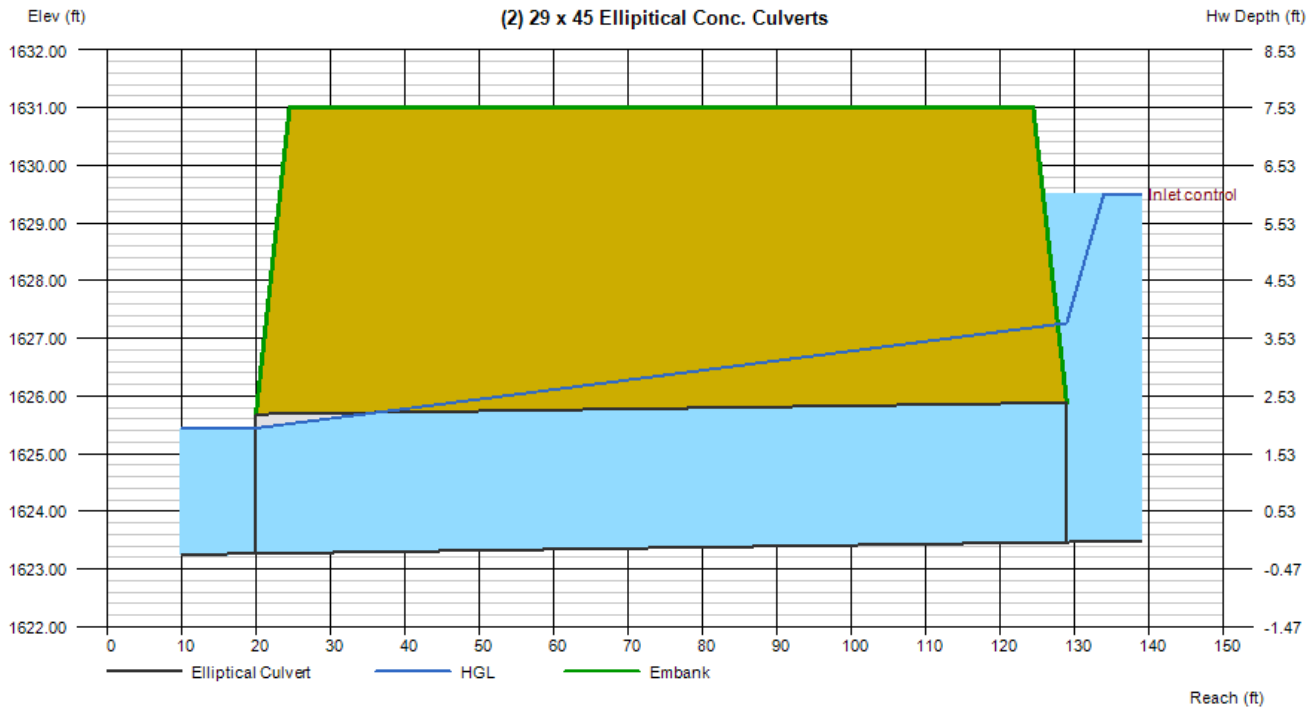
Top Elevation (ft)	=	1631.00
Top Width (ft)	=	100.00
Crest Width (ft)	=	60.00

Calculations

Qmin (cfs)	=	25.00
Qmax (cfs)	=	225.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	150.00
Qpipe (cfs)	=	150.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	10.98
Veloc Up (ft/s)	=	10.54
HGL Dn (ft)	=	1625.45
HGL Up (ft)	=	1627.27
Hw Elev (ft)	=	1629.51
Hw/D (ft)	=	2.50
Flow Regime	=	Inlet Control



HYDRAULIC CALCULATION SHEET
Retention Calculations
Hubbard Engineering
Project No. 18114

Project Name: Cavasson | **Prepared by:** ES | **Date:** 10/4/2018
Project No.: 18114 | **Revised:** | **Date:**

Purpose: Evaluate the required and provided retention volumes in order to assess conformance to project criteria.

Methodology: Calculate the volume of stormwater required to be retained using City of Scottsdale criteria. Calculate the estimated volume of stormwater retained using retention basin geometry.

Criteria: Retain the calculated stormwater run-off for the First Flush storm event.

References:
1.Design Standards & Policies Manual, City of Scottsdale, January 2017
2.Drainage Design Manual Hydrology, Flood Control District of Maricopa County, August 15, 2013
3.Drainage Design Manual Hydraulics, Flood Control District of Maricopa County, August 15, 2013

Calculations: Volume Required = C*P/12* A [ft^3] (Reference 2)

(Reference2)

	P = 0.5	[in] First Flush	(Reference2)
	C_{100} = 0.95	(Pavement/Roofs)	(Reference2)
	C_{100} = 0.45	(Undisturbed Natural Desert)	(Reference2)
Results:	C_{100} = 0.83	(Desert landscape- Impervious)	(Reference2)

Identifiers	CALCULATE RETENTION VOLUME REQUIRED- FIRST FLUSH			
Contributory Area	Areas	C_w	Volume Required	
ID	Total [acres]		[acre-ft]	[ft^3]
1A-1	6.62	0.85	0.23	10,214.52
1A-2	2.45	0.85	0.09	3,786.05
1A-3	4.84	0.85	0.17	7,466.44
1A-4	2.55	0.85	0.09	3,934.41
1A-5	3.77	0.85	0.13	5,812.89
*1A-6	4.67	0.85	0.17	7,208.73
1A-7	2.93	0.85	0.10	4,524.61
1A-8	2.40	0.85	0.08	3,697.24
1B-1	9.67	0.85	0.34	14,913.53
1B-2	9.90	0.85	0.35	15,277.46
*1B-3	3.91	0.85	0.14	6,024.71
1C-1	20.05	0.85	0.71	30,933.29
1C-2	0.51	0.85	0.02	786.67
1C-3	3.48	0.85	0.12	5,368.53
1C-4	7.87	0.85	0.28	12,143.62
1C-5	4.95	0.85	0.18	7,641.00
1C-6	3.60	0.85	0.13	5,549.57
1C-7	4.39	0.85	0.16	6,775.30
1C-8	8.09	0.85	0.29	12,483.41
1C-9	13.16	0.85	0.47	20,309.08
1C-10	3.56	0.85	0.13	5,486.72
TOTAL	**123.38**		**0.32**	**190,337.78**

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Oct 22 2018

Cavasson Boulevard-Proposed Cuvlert-E 77th Way

Invert Elev Dn (ft)	=	1628.30
Pipe Length (ft)	=	80.50
Slope (%)	=	0.87
Invert Elev Up (ft)	=	1629.00
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

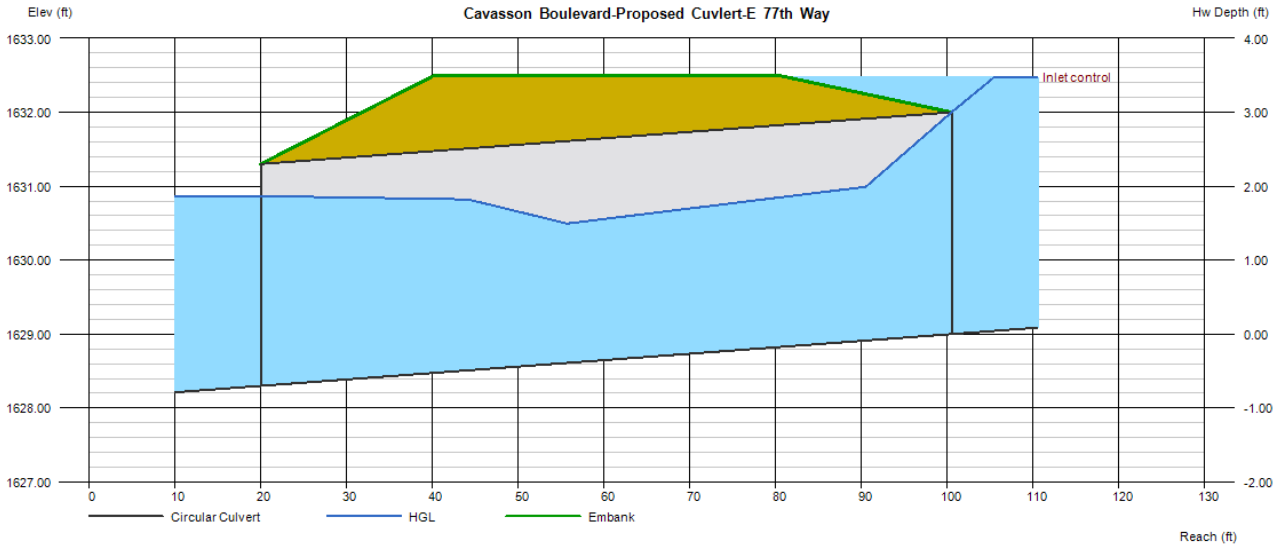
Top Elevation (ft)	=	1632.50
Top Width (ft)	=	40.00
Crest Width (ft)	=	40.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	86.00
Qpipe (cfs)	=	86.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.68
Veloc Up (ft/s)	=	7.99
HGL Dn (ft)	=	1630.87
HGL Up (ft)	=	1631.13
Hw Elev (ft)	=	1632.48
Hw/D (ft)	=	1.16
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Oct 22 2018

Cavasson Boulevard-Proposed Cuvlert-W 77th Way

Invert Elev Dn (ft)	=	1627.50
Pipe Length (ft)	=	79.70
Slope (%)	=	2.51
Invert Elev Up (ft)	=	1629.50
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

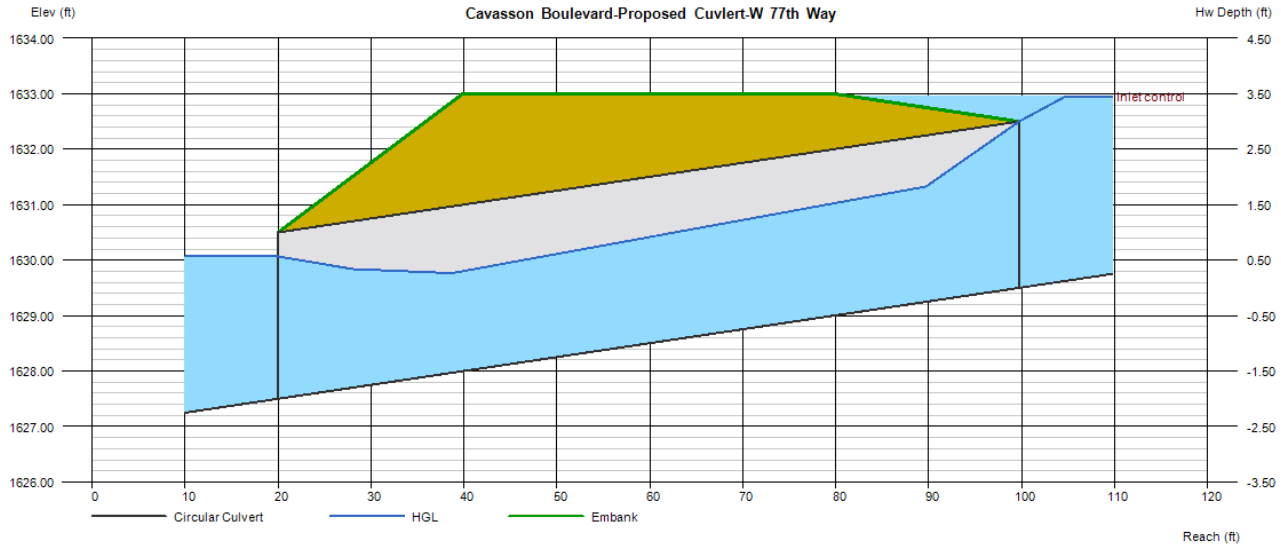
Top Elevation (ft)	=	1633.00
Top Width (ft)	=	40.00
Crest Width (ft)	=	40.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	86.00
Qpipe (cfs)	=	86.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.68
Veloc Up (ft/s)	=	7.99
HGL Dn (ft)	=	1630.07
HGL Up (ft)	=	1631.63
Hw Elev (ft)	=	1632.95
Hw/D (ft)	=	1.15
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Oct 18 2018

Hayden-Proposed Cuvlert-Driveway 1

Invert Elev Dn (ft)	=	1644.22
Pipe Length (ft)	=	72.00
Slope (%)	=	0.69
Invert Elev Up (ft)	=	1644.72
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

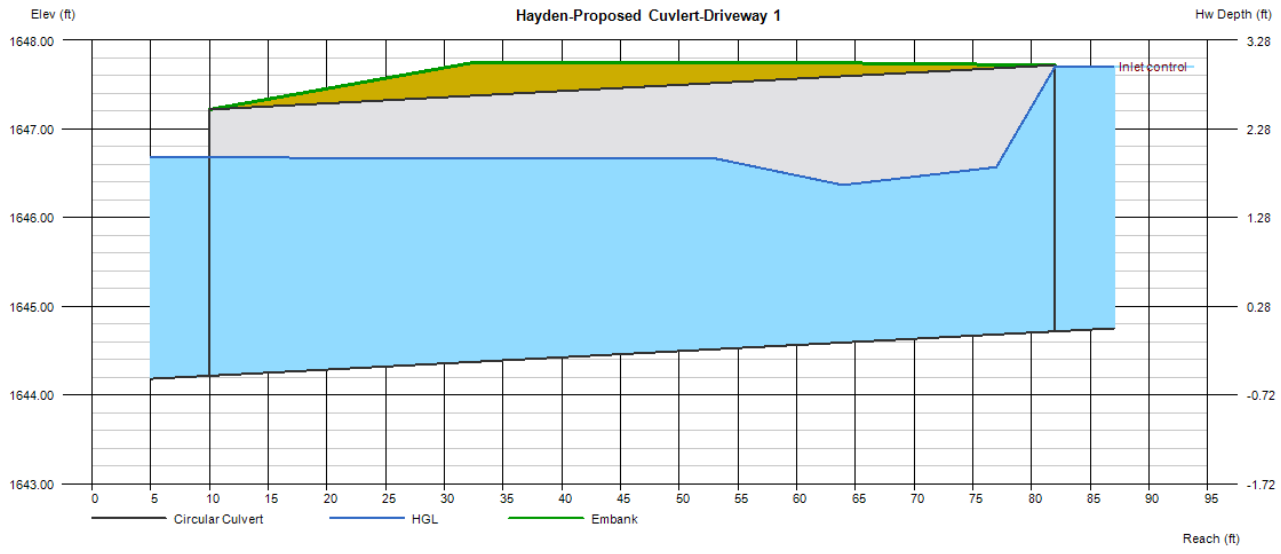
Top Elevation (ft)	=	1647.75
Top Width (ft)	=	27.00
Crest Width (ft)	=	32.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	70.00
Qpipe (cfs)	=	70.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	5.64
Veloc Up (ft/s)	=	7.29
HGL Dn (ft)	=	1646.68
HGL Up (ft)	=	1646.65
Hw Elev (ft)	=	1647.70
Hw/D (ft)	=	0.99
Flow Regime	=	Inlet Control



Culvert Report

Hayden-Proposed Cuvlert-Driveway 2

Invert Elev Dn (ft)	=	1638.50
Pipe Length (ft)	=	77.00
Slope (%)	=	0.65
Invert Elev Up (ft)	=	1639.00
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

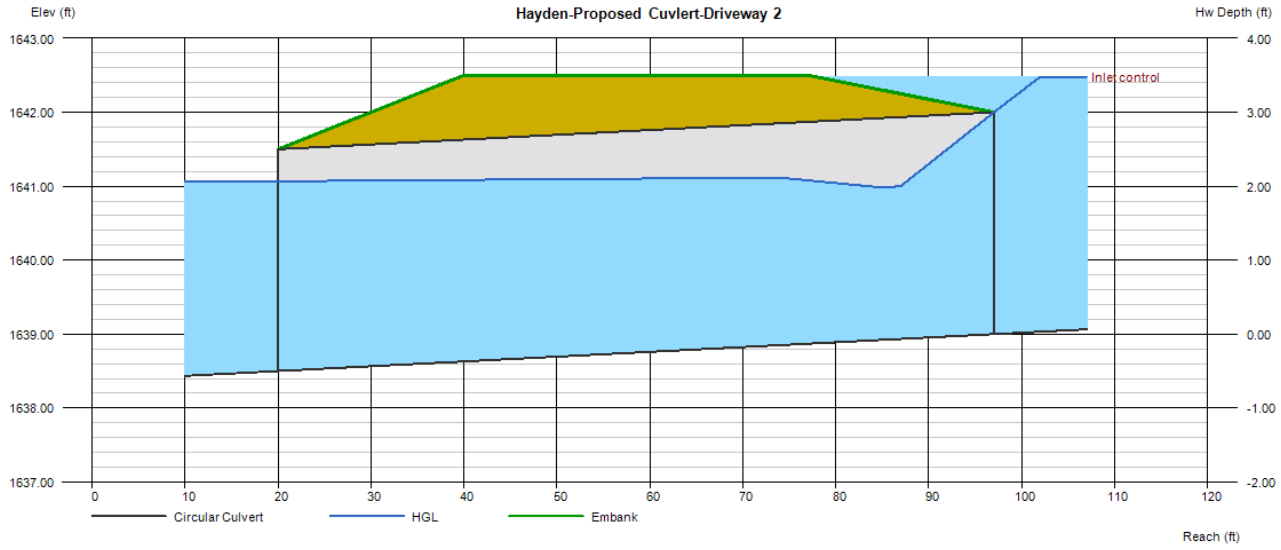
Top Elevation (ft)	=	1642.50
Top Width (ft)	=	37.00
Crest Width (ft)	=	32.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	86.00
Qpipe (cfs)	=	86.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.68
Veloc Up (ft/s)	=	7.97
HGL Dn (ft)	=	1641.07
HGL Up (ft)	=	1641.14
Hw Elev (ft)	=	1642.48
Hw/D (ft)	=	1.16
Flow Regime	=	Inlet Control



Culvert Report

Hayden-Proposed Cuvlert-Driveway 3

Invert Elev Dn (ft)	=	1630.30
Pipe Length (ft)	=	104.00
Slope (%)	=	2.37
Invert Elev Up (ft)	=	1632.77
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	3
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

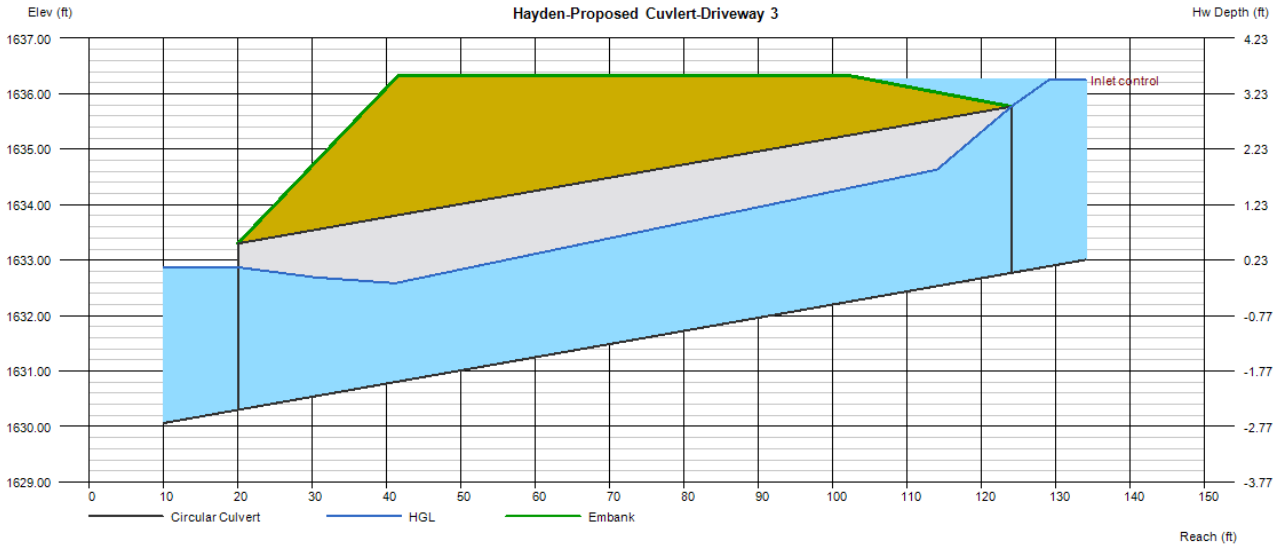
Top Elevation (ft)	=	1636.32
Top Width (ft)	=	61.00
Crest Width (ft)	=	32.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	130.00
Qpipe (cfs)	=	130.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.72
Veloc Up (ft/s)	=	8.02
HGL Dn (ft)	=	1632.87
HGL Up (ft)	=	1634.91
Hw Elev (ft)	=	1636.25
Hw/D (ft)	=	1.16
Flow Regime	=	Inlet Control



Culvert Report

Hayden-Proposed Cuvlert-Driveway 4

Invert Elev Dn (ft)	=	1619.65
Pipe Length (ft)	=	118.50
Slope (%)	=	3.25
Invert Elev Up (ft)	=	1623.50
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	3
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

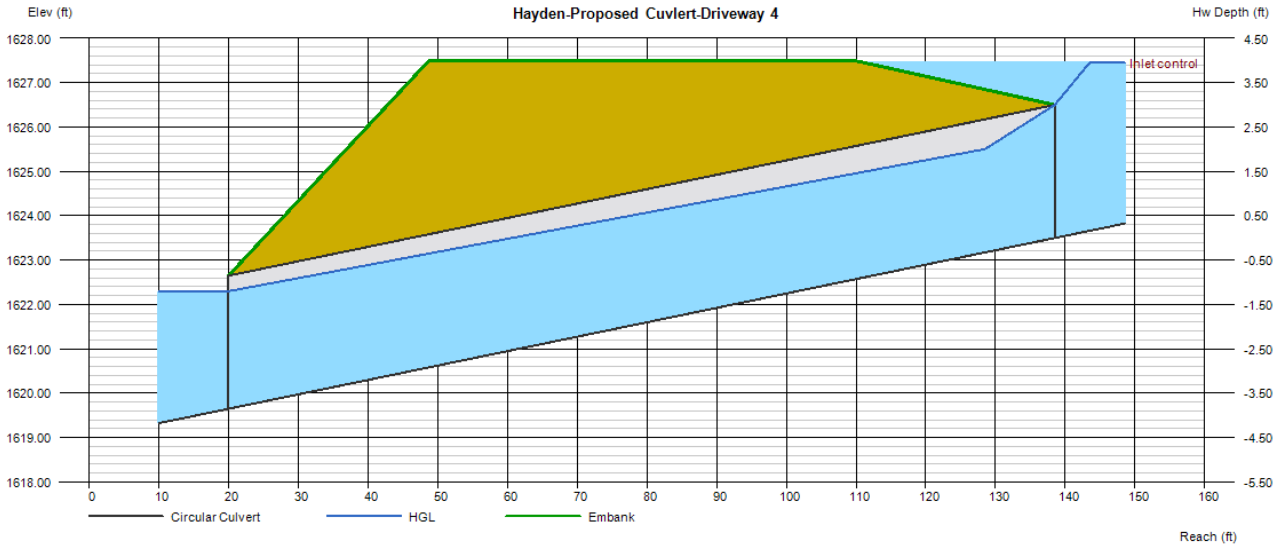
Top Elevation (ft)	=	1627.50
Top Width (ft)	=	61.00
Crest Width (ft)	=	32.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	150.00
Qpipe (cfs)	=	150.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.57
Veloc Up (ft/s)	=	8.60
HGL Dn (ft)	=	1622.30
HGL Up (ft)	=	1625.80
Hw Elev (ft)	=	1627.45
Hw/D (ft)	=	1.32
Flow Regime	=	Inlet Control

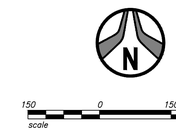


Exhibits
Cavasson



L[illegible]	404 D[illegible]	404 Ar[illegible]
		[illegible]
1A	1[illegible]	0.15
	[illegible]otal	0[illegible]
1B	1[illegible]	0.30
	[illegible]otal	0[illegible]0
1C	1[illegible]	0.15
1C	2[illegible]	0.12
	[illegible]otal	0[illegible]6
[illegible]otal		0[illegible]2

[illegible]r[illegible]	[illegible]r[illegible]Ar[illegible]	[illegible]	[illegible]Ar[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
1A	34.49	4.17	30.31	30.17
1B	27.01	3.54	23.47	23.17
1C	72.41	10.00	62.41	62.15
Total	133.91	17.71	116.20	115.48



LEGEND

1A — PARCEL LABEL

1a — 404 WASH LABEL

404 WASHES

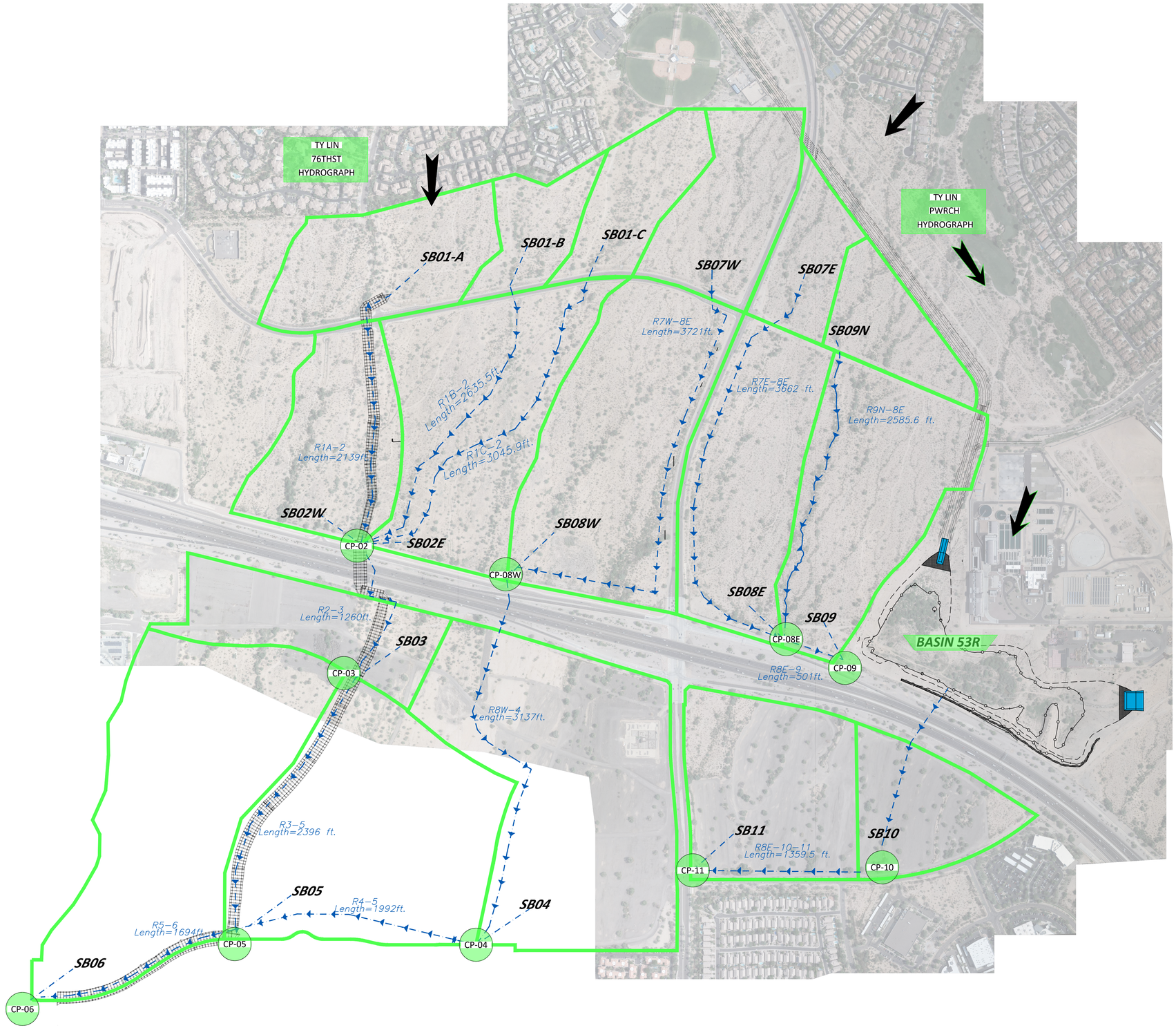
CAVASSON

Project No.	Date	
18114	10/22/18	EX-01

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HEC -1 EXISTING CONDITIONS WITH POWERCHANNEL TO BASIN 53R



Collection Point ID	Peak Discharge 100 -year, 2⍰-hour (cfs)	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
CP-01	114	119	65
CP-02	213	227	114
CP-03	238	255	129
CP-04	244	296	179
CP-05	695	731	382
CP-06	564	583	315
CP-08W	63	76	34
CP-08E	63	76	34
CP-09	120	144	66
CP-10	463	241	171
CP-11	465	241	171

Route ID	Peak Discharge 100 -year, 2⍰-hour (cfs)	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
R1A-2	113	119	65
R1B-2	17	20	10
R1C-2	22	26	12
R2-3	212	226	114
R3-5	238	254	127
R7W-8W	27	32	14
R7E-8E	16	19	8
R8W-4	62	75	34
R4-5	239	290	173
R5-6	416	436	241
R9N-R9	11	13	6
R8E-R9	63	76	34
R10-11	463	241	171

N

400 0 400 800
scale feet

HEC-1 EXISTING WITH CHANNEL

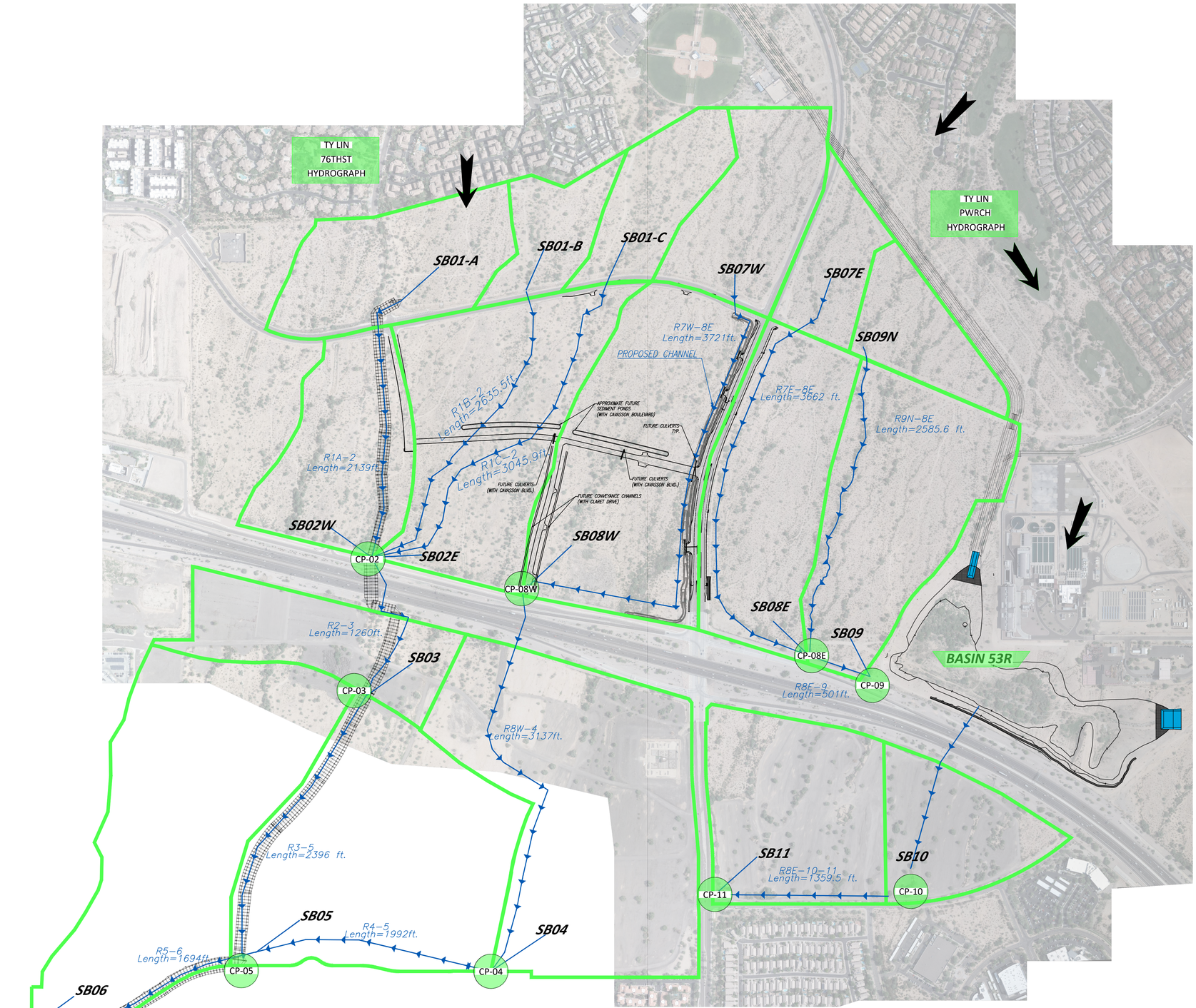
ASLD CORE NORTH

Project No.	Date	
18114-001	12/10/18	EX-02

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HEC -1 -PROPOSED CONDITIONS



Collection Point ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
CP-01	119	65
CP-02	231	118
CP-03	260	131
CP-04	301	182
CP-05	744	391
CP-06	594	320
CP-08W	82	39
CP-08E	76	34
CP-09	145	67
CP-10	241	171
CP-11	241	171

Route ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
R1A-2	119	65
R1B-2	20	10
R1C-2	26	12
R2-3	231	117
R3-5	258	130
R7W-8W	32	14
R7E-8E	19	8
R8W-4	81	39
R4-5	297	179
R5-6	446	246
R8E-R9	70	34
R9N-R9	13	6
R10-11	241	171

Proposed Development Increased Imperviousness			
Basin	Area (mi^2)	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
SB02E	0.01	61	29
SB08W	0.11	82	39

N

400 0 400 800
scale feet

HEC-1 PROPOSED CONDITIONS

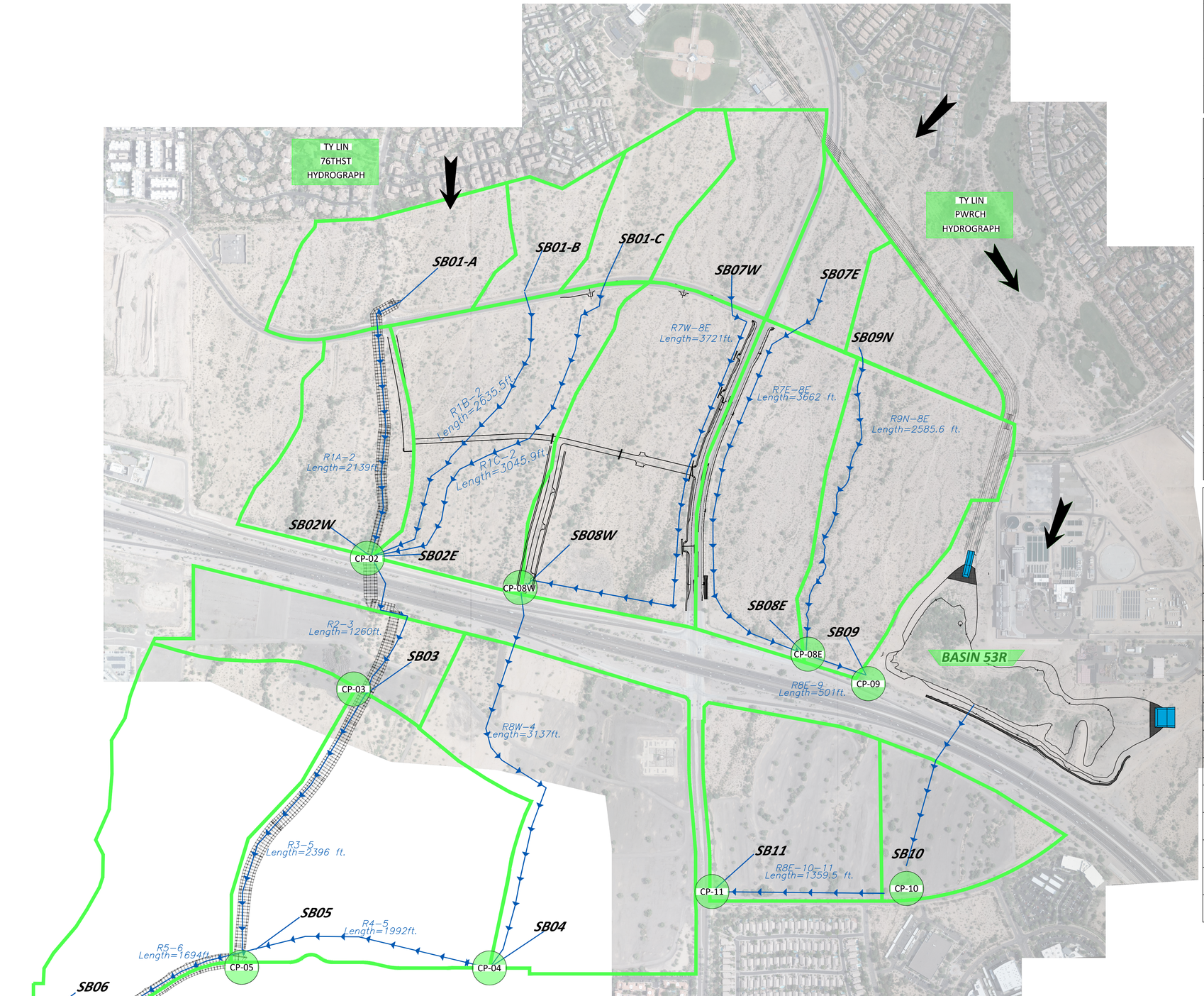
ASLD CORE NORTH

Project No.	Date	EX-03
18114-001	12/10/18	

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HEC -1 ULTIMATE CONDITION



Proposed Development Increased Imperviousness	
Basin	**Area (mi^2)**
SB01B	0.02
SB01C	0.03
SB07W	0.05

Collection Point ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
CP-01	119	65
CP-02	231	139
CP-03	260	155
CP-04	301	182
CP-05	744	424
CP-06	594	326
CP-08W	82	39
CP-08E	76	34
CP-09	145	67
CP-10	241	171
CP-11	241	171

Route ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
R1A-2	119	65
R1B-2	30	19
R1C-2	39	24
R2-3	253	139
R3-5	282	154
R7W-8W	19	16
R7E-8E	35	8
R8W-4	81	39
R4-5	297	179
R5-6	468	252
R8E-R9	70	34
R9N-R9	13	6
R10-11	241	171

N

400 0 400 800
scale feet

HEC-1 ULTIMATE CONDITIONS
ASLD CORE NORTH

Project No.	Date	
18114-001	12/10/18	EX-04

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Identifiers	RETENTION VOLUME REQUIRED FIRST FLUSH			
Contributory Area ID	Areas Total [acres]	Cw	Volume Required [acre-ft]	Volume Required [ft^3]
1A-1	6.62	0.85	0.23	10,214.52
1A-2	2.45	0.85	0.09	3,786.05
1A-3	4.84	0.85	0.17	7,466.44
1A-4	2.55	0.85	0.09	3,934.41
1A-5	3.77	0.85	0.13	5,812.89
1A-6	4.67	0.85	0.17	7,208.73
1A-7	2.93	0.85	0.10	4,524.61
1A-8	2.40	0.85	0.08	3,697.24
1B-1	9.67	0.85	0.34	14,913.53
1B-2	9.90	0.85	0.35	15,277.46
1B-3	3.91	0.85	0.14	6,024.71
1C-1	20.05	0.85	0.71	30,933.29
1C-2	0.51	0.85	0.02	786.67
1C-3	3.48	0.85	0.12	5,368.53
1C-4	7.87	0.85	0.28	12,143.62
1C-5	4.95	0.85	0.18	7,641.00
1C-6	3.60	0.85	0.13	5,549.57
1C-7	4.39	0.85	0.16	6,775.30
1C-8	8.09	0.85	0.29	12,483.41
1C-9	13.16	0.85	0.47	20,309.08
1C-10	3.56	0.85	0.13	5,486.72
TOTAL	**123.38**		**0.32**	**190,337.78**

N

150 0 150 300
scale Feet

LEGEND

1A-1 DRAINAGE AREA ID
DRAINAGE AREA
PROPOSED STORM
EXISTING STORM

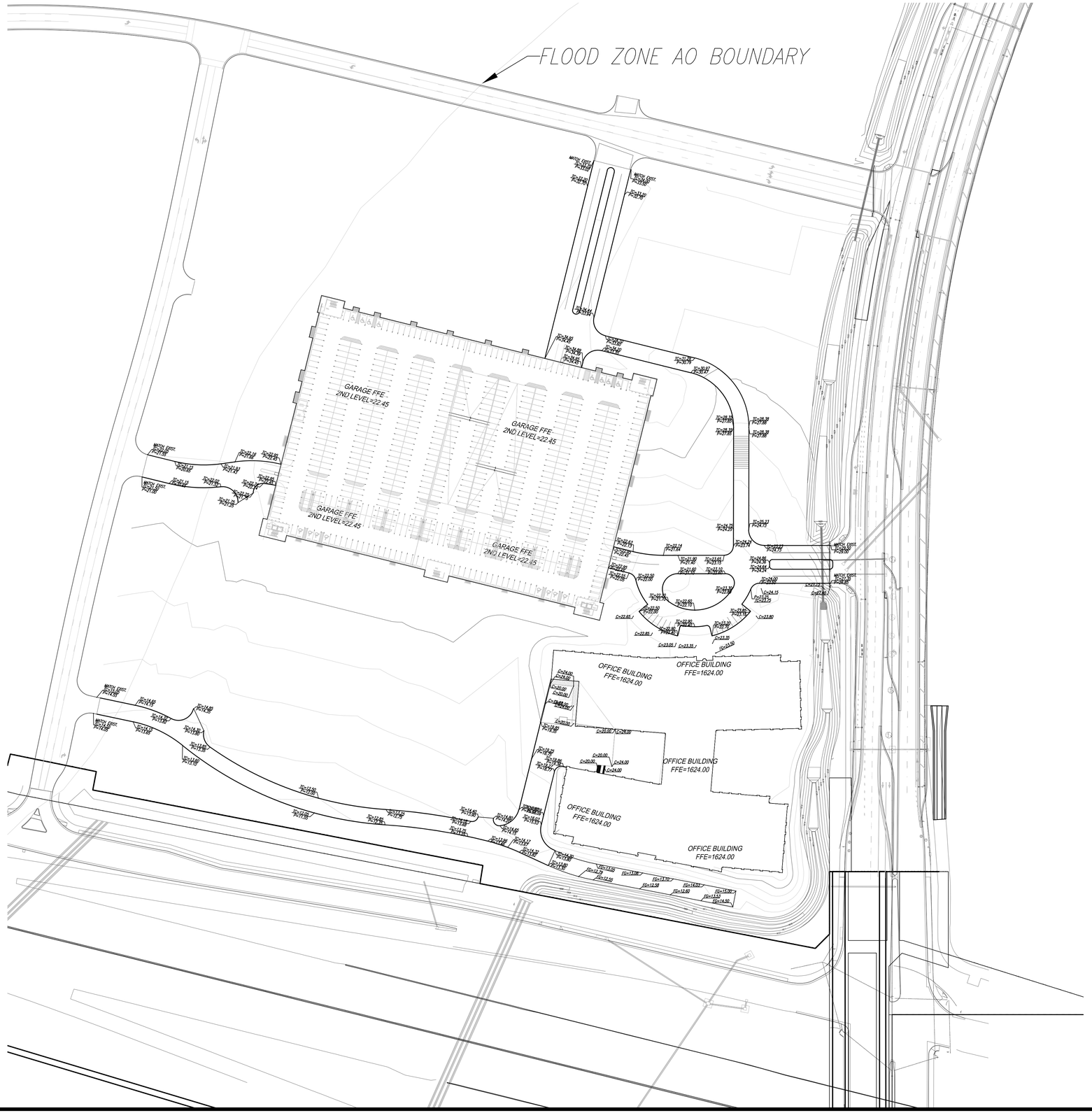
MASTER DRAINAGE EXHIBIT

CAVASSON

Project No.	Date	
18114-001	12/10/18	EX-05

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PHASE I PRELIMINARY GRADING

CAVASSON

Project No.	Date	
18114-203	12/10/18	EX-06

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CAVASSON

LOCATED NEAR THE NORTHWEST CORNER OF THE HAYDEN ROAD AND THE LOOP 101 FRONTAGE ROAD INTERSECTION

PRELIMINARY SEWER REPORT-PHASE I
BASIS OF DESIGN

May 7, 2019

Project No.: 18114-203

PREPARED FOR:

NATIONWIDE REALTY INVESTORS
375 N. FRONT STREET
COLUMBUS, OH 43215
(614) 221-2008



PREPARED BY:

HUBBARD ENGINEERING
1201 S. ALMA SCHOOL ROAD, SUITE 12000
MESA, AZ 85210
(480) 892-3313
MICHAEL S. WOL

H U B
E N G I N

FINAL Basis of Design Report

☐ APPROVED
☑ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan DATE 5/8/2019

Received 5/8/19

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4.4 PIPE MATERIAL 8
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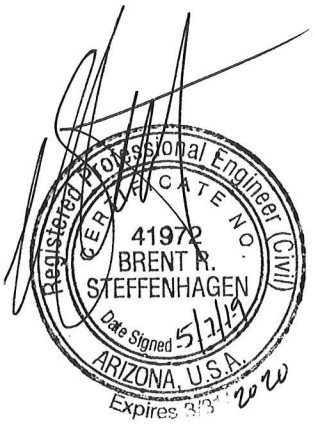
Figure 1.1 Site Vicinity Map

APPENDICES

Appendix A Sewer Capacity and Velocity Calculations

EXHIBITS

Exhibit 1 Proposed Tie-In to Existing Sewer



INTRODUCTION

1.1 Project Scope

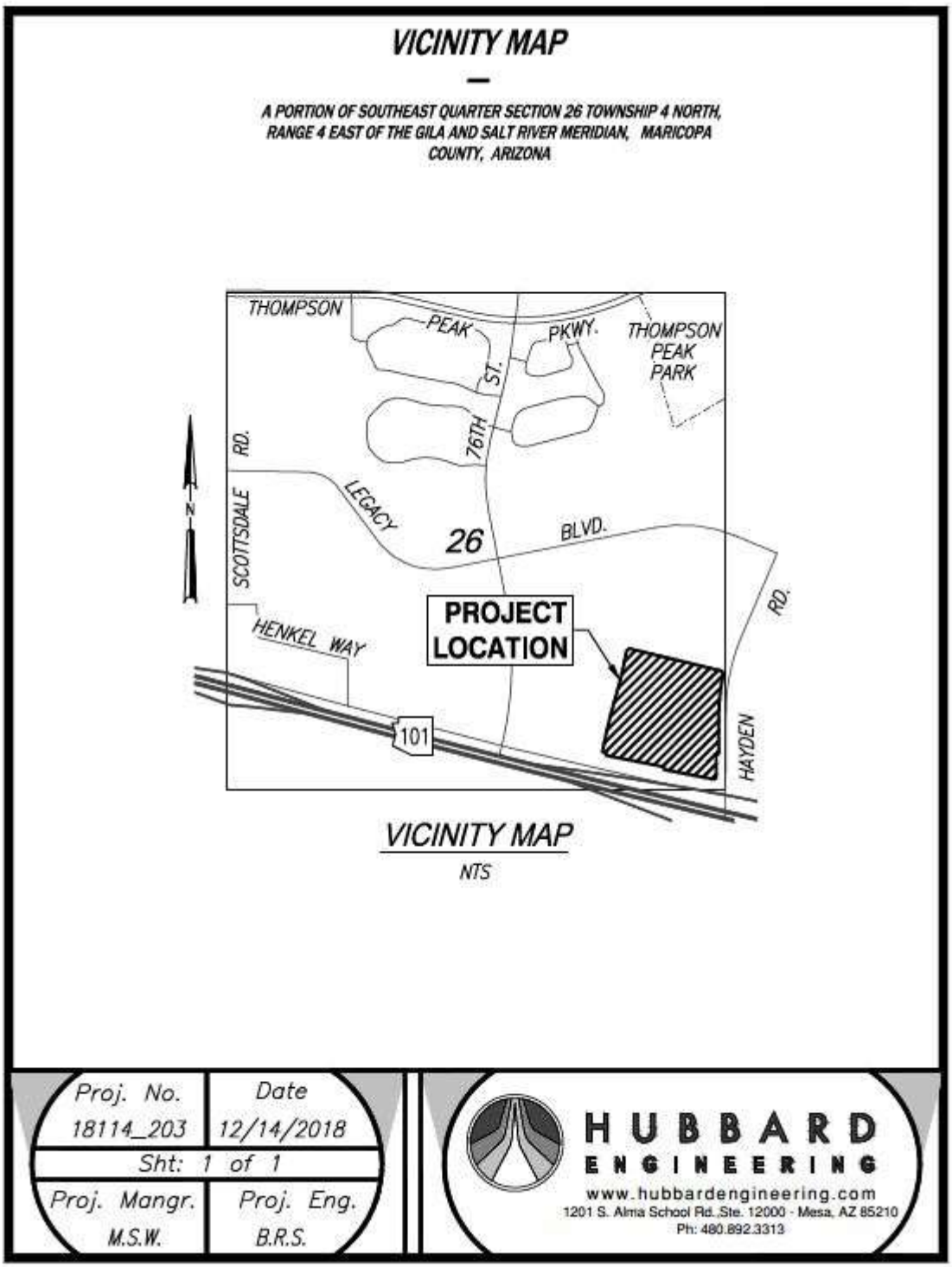
This report presents the results of a *Preliminary Sewer Study* conducted by Hubbard Engineering at the request of Nationwide Realty Investors ("client"), for Phase I of the Cavasson master development ("site"). The purpose of this report is to provide a detailed analysis for the existing and future sanitary sewer system for the development. The sewer analysis of this report will adhere to the City of Scottsdale's *2012 Water Reuse Master Plan Update* and to Hubbard Engineering's submitted and approved (pending) *Master Wastewater Report* dated December 18, 2018.

1.2 Site Description

The site is located in the southeast quarter of Section 26, Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is currently undeveloped, and prior to Nationwide Reality Investor's acquisition, was held in trust by the Arizona State Land Department (ASLD) as a portion of the overall Crossroads East development, which encompasses approximately 883 gross acres. Phase I of the Cavasson site development is located in the southwest corner of the overall development, near the Hayden Road and Loop 101 frontage 101 intersection. The land naturally falls northeast to southwest.

Phase I of Cavasson is bounded by the Loop 101 Freeway to the south, North Hayden Road to the west, and undeveloped land to the west and north. The site location is shown in **Figure 1.1** on the *Vicinity Map*.

Figure 1.1 – Vicinity Map



1.3 Project Type

The Cavasson development is being developed by Nationwide Reality Investors as a master planned mixed use development with office, retail, hotels, and multifamily residential parcels with public and private roadways that run adjacent and through the development. Phase I of the improvements includes construction of a new 445,000 sq.ft. office building and a parking garage of 3,750+/- spaces. Improvements will include surrounding access drives and utilities through the property to provide domestic water, fire, and sewer services to the proposed building and garage.

1.4 Regulatory Issues

The following documents were utilized in the preparation of this report:

- City of Scottsdale, *Design Standards & Policies Manual*.
- City of Scottsdale, *Water Reuse Master Plan Update 2012.*
- Arizona Department of Environmental Quality (ADEQ), *Engineering Bulletin 11: Minimum Requirements for Design, Submission of Plans and Specifications of Sewage Works*
- Arizona Department of Environmental Quality (ADEQ), *Aquifer Protection Permit (APP) Program*
- Maricopa Association of Governments (MAG), *Uniform Standard Specifications and Details for Public Works Construction, 2016 Edition*
- *2008 Edition of the International Plumbing Code*
- City of Scottsdale, *Ordinance No. 4346*

2. Project Description

2.1 Tie in to Existing System

There will be an 18-inch line along the private drive located just north of the Loop 101 frontage road and south of the Office building and Garage. This offsite sewer will be constructed in the infrastructure package and runs from west to east. A proposed 8-inch line will tie into the 18-inch system, which ultimately connects to the 12-inch existing system in Hayden Road. In the future, the City of Scottsdale will be extending a new 18" gravity line from this location which will travel from west to east under Hayden Road and discharge at a future sewer lift station (by others). 6-inch lines will connect from the garage and office buildings to the main 8-inch line. See **Exhibit 1** for the proposed tie-in location.

2.2 Service Area

The City of Scottsdale has one public wastewater service area. The Cavasson development is located within the City of Scottsdale's Service Area, specifically within the city's Sub-basin 4 collection area. Details regarding the capacity and infrastructure within the service area were discussed in the *Master Wastewater Report*.

The sewer for Phase I will service the proposed 445,000 sq.ft. office building and the garage. Drains located on the lower levels of the garage will drain into the sewer system rather than a storm-sewer system, as there will be oil and grease content leaking from the vehicles. A grease interceptor will also be designed and installed for this purpose. The garage only has nuisance water contributing to it.

2.3 Right of Way and Easements

The proposed sewer line for Phase 1 will be private. This private line will connect into the public sewer line.

3. Design Flows and Basis of Design

3.1 Average Daily Flow

The design unit load was determined to be 1,001 gal/acre/day (gpapd) for the office building, per the City of Scottsdale's *Water Reuse Master Plan Update 2012* and per City of Scottsdale Sewer Lift station design downstream. A multiplying factor of 1.06 was also applied to the average day flows. The unit flow and additional factor were discussed more thoroughly in the Cavasson *Master Wastewater Report.*

The total office tributary area to be serviced by the sewer system for Phase I is 11.3 acres. The garage area is 4.67 acres and the office building is 6.62 acres.

The total average daily flow was thus calculated as follows:

Average Daily Flow (ADF) = Unit Flow*Acres*Future Development Multiplier

*Office: (1,001gpapd) * (6.62 acres) *1.06 = 7041.83 gal/day*

3.2 Peak Flow

In accordance with the Cavasson *Master Wastewater Report*, a peaking factor of 2.6 was used to determine the peak flows. The total peak flows were calculated per the following equations:

Peak Daily Flow = ADF*PF

*Office: 7,041.83 gal/day *2.6= 18,308.75 gal/day*

The total peak daily flow is therefore 18,308.75 gpd (0.04 cfs).

3.3 Pipe Capacity and Velocity Calculations

The pipe capacity of the proposed system was calculated using the Manning's Equation:

$$Q = \frac{k}{n} R_h^{2/3} S^{1/2} A$$

where:
Q = flow rate, ft^3/s;
k = conversion factor = 1.4859 $ft^{1/3}/s$;

n = headloss coefficient;
R_h = hydraulic radius, ft;
S = slope, ft/ft;
A = pipe cross sectional area, ft.

A summary of the calculated full flow pipe capacities and velocities can be found in **Appendix A**.

4. Design Criteria

Note: Criteria is full flowing pipe. Calculation in Appendix A is correct with minimum slope of 0.0053 ft/ft.

4.1 Flow Velocities

In accordance with the City of Scottsdale's *Design Standards and Policies Manual,* all sanitary sewers within the city shall be designed and constructed such that the mean velocity in the pipe, when flowing ~~half~~ full, shall not be less than two and a half (2.5) feet per second (fps). At this velocity, the sewer flow will typically provide adequate scouring to clean the pipe. This is standard practice in the design and analysis of sanitary sewer systems as it is greater than the minimum velocity which allows the pipe to be "self-cleaning" and minimizes the settlement of solids within the pipe. Additionally, to prevent abrasion and erosion of the pipe material, the velocity of the peak flow will not exceed 10 fps.

4.2 Manholes

In accordance with the City of Scottsdale's *Design Standards and Policies Manual,* all new sanitary sewer manholes for the 8" lines shall be installed at distances not exceeding 500 feet. There will be two new manholes constructed for Phase I. The standards also state a maximum drop of twenty-four (24) inches between inverts without the use of a drop connection and that manholes with ninety-degree bends require a minimum 0.1-foot drop across the manhole.

4.3 Minimum Pipe Sizing

The main line will be 8-inch diameter and all sanitary sewer pipes running from the buildings and connecting to the main line will be 6-inch. The line size connecting the garage to the main 8-inch line was provided by the City.

4.4 Pipe Material

All new service lines shall be PVC, per the City of Scottsdale's *Design Standards and Policies Manual.*

4.5 Sewer Cover and Separation

In accordance with the City of Scottsdale's *Design Standards and Policies Manual:*

- The sewer collection system shall have a minimum cover of four feet from the crown of a sewer pipe to finish grade.
- The sewer collection system shall have a minimum horizontal distance of six feet from a water line.
- The minimum vertical clearance of a water line crossing under or over a sanitary sewer line must be two feet.

5. Conclusions and Recommendations

A summary of the wastewater system analysis in this report is presented below.

1. Design unit flows were determined from the approved City of Scottsdale's *2012 Water Reuse Master Plan Update Final* report.
2. The site is located in the City of Scottsdale's wastewater Sub-basin 4.
3. The Average Daily Flow is 7,916 gpd. This conforms to the Master Study.
4. The total Peak Flow is 23,747 gpd. This conforms to the Master Study.
5. The proposed pipe is an 8-inch with a minimum slope of ~~0.0034~~ ft/ft
6. The lines connecting from the buildings to this main line are 6-inch lines with slopes of 2.0% The pipe size for the garage was provided by Scottsdale.

See note on page 7

6. References

1. City of Scottsdale, *Design Standards & Policies Manual*, January 18, 2018.
2. Carollo Engineers, *City of Scottsdale Water Reuse Master Plan Update 2012,* 2012.
3. Coe & Van Loo Consultants, Inc. (CVL) *Arizona State Land Department- Crossroads East Wastewater Master Plan Update,* April 13, 2008.
4. Arizona Department of Environmental Quality (ADEQ). *Engineering Bulletin 11: Minimum Requirements for Design, Submission of Plans and Specifications of Sewage Works.* May 1978.
5. Arizona Department of Environmental Quality (ADEQ). *Aquifer Protection Permit (APP) Program*.
6. Maricopa Association of Governments (MAG). *Uniform Standard Specifications and Details for Public Works Construction.* January 2016.
7. International Code Council. *2012 Edition of the International Plumbing Code*. January 1, 2012
8. City of Scottsdale, *Ordinance No. 4346,* June 17, 2018.
9. City of Scottsdale, *Ordinance No. 1147,* June 17, 2018.

Appendix A
Sewer Capacity and Velocity Calculations
Cavasson-Phase I

Hubbard Eng. Job Name: Cavasson-Phase I
Hubbard Eng. Job No.: 18114-203

Site: Office

Sewage Generation Calculations

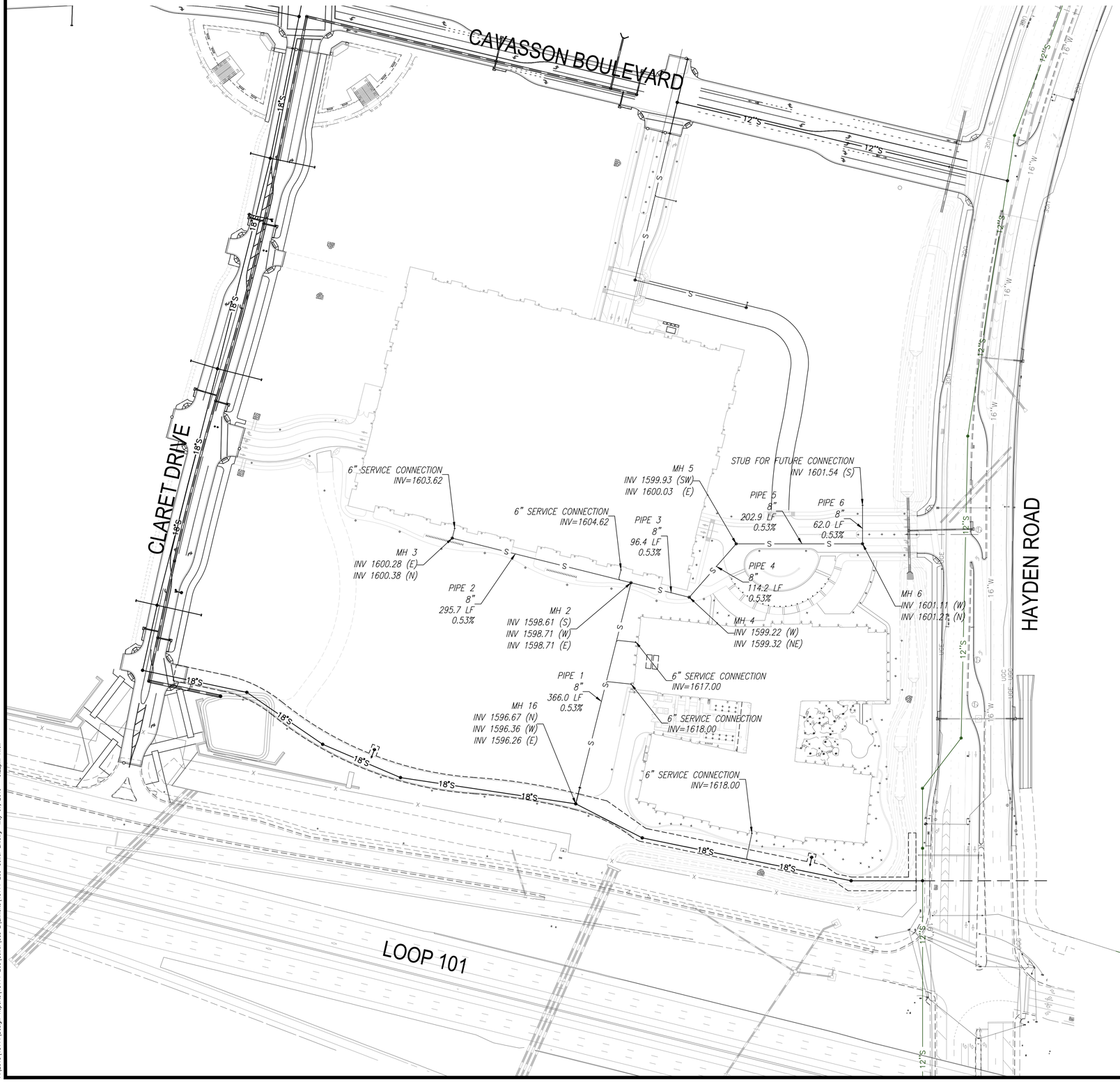
	Cavasson-Phase I			
Waste Water Source[1]:	**Office**			
Applicable Unit[1]:	**Acres**			
Sewage Design Flow per Applicable Unit, (GPD)[1]:	**1,001.00**	**gal/acre/day**		
Number of Units:	**7.46**	**acres**		
Future Multiplying Factor:	**1.06**			
Sub-Total GPD:	**7,916**	**gal/day**		
Total Maximum:	**7,916**	**gal/day**	(Total)	
Project Site Total GPD:	**7,916**	**X**	**3**	(Dry weather peaking factor)
Peak Flow:	**23,747**	**gal/day**		
Total Site GPD:	**7,916**	**gal/day**		
Total Site GPD:	**5.50**	**gal/min**		
Total Site Peak Flow:	**23,747**	**gal/day**		
Total Site Peak Flow:	**16.49**	**gal/min**		

Pipe Velocity and Capacity:

Sewer Size (D):	8	in.	
Manning's n-value (n):	0.013		
Slope (S):	0.0053	ft/ft	
Hydraulic Radius (R):	0.167	ft	R = D / 4 (full pipe)
Manning Equation:	$V = \frac{k}{n} R^{2/3} S^{1/2}$		k = 1.486
Velocity (V, full pipe):	2.520	ft/sec	2.5 ft/s. min. per C.O.S.
Pipe Capacity:	**0.88**	**cfs**	Q = V * A
	568,550	**gpd**	
Capacity Check:	**OK**		

Exhibits
Cavasson- Phase I

CAVASSON-PHASE I SEWER EXHIBIT



HUBBARD ENGINEERING
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
Ph: 480.892.3313
www.hubbardengineering.com

SEWER SYSTEM LAYOUT

CAVASSON-PHASE I

A PORTION OF THE NORTHWEST QUARTER OF SECTION X
TOWNSHIP X SOUTH, RANGE X EAST OF THE GILA AND SALT RIVER
MERIDIAN, MARICOPA COUNTY, ARIZONA

Date	Project Eng.
03/26/2019	B.R.S.
Project No.	Project Mgr.
18114-203	B.R.S.

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OR RECORDING
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P:\2018\18114\Design-Reports\18114-203\Sewer\Sub 2\Exhibits\18114-203-Sewer EX.dwg May 07, 2019 - 3:23pm TWolf

CAVASSON

LOCATED NEAR THE NORTHWEST CORNER OF THE HAYDEN ROAD AND THE LOOP 101 FRONTAGE ROAD INTERSECTION

PRELIMINARY WATER REPORT – PHASE 1
BASIS OF DESIGN

March 26, 2019

Project No.: 18114-203

PREPARED FOR:

NATIONWIDE REALTY INVESTORS
375 N. FRONT STREET
COLUMBUS, OH 43215
(614) 221-2012



PREPARED BY:

HUBBARD ENGINEERING
1201 S. ALMA SCHOOL ROAD, SUITE 12000
MESA, AZ 85210
(480) 892-3313
MICHAEL S. WOLF,

HUBB
ENGINE

FINAL Basis of Design Report
☑ APPROVED
☐ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan DATE 5/8/2019

05/08/2019

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EXHIBITS

Exhibit 1 Average Day Demand Exhibit
Exhibit 2 Max Day Demand Exhibit
Exhibit 3 Peak Hour Demand Exhibit
Exhibit 4 Max Day + Fire Flow Exhibit

INTRODUCTION

1.1 Project Scope

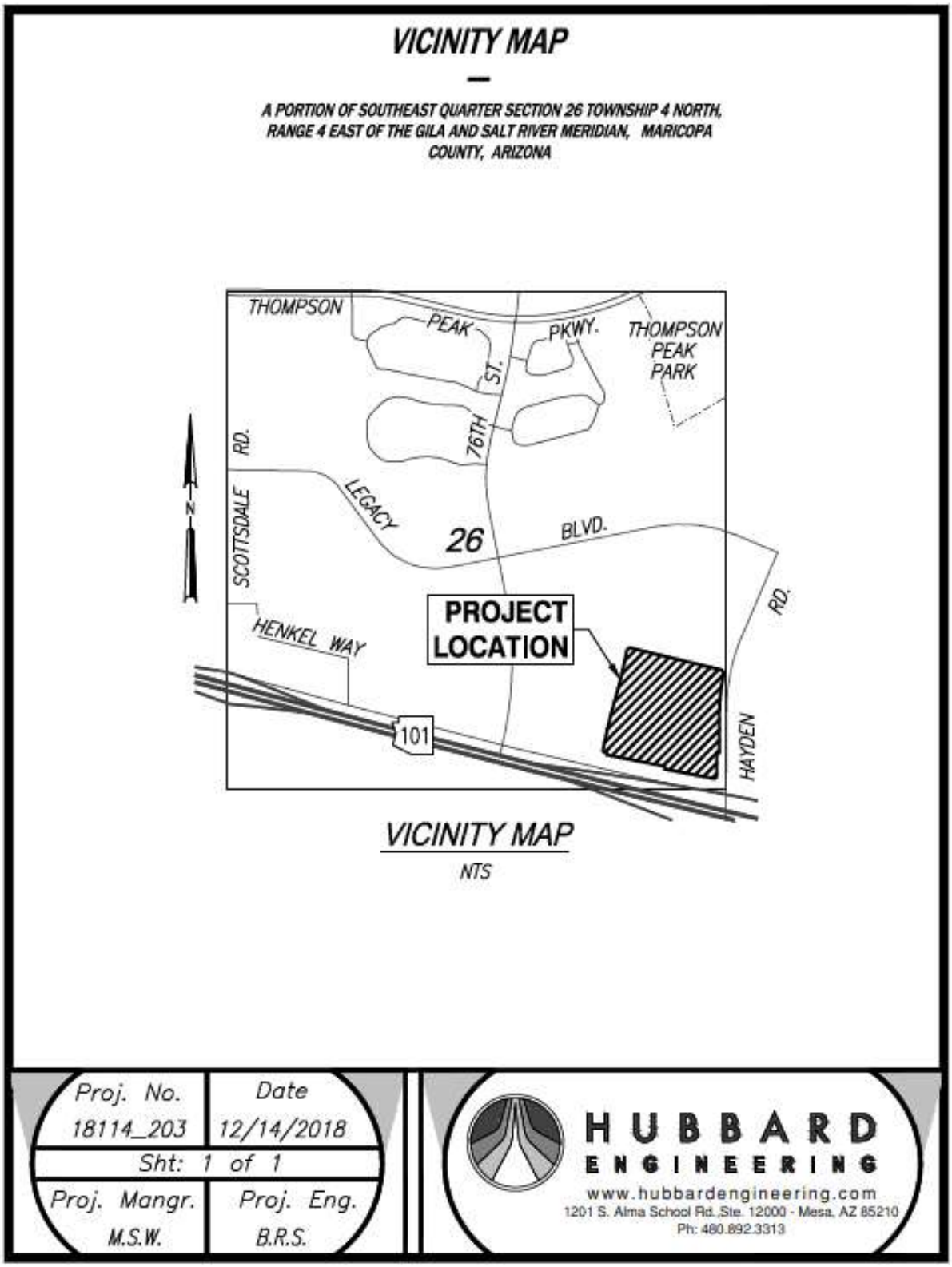
This report presents the results of a *Preliminary Water Study* conducted by Hubbard Engineering at the request of Nationwide Realty Investors ("client"), for Phase I of the Cavasson master development ("site"). The purpose of this report is to provide an evaluation of the proposed distribution system for the site. This report addresses design flows and basis of design as well as design criteria. The water analysis of this report will adhere to Hubbard Engineering's submitted and approved *Master Water Report*.

1.2 Site Description

The site is located in the southeast quarter of Section 26, Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is currently undeveloped, and prior to Nationwide Reality Investor's acquisition, was held in trust by the Arizona State Land Department (ASLD) as a portion of the overall Crossroads East development, which encompasses approximately 883 gross acres. Phase I of the Cavasson site development is located in the southwest corner of the overall development, near the Hayden Road and Loop 101 frontage 101 intersection. The land naturally falls northeast to southwest.

Phase I of Cavasson is bounded by the Loop 101 Freeway to the south, North Hayden Road to the east, and undeveloped land to the north and west. The site location is shown in **Figure 1.1** on the *Vicinity Map*.

Figure 1.1 – Vicinity Map



1.3 Project Type

The Cavasson development is being developed by Nationwide Reality Investors as a master planned mixed use development with office, retail, hotels, and multifamily residential parcels with public and private roadways that run adjacent to and through the development. Phase I of the improvements includes construction of a new office building with a an approximately 98,800 sq. ft. footprint with five stories adding to roughly 465,000 sq. ft. and a parking garage of 3,750+/- spaces. Improvements will include surrounding access drives and utilities through the property to provide domestic water, fire, and sewer services to the proposed building and garage. The analysis for the ultimate site was conducted in Hubbard's *Master Water Report* and will be referenced as it applies to Phase I.

1.4 Regulatory Issues

The following documents were utilized in the preparation of this report:

- City of Scottsdale, *Design Standards & Policies Manual*.
- Arizona Department of Environmental Quality (ADEQ), *Aquifer Protection Permit (APP) Program*
- Maricopa Association of Governments (MAG), *Uniform Standard Specifications and Details for Public Works Construction, 2016 Edition*
- *2012 Edition of the International Fire Code*
- *2012 Edition of the International Plumbing Code*
- *Hubbard. October 22,2018. Master Water Report for Cavasson Development: Hubbard Engineering.*

2. PROJECT DESCRIPTION

2.1 Tie-In to Existing System

The proposed water system for Phase 1 of the Cavasson Development will include the existing 12-inch line along Hayden Road, 16-inch line along Claret Drive, and a proposed 8-inch loop around the garage and office buildings, providing service to nine new hydrants. The proposed line will tie into an existing 12-inch stub located in Hayden road to the east of the site as well as tie into an existing 12-inch stub located in Claret Drive to the west of the site.

See **Exhibit 1** for these tie-in locations.

2.2 Physical Features

The existing site is currently undeveloped desert and generally slopes from north to south.

2.3 Service Area

The water service provider for the existing site is the City of Scottsdale. The Cavasson development is being developed by Nationwide Reality Investors as a master planned mixed use development with office, retail, hotels, and multifamily residential parcels with public and private roadways that run adjacent and through the development. The Cavasson development is located within Zone 4 and is discussed in more detail in the submitted *Master Water Plan*.

Phase I of the improvements includes construction of a new office building with a square footage of approximately 445,000 and a parking garage of 3,750+/- spaces. Improvements will include surrounding access drives and utilities through the property to provide domestic water, fire, and sewer services to the proposed building and garage. Access to the site is provided at five locations which will allow traffic to enter and exit the site. There are two access points via Hayden Road, two access points via Claret Drive, and a future proposed access point via Cavasson Boulevard. The building construction type for the office building will be Type IIB and it will be equipped with an automatic sprinkler system (NFPA13) per the International Fire Code 2012. The building construction type for the garage will be Type IA and it will be equipped with an automatic sprinkler system (NFPA13) per the International Fire Code 2012.

2.4 Right of Way and Easements

The proposed water lines will be installed in public rights of way or exclusive water easements dedicated to the City of Scottsdale. Easements shall be a minimum of 20 feet wide for all water lines.

3. DESIGN FLOWS AND BASIS OF DESIGN

3.1 Average Daily Demands

In accordance with the *City of Scottsdale Design Standards & Policies Manual Chapter 6* Section 6-1.205 (Reference 1), the design unit water demand for an office is $8.34 * 10^{-4}$ gallons per minute per square foot.

The total service area tributary to the proposed water main consists of 465,000 sq. ft.

Thus, the total Average Daily Demand is:

$$(8.34 * 10^{-4}\ gpm/sq.ft.) \times (465{,}000\ sq.\ ft.) = \mathbf{387.81\ gpm}$$

3.2 Maximum Daily Demand and Peak Hour Flow

In accordance with the *City of Scottsdale Design Standards & Policies Manual Chapter 6* Section 6-1.404 (Reference 1), the maximum day peaking factor and peak hour peaking factor are as follows:

3.2.1 Maximum Day Demand

Max Day Demand = ADD * 2

3.2.2 Peak Hour Demand

Peak Hour Demand = ADD * 3.5

3.3 Water and Fire Demand Calculations

A summary of the water and fire demand calculations can be found in **Table 1** below.

Table 1: Water and Fire Demand Calculation Summary

Land Use	Square Footage	ADD (gpm/ft^2)	ADD (gpm)	Max Day Demand (ADD x 2) (gpm)	Peak Hour Demand (ADD x 3.5) (gpm)	Fire Flow Required (gpm)	Max Day Plus Fire Flow (gpm)
Office	450,000	$8.34*10^{-4}$	371.13	775.62	1357.335	4,000	4775.62

4. Design Criteria

4.1 Minimum Pressure

The water distribution system shall be designed and constructed to maintain the following minimum pressures:

1. Max Day Demand plus Fire Flow – minimum of 20 psi
2. Peak Hour Demand – $\geq$ 50 psi and $\leq$ 80 psi, to achieve minimum service pressure of 40 psi (Note: Uniform plumbing code requires a pressure reducing valve (PRV) on private plumbing when tap pressures exceed 80 psi)

A water model was run for the proposed system using WaterCAD. The basis of this model was developed using information from a fire hydrant flow test conducted on October 16, 2018. The results of this fire flow test are included in **Appendix A – Fire Flow Test Results**. Information regarding the definition of the pump used in the WaterCAD analysis can be found in **Appendix B – Pump Definition Report for Fire Flow Model**.

4.2 Fire Flows

Fire flow requirements are typically determined by the local fire department. The latest version of the International Fire Code (IFC), adopted by the City of Scottsdale, will serve as guidelines. A minimum Fire Flow of 8,000 gpm for 4 hours is based on a 445,000 sq. ft. building, per City of Scottsdale Fire Code, with 50% reduction Minimum Fire Flow of 4,000 gpm will be used due to NFPA 13 sprinkler system.

4.3 Minimum Pipe Sizing

There is a 12-inch proposed water main that runs from an existing water stub in Hayden road before reducing to an 8-inch proposed water main to the north of the proposed garage. This line will wrap all the way around the garage where it will tie into an existing stub in the private access road. The domestic and fire connections for the buildings will be 6-inch diameter lines.

4.4 Pipe Material

All new water main lines shall be ductile iron pipe (DIP), Class 350 per City of Scottsdale requirements.

5. Summary

- Per the City of Scottsdale Water System Pressure Zone Map, the Cavasson Development is located within Pressure Zone 4.
- The planned future Average Daily Demand for development is 387.81 gpm. This conforms to the Master Study.
- The planned future Maximum Daily Demand for the development is 775.62 gpm. This conforms to the Master Study.
- The planned future Peak Hour Demand for the development is 1357.335 gpm. This conforms to the Master Study.
- The required fire flow is 4,000 gpm.
- Based on the results of the water model, the Cavasson development system can maintain a flow of 4,020 gallons per minute at a pressure of 32 psi.
- The results from the proposed water model show there are adequate flows and pressures being provided by the existing and proposed planned infrastructure for the Cavasson development.

6. References

1. City of Scottsdale. *Design Standards & Policies Manual.* January 18, 2018.
2. Carollo Engineers. *2008 Scottsdale Integrated Water Resources Master Plan.* March 2008.
3. Coe & Van Loo Consultants, Inc. (CVL) *Arizona State Land Department- Crossroads East Water Master Plan Update,* April 13, 2008.
4. Arizona Department of Environmental Quality (ADEQ). *Engineering Bulletin 11: Minimum Requirements for Design, Submission of Plans and Specifications of Sewage Works.* May 1978.
5. Arizona Department of Environmental Quality (ADEQ). *Aquifer Protection Permit (APP) Program*.
6. Maricopa Association of Governments (MAG). *Uniform Standard Specifications and Details for Public Works Construction.* January 2016.
7. International Code Council. *2015 International Fire Code.* May 30, 2014.
8. International Code Council. *2012 Edition of the International Plumbing Code*. January 1, 2012
9. City of Scottsdale, *Ordinance No. 4346,* June 17, 2018.
10. City of Scottsdale, *Resolution No. 1147,* June 17, 2018.

Appendix A
Average Day Demand
Cavasson

Scenario: Avg Day
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
686	J-1	1,609.00	Zone - 4	<Collection: 0 items>	0	1,783.00	75
687	J-2	1,612.00	Zone - 4	<Collection: 0 items>	0	1,783.00	74
689	J-3	1,623.00	Zone - 4	<Collection: 0 items>	0	1,782.98	69
691	J-4	1,629.00	Zone - 4	<Collection: 0 items>	0	1,782.97	67
693	J-5	1,629.90	Zone - 4	<Collection: 0 items>	0	1,782.97	66
695	J-6	1,631.92	Zone - 4	<Collection: 0 items>	0	1,782.97	65
697	J-7	1,649.25	Zone - 4	<Collection: 0 items>	0	1,782.97	58
701	J-8	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.97	58
703	J-9	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.97	58
705	J-10	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.97	58
707	J-11	1,646.00	Zone - 4	<Collection: 0 items>	0	1,782.97	59
709	J-12	1,643.00	Zone - 4	<Collection: 0 items>	0	1,782.97	61
711	J-13	1,637.84	Zone - 4	<Collection: 0 items>	0	1,782.97	63
713	J-14	1,633.68	Zone - 4	<Collection: 0 items>	0	1,782.96	65
717	J-16	1,630.55	Zone - 4	<Collection: 0 items>	0	1,782.96	66
719	J-17	1,617.54	Zone - 4	<Collection: 0 items>	0	1,782.96	72
721	J-18	1,625.17	Zone - 4	<Collection: 0 items>	0	1,782.96	68
724	J-19	1,612.00	Zone - 4	<Collection: 0 items>	0	1,783.00	74
735	J-38	1,616.47	Zone - 4	<Collection: 0 items>	0	1,782.98	72
737	J-20	1,625.50	Zone - 4	<Collection: 0 items>	0	1,782.97	68
741	J-43	1,606.70	Zone - 4	<Collection: 0 items>	0	1,782.93	76
745	J-40	1,619.49	Zone - 4	<Collection: 0 items>	0	1,782.97	71
750	J-34	1,607.21	Zone - 4	<Collection: 0 items>	0	1,782.94	76
754	J-39	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.67	74
757	J-41	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.90	74
761	J-33	1,613.33	Zone - 4	<Collection: 0 items>	0	1,782.94	73
764	J-21	1,612.50	Zone - 4	<Collection: 0 items>	0	1,782.94	74
768	J-35	1,618.40	Zone - 4	<Collection: 0 items>	0	1,782.96	71
771	J-22	1,618.54	Zone - 4	<Collection: 0 items>	0	1,782.95	71
775	J-15	1,619.21	Zone - 4	<Collection: 0 items>	0	1,782.97	71
778	J-23	1,625.00	Zone - 4	<Collection: 0 items>	0	1,782.96	68
783	J-24	1,623.83	Zone - 4	<Collection: 0 items>	0	1,782.96	69
799	J-27	1,619.36	Zone - 4	<Collection: 0 items>	0	1,782.96	71
807	J-28	1,626.64	Zone - 4	<Collection: 0 items>	0	1,782.97	68
818	J-29	1,636.73	Zone - 4	<Collection: 0 items>	0	1,782.97	63
825	J-30	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.97	58
828	J-31	1,645.84	Zone - 4	<Collection: 0 items>	0	1,782.97	59
848	J-32	1,648.15	Zone - 4	<Collection: 0 items>	0	1,782.97	58
877	J-37	1,640.12	Zone - 4	<Collection: 0 items>	0	1,782.97	62

933	J-44	1,624.90	Zone - 4	<Collection: 0 items>	0	1,782.96	68
937	J-45	1,606.60	Zone - 4	<Collection: 0 items>	0	1,782.94	76
960	J-25	1,612.51	Zone - 4	<Collection: 1 item>	0	1,782.85	74
963	J-26	1,607.18	Zone - 4	<Collection: 0 items>	0	1,782.93	76
967	J-47	1,628.00	Zone - 4	<Collection: 0 items>	0	1,782.97	67
972	J-36	1,620.59	Zone - 4	<Collection: 0 items>	0	1,782.97	70
982	J-42	1,618.72	Zone - 4	<Collection: 0 items>	0	1,782.96	71
1017	J-46	1,614.06	Zone - 4	<Collection: 0 items>	0	1,782.94	73
1022	J-48	1,612.14	Zone - 4	<Collection: 0 items>	0	1,782.72	74
1031	J-49	1,608.94	Zone - 4	<Collection: 0 items>	0	1,782.72	75
1034	J-50	1,609.90	Zone - 4	<Collection: 0 items>	0	1,782.97	75
1057	J-51	1,610.21	Zone - 4	<Collection: 0 items>	0	1,782.62	75
1058	J-52	1,596.00	Zone - 4	<Collection: 0 items>	0	1,782.62	81
1063	J-53	1,610.06	Zone - 4	<Collection: 0 items>	0	1,782.61	75
1064	D-1A-1	1,596.00	Zone - 4	<Collection: 1 item>	388	1,781.99	80

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Scenario: Avg Day
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Has User Defined Length?	Length (User Defined) (ft)
1065	P-53	49	J-53	D-1A-1	6.0	Ductile Iron	130.0	False	0.000	388	4.40	12.835	False	0
1029	P-29	149	J-49	J-43	8.0	Ductile Iron	130.0	False	0.000	-250	1.60	1.401	False	0
1062	P-25	75	J-53	J-49	8.0	Ductile Iron	130.0	False	0.000	-250	1.60	1.399	False	0
763	P-20	86	J-33	J-41	8.0	Ductile Iron	130.0	False	0.000	138	0.88	0.466	False	0
962	P-128	98	J-25	J-41	8.0	Ductile Iron	130.0	False	0.000	-138	0.88	0.465	False	0
1024	P-127	278	J-48	J-25	8.0	Ductile Iron	130.0	False	0.000	-138	0.88	0.466	False	0
1023	P-33	107	J-39	J-48	8.0	Ductile Iron	130.0	False	0.000	-138	0.88	0.466	False	0
1055	P-18	119	J-39	J-51	8.0	Ductile Iron	130.0	False	0.000	138	0.88	0.466	False	0
1061	P-19	10	J-51	J-53	8.0	Ductile Iron	130.0	False	0.000	138	0.88	0.464	False	0
1036	P-16	279	J-50	J-19	12.0	Ductile Iron	130.0	False	0.000	-175	0.50	0.101	False	0
1035	P-15	430	J-43	J-50	12.0	Ductile Iron	130.0	False	0.000	-175	0.50	0.101	False	0
690	P-1	522	J-2	J-3	16.0	Ductile Iron	130.0	False	0.000	213	0.34	0.036	False	0
1018	P-22	260	J-35	J-46	8.0	Ductile Iron	130.0	False	0.000	52	0.33	0.076	False	0
1019	P-32	46	J-46	J-33	8.0	Ductile Iron	130.0	False	0.000	52	0.33	0.076	False	0
726	P-11	20	J-19	J-2	16.0	Ductile Iron	130.0	False	0.000	-175	0.28	0.025	False	0
772	P-23	411	J-18	J-22	16.0	Ductile Iron	130.0	False	0.000	161	0.26	0.021	False	0
773	P-24	280	J-22	J-21	16.0	Ductile Iron	130.0	False	0.000	161	0.26	0.021	False	0
767	P-21	215	J-33	J-21	12.0	Ductile Iron	130.0	False	0.000	-86	0.24	0.027	False	0
968	P-132	378	J-3	J-47	16.0	Ductile Iron	130.0	False	0.000	147	0.23	0.018	False	0
969	P-133	161	J-47	J-4	16.0	Ductile Iron	130.0	False	0.000	147	0.23	0.018	False	0
939	P-115	44	J-45	J-34	12.0	Ductile Iron	130.0	False	0.000	75	0.21	0.022	False	0
964	P-129	432	J-34	J-26	12.0	Ductile Iron	130.0	False	0.000	75	0.21	0.021	False	0
965	P-130	230	J-26	J-43	12.0	Ductile Iron	130.0	False	0.000	75	0.21	0.021	False	0
779	P-27	331	J-18	J-23	16.0	Ductile Iron	130.0	False	0.000	-117	0.19	0.012	False	0
780	P-28	276	J-23	J-20	16.0	Ductile Iron	130.0	False	0.000	-117	0.19	0.012	False	0
736	P-14	232	J-3	J-38	12.0	Ductile Iron	130.0	False	0.000	66	0.19	0.016	False	0
1010	P-107	444	J-38	J-36	12.0	Ductile Iron	130.0	False	0.000	66	0.19	0.016	False	0
974	P-136	225	J-36	J-40	12.0	Ductile Iron	130.0	False	0.000	66	0.19	0.016	False	0
808	P-41	415	J-20	J-28	16.0	Ductile Iron	130.0	False	0.000	-103	0.16	0.009	False	0
809	P-42	163	J-28	J-4	16.0	Ductile Iron	130.0	False	0.000	-103	0.16	0.009	False	0
776	P-26	70	J-40	J-15	12.0	Ductile Iron	130.0	False	0.000	52	0.15	0.011	False	0
983	P-30	32	J-35	J-42	12.0	Ductile Iron	130.0	False	0.000	-52	0.15	0.012	False	0
984	P-140	332	J-42	J-15	12.0	Ductile Iron	130.0	False	0.000	-52	0.15	0.011	False	0
938	P-114	401	J-21	J-45	16.0	Ductile Iron	130.0	False	0.000	75	0.12	0.005	False	0
694	P-2	135	J-4	J-5	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
696	P-3	134	J-5	J-6	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
702	P-4	65	J-7	J-8	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
704	P-5	155	J-8	J-9	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
710	P-6	488	J-11	J-12	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
714	P-7	487	J-13	J-14	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
785	P-31	309	J-24	J-18	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
800	P-35	532	J-17	J-27	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
801	P-36	358	J-27	J-24	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
819	P-46	371	J-6	J-29	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
826	P-48	331	J-9	J-30	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
827	P-49	198	J-30	J-10	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
829	P-50	316	J-29	J-31	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
830	P-51	268	J-31	J-7	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
849	P-60	315	J-10	J-32	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
850	P-61	197	J-32	J-11	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
878	P-75	227	J-12	J-37	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
879	P-76	264	J-37	J-13	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
934	P-111	439	J-16	J-44	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
935	P-112	498	J-44	J-17	16.0	Ductile Iron	130.0	False	0.000	44	0.07	0.002	False	0
1001	P-34	416	J-16	J-14	16.0	Ductile Iron	130.0	False	0.000	-44	0.07	0.002	False	0
1008	P-13	319	R-11	J-2	48.0	Ductile Iron	130.0	False	0.000	388	0.07	0.000	True	1
1066	P-453	336	J-20	J-40	12.0	Ductile Iron	130.0	False	0.000	-14	0.04	0.001	False	0
1014	P-38	14	H-5	J-35	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0

1049	P-45	21	J-34	H-10	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1012	P-37	6	H-6	J-15	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1059	P-52	49	J-51	J-52	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1052	P-47	17	J-26	H-11	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1033	P-43	51	J-49	H-2	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
980	P-139	30	J-25	H-3	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
977	P-17	89	J-38	H-8	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
975	P-137	22	H-7	J-36	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1021	P-39	14	J-46	H-4	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1026	P-40	6	J-48	H-9	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1038	P-44	7	J-50	H-1	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
725	P-10	181	J-1	J-19	16.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0

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Appendix B
Max Day Demand
Cavasson

Scenario: Max Day
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
686	J-1	1,609.00	Zone - 4	<Collection: 1 item>	776	1,782.91	75
687	J-2	1,612.00	Zone - 4	<Collection: 0 items>	0	1,783.00	74
689	J-3	1,623.00	Zone - 4	<Collection: 0 items>	0	1,782.94	69
691	J-4	1,629.00	Zone - 4	<Collection: 0 items>	0	1,782.90	67
693	J-5	1,629.90	Zone - 4	<Collection: 0 items>	0	1,782.90	66
695	J-6	1,631.92	Zone - 4	<Collection: 0 items>	0	1,782.90	65
697	J-7	1,649.25	Zone - 4	<Collection: 0 items>	0	1,782.90	58
701	J-8	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.90	58
703	J-9	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.89	58
705	J-10	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.89	58
707	J-11	1,646.00	Zone - 4	<Collection: 0 items>	0	1,782.89	59
709	J-12	1,643.00	Zone - 4	<Collection: 0 items>	0	1,782.88	61
711	J-13	1,637.84	Zone - 4	<Collection: 0 items>	0	1,782.88	63
713	J-14	1,633.68	Zone - 4	<Collection: 0 items>	0	1,782.88	65
717	J-16	1,630.55	Zone - 4	<Collection: 0 items>	0	1,782.88	66
719	J-17	1,617.54	Zone - 4	<Collection: 0 items>	0	1,782.87	72
721	J-18	1,625.17	Zone - 4	<Collection: 0 items>	0	1,782.86	68
724	J-19	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.99	74
735	J-38	1,616.47	Zone - 4	<Collection: 0 items>	0	1,782.92	72
737	J-20	1,625.50	Zone - 4	<Collection: 0 items>	0	1,782.89	68
741	J-43	1,606.70	Zone - 4	<Collection: 0 items>	0	1,782.75	76
745	J-40	1,619.49	Zone - 4	<Collection: 0 items>	0	1,782.89	71
750	J-34	1,607.21	Zone - 4	<Collection: 0 items>	0	1,782.80	76
754	J-39	1,612.00	Zone - 4	<Collection: 0 items>	0	1,781.91	74
757	J-41	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.66	74
761	J-33	1,613.33	Zone - 4	<Collection: 0 items>	0	1,782.79	73
764	J-21	1,612.50	Zone - 4	<Collection: 0 items>	0	1,782.81	74
768	J-35	1,618.40	Zone - 4	<Collection: 0 items>	0	1,782.87	71
771	J-22	1,618.54	Zone - 4	<Collection: 0 items>	0	1,782.83	71
775	J-15	1,619.21	Zone - 4	<Collection: 0 items>	0	1,782.88	71
778	J-23	1,625.00	Zone - 4	<Collection: 0 items>	0	1,782.88	68
783	J-24	1,623.83	Zone - 4	<Collection: 0 items>	0	1,782.86	69
799	J-27	1,619.36	Zone - 4	<Collection: 0 items>	0	1,782.87	71
807	J-28	1,626.64	Zone - 4	<Collection: 0 items>	0	1,782.90	68
818	J-29	1,636.73	Zone - 4	<Collection: 0 items>	0	1,782.90	63
825	J-30	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.89	58
828	J-31	1,645.84	Zone - 4	<Collection: 0 items>	0	1,782.90	59
848	J-32	1,648.15	Zone - 4	<Collection: 0 items>	0	1,782.89	58
877	J-37	1,640.12	Zone - 4	<Collection: 0 items>	0	1,782.88	62

933	J-44	1,624.90	Zone - 4	<Collection: 0 items>	0	1,782.87	68
937	J-45	1,606.60	Zone - 4	<Collection: 0 items>	0	1,782.80	76
960	J-25	1,612.51	Zone - 4	<Collection: 0 items>	0	1,782.51	74
963	J-26	1,607.18	Zone - 4	<Collection: 0 items>	0	1,782.77	76
967	J-47	1,628.00	Zone - 4	<Collection: 0 items>	0	1,782.91	67
972	J-36	1,620.59	Zone - 4	<Collection: 0 items>	0	1,782.90	70
982	J-42	1,618.72	Zone - 4	<Collection: 0 items>	0	1,782.87	71
1017	J-46	1,614.06	Zone - 4	<Collection: 0 items>	0	1,782.80	73
1022	J-48	1,612.14	Zone - 4	<Collection: 0 items>	0	1,782.08	74
1031	J-49	1,608.94	Zone - 4	<Collection: 0 items>	0	1,782.06	75
1034	J-50	1,609.90	Zone - 4	<Collection: 0 items>	0	1,782.89	75
1057	J-51	1,610.21	Zone - 4	<Collection: 0 items>	0	1,781.72	74
1058	J-52	1,596.00	Zone - 4	<Collection: 0 items>	0	1,781.72	80
1063	J-53	1,610.06	Zone - 4	<Collection: 0 items>	0	1,781.71	74
1064	D-1A-1	1,596.00	Zone - 4	<Collection: 1 item>	742	1,779.62	79

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Scenario: Max Day
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Has User Defined Length?	Length (User Defined) (ft)
1065	P-53	49	J-53	D-1A-1	6.0	Ductile Iron	130.0	False	0.000	742	8.42	42.706	False	0
1029	P-29	149	J-49	J-43	8.0	Ductile Iron	130.0	False	0.000	-478	3.05	4.656	False	0
1062	P-25	75	J-53	J-49	8.0	Ductile Iron	130.0	False	0.000	-478	3.05	4.656	False	0
726	P-11	20	J-19	J-2	16.0	Ductile Iron	130.0	False	0.000	-1,106	1.77	0.753	False	0
763	P-20	86	J-33	J-41	8.0	Ductile Iron	130.0	False	0.000	264	1.69	1.553	False	0
962	P-128	98	J-25	J-41	8.0	Ductile Iron	130.0	False	0.000	-264	1.69	1.553	False	0
1023	P-33	107	J-39	J-48	8.0	Ductile Iron	130.0	False	0.000	-264	1.69	1.553	False	0
1055	P-18	119	J-39	J-51	8.0	Ductile Iron	130.0	False	0.000	264	1.69	1.554	False	0
1061	P-19	10	J-51	J-53	8.0	Ductile Iron	130.0	False	0.000	264	1.69	1.550	False	0
1024	P-127	278	J-48	J-25	8.0	Ductile Iron	130.0	False	0.000	-264	1.69	1.553	False	0
725	P-10	181	J-1	J-19	16.0	Ductile Iron	130.0	False	0.000	-776	1.24	0.390	False	0
1035	P-15	430	J-43	J-50	12.0	Ductile Iron	130.0	False	0.000	-331	0.94	0.327	False	0
1036	P-16	279	J-50	J-19	12.0	Ductile Iron	130.0	False	0.000	-331	0.94	0.327	False	0
690	P-1	522	J-2	J-3	16.0	Ductile Iron	130.0	False	0.000	411	0.66	0.120	False	0
1018	P-22	260	J-35	J-46	8.0	Ductile Iron	130.0	False	0.000	100	0.64	0.257	False	0
1019	P-32	46	J-46	J-33	8.0	Ductile Iron	130.0	False	0.000	100	0.64	0.258	False	0
772	P-23	411	J-18	J-22	16.0	Ductile Iron	130.0	False	0.000	311	0.50	0.072	False	0
773	P-24	280	J-22	J-21	16.0	Ductile Iron	130.0	False	0.000	311	0.50	0.072	False	0
767	P-21	215	J-33	J-21	12.0	Ductile Iron	130.0	False	0.000	-164	0.47	0.090	False	0
968	P-132	378	J-3	J-47	16.0	Ductile Iron	130.0	False	0.000	285	0.45	0.061	False	0
969	P-133	161	J-47	J-4	16.0	Ductile Iron	130.0	False	0.000	285	0.45	0.061	False	0
939	P-115	44	J-45	J-34	12.0	Ductile Iron	130.0	False	0.000	147	0.42	0.072	False	0
964	P-129	432	J-34	J-26	12.0	Ductile Iron	130.0	False	0.000	147	0.42	0.073	False	0
965	P-130	230	J-26	J-43	12.0	Ductile Iron	130.0	False	0.000	147	0.42	0.073	False	0
779	P-27	331	J-18	J-23	16.0	Ductile Iron	130.0	False	0.000	-226	0.36	0.040	False	0
780	P-28	276	J-23	J-20	16.0	Ductile Iron	130.0	False	0.000	-226	0.36	0.040	False	0
974	P-136	225	J-36	J-40	12.0	Ductile Iron	130.0	False	0.000	127	0.36	0.055	False	0
736	P-14	232	J-3	J-38	12.0	Ductile Iron	130.0	False	0.000	127	0.36	0.056	False	0
1010	P-107	444	J-38	J-36	12.0	Ductile Iron	130.0	False	0.000	127	0.36	0.055	False	0
808	P-41	415	J-20	J-28	16.0	Ductile Iron	130.0	False	0.000	-199	0.32	0.031	False	0
809	P-42	163	J-28	J-4	16.0	Ductile Iron	130.0	False	0.000	-199	0.32	0.032	False	0
983	P-30	32	J-35	J-42	12.0	Ductile Iron	130.0	False	0.000	-100	0.28	0.035	False	0
984	P-140	332	J-42	J-15	12.0	Ductile Iron	130.0	False	0.000	-100	0.28	0.036	False	0
776	P-26	70	J-40	J-15	12.0	Ductile Iron	130.0	False	0.000	100	0.28	0.035	False	0
1008	P-13	319	R-11	J-2	48.0	Ductile Iron	130.0	False	0.000	1,518	0.27	0.000	True	1
938	P-114	401	J-21	J-45	16.0	Ductile Iron	130.0	False	0.000	147	0.23	0.018	False	0
694	P-2	135	J-4	J-5	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
696	P-3	134	J-5	J-6	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
702	P-4	65	J-7	J-8	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
704	P-5	155	J-8	J-9	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
710	P-6	488	J-11	J-12	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
714	P-7	487	J-13	J-14	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
785	P-31	309	J-24	J-18	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
800	P-35	532	J-17	J-27	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
801	P-36	358	J-27	J-24	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
819	P-46	371	J-6	J-29	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
826	P-48	331	J-9	J-30	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
827	P-49	198	J-30	J-10	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
829	P-50	316	J-29	J-31	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
830	P-51	268	J-31	J-7	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
849	P-60	315	J-10	J-32	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
850	P-61	197	J-32	J-11	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
878	P-75	227	J-12	J-37	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
879	P-76	264	J-37	J-13	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
934	P-111	439	J-16	J-44	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
935	P-112	498	J-44	J-17	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
1001	P-34	416	J-16	J-14	16.0	Ductile Iron	130.0	False	0.000	-85	0.14	0.006	False	0
1066	P-453	336	J-20	J-40	12.0	Ductile Iron	130.0	False	0.000	-27	0.08	0.003	False	0

1026	P-40	6	J-48	H-9	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1012	P-37	6	H-6	J-15	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1021	P-39	14	J-46	H-4	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1014	P-38	14	H-5	J-35	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1038	P-44	7	J-50	H-1	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1049	P-45	21	J-34	H-10	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
980	P-139	30	J-25	H-3	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1059	P-52	49	J-51	J-52	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
977	P-17	89	J-38	H-8	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1052	P-47	17	J-26	H-11	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1033	P-43	51	J-49	H-2	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
975	P-137	22	H-7	J-36	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0

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Appendix C
Peak Hour Demand
Cavasson

Scenario: Peak Hour
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
686	J-1	1,609.00	Zone - 4	<Collection: 0 items>	0	1,782.99	75
687	J-2	1,612.00	Zone - 4	<Collection: 0 items>	0	1,783.00	74
689	J-3	1,623.00	Zone - 4	<Collection: 0 items>	0	1,782.81	69
691	J-4	1,629.00	Zone - 4	<Collection: 0 items>	0	1,782.71	67
693	J-5	1,629.90	Zone - 4	<Collection: 0 items>	0	1,782.71	66
695	J-6	1,631.92	Zone - 4	<Collection: 0 items>	0	1,782.71	65
697	J-7	1,649.25	Zone - 4	<Collection: 0 items>	0	1,782.69	58
701	J-8	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.69	58
703	J-9	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.69	58
705	J-10	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.67	58
707	J-11	1,646.00	Zone - 4	<Collection: 0 items>	0	1,782.66	59
709	J-12	1,643.00	Zone - 4	<Collection: 0 items>	0	1,782.66	60
711	J-13	1,637.84	Zone - 4	<Collection: 0 items>	0	1,782.65	63
713	J-14	1,633.68	Zone - 4	<Collection: 0 items>	0	1,782.64	64
717	J-16	1,630.55	Zone - 4	<Collection: 0 items>	0	1,782.63	66
719	J-17	1,617.54	Zone - 4	<Collection: 0 items>	0	1,782.61	71
721	J-18	1,625.17	Zone - 4	<Collection: 0 items>	0	1,782.59	68
724	J-19	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.99	74
735	J-38	1,616.47	Zone - 4	<Collection: 0 items>	0	1,782.77	72
737	J-20	1,625.50	Zone - 4	<Collection: 0 items>	0	1,782.66	68
741	J-43	1,606.70	Zone - 4	<Collection: 0 items>	0	1,782.27	76
745	J-40	1,619.49	Zone - 4	<Collection: 0 items>	0	1,782.66	71
750	J-34	1,607.21	Zone - 4	<Collection: 0 items>	0	1,782.41	76
754	J-39	1,612.00	Zone - 4	<Collection: 0 items>	0	1,779.68	73
757	J-41	1,612.00	Zone - 4	<Collection: 0 items>	0	1,781.97	74
761	J-33	1,613.33	Zone - 4	<Collection: 0 items>	0	1,782.38	73
764	J-21	1,612.50	Zone - 4	<Collection: 0 items>	0	1,782.44	74
768	J-35	1,618.40	Zone - 4	<Collection: 0 items>	0	1,782.62	71
771	J-22	1,618.54	Zone - 4	<Collection: 0 items>	0	1,782.50	71
775	J-15	1,619.21	Zone - 4	<Collection: 0 items>	0	1,782.65	71
778	J-23	1,625.00	Zone - 4	<Collection: 0 items>	0	1,782.63	68
783	J-24	1,623.83	Zone - 4	<Collection: 0 items>	0	1,782.59	69
799	J-27	1,619.36	Zone - 4	<Collection: 0 items>	0	1,782.60	71
807	J-28	1,626.64	Zone - 4	<Collection: 0 items>	0	1,782.70	68
818	J-29	1,636.73	Zone - 4	<Collection: 0 items>	0	1,782.70	63
825	J-30	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.68	58
828	J-31	1,645.84	Zone - 4	<Collection: 0 items>	0	1,782.69	59
848	J-32	1,648.15	Zone - 4	<Collection: 0 items>	0	1,782.67	58
877	J-37	1,640.12	Zone - 4	<Collection: 0 items>	0	1,782.65	62

933	J-44	1,624.90	Zone - 4	<Collection: 0 items>	0	1,782.62	68
937	J-45	1,606.60	Zone - 4	<Collection: 0 items>	0	1,782.42	76
960	J-25	1,612.51	Zone - 4	<Collection: 0 items>	0	1,781.51	73
963	J-26	1,607.18	Zone - 4	<Collection: 0 items>	0	1,782.32	76
967	J-47	1,628.00	Zone - 4	<Collection: 0 items>	0	1,782.74	67
972	J-36	1,620.59	Zone - 4	<Collection: 0 items>	0	1,782.70	70
982	J-42	1,618.72	Zone - 4	<Collection: 0 items>	0	1,782.62	71
1017	J-46	1,614.06	Zone - 4	<Collection: 0 items>	0	1,782.41	73
1022	J-48	1,612.14	Zone - 4	<Collection: 0 items>	0	1,780.19	73
1031	J-49	1,608.94	Zone - 4	<Collection: 0 items>	0	1,780.14	74
1034	J-50	1,609.90	Zone - 4	<Collection: 0 items>	0	1,782.71	75
1057	J-51	1,610.21	Zone - 4	<Collection: 0 items>	0	1,779.12	73
1058	J-52	1,596.00	Zone - 4	<Collection: 0 items>	0	1,779.12	79
1063	J-53	1,610.06	Zone - 4	<Collection: 0 items>	0	1,779.07	73
1064	D-1A-1	1,596.00	Zone - 4	<Collection: 1 item>	1,357	1,772.69	76

Scenario: Peak Hour
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Has User Defined Length?	Length (User Defined) (ft)
1065	P-53	49	J-53	D-1A-1	6.0	Ductile Iron	130.0	False	0.000	1,357	15.40	130.604	False	0
1029	P-29	149	J-49	J-43	8.0	Ductile Iron	130.0	False	0.000	-875	5.58	14.253	False	0
1062	P-25	75	J-53	J-49	8.0	Ductile Iron	130.0	False	0.000	-875	5.58	14.253	False	0
763	P-20	86	J-33	J-41	8.0	Ductile Iron	130.0	False	0.000	483	3.08	4.740	False	0
962	P-128	98	J-25	J-41	8.0	Ductile Iron	130.0	False	0.000	-483	3.08	4.740	False	0
1023	P-33	107	J-39	J-48	8.0	Ductile Iron	130.0	False	0.000	-483	3.08	4.740	False	0
1024	P-127	278	J-48	J-25	8.0	Ductile Iron	130.0	False	0.000	-483	3.08	4.740	False	0
1055	P-18	119	J-39	J-51	8.0	Ductile Iron	130.0	False	0.000	483	3.08	4.740	False	0
1061	P-19	10	J-51	J-53	8.0	Ductile Iron	130.0	False	0.000	483	3.08	4.749	False	0
1035	P-15	430	J-43	J-50	12.0	Ductile Iron	130.0	False	0.000	-613	1.74	1.025	False	0
1036	P-16	279	J-50	J-19	12.0	Ductile Iron	130.0	False	0.000	-613	1.74	1.025	False	0
690	P-1	522	J-2	J-3	16.0	Ductile Iron	130.0	False	0.000	744	1.19	0.361	False	0
1018	P-22	260	J-35	J-46	8.0	Ductile Iron	130.0	False	0.000	181	1.16	0.773	False	0
1019	P-32	46	J-46	J-33	8.0	Ductile Iron	130.0	False	0.000	181	1.16	0.775	False	0
726	P-11	20	J-19	J-2	16.0	Ductile Iron	130.0	False	0.000	-613	0.98	0.253	False	0
772	P-23	411	J-18	J-22	16.0	Ductile Iron	130.0	False	0.000	563	0.90	0.215	False	0
773	P-24	280	J-22	J-21	16.0	Ductile Iron	130.0	False	0.000	563	0.90	0.215	False	0
767	P-21	215	J-33	J-21	12.0	Ductile Iron	130.0	False	0.000	-301	0.85	0.275	False	0
968	P-132	378	J-3	J-47	16.0	Ductile Iron	130.0	False	0.000	514	0.82	0.182	False	0
969	P-133	161	J-47	J-4	16.0	Ductile Iron	130.0	False	0.000	514	0.82	0.182	False	0
939	P-115	44	J-45	J-34	12.0	Ductile Iron	130.0	False	0.000	261	0.74	0.212	False	0
964	P-129	432	J-34	J-26	12.0	Ductile Iron	130.0	False	0.000	261	0.74	0.211	False	0
965	P-130	230	J-26	J-43	12.0	Ductile Iron	130.0	False	0.000	261	0.74	0.211	False	0
779	P-27	331	J-18	J-23	16.0	Ductile Iron	130.0	False	0.000	-409	0.65	0.119	False	0
780	P-28	276	J-23	J-20	16.0	Ductile Iron	130.0	False	0.000	-409	0.65	0.119	False	0
974	P-136	225	J-36	J-40	12.0	Ductile Iron	130.0	False	0.000	230	0.65	0.166	False	0
736	P-14	232	J-3	J-38	12.0	Ductile Iron	130.0	False	0.000	230	0.65	0.166	False	0
1010	P-107	444	J-38	J-36	12.0	Ductile Iron	130.0	False	0.000	230	0.65	0.166	False	0
808	P-41	415	J-20	J-28	16.0	Ductile Iron	130.0	False	0.000	-361	0.58	0.094	False	0
809	P-42	163	J-28	J-4	16.0	Ductile Iron	130.0	False	0.000	-361	0.58	0.095	False	0
776	P-26	70	J-40	J-15	12.0	Ductile Iron	130.0	False	0.000	181	0.51	0.107	False	0
983	P-30	32	J-35	J-42	12.0	Ductile Iron	130.0	False	0.000	-181	0.51	0.108	False	0
984	P-140	332	J-42	J-15	12.0	Ductile Iron	130.0	False	0.000	-181	0.51	0.107	False	0
938	P-114	401	J-21	J-45	16.0	Ductile Iron	130.0	False	0.000	261	0.42	0.052	False	0
694	P-2	135	J-4	J-5	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
696	P-3	134	J-5	J-6	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
702	P-4	65	J-7	J-8	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
704	P-5	155	J-8	J-9	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
710	P-6	488	J-11	J-12	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
714	P-7	487	J-13	J-14	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
785	P-31	309	J-24	J-18	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
800	P-35	532	J-17	J-27	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
801	P-36	358	J-27	J-24	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
819	P-46	371	J-6	J-29	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
826	P-48	331	J-9	J-30	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
827	P-49	198	J-30	J-10	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
829	P-50	316	J-29	J-31	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
830	P-51	268	J-31	J-7	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
849	P-60	315	J-10	J-32	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
850	P-61	197	J-32	J-11	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
878	P-75	227	J-12	J-37	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
879	P-76	264	J-37	J-13	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
934	P-111	439	J-16	J-44	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.020	False	0
935	P-112	498	J-44	J-17	16.0	Ductile Iron	130.0	False	0.000	154	0.25	0.019	False	0
1001	P-34	416	J-16	J-14	16.0	Ductile Iron	130.0	False	0.000	-154	0.25	0.019	False	0
1008	P-13	319	R-11	J-2	48.0	Ductile Iron	130.0	False	0.000	1,357	0.24	0.000	True	1
1066	P-453	336	J-20	J-40	12.0	Ductile Iron	130.0	False	0.000	-48	0.14	0.009	False	0
1049	P-45	21	J-34	H-10	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0

725	P-10	181	J-1	J-19	16.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1021	P-39	14	J-46	H-4	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1038	P-44	7	J-50	H-1	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1012	P-37	6	H-6	J-15	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1026	P-40	6	J-48	H-9	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
975	P-137	22	H-7	J-36	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1052	P-47	17	J-26	H-11	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1014	P-38	14	H-5	J-35	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1059	P-52	49	J-51	J-52	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
980	P-139	30	J-25	H-3	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1033	P-43	51	J-49	H-2	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
977	P-17	89	J-38	H-8	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0

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Appendix D
Max Day + Fire Flow
Cavasson

Scenario: Fire Flow
Current Time Step: 0.000 h
Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Is Fire Flow Run Balanced?
H-1	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	70	20	57	J-7	20	57	J-7	True
H-2	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	40	20	57	J-7	20	57	J-7	True
H-3	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	49	20	56	J-7	20	56	J-7	True
H-4	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	61	20	56	J-7	20	56	J-7	True
H-5	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	60	20	56	J-7	20	56	J-7	True
H-6	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	64	20	56	J-7	20	56	J-7	True
H-7	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	57	20	56	J-7	20	56	J-7	True
H-8	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	32	20	56	J-7	20	56	J-7	True
H-9	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	53	20	55	J-48	20	55	J-48	True
H-10	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	63	20	56	J-7	20	56	J-7	True
H-11	Zone - 4	2	True	4,000	4,020	4,000	4,020	20	64	20	57	J-7	20	57	J-7	True

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Hydrant Table

ID	Label	Hydrant Status	Include Hydrant Lateral Loss?	Emitter Coefficient (gpm/psi^n)	Length (Hydrant Lateral) (ft)	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1039	H-1	Open	False	0.000	0	1,609.00	Zone - 4	<Collection: 0 items>	0	1,782.89	75
1040	H-2	Open	False	0.000	0	1,608.00	Zone - 4	<Collection: 0 items>	0	1,782.06	75
1041	H-3	Open	False	0.000	0	1,609.85	Zone - 4	<Collection: 0 items>	0	1,782.51	75
1042	H-4	Open	False	0.000	0	1,614.00	Zone - 4	<Collection: 0 items>	0	1,782.80	73
1043	H-5	Open	False	0.000	0	1,618.00	Zone - 4	<Collection: 0 items>	0	1,782.87	71
1044	H-6	Open	False	0.000	0	1,619.00	Zone - 4	<Collection: 0 items>	0	1,782.88	71
1045	H-7	Open	False	0.000	0	1,621.59	Zone - 4	<Collection: 0 items>	0	1,782.90	70
1046	H-8	Open	False	0.000	0	1,614.93	Zone - 4	<Collection: 0 items>	0	1,782.92	73
1047	H-9	Open	False	0.000	0	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.08	74
1050	H-10	Open	False	0.000	0	1,607.00	Zone - 4	<Collection: 0 items>	0	1,782.80	76
1053	H-11	Open	False	0.000	0	1,607.00	Zone - 4	<Collection: 0 items>	0	1,782.77	76

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Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand Collection	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
686	J-1	1,609.00	Zone - 4	<Collection: 1 item>	776	1,782.91	75
687	J-2	1,612.00	Zone - 4	<Collection: 0 items>	0	1,783.00	74
689	J-3	1,623.00	Zone - 4	<Collection: 0 items>	0	1,782.94	69
691	J-4	1,629.00	Zone - 4	<Collection: 0 items>	0	1,782.90	67
693	J-5	1,629.90	Zone - 4	<Collection: 0 items>	0	1,782.90	66
695	J-6	1,631.92	Zone - 4	<Collection: 0 items>	0	1,782.90	65
697	J-7	1,649.25	Zone - 4	<Collection: 0 items>	0	1,782.90	58
701	J-8	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.90	58
703	J-9	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.89	58
705	J-10	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.89	58
707	J-11	1,646.00	Zone - 4	<Collection: 0 items>	0	1,782.89	59
709	J-12	1,643.00	Zone - 4	<Collection: 0 items>	0	1,782.88	61
711	J-13	1,637.84	Zone - 4	<Collection: 0 items>	0	1,782.88	63
713	J-14	1,633.68	Zone - 4	<Collection: 0 items>	0	1,782.88	65
717	J-16	1,630.55	Zone - 4	<Collection: 0 items>	0	1,782.88	66
719	J-17	1,617.54	Zone - 4	<Collection: 0 items>	0	1,782.87	72
721	J-18	1,625.17	Zone - 4	<Collection: 0 items>	0	1,782.86	68
724	J-19	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.99	74
735	J-38	1,616.47	Zone - 4	<Collection: 0 items>	0	1,782.92	72
737	J-20	1,625.50	Zone - 4	<Collection: 0 items>	0	1,782.89	68
741	J-43	1,606.70	Zone - 4	<Collection: 0 items>	0	1,782.75	76
745	J-40	1,619.49	Zone - 4	<Collection: 0 items>	0	1,782.89	71
750	J-34	1,607.21	Zone - 4	<Collection: 0 items>	0	1,782.80	76
754	J-39	1,612.00	Zone - 4	<Collection: 0 items>	0	1,781.91	74
757	J-41	1,612.00	Zone - 4	<Collection: 0 items>	0	1,782.66	74
761	J-33	1,613.33	Zone - 4	<Collection: 0 items>	0	1,782.79	73
764	J-21	1,612.50	Zone - 4	<Collection: 0 items>	0	1,782.81	74
768	J-35	1,618.40	Zone - 4	<Collection: 0 items>	0	1,782.87	71
771	J-22	1,618.54	Zone - 4	<Collection: 0 items>	0	1,782.83	71
775	J-15	1,619.21	Zone - 4	<Collection: 0 items>	0	1,782.88	71
778	J-23	1,625.00	Zone - 4	<Collection: 0 items>	0	1,782.88	68
783	J-24	1,623.83	Zone - 4	<Collection: 0 items>	0	1,782.86	69
799	J-27	1,619.36	Zone - 4	<Collection: 0 items>	0	1,782.87	71
807	J-28	1,626.64	Zone - 4	<Collection: 0 items>	0	1,782.90	68
818	J-29	1,636.73	Zone - 4	<Collection: 0 items>	0	1,782.90	63
825	J-30	1,649.00	Zone - 4	<Collection: 0 items>	0	1,782.89	58
828	J-31	1,645.84	Zone - 4	<Collection: 0 items>	0	1,782.90	59
848	J-32	1,648.15	Zone - 4	<Collection: 0 items>	0	1,782.89	58
877	J-37	1,640.12	Zone - 4	<Collection: 0 items>	0	1,782.88	62

933	J-44	1,624.90	Zone - 4	<Collection: 0 items>	0	1,782.87	68
937	J-45	1,606.60	Zone - 4	<Collection: 0 items>	0	1,782.80	76
960	J-25	1,612.51	Zone - 4	<Collection: 0 items>	0	1,782.51	74
963	J-26	1,607.18	Zone - 4	<Collection: 0 items>	0	1,782.77	76
967	J-47	1,628.00	Zone - 4	<Collection: 0 items>	0	1,782.91	67
972	J-36	1,620.59	Zone - 4	<Collection: 0 items>	0	1,782.90	70
982	J-42	1,618.72	Zone - 4	<Collection: 0 items>	0	1,782.87	71
1017	J-46	1,614.06	Zone - 4	<Collection: 0 items>	0	1,782.80	73
1022	J-48	1,612.14	Zone - 4	<Collection: 0 items>	0	1,782.08	74
1031	J-49	1,608.94	Zone - 4	<Collection: 0 items>	0	1,782.06	75
1034	J-50	1,609.90	Zone - 4	<Collection: 0 items>	0	1,782.89	75
1057	J-51	1,610.21	Zone - 4	<Collection: 0 items>	0	1,781.72	74
1058	J-52	1,596.00	Zone - 4	<Collection: 0 items>	0	1,781.72	80
1063	J-53	1,610.06	Zone - 4	<Collection: 0 items>	0	1,781.71	74
1064	D-1A-1	1,596.00	Zone - 4	<Collection: 1 item>	742	1,779.62	79

Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Has User Defined Length?	Length (User Defined) (ft)
1065	P-53	49	J-53	D-1A-1	6.0	Ductile Iron	130.0	False	0.000	742	8.42	42.706	False	0
1029	P-29	149	J-49	J-43	8.0	Ductile Iron	130.0	False	0.000	-478	3.05	4.656	False	0
1062	P-25	75	J-53	J-49	8.0	Ductile Iron	130.0	False	0.000	-478	3.05	4.656	False	0
726	P-11	20	J-19	J-2	16.0	Ductile Iron	130.0	False	0.000	-1,106	1.77	0.753	False	0
763	P-20	86	J-33	J-41	8.0	Ductile Iron	130.0	False	0.000	264	1.69	1.553	False	0
962	P-128	98	J-25	J-41	8.0	Ductile Iron	130.0	False	0.000	-264	1.69	1.553	False	0
1023	P-33	107	J-39	J-48	8.0	Ductile Iron	130.0	False	0.000	-264	1.69	1.553	False	0
1055	P-18	119	J-39	J-51	8.0	Ductile Iron	130.0	False	0.000	264	1.69	1.554	False	0
1061	P-19	10	J-51	J-53	8.0	Ductile Iron	130.0	False	0.000	264	1.69	1.550	False	0
1024	P-127	278	J-48	J-25	8.0	Ductile Iron	130.0	False	0.000	-264	1.69	1.553	False	0
725	P-10	181	J-1	J-19	16.0	Ductile Iron	130.0	False	0.000	-776	1.24	0.390	False	0
1035	P-15	430	J-43	J-50	12.0	Ductile Iron	130.0	False	0.000	-331	0.94	0.327	False	0
1036	P-16	279	J-50	J-19	12.0	Ductile Iron	130.0	False	0.000	-331	0.94	0.327	False	0
690	P-1	522	J-2	J-3	16.0	Ductile Iron	130.0	False	0.000	411	0.66	0.120	False	0
1018	P-22	260	J-35	J-46	8.0	Ductile Iron	130.0	False	0.000	100	0.64	0.257	False	0
1019	P-32	46	J-46	J-33	8.0	Ductile Iron	130.0	False	0.000	100	0.64	0.258	False	0
772	P-23	411	J-18	J-22	16.0	Ductile Iron	130.0	False	0.000	311	0.50	0.072	False	0
773	P-24	280	J-22	J-21	16.0	Ductile Iron	130.0	False	0.000	311	0.50	0.072	False	0
767	P-21	215	J-33	J-21	12.0	Ductile Iron	130.0	False	0.000	-164	0.47	0.090	False	0
968	P-132	378	J-3	J-47	16.0	Ductile Iron	130.0	False	0.000	285	0.45	0.061	False	0
969	P-133	161	J-47	J-4	16.0	Ductile Iron	130.0	False	0.000	285	0.45	0.061	False	0
939	P-115	44	J-45	J-34	12.0	Ductile Iron	130.0	False	0.000	147	0.42	0.072	False	0
964	P-129	432	J-34	J-26	12.0	Ductile Iron	130.0	False	0.000	147	0.42	0.073	False	0
965	P-130	230	J-26	J-43	12.0	Ductile Iron	130.0	False	0.000	147	0.42	0.073	False	0
779	P-27	331	J-18	J-23	16.0	Ductile Iron	130.0	False	0.000	-226	0.36	0.040	False	0
780	P-28	276	J-23	J-20	16.0	Ductile Iron	130.0	False	0.000	-226	0.36	0.040	False	0
974	P-136	225	J-36	J-40	12.0	Ductile Iron	130.0	False	0.000	127	0.36	0.055	False	0
736	P-14	232	J-3	J-38	12.0	Ductile Iron	130.0	False	0.000	127	0.36	0.056	False	0
1010	P-107	444	J-38	J-36	12.0	Ductile Iron	130.0	False	0.000	127	0.36	0.055	False	0
808	P-41	415	J-20	J-28	16.0	Ductile Iron	130.0	False	0.000	-199	0.32	0.031	False	0
809	P-42	163	J-28	J-4	16.0	Ductile Iron	130.0	False	0.000	-199	0.32	0.032	False	0
983	P-30	32	J-35	J-42	12.0	Ductile Iron	130.0	False	0.000	-100	0.28	0.035	False	0
984	P-140	332	J-42	J-15	12.0	Ductile Iron	130.0	False	0.000	-100	0.28	0.036	False	0
776	P-26	70	J-40	J-15	12.0	Ductile Iron	130.0	False	0.000	100	0.28	0.035	False	0
1008	P-13	319	R-11	J-2	48.0	Ductile Iron	130.0	False	0.000	1,518	0.27	0.000	True	1
938	P-114	401	J-21	J-45	16.0	Ductile Iron	130.0	False	0.000	147	0.23	0.018	False	0
694	P-2	135	J-4	J-5	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
696	P-3	134	J-5	J-6	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
702	P-4	65	J-7	J-8	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
704	P-5	155	J-8	J-9	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
710	P-6	488	J-11	J-12	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
714	P-7	487	J-13	J-14	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
785	P-31	309	J-24	J-18	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
800	P-35	532	J-17	J-27	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
801	P-36	358	J-27	J-24	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
819	P-46	371	J-6	J-29	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
826	P-48	331	J-9	J-30	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
827	P-49	198	J-30	J-10	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
829	P-50	316	J-29	J-31	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
830	P-51	268	J-31	J-7	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
849	P-60	315	J-10	J-32	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
850	P-61	197	J-32	J-11	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
878	P-75	227	J-12	J-37	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
879	P-76	264	J-37	J-13	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
934	P-111	439	J-16	J-44	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.007	False	0
935	P-112	498	J-44	J-17	16.0	Ductile Iron	130.0	False	0.000	85	0.14	0.006	False	0
1001	P-34	416	J-16	J-14	16.0	Ductile Iron	130.0	False	0.000	-85	0.14	0.006	False	0
1066	P-453	336	J-20	J-40	12.0	Ductile Iron	130.0	False	0.000	-27	0.08	0.003	False	0

1026	P-40	6	J-48	H-9	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1012	P-37	6	H-6	J-15	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1021	P-39	14	J-46	H-4	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1014	P-38	14	H-5	J-35	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1038	P-44	7	J-50	H-1	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1049	P-45	21	J-34	H-10	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
980	P-139	30	J-25	H-3	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1059	P-52	49	J-51	J-52	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
977	P-17	89	J-38	H-8	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1052	P-47	17	J-26	H-11	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
1033	P-43	51	J-49	H-2	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0
975	P-137	22	H-7	J-36	6.0	Ductile Iron	130.0	False	0.000	0	0.00	0.000	False	0

Scenario: Fire Flow
Current Time Step: 0.000 h
FlexTable: Reservoir Table

ID	Label	Elevation (ft)	Zone	Flow (Out net) (gpm)	Hydraulic Grade (ft)
731	R-11	1,783.00	Zone - 4	1,518	1,783.00

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Appendix E
Fire Flow
Cavasson

Flow Test Summary

Project Name:	EJFT 18250-1
Project Address:	N Hayden Rd & Legacy Blvd, Scottsdale, AZ 85255
Date of Flow Test:	2018-10-16
Time of Flow Test:	7:30 AM
Data Reliable Until:	2019-04-16
Conducted By:	Cesar Reyna & Austin Gourley (EJ Flow Tests) 602.999.7637
Witnessed By:	Jared Berry (City of Scottsdale) 602.541.4942
City Forces Contacted:	City of Scottsdale (602.541.4942)
Permit Number:	C56459

Raw Flow Test Data

Static Pressure:	66.0 PSI
Residual Pressure:	59.0 PSI
Flowing GPM:	1,839
GPM @ 20 PSI:	5,082

Data with a 10 % Safety Factor

Static Pressure:	59.4 PSI
Residual Pressure:	52.4 PSI
Flowing GPM:	1,839
GPM @ 20 PSI:	4,674

Hydrant F_1

Pitot Pressure (1):	30	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	2.5	inches
Pitot Pressure (2):	30	PSI
Coefficient of Discharge (2):	0.9	
Hydrant Orifice Diameter (2):	2.5	inches



Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
1190 ft (measured linearly)

Static-Residual Elevation
1614 ft (above sea level)

Flow Hydrant (F_1) Elevation
1633 ft (above sea level)

Elevation & distance values are approximate

Flow Test Summary

Static-Residual Hydrant



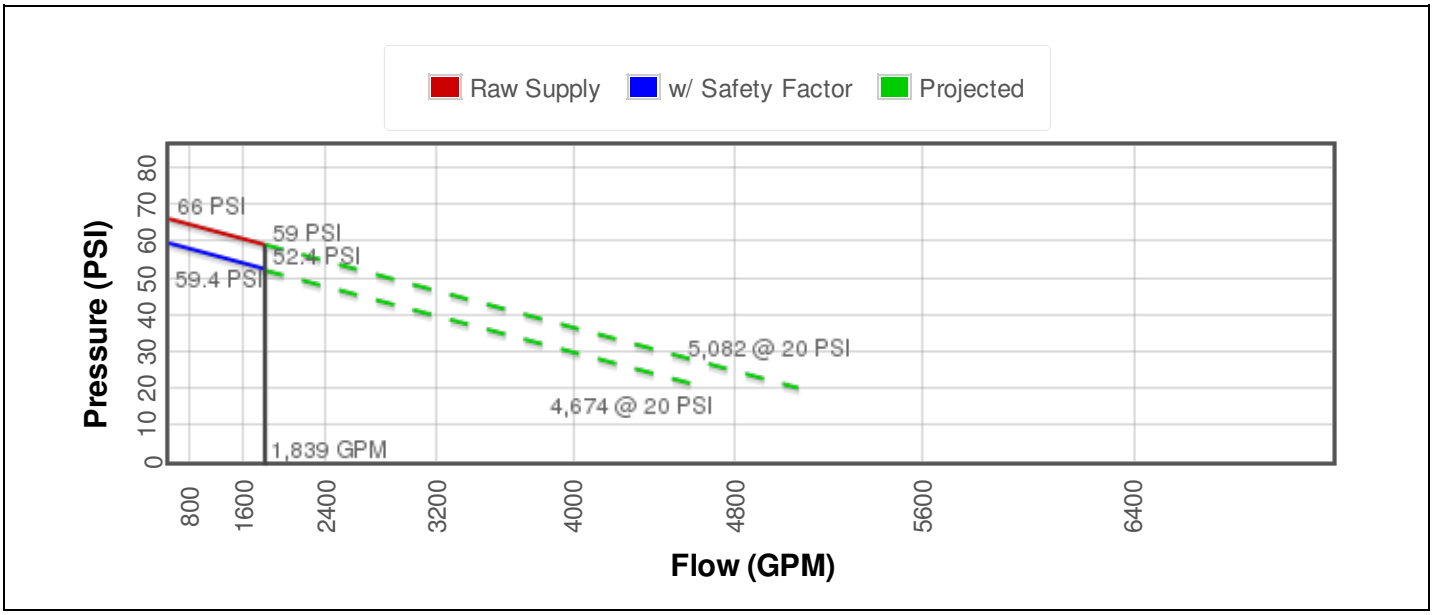
Flow Hydrant (only hydrant F1 shown for clarity)



Approximate Project Site



Water Supply Curve $N^{1.85}$ Graph



Flow Test Summary

Project Name:	EJFT 18250-2
Project Address:	N Hayden Rd & Legacy Blvd, Scottsdale, AZ 85255
Date of Flow Test:	2018-10-16
Time of Flow Test:	7:50 AM
Data Reliable Until:	2019-04-16
Conducted By:	Cesar Reyna & Austin Gourley (EJ Flow Tests) 602.999.7637
Witnessed By:	Jared Berry (City of Scottsdale) 602.541.4942
City Forces Contacted:	City of Scottsdale (602.541.4942)
Permit Number:	C56459

Raw Flow Test Data

Static Pressure:	51.0 PSI
Residual Pressure:	44.0 PSI
Flowing GPM:	1,645
GPM @ 20 PSI:	3,673

Data with a 10 % Safety Factor

Static Pressure:	45.9 PSI
Residual Pressure:	38.9 PSI
Flowing GPM:	1,645
GPM @ 20 PSI:	3,333

Hydrant F_1

Pitot Pressure (1):	24	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	2.5	inches
Pitot Pressure (2):	24	PSI
Coefficient of Discharge (2):	0.9	
Hydrant Orifice Diameter (2):	2.5	inches



Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
489 ft (measured linearly)

Static-Residual Elevation
1650 ft (above sea level)

Flow Hydrant (F_1) Elevation
1647 ft (above sea level)

Elevation & distance values are approximate

Flow Test Summary

Static-Residual Hydrant



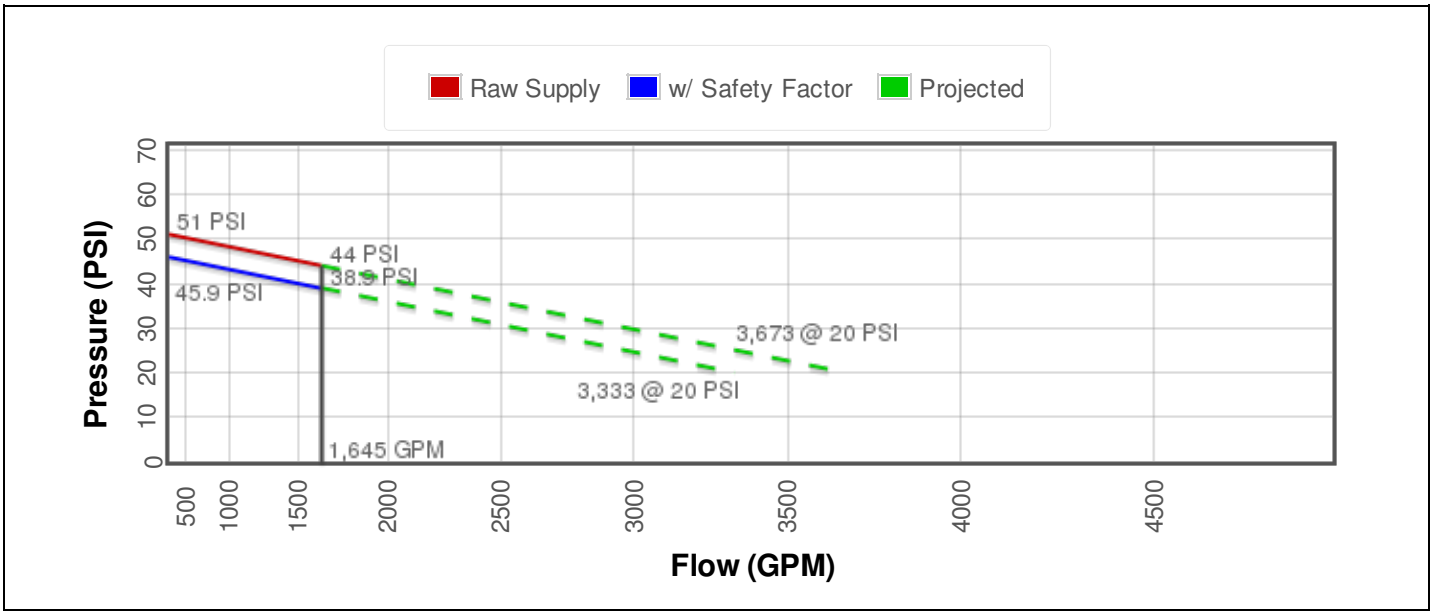
Flow Hydrant (only hydrant F1 shown for clarity)



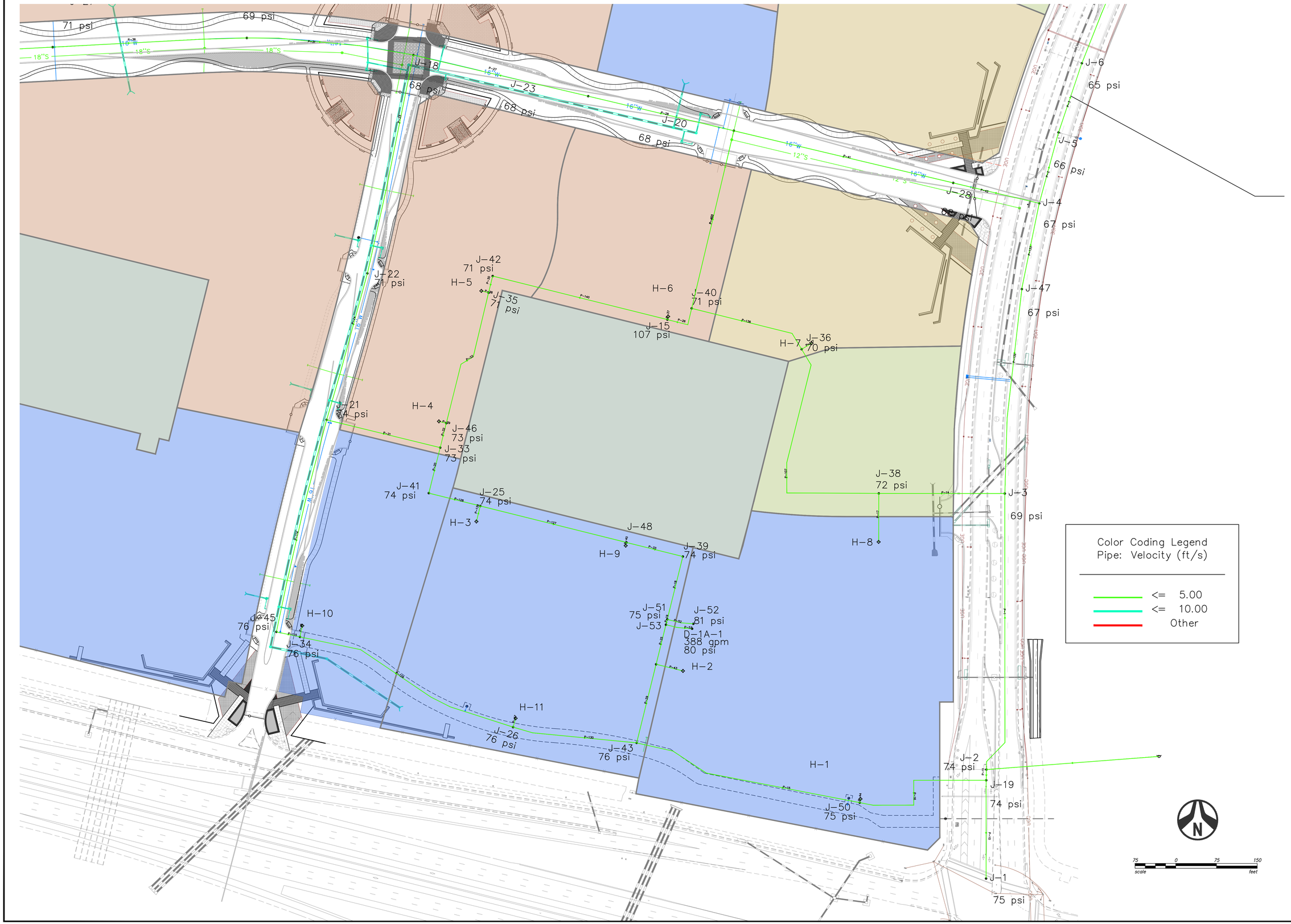
Approximate Project Site



Water Supply Curve $N^{1.85}$ Graph



Exhibits
Cavasson



HUBBARD ENGINEERING
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
PH: 480.892.3313
www.hubbardengineering.com

AVERAGE DAY DEMAND WATER SYSTEM MAP

Date	Project Eng.
10/30/2018	M. WOLF
Project No.	Project Mgr.
18114	M. WOLF

SHT: 01 OF 01

EXHIBIT 1

HUBBARD ENGINEERING
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
PH: 480.892.3313
www.hubbardengineering.com

MAX DAY DEMAND WATER SYSTEM MAP

Date	Project Eng.
10/30/2018	M. WOLF
Project No.	Project Mgr.
18114	M. WOLF

SHT: 01 OF 01

EXHIBIT 2

HUBBARD ENGINEERING
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
PH: 480.892.3313
www.hubbardengineering.com

PEAK HOUR DEMAND WATER SYSTEM MAP

Date	Project Eng.
10/30/2018	M. WOLF
Project No.	Project Mgr.
18114	M. WOLF

SHT: 01 OF 01

EXHIBIT 3

HUBBARD ENGINEERING
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
PH: 480.892.3313
www.hubbardengineering.com

MAX DAY PLUS FIRE FLOW
WATER SYSTEM MAP

Date	Project Eng.
10/22/2018	M. WOLF
Project No.	Project Mgr.
18114	M. WOLF

SHT: 01 OF 01
EXHIBIT 4

PUBLIC AND PRIVATE UTILITY
FOR
SCOTTSDALE NATIONWIDE OFFICE BUILDING-PHASE 1
SCOTTSDALE, AZ.

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 24, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA

SCOTTSDALE GENERAL NOTES

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTIONS HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHTS-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTIONS SERVICES 24 HOURS PRIOR TO THE BEGINNING CONSTRUCTION BY CALLING 480-312-5750.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 602-263-1100, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

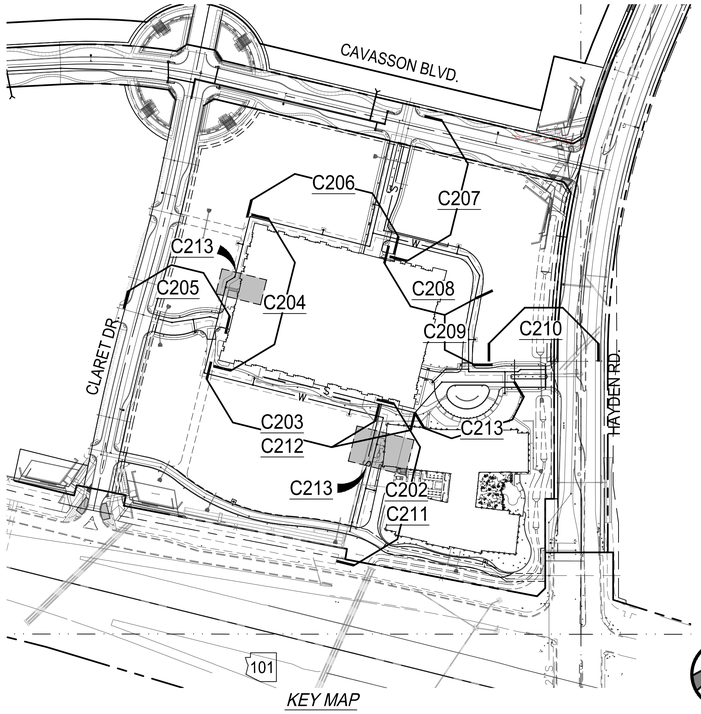
HUBBARD ENGINEERING GENERAL NOTES

1. THE PLANS PREPARED FOR THIS PROJECT PRESENT A DESCRIPTION OF THE WORK TO BE ACCOMPLISHED. THE CONTRACTOR SHALL VISIT THE PROJECT SITE AND DETERMINE, FROM HIS OWN INSPECTION, THE CONDITIONS UNDER WHICH IT IS TO BE PERFORMED. THE CONTRACTOR, BY MAKING HIS BID, REPRESENTS THAT HE HAS VISITED THE SITE AND FAMILIARIZED HIMSELF WITH LOCAL CONDITIONS, THE TYPE OF WORK TO BE PERFORMED, EVALUATED THE DIFFICULTY OF PERFORMING THE REQUIRED TASKS, AND THE LABOR, EQUIPMENT AND MATERIAL THAT ARE REQUIRED TO PROVIDE A COMPLETE PROJECT.
2. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF SAID UTILITIES IN ADVANCE OF TRENCHING. THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDER-GROUND UTILITIES SHOWN ON THESE PLANS.
3. MYLAR PLAN SHEETS FOR AS-BUILTS MAY BE PURCHASED FROM HUBBARD ENGINEERING. THE COST OF THIS ITEM SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
4. ALL HANDICAP ACCESS RAMPS, PARKING STALLS, AND DELINEATED WALKWAYS SHALL BE CONSTRUCTED AND MARKED IN ACCORDANCE WITH CURRENT FEDERAL AND/OR LOCAL A.D.A. STANDARDS AND REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL AUTHORITIES PRIOR TO CONSTRUCTING AND/OR STRIPING TO CONFIRM CURRENT REQUIREMENTS. SLOPES WITHIN THE LIMITS OF HANDICAPPED PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.
5. ALL SLOPES HIGHER THAN ONE (1) FOOT AND STEEPER THAN 20:1, UNLESS LINED WITH TURF, SHALL BE COMPACTED AND TESTED PER MAG SPECIFICATION 215. WE RECOMMEND RE-COMPACTION PER MAG SPECIFICATION 215 AFTER INSTALLATION OF IRRIGATION LINES, AND WE RECOMMEND STABILIZATION OF DECOMPOSED GRANITE.
6. UNLESS SPECIALLY NOTED OTHERWISE, THESE PLANS SHOULD BE USED FOR HORIZONTAL AND VERTICAL LAYOUT OF CIVIL ELEMENTS ONLY. (TYPICALLY WATER, FIRE, SEWER AND STORM DRAIN LINES, VALVES, FIRE HYDRANTS, MANHOLES, CATCH BASINS, HEADWALLS, DRYWELLS, ETC.). FOR ALL OTHER HORIZONTAL LAYOUT (BUILDINGS, CURBS, WALKS, ETC.) SEE ARCHITECT'S PLAN.

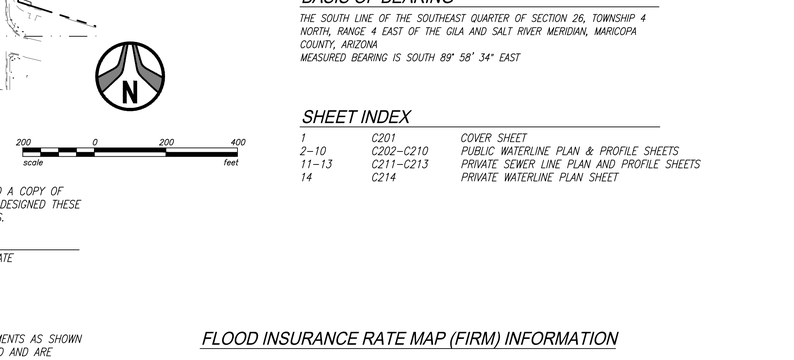
LEGEND

PROPOSED	DESCRIPTION	EXISTING
	EASEMENT LINE	
	LOT LINE	
UGT	UNDERGROUND TELEPHONE LINE	UGT
OHE	OVERHEAD ELECTRIC LINE	OHE
UGE	UNDERGROUND ELECTRIC LINE	UGE
F	FIRE LINE	F
GAS	NATURAL GAS LINE	GAS
S	SEWER LINE (FLOW DIR SHOWN)	S
	SEWER SERVICE LINE	
	STORM DRAIN	
W	WATER MAIN	W
	WATER SERVICE LINE	
	CONC CURB (AND GUTTER)	
	ASPHALT PAVEMENT	
	CONCRETE PAVEMENT	
	CONCRETE SIDEWALK	
S	SANITARY MANHOLE	S
D	STORM DRAIN MANHOLE	D
	CATCH BASIN	
	FIRE HYDRANT	
	WATER VALVE	
WM	WATER METER	WM
TC=84.35 C=83.55	SPOT ELEVATION	TC=84.74 C=83.97

TC=TOP OF CURB
C=GUTTER
P=PAVEMENT
SW=SIDEWALK
C=CONCRETE
TW=TOP OF WALL
GFW=GRADE AT FACE OF WALL
TRW=TOP OF RETAINING WALL



KEY MAP



VICINITY MAP
NTS

200 0 200 400
scale feet

REQUIRED AS-BUILT CERTIFICATION

AS-BUILT CONSTRUCTION PLANS FOR POTABLE WATER, SANITARY SEWER AND RECLAIMED WATER (IF APPLICABLE), THE ENGINEERS CERTIFICATION OF COUNTY ENVIRONMENTAL SERVICES DEPARTMENT HAVE BEEN COMPLETED.

REGISTERED CIVIL ENGINEER DATE

WATER APPROVAL:

MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT. DATE

SEWER APPROVAL:

MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT. DATE

ENGINEER'S STATEMENT

THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

REGISTERED CIVIL ENGINEER DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER DATE

REGISTRATION NUMBER

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REP.	PHONE NUMBER	DATE SENT
ELECTRIC	SALT RIVER PROJECT (POWER)	MAIN ADMINISTRATIVE DESK	602-236-8026	12/02/2016
TELEPHONE	COX COMMUNICATIONS	TMC	623-328-4073	12/02/2016
NATURAL GAS	SOUTHWEST GAS	MARCUS WATANABE	480-730-3855	12/02/2016
CABLE TV	CENTURY LINK	ELM LOCATING	623-780-3350	12/02/2016

ENGINEER'S CERTIFICATION

I _____, AS THE ENGINEER OF RECORD FOR THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL UTILITY COMPANIES LISTED ABOVE HAVE BEEN PROVIDED FINAL IMPROVEMENT PLANS FOR REVIEW, AND THAT ALL CONFLICTS IDENTIFIED BY THE UTILITIES HAVE BEEN RESOLVED. IN ADDITION, "NO CONFLICT" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL.

SIGNATURE DATE

OWNER

NWGH, LLC
7377 E. DOUBLETREE RANCH ROAD #100
SCOTTSDALE, AZ. 85258
PHONE: (614) 857-2332
FAX: (614) 857-2346
CONTACT: DONALD MONTGOMERY

ARCHITECT

THE COLUMBUS ARCHITECTURAL STUDIO
405 N. FRONT STREET
COLUMBUS, OH. 43215
PHONE: (614) 370-7413
CONTACT: DANIAL HANES

CIVIL ENGINEER

HUBBARD ENGINEERING
1201 S. ALMA SCHOOL RD. SUITE #12000
MESA, AZ 85210
PHONE: (480) 892-3313
CONTACT: BRENT STEFFENHAGEN, PE

SURVEY

HUBBARD ENGINEERING
1201 S. ALMA SCHOOL RD. SUITE #12000
MESA, AZ 85210
PHONE: (480) 892-3313
FAX: (480) 892-7051
CONTACT: ADRIAN BURCHAM, PLS

BENCHMARK

THE EAST QUARTER CORNER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING A GLO BRASS CAP, ELEVATION = 1652.20' (NAVD88), PER THE HAYDEN ROAD SEGMENT 2 PLANS, PROJECT # S0202.

BASIS OF BEARING

THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA
MEASURED BEARING IS SOUTH 89° 58' 34" EAST

SHEET INDEX

1	C201	COVER SHEET
2-10	C202-C210	PUBLIC WATERLINE PLAN & PROFILE SHEETS
11-13	C211-C213	PRIVATE SEWER LINE PLAN AND PROFILE SHEETS
14	C214	PRIVATE WATERLINE PLAN SHEET

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL NUMBER (PANEL DATE)	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1320 (OCT 16, 2013)	L	NOV 04, 2015	AO	1'

ZONE "AO" IS DEFINED AS "AREAS SUBJECT TO INUNDATION BY 1-PERCENT-ANNUAL-CHANCE SHALLOW FLOODING (USUALLY SHEET FLOWS ON SLOPING TERRAIN) WHERE AVERAGE DEPTHS ARE BETWEEN ONE AND THREE FEET. AVERAGE FLOOD DEPTHS DERIVED FROM DETAILED HYDRAULIC ANALYSES ARE SHOWN IN THIS ZONE. MANDATORY FLOOD INSURANCE PURCHASE REQUIREMENTS AND FLOODPLAIN MANAGEMENT STANDARDS APPLY."

CITY OF SCOTTSDALE APPROVAL

DELTA 1 REVISIONS ~ 01/27/2015

PAVING	TRAFFIC
G & D	PLANNING
W & S	FIRE
RET. WALLS	

ENGINEERING COORDINATION MGR. (OR DESIGNEE) DATE

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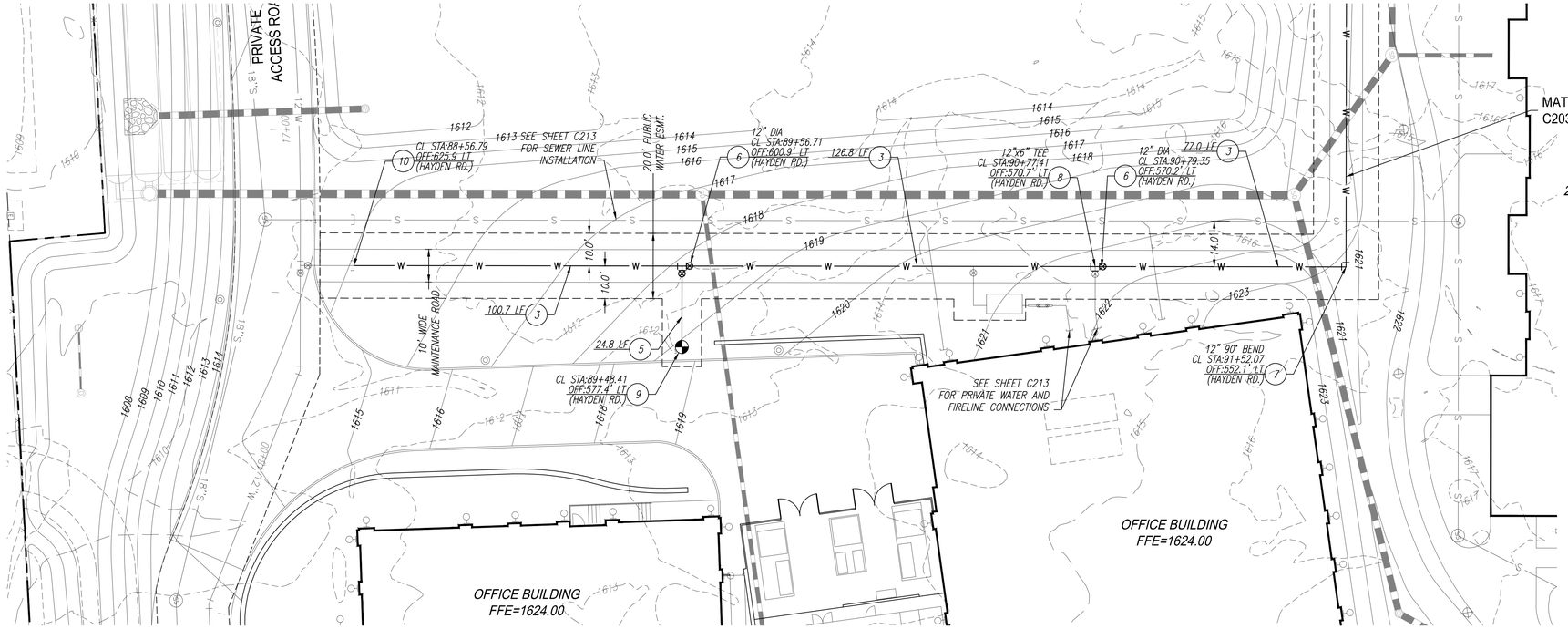
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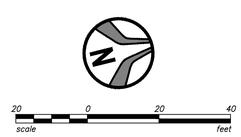
Sheet Title
COVER SHEET

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10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.



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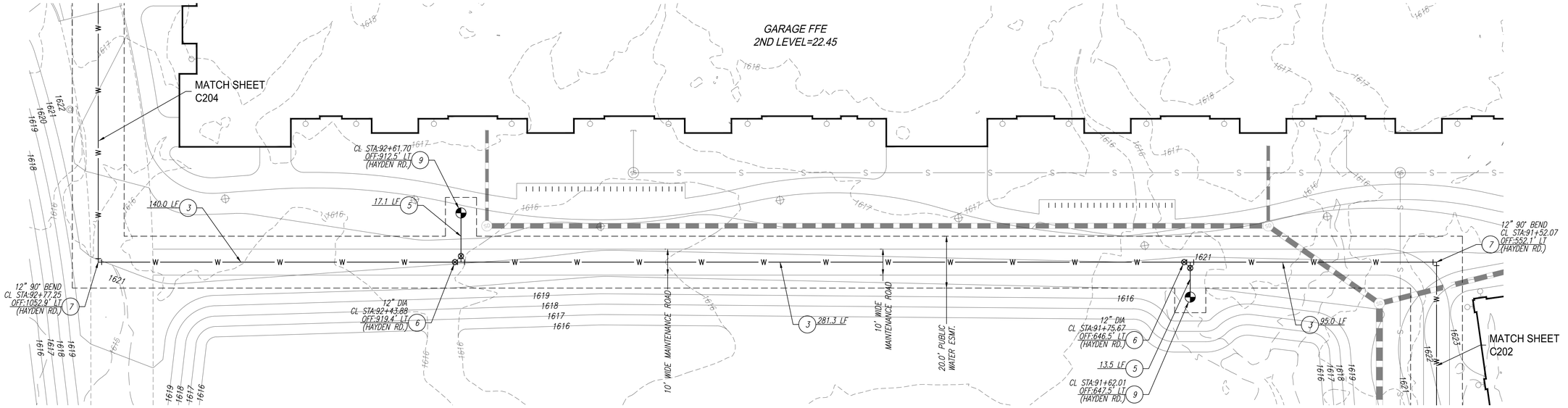
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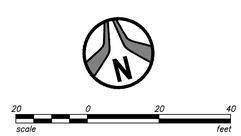
Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C202

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BRENT R.
STEFFENHAGEN

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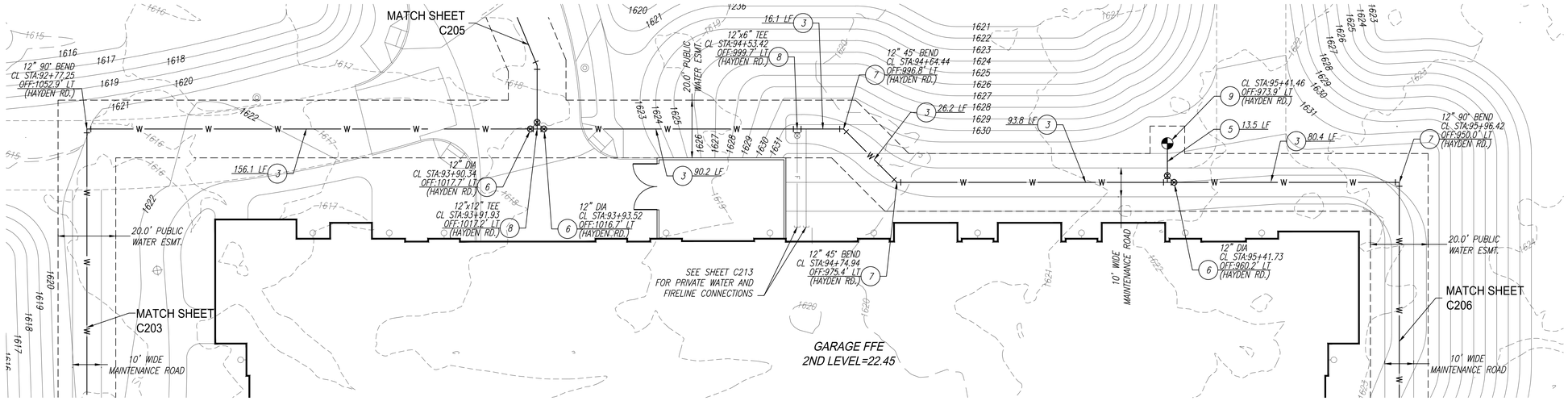
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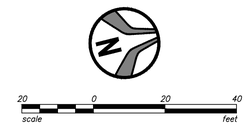
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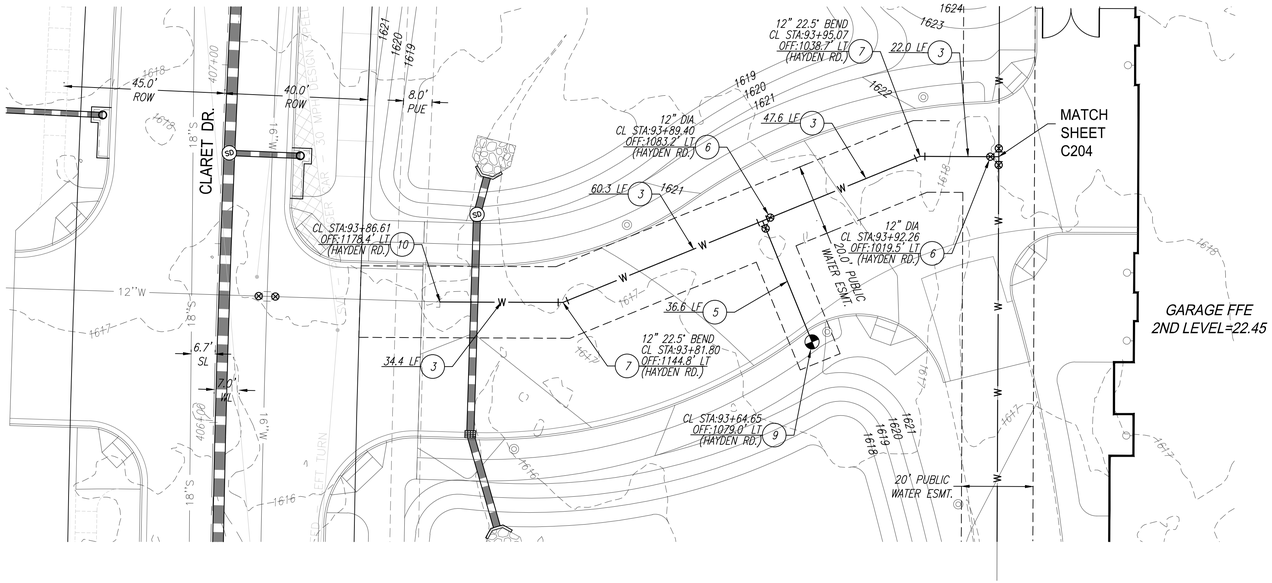
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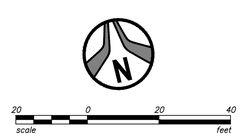
Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C204

PUBLIC UTILITY NOTES:

1. FIELD LOCATE 16" WATERLINE AND INSTALL 16"X12" CUT-IN TEE, VALVE, BOX & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C". D.I.P. CLASS 350 POLY-WRAPPED. JOINT RESTRAINT PER M.A.G. STD. DTL. 303-1 & 303-2.
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3. INSTALL 12"ø D.I.P. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT JOINTS PER M.A.G. STD. DTL. 303-1, 303-2 WITH MIN. 3' COVER. LENGTH AS NOTED.
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7. INSTALL WATERLINE BEND, D.I.P. CLASS 350 POLY-WRAPPED WITH MEGALUG SERIES 1100 MECHANICAL RESTRAINT JOINT OR APPROVED EQUAL. (SIZE AND ANGLE PER PLAN)
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9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.





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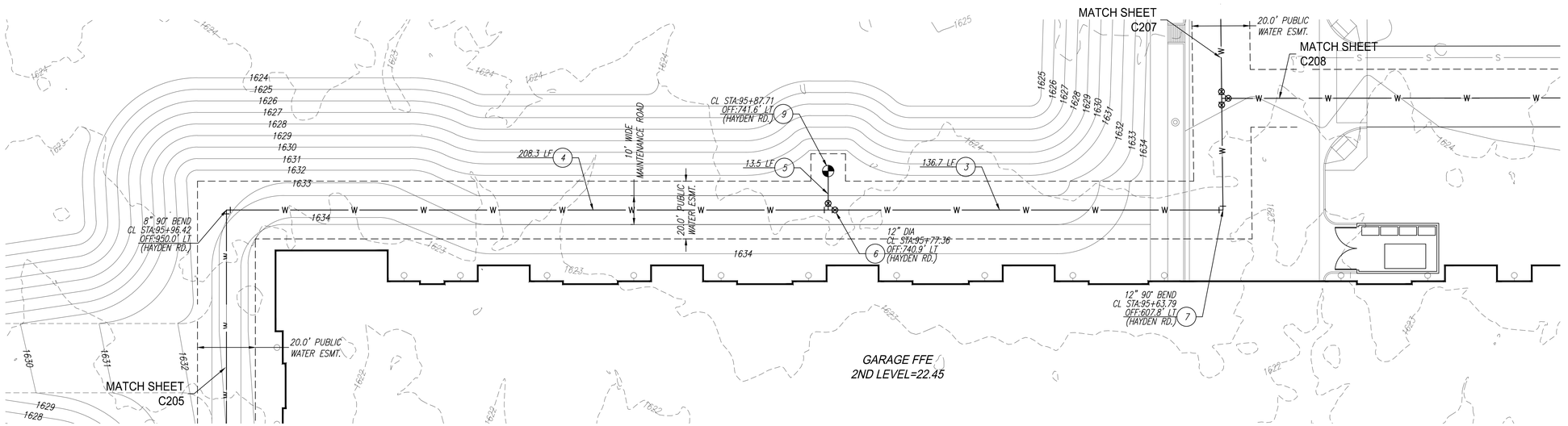
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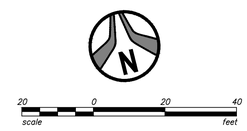
Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C205

PUBLIC UTILITY NOTES:

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9. INSTALL FIRE HYDRANT ASSEMBLY PER M.A.G. STD. DTL. 360.
10. CONNECT TO EXISTING 12" WATERLINE STUB. CONTRACTOR TO VERIFY LOCATION AND ELEVATION.





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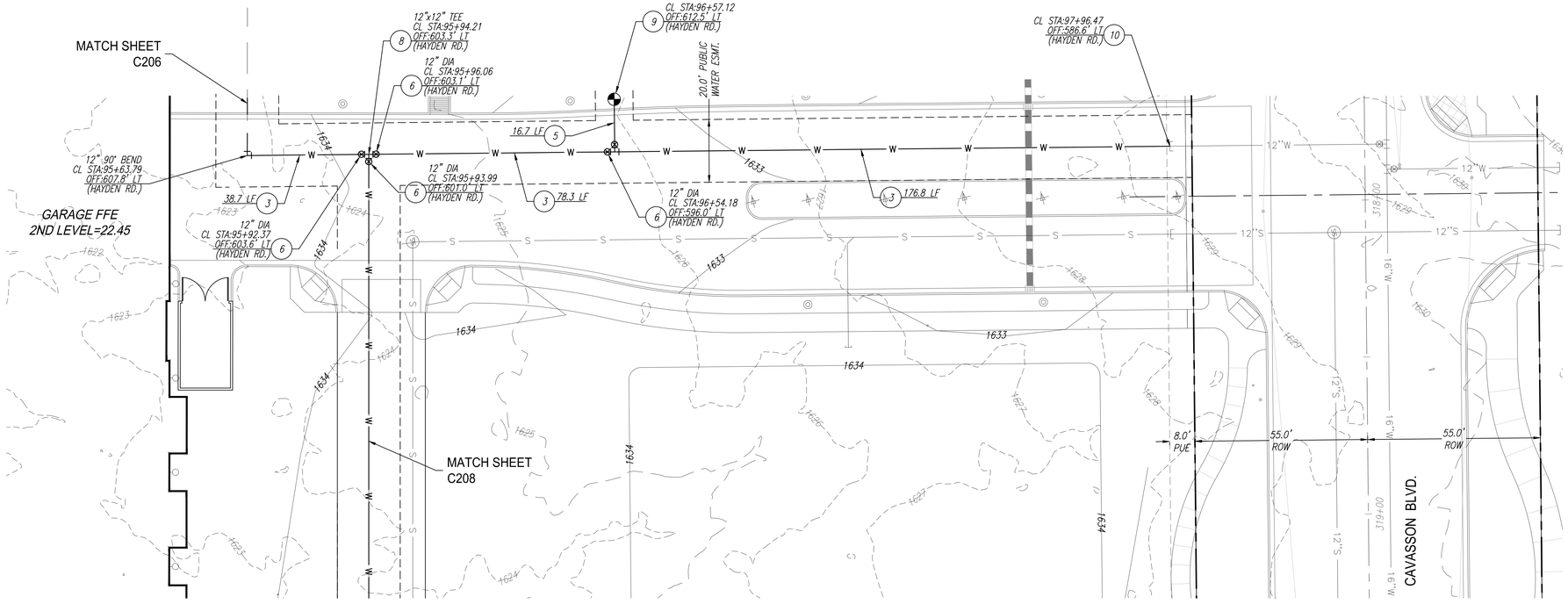
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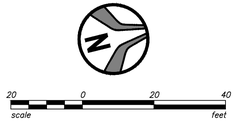
Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C206

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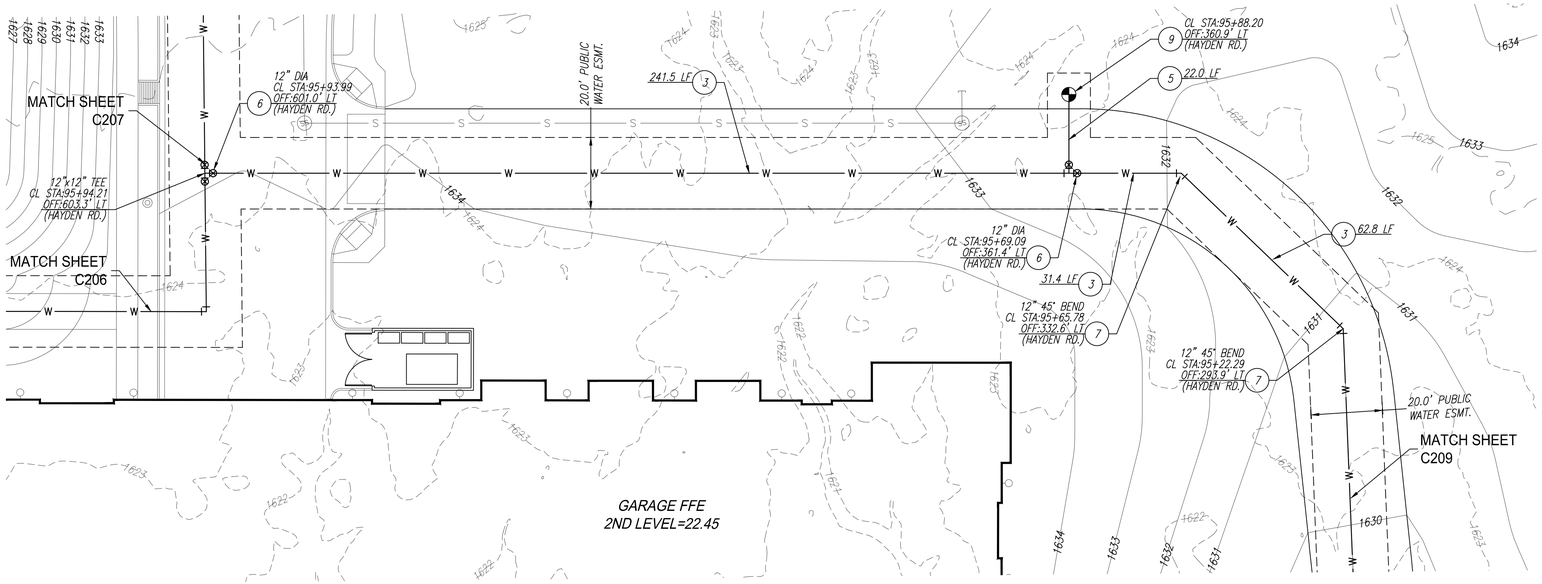
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Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C207



PUBLIC UTILITY NOTES:

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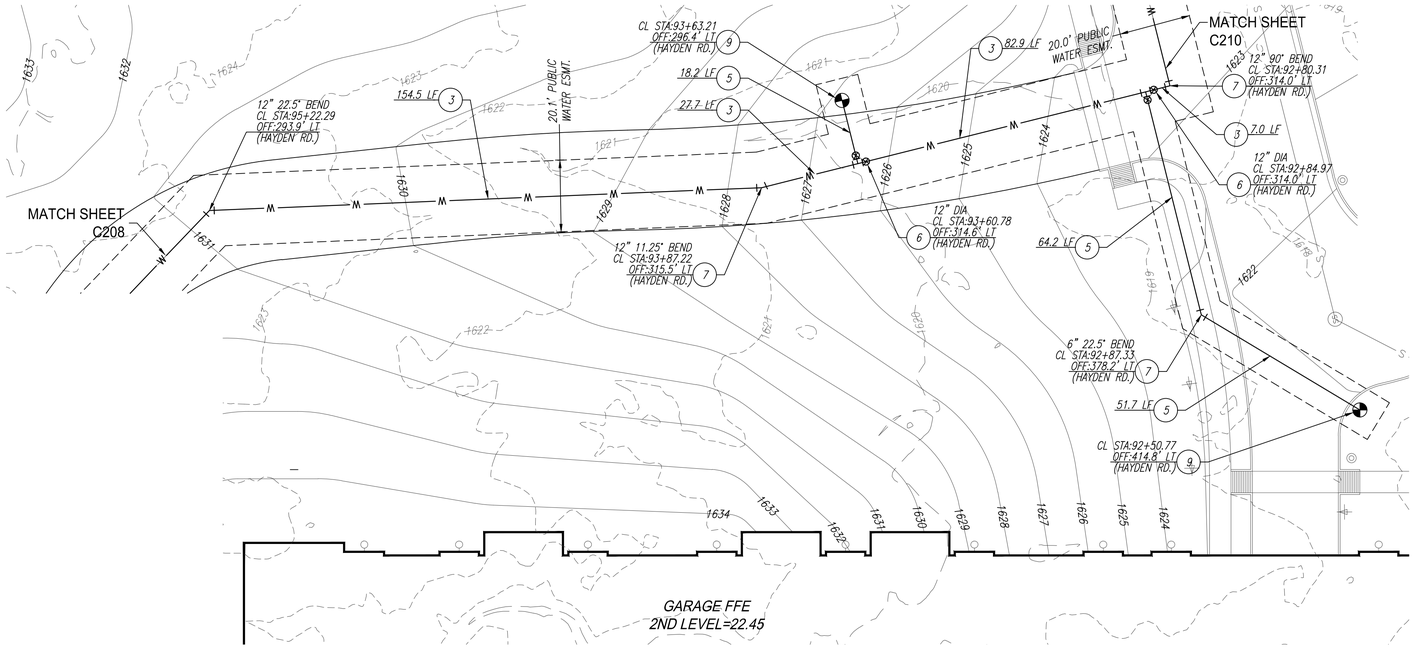
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Date of First Issue:

Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C208



PUBLIC UTILITY NOTES:

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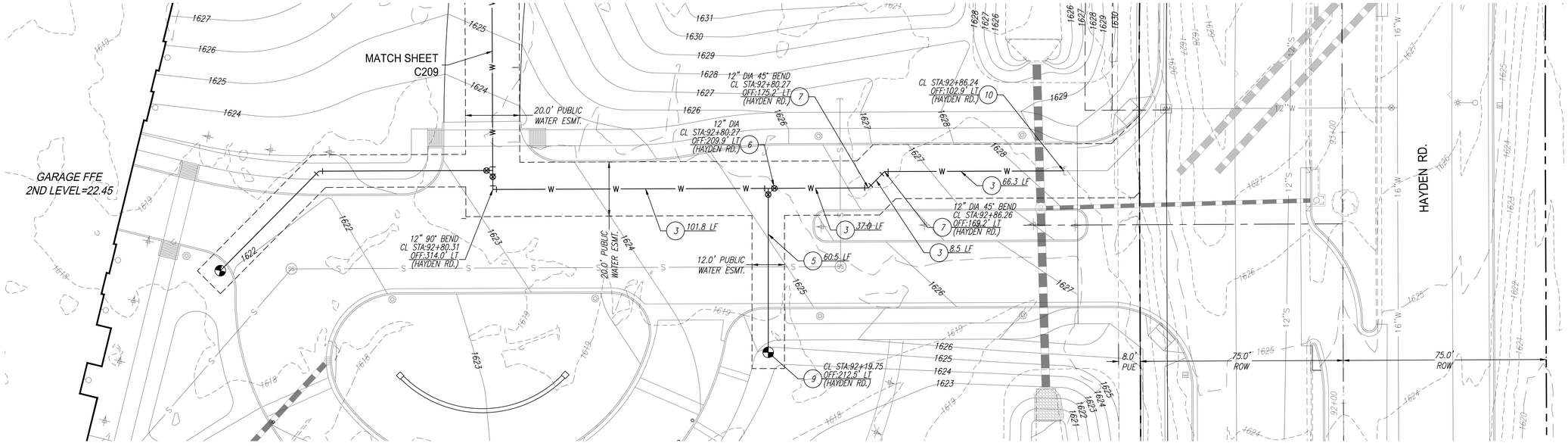
Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C209

PUBLIC UTILITY NOTES:

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t +1 905 338 3222

Professional Seals



No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	03/25/2019

NOT FOR CONSTRUCTION

Date of First Issue:

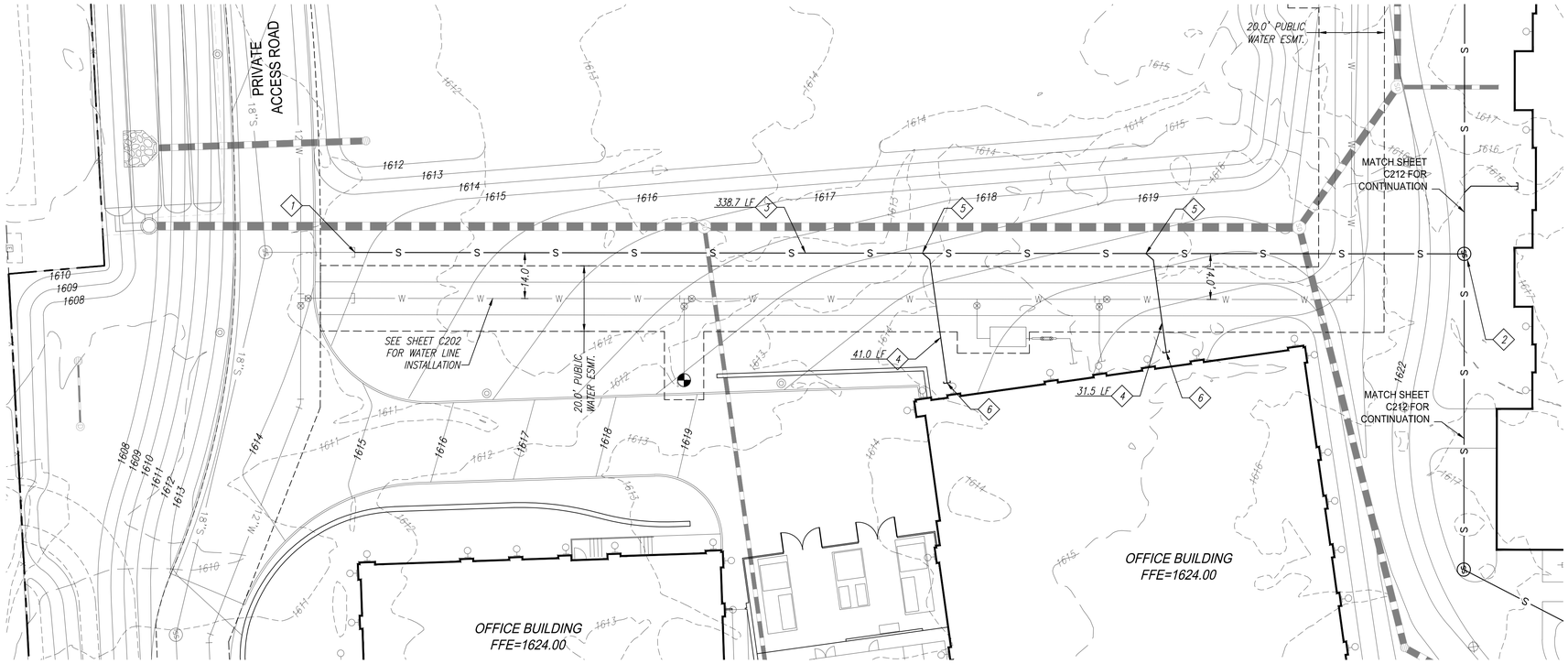
Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C210

PRIVATE SANITARY SEWER NOTES:

1. CONNECT TO EXISTING SEWER STUB (INVERT AS NOTED)
2. INSTALL 48"ø SANITARY SEWER MANHOLE PER M.A.G. STD. DTL. 420-1 WITH NO STEPS, FRAME AND COVER PER M.A.G. STD. DTL. 424. RIM AND INVERTS AS NOTED.
3. INSTALL 8"ø SDR 35 SANITARY SEWER PIPE PER M.A.G. STD. SPEC. 615 AND 743. LENGTH AND SLOPE AS NOTED.
4. INSTALL 6"ø SDR 35 SANITARY SEWER PIPE PER M.A.G. STD. SPEC. 615 AND 743. LENGTH AND SLOPE AS NOTED.
5. INSTALL WYE CONNECTION. (INVERT AS NOTED)
6. STUB AND PLUG FOR BUILDING CONNECTION. (INVERT AS NOTED)



20 0 20 40
scale feet

Nationwide®

Project
SCOTTSDALE NATIONWIDE OFFICE & PARKING
NWC Hayden Road & Loop 101
Scottsdale, AZ 85255

Prepared For
Nationwide Realty Investors

Contract No: 17-005

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405 N Front Street
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CBUSARCH.com

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Caruso Turley Scott Structural Engineers
Structural Engineer
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t +1 480 774 1700

Prater Engineering Associates
MEP Engineer
6130 Wilcox Rd, Dublin, OH 43016
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Bluestone Engineering
Technology Engineer
9119 Northpark Drive, Johnston, IA 50131
t +1 515 727 0700

Kaizen Foodservice Planning and Design Inc.
Food Service
Unit 14, 1525 Cornwall Rd, Oakville, ON L6J 0B2
t +1 905 338 3222

Professional Seals



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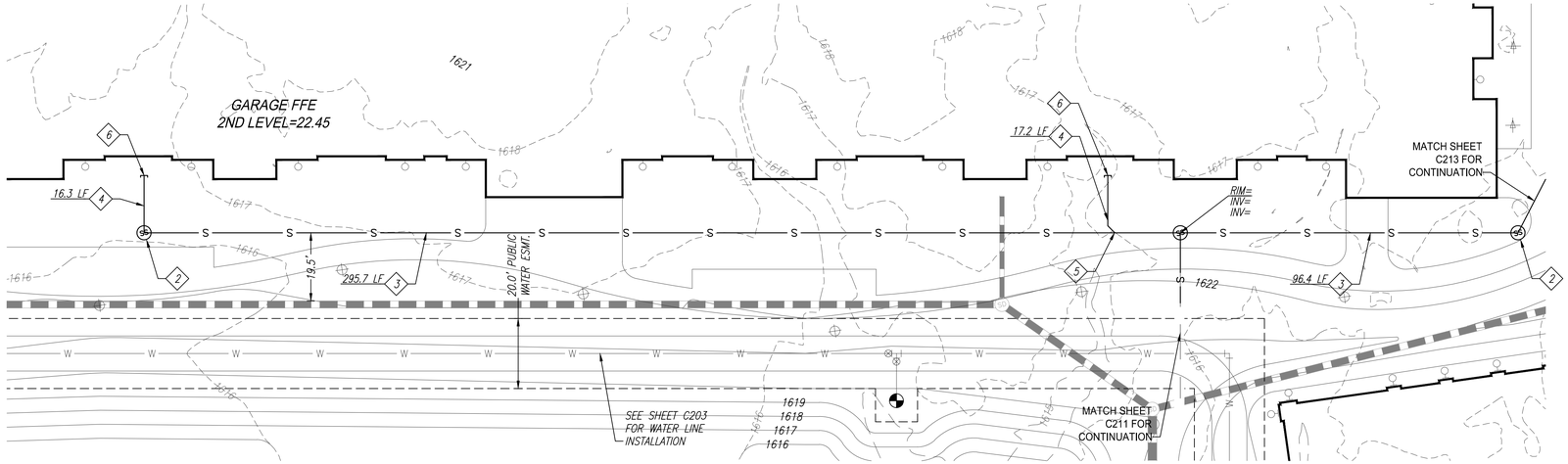
Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C211

PRIVATE SANITARY SEWER NOTES:

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5. INSTALL WYE CONNECTION. (INVERT AS NOTED)
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20 0 20 40
scale feet

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Scottsdale, AZ 85255

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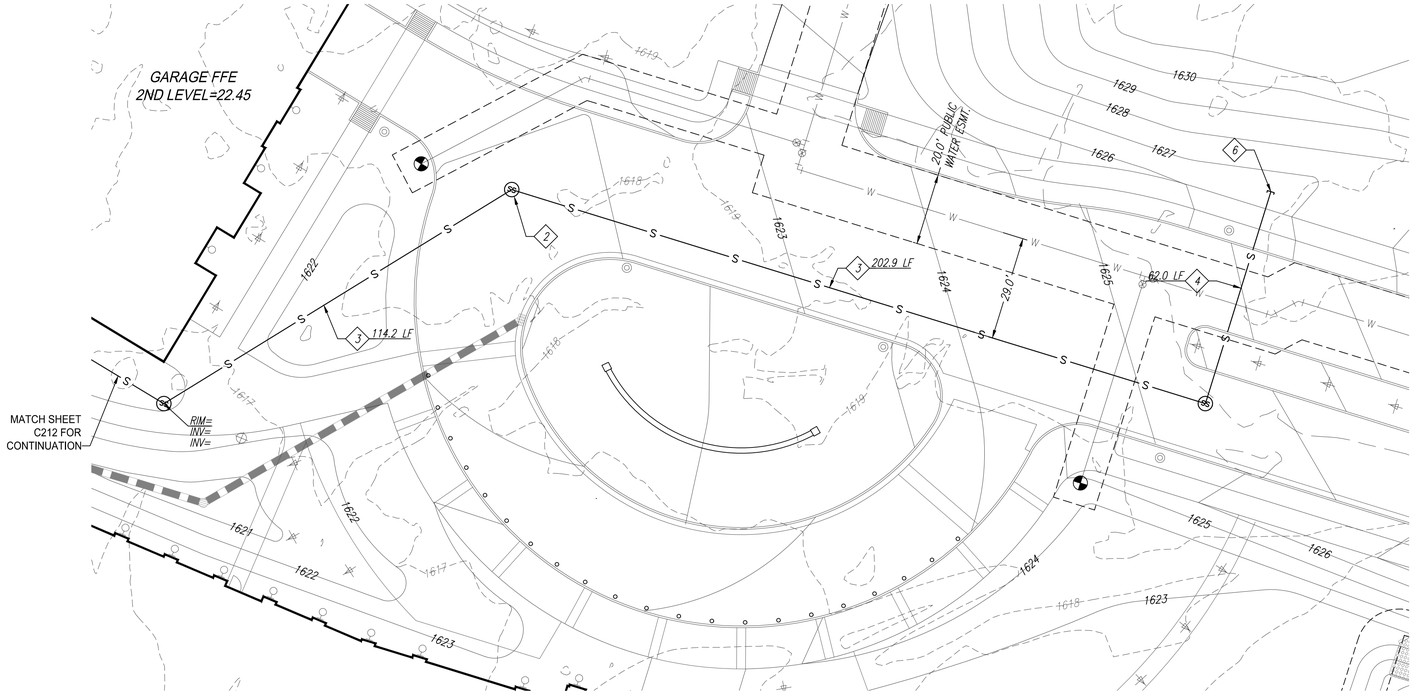
Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

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C212

PRIVATE SANITARY SEWER NOTES:

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6. STUB AND PLUG FOR BUILDING CONNECTION. (INVERT AS NOTED)



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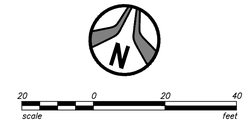
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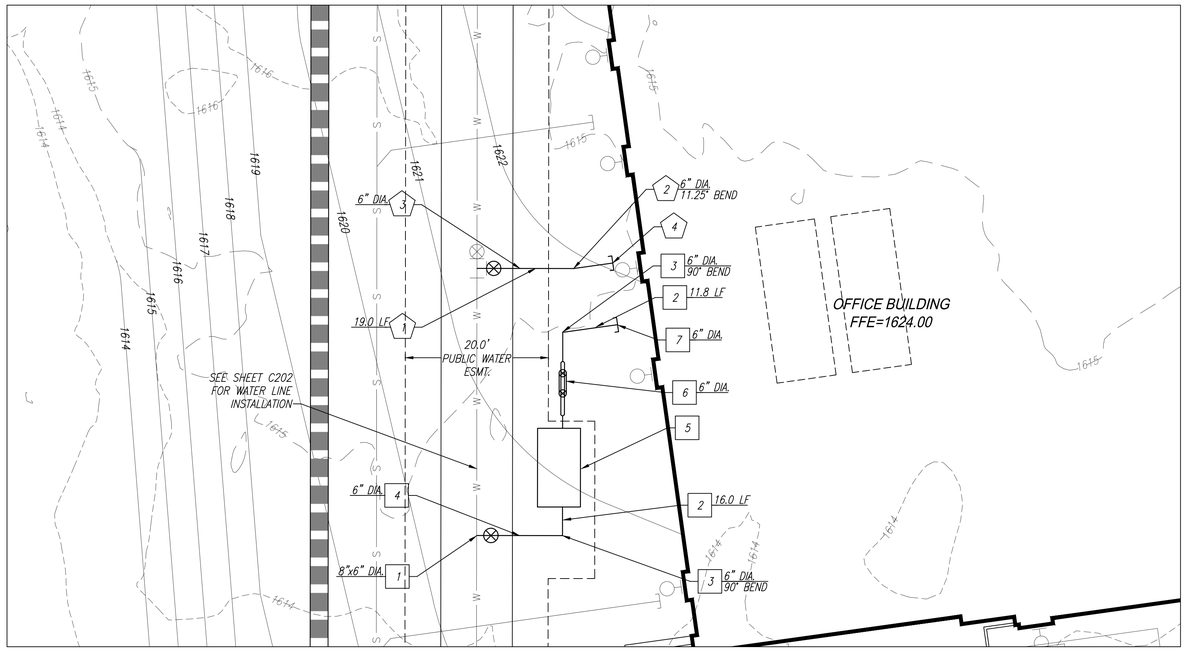
Date of First Issue:

Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

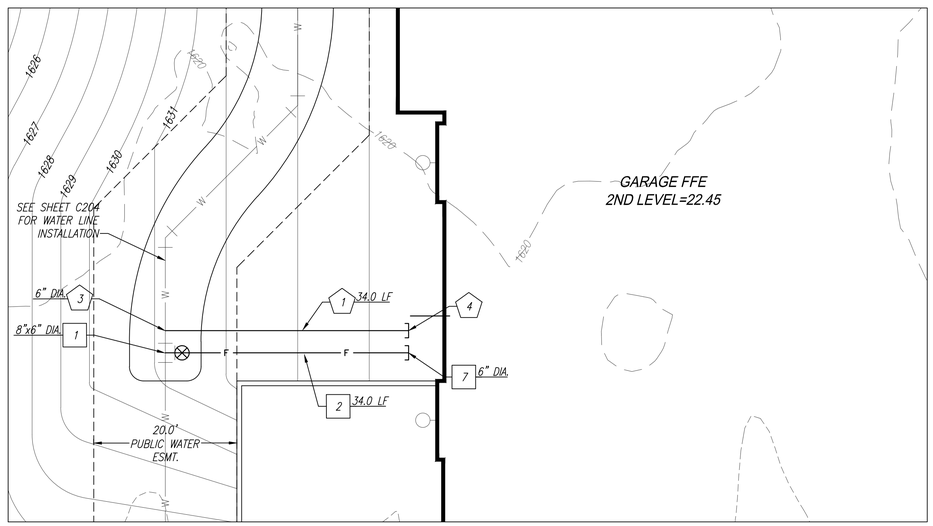
Sheet Number
C213





OFFICE BUILDING WATER CONNECTION

scale 10 0 10 20 feet



PARKING GARAGE WATER CONNECTION

scale 10 0 10 20 feet

FIRELINE NOTES:

1. INSTALL 6"ø D.I.P. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT JOINTS PER M.A.G. STD. DTL. 303-1, 303-2 WITH MIN. 3' COVER. LENGTH AS NOTED.
2. INSTALL WATERLINE BEND, D.I.P. CLASS 350 POLY-WRAPPED WITH MEGALUG SERIES 1100 MECHANICAL RESTRAINT JOINT OR APPROVED EQUAL. SIZE AND ANGLE AS NOTED.
3. INSTALL VALVE, BOX, & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C" D.I.P. CLASS 350 POLY-WRAPPED. (SIZE PER PLAN)
4. STUB AND PLUG FOR BUILDING CONNECTION. (INVERT AS NOTED)

PRIVATE WATER NOTES:

1. INSTALL TEE. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT PER M.A.G. STD. DTL. 303-; & 303-2. (SIZE PER PLAN)
2. INSTALL 6"ø D.I.P. CLASS 350 POLY-WRAPPED PER M.A.G. STD. SPEC. 610. MECHANICAL RESTRAINT JOINTS PER M.A.G. STD. DTL. 303-1, 303-2 WITH MIN. 3' COVER. LENGTH AS NOTED.
3. INSTALL WATERLINE BEND, D.I.P. CLASS 350 POLY-WRAPPED WITH MEGALUG SERIES 1100 MECHANICAL RESTRAINT JOINT OR APPROVED EQUAL. SIZE AND ANGLE AS NOTED.
4. INSTALL VALVE, BOX, & COVER PER M.A.G. STD. DTL. 391-1, TYPE "C" D.I.P. CLASS 350 POLY-WRAPPED. (SIZE PER PLAN)
5. INSTALL 6" DIA. WATER METER PER C.O.S. STD. DTL. 2345-1
6. INSTALL 6" BACKFLOW PREVENTION ASSEMBLY PER C.O.S. STD. DLT. 2352.
7. STUB AND PLUG FOR BUILDING CONNECTION. (INVERT AS NOTED)

Nationwide®

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NWC Hayden Road & Loop 101
Scottsdale, AZ 85255

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Nationwide Realty Investors

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Professional Seals



No.	Description	Date
	SCOTTSDALE DRB SUBMITTAL	03/25/2019

NOT FOR CONSTRUCTION

Date of First Issue:

Project No: 17-005

Sheet Title
PUBLIC AND PRIVATE UTILITY

Sheet Number
C214

ON-SITE GRADING AND DRAINAGE
FOR
SCOTTSDALE NATIONWIDE OFFICE BUILDING-PHASE 1
SCOTTSDALE, AZ.

A PORTION OF THE SOUTHEAST QUARTER OF SECTION 24, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA

SCOTTSDALE GENERAL NOTES

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTIONS HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHTS-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTIONS SERVICES 24 HOURS PRIOR TO THE BEGINNING CONSTRUCTION BY CALLING 480-312-5750.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 602-263-1100, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

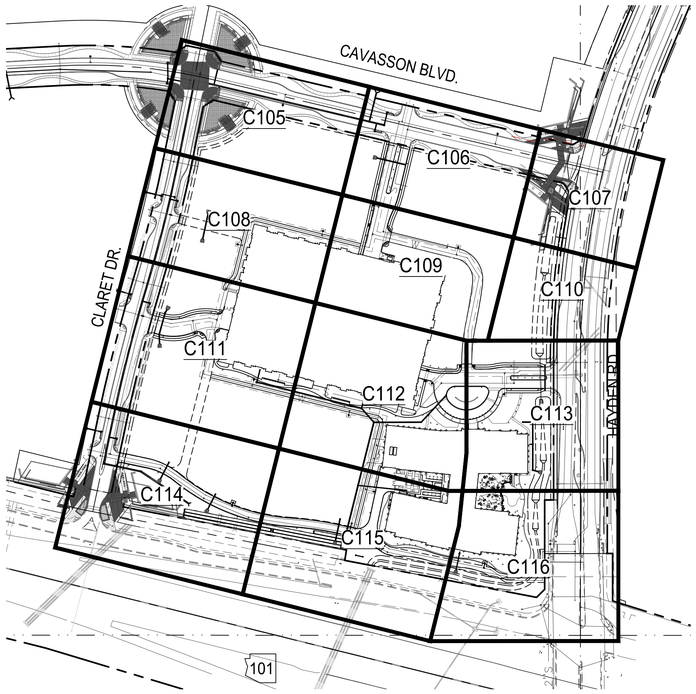
HUBBARD ENGINEERING GENERAL NOTES

1. THE PLANS PREPARED FOR THIS PROJECT PRESENT A DESCRIPTION OF THE WORK TO BE ACCOMPLISHED. THE CONTRACTOR SHALL VISIT THE PROJECT SITE AND DETERMINE, FROM HIS OWN INSPECTION, THE CONDITIONS UNDER WHICH IT IS TO BE PERFORMED. THE CONTRACTOR, BY MAKING HIS BID, REPRESENTS THAT HE HAS VISITED THE SITE AND FAMILIARIZED HIMSELF WITH LOCAL CONDITIONS, THE TYPE OF WORK TO BE PERFORMED, EVALUATED THE DIFFICULTY OF PERFORMING THE REQUIRED TASKS, AND THE LABOR, EQUIPMENT AND MATERIAL THAT ARE REQUIRED TO PROVIDE A COMPLETE PROJECT.
2. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF SAID UTILITIES IN ADVANCE OF TRENCHING. THE ENGINEER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDER-GROUND UTILITIES SHOWN ON THESE PLANS.
3. MYLAR PLAN SHEETS FOR AS-BUILTS MAY BE PURCHASED FROM HUBBARD ENGINEERING. THE COST OF THIS ITEM SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
4. ALL HANDICAP ACCESS RAMPS, PARKING STALLS, AND DELINEATED WALKWAYS SHALL BE CONSTRUCTED AND MARKED IN ACCORDANCE WITH CURRENT FEDERAL AND/OR LOCAL A.D.A. STANDARDS AND REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL AUTHORITIES PRIOR TO CONSTRUCTING AND/OR STRIPING TO CONFIRM CURRENT REQUIREMENTS. SLOPES WITHIN THE LIMITS OF HANDICAPPED PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.
5. ALL SLOPES HIGHER THAN ONE (1) FOOT AND STEEPER THAN 20:1, UNLESS LINED WITH TURF, SHALL BE COMPACTED AND TESTED PER MAG SPECIFICATION 215. WE RECOMMEND RE-COMPACTION PER MAG SPECIFICATION 215 AFTER INSTALLATION OF IRRIGATION LINES, AND WE RECOMMEND STABILIZATION OF DECOMPOSED GRANITE.
6. UNLESS SPECIALLY NOTED OTHERWISE, THESE PLANS SHOULD BE USED FOR HORIZONTAL AND VERTICAL LAYOUT OF CIVIL ELEMENTS ONLY. (TYPICALLY WATER, FIRE, SEWER AND STORM DRAIN LINES, VALVES, FIRE HYDRANTS, MANHOLES, CATCH BASINS, HEADWALLS, DRYWELLS, ETC.). FOR ALL OTHER HORIZONTAL LAYOUT (BUILDINGS, CURBS, WALKS, ETC.) SEE ARCHITECT'S PLAN.

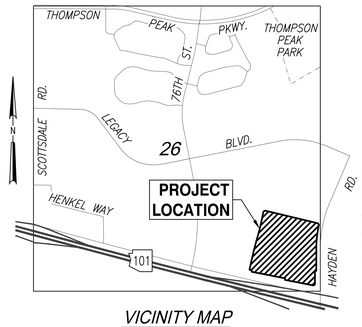
LEGEND

PROPOSED	DESCRIPTION	EXISTING
	EASEMENT LINE	
	LOT LINE	
UGT	UNDERGROUND TELEPHONE LINE	UGT
OHE	OVERHEAD ELECTRIC LINE	OHE
UGE	UNDERGROUND ELECTRIC LINE	UGE
F	FIRE LINE	F
GAS	NATURAL GAS LINE	GAS
S	SEWER LINE (FLOW DIR SHOWN)	S
	SEWER SERVICE LINE	
	STORM DRAIN	
W	WATER MAIN	W
	WATER SERVICE LINE	
	CONC CURB (AND GUTTER)	
	ASPHALT PAVEMENT	
	CONCRETE PAVEMENT	
	CONCRETE SIDEWALK	
S	SANITARY MANHOLE	S
D	STORM DRAIN MANHOLE	D
	CATCH BASIN	
	FIRE HYDRANT	
	WATER VALVE	
WM	WATER METER	WM
TC=84.35 G=83.55	SPOT ELEVATION	TC=84.74 G=83.97

TC=TOP OF CURB
G=GUTTER
P=PAVEMENT
SW=SIDEWALK
C=CONCRETE
TW=TOP OF WALL
GFW=GRADE AT FACE OF WALL
TRW=TOP OF RETAINING WALL



KEY MAP



VICINITY MAP
NTS

OWNER
NWGH, LLC
7377 E. DOUBLETREE RANCH ROAD #100
SCOTTSDALE, AZ. 85258
PHONE: (614) 857-2332
FAX: (614) 857-2346
CONTACT: DONALD MONTGOMERY

ARCHITECT
THE COLUMBUS ARCHITECTURAL STUDIO
405 N. FRONT STREET
COLUMBUS, OH. 43215
PHONE: (614) 370-7413
CONTACT: DANIAL HANES

CIVIL ENGINEER
HUBBARD ENGINEERING
1201 S. ALMA SCHOOL RD. SUITE #12000
MESA, AZ 85210
PHONE: (480) 892-3313
CONTACT: BRENT STEFFENHAGEN, PE

SURVEY
HUBBARD ENGINEERING
1201 S. ALMA SCHOOL RD. SUITE #12000
MESA, AZ 85210
PHONE: (480) 892-3313
FAX: (480) 892-7051
CONTACT: ADRIAN BURCHAM, PLS

BENCHMARK
THE EAST QUARTER CORNER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING A GLO BRASS CAP, ELEVATION = 1652.20' (NAVD88), PER THE HAYDEN ROAD SEGMENT 2 PLANS, PROJECT # S0202.

BASIS OF BEARING
THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA
MEASURED BEARING IS SOUTH 89° 58' 34" EAST

SHEET INDEX

01	C101	COVER SHEET
02-03	C102-C103	DETAILS & QUANTITIES SHEET
04	C104	SECTIONS
05-16	C105-C116	GRADING AND DRAINAGE PLAN SHEETS

N

200 0 200 400
scale feet

Plan # _____
Case # 6-DR-2019
Q-S # _____
☒ Accepted
☐ Corrections
N.Baronas 5/13/19
Reviewed By Date

WATER APPROVAL:
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT. DATE

SEWER APPROVAL:
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT. DATE

ENGINEER'S STATEMENT
THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

REGISTERED CIVIL ENGINEER DATE

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED CIVIL ENGINEER DATE

REGISTRATION NUMBER

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL NUMBER (PANEL DATE)	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1320 (OCT 16, 2013)	L	NOV 04, 2015	AO	1'

ZONE "AO" IS DEFINED AS "AREAS SUBJECT TO INUNDATION BY 1-PERCENT-ANNUAL-CHANCE SHALLOW FLOODING (USUALLY SHEET FLOWS ON SLOPING TERRAIN) WHERE AVERAGE DEPTHS ARE BETWEEN ONE AND THREE FEET. AVERAGE FLOOD DEPTHS DERIVED FROM DETAILED HYDRAULIC ANALYSES ARE SHOWN IN THIS ZONE. MANDATORY FLOOD INSURANCE PURCHASE REQUIREMENTS AND FLOODPLAIN MANAGEMENT STANDARDS APPLY."

CITY OF SCOTTSDALE APPROVAL
DELTA 1 REVISIONS ~ 01/27/2015

PAVING	TRAFFIC
G & D	PLANNING
W & S	FIRE
RET. WALLS	

ENGINEERING COORDINATION MGR. (OR DESIGNEE) DATE

Nationwide®

SCOTTSDALE NATIONWIDE OFFICE BUILDING

NWGH, LLC
7377 E. DOUBLETREE RANCH ROAD #100
SCOTTSDALE, AZ. 85258

THE Columbus ARCHITECTURAL STUDIO

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Civil Engineering

Landscape Architect

Structural Engineer

MEP Engineer

Technology Engineer

Food Service

BRENT R. STEFFENHAGEN
CERTIFICATE NO. 41972
Date Signed 05/13/19
ARIZONA U.S.A.
Expires 06/30/20

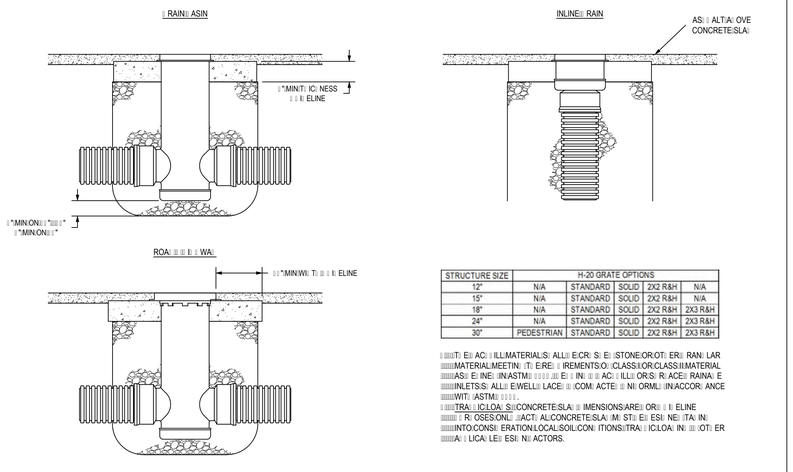
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SCOTTSDALE NATIONWIDE OFFICE BUILDING-PHASE 1

COVER SHEET

C101

AS□ □ ALT□INSTALLATION



STRUCTURE SIZE	H-20 GRATE OPTIONS				
12"	N/A	STANDARD	SOLID	2X2 R&H	N/A
15"	N/A	STANDARD	SOLID	2X2 R&H	N/A
18"	N/A	STANDARD	SOLID	2X2 R&H	2X3 R&H
24"	N/A	STANDARD	SOLID	2X2 R&H	2X3 R&H
30"	PEDESTRIAN	STANDARD	SOLID	2X2 R&H	2X3 R&H

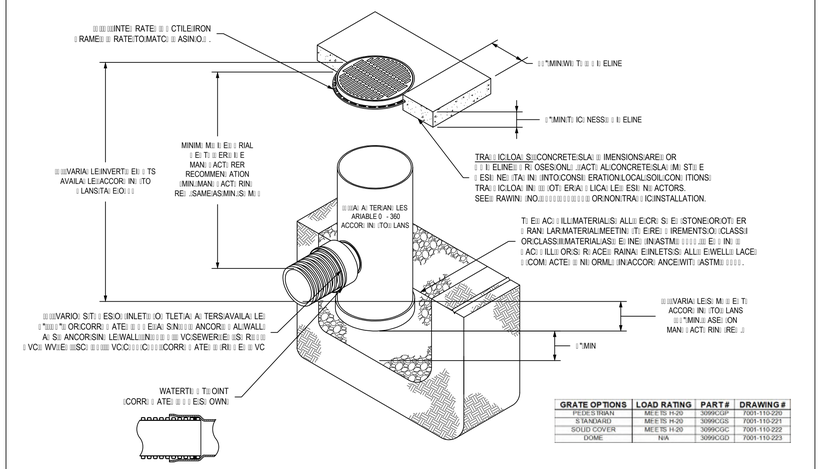
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STANDARD	MEETS H-20	3099CGS	7001-110-221
SOLID COVER	MEETS H-20	3099CGC	7001-110-222
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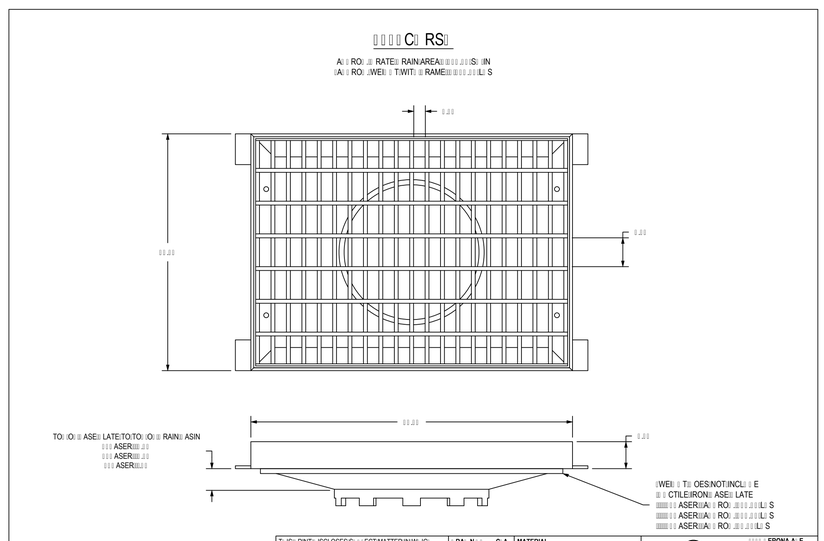
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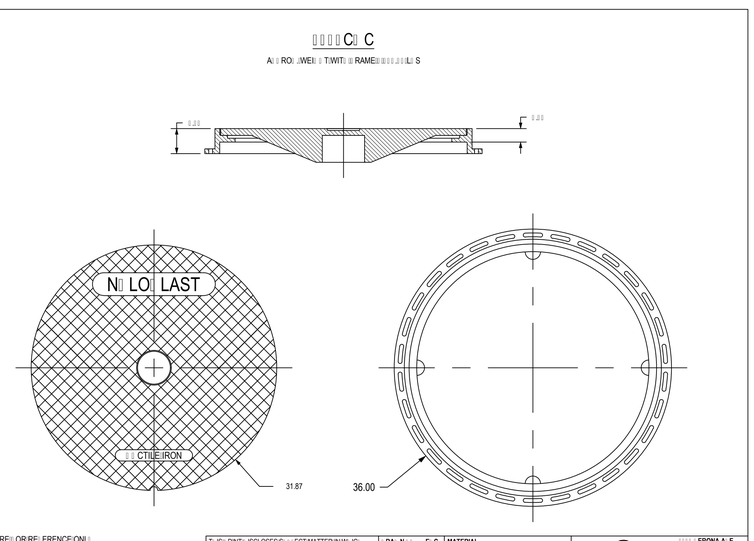
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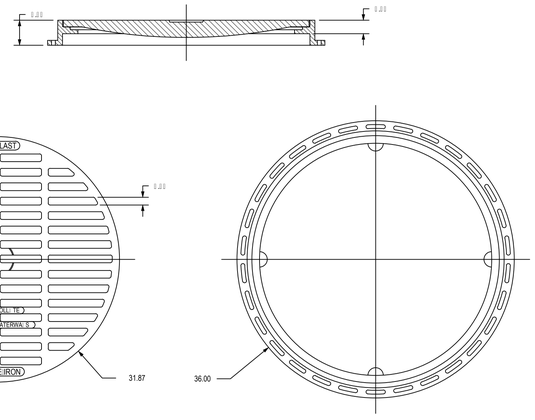
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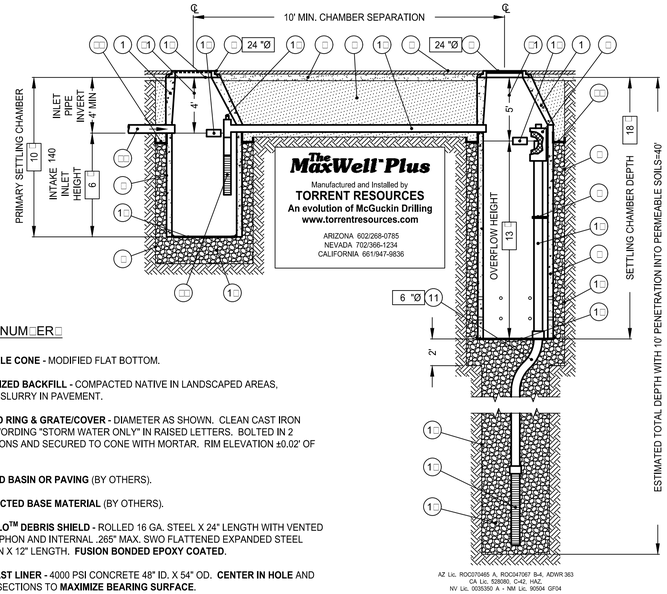


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The MaxWell™ Plus Drainage System Detail And Specifications



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CA Lic. 528080, C-42, HAZ,
NV Lic. 0035350 A + NM Lic. 90504 GF04
U.S. Patent No. 4,923,330 - ™ Trademark 1974, 1990, 2004

ITEM NUM ER

1. **MANHOLE CONE -** MODIFIED FLAT BOTTOM.
2. **STABILIZED BACKFILL -** COMPACTED NATIVE IN LANDSCAPED AREAS, 1 SACK SLURRY IN PAVEMENT.
3. **BOLTED RING & GRATE/COVER -** DIAMETER AS SHOWN. CLEAN CAST IRON WITH WORDING "STORM WATER ONLY" IN RAISED LETTERS. BOLTED IN 2 LOCATIONS AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
4. **GRADED BASIN OR PAVING** (BY OTHERS).
5. **COMPACTED BASE MATERIAL** (BY OTHERS).
6. **PUREFLO™ DEBRIS SHIELD -** ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL .265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED.**
7. **PRE-CAST LINER -** 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS TO **MAXIMIZE BEARING SURFACE.**
8. **MIN. 6' Ø DRILLED SHAFT.**
9. **SUPPORT BRACKET -** FORMED 12 GA. STEEL. **FUSION BONDED EPOXY COATED.**
10. **OVERFLOW PIPE -** SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
11. **DRAINAGE PIPE -** ADS HIGHWAY GRADE WITH TRI-A COUPLER. **SUSPEND PIPE** DURING BACKFILL OPERATIONS TO PREVENT BUCKLING OR BREAKAGE. DIAMETER AS NOTED.
12. **BASE SEAL -** GEOTEXTILE, POLY LINER OR CONCRETE SLURRY.
13. **ROCK -** CLEAN AND WASHED, SIZED BETWEEN 3/8" AND 1-1/2" TO **BEST COMPLEMENT SOIL CONDITIONS.**
14. **FLOFAST™ DRAINAGE SCREEN -** SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. DIAMETER VARIES 96" OVERALL LENGTH WITH TRI-B COUPLER.
15. **MIN. 4' Ø SHAFT -** DRILLED TO **MAINTAIN PERMEABILITY** OF DRAINAGE SOILS.
16. **FABRIC SEAL -** U.V. RESISTANT GEOTEXTILE **- TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION.
17. **ABSORBENT -** HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY.
18. **CONNECTOR PIPE -** 4" Ø SCH. 40 PVC .
19. **VENTED ANTI-SIPHON** INTAKE WITH FLOW REGULATOR.
20. **INTAKE SCREEN -** SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. 48" OVERALL LENGTH WITH TRI-C END CAP.
21. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE PRIMARY/SECONDARY SETTLING CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE CONNECTOR PIPE OVERFLOW.
22. **OPTIONAL INLET PIPE** (BY OTHERS).
23. **MOISTURE MEMBRANE -** 6 MIL. PLASTIC. PLACE SECURELY AGAINST ECCENTRIC CONE AND HOLE SIDEWALL. USED IN LIEU OF SLURRY IN LANDSCAPED AREAS.

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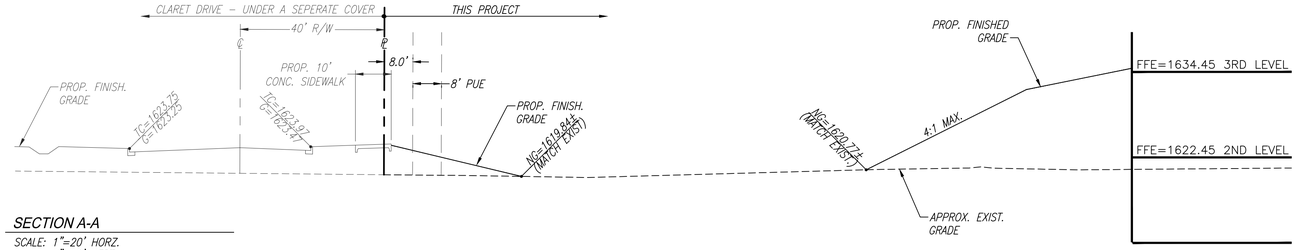
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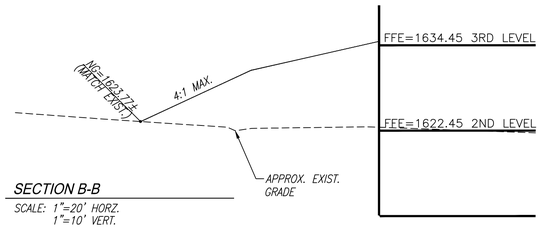
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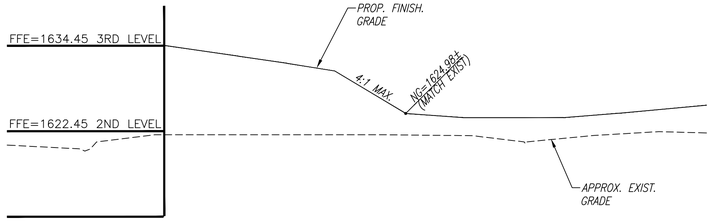
SECTION A-A

SCALE: 1"=20' HORZ.
1"=10' VERT.



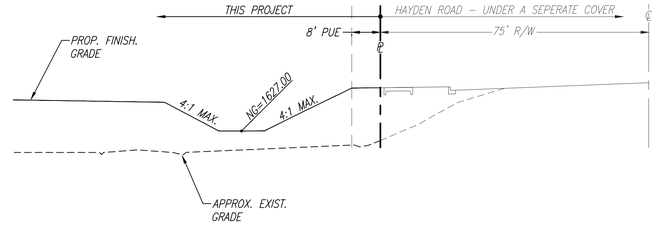
SECTION B-B

SCALE: 1"=20' HORZ.
1"=10' VERT.



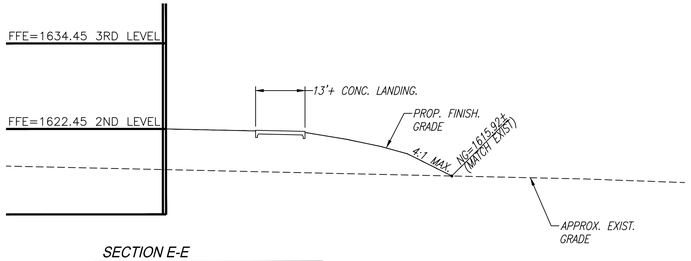
SECTION C-C

SCALE: 1"=20' HORZ.
1"=10' VERT.



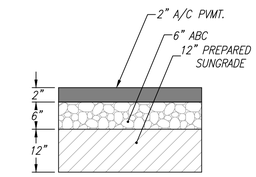
SECTION D-D

SCALE: 1"=20' HORZ.
1"=10' VERT.



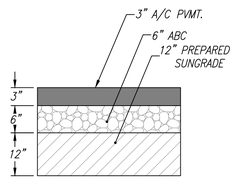
SECTION E-E

SCALE: 1"=20' HORZ.
1"=10' VERT.



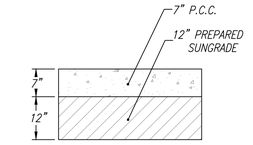
LIGHT-DUTY ASPHALT PAVEMENT

N.T.S.



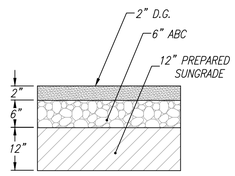
HEAVY-DUTY ASPHALT PAVEMENT

N.T.S.



CONCRETE PAVEMENT

N.T.S.



FIRE ACCESS LANE

N.T.S.

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NWC Scottsdale Riverwalk LLC

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Civil Engineering
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Landscape Architect
Stantec Scottsdale Arizona

Structural Engineer
Stantec Scottsdale Arizona

MEP Engineer
Stantec Scottsdale Arizona

Technology Engineer
Stantec Scottsdale Arizona

Food Service
Stantec Scottsdale Arizona

Stantec Scottsdale Arizona

Professional Engineer Certificate No. 41972 BRENT R. STEFFENHAGEN Date Signed 05/17/19 Arizona U.S.A.

No. Description Date

SCOTTSDALE RIVERSIDE MITTAL

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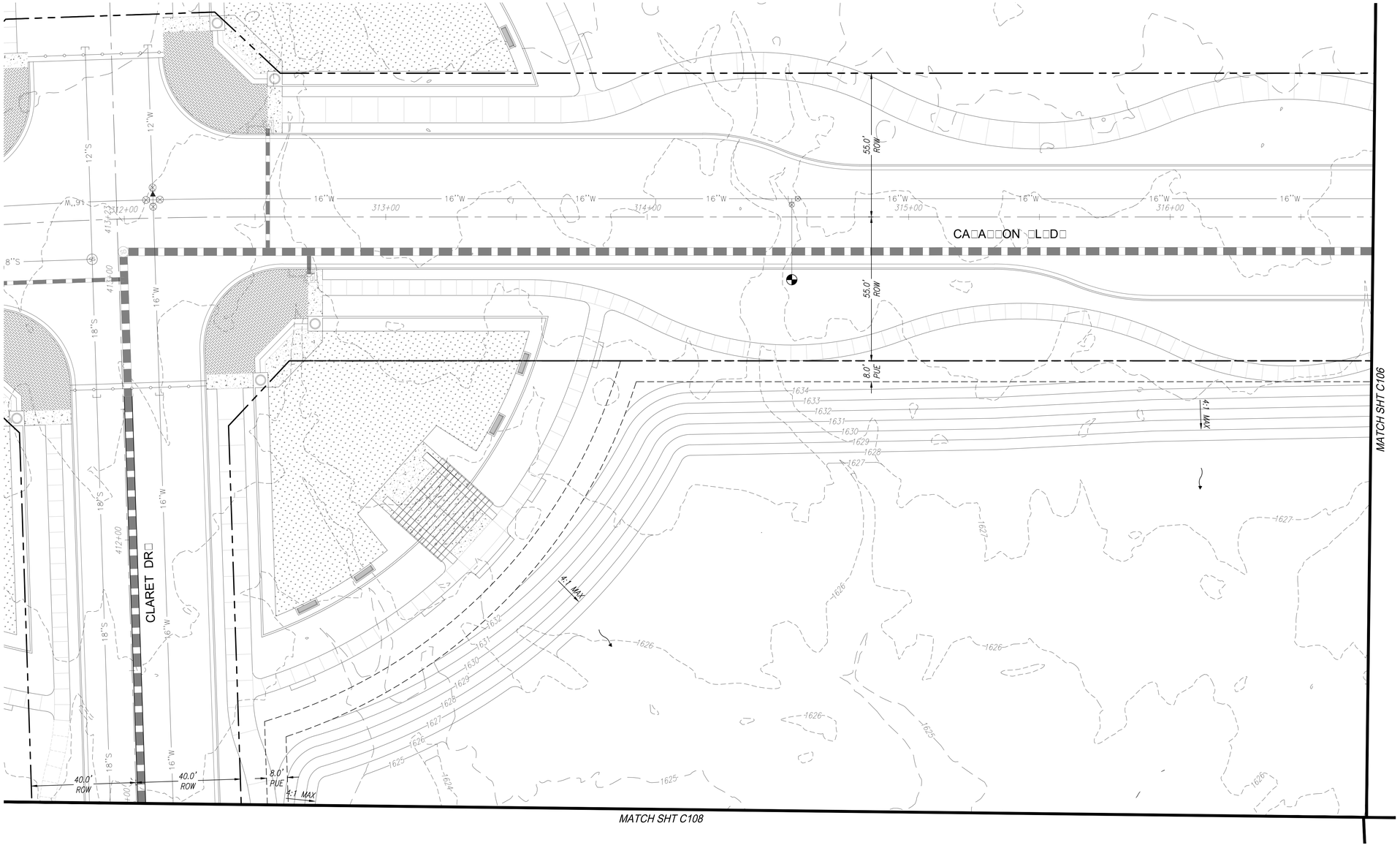
Sheet Title

SECTIONS

Sheet No.

C104

NOTE: CAVASSON ROAD AND CLARET DRIVE IMPROVEMENTS UNDER A SEPERATE PERMIT.



GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
4. CONSTRUCT CONCRETE SIDEWALK PER M.A.G. STD. DETAIL 230.
5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
6. PROPOSED CROSSWALK. REFER TO ARCHITECT PLANS FOR DETAILS.
7. PROPOSED SITE/RETAINING WALL. REFER TO ARCHITECT AND LANDSCAPE PLANS FOR DETAILS.
8. 10' WIDE HARDENED PATCH VEHICULAR ACCESS.
9. CONSTRUCT CONCRETE PAVEMENT, 7" P.C.C. OVER 12" PREPARED SUBGRADE PER DETAIL 8 ON SHETT C104
10. CONSTRUCT FIRE ACCESS LANE, 2" DG OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 9 ON SHEET C104

STORM DRAIN NOTES:

1. INSTALL 12" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
2. INSTALL 15" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
3. INSTALL 24" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
4. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 2' x 3' STEEL BAR GRATE ASSEMBLY PER DETAIL 3 ON SHEET C102. RIM AND INVERT AS NOTED.
5. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 30" STANDARD GRATE ASSEMBLY PER DETAIL 5 ON SHEET C103. RIM AND INVERT AS NOTED.
6. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 30" SOLID GRATE ASSEMBLY PER DETAIL 4 ON SHEET C102. RIM AND INVERT AS NOTED.
7. CONSTRUCT HEADWALL PER M.A.G. STD. DETAIL 501-1, TYPE 'U'. INVERT AS NOTED.
8. INSTALL MAXWELL PLUS DUAL-CHAMBER DRYWELL PER DETAIL 6 ON SHEET C103. RIM AS NOTED.
9. INSTALL 30" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
10. INSTALL RIP-RAP, D^{50}=8", DEPTH=18" PER M.A.G. SPEC. SECTION 220. GROUT IN PLACE.



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Food Service



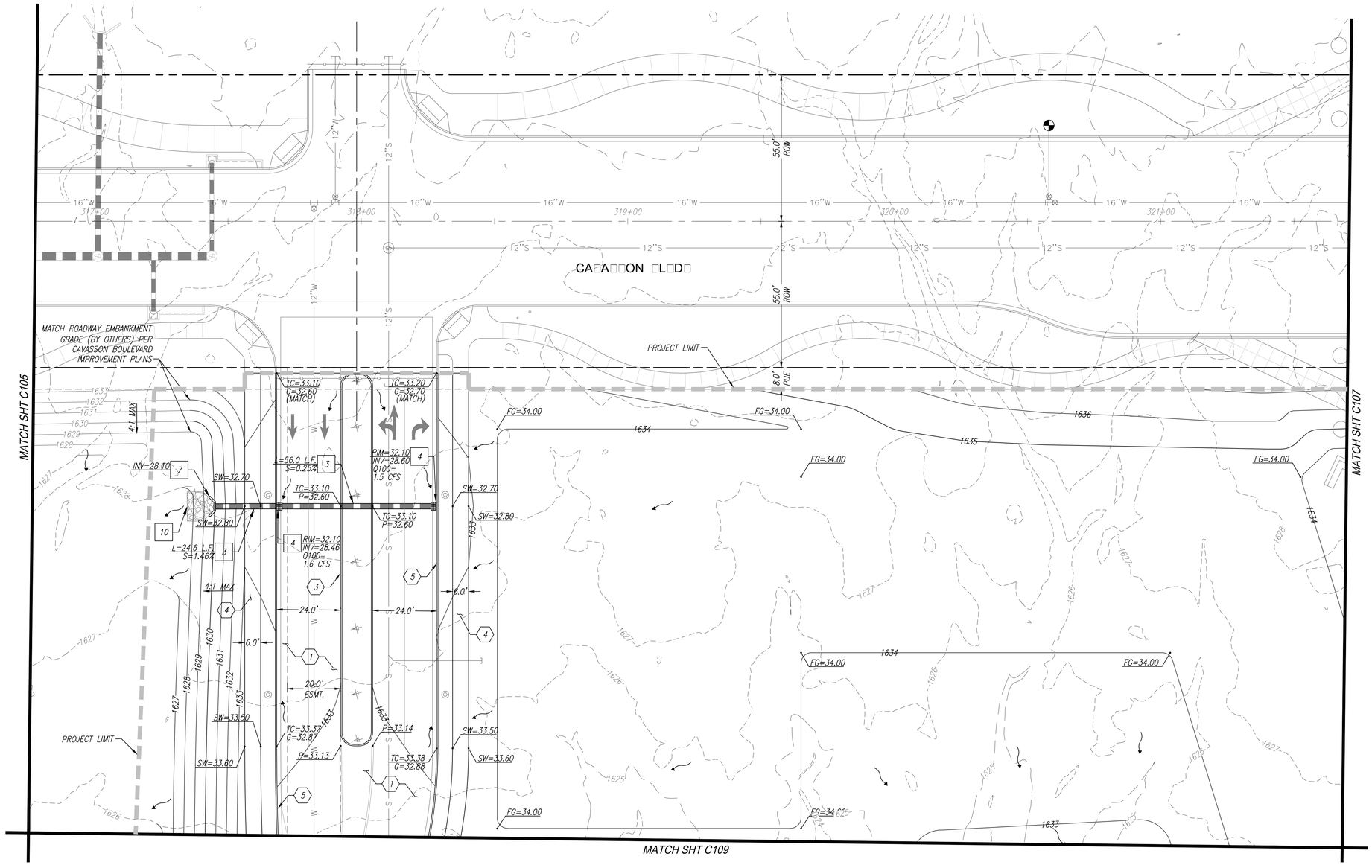
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GRADING AND DRAINAGE PLANS

C105

NOTE: CAVASSON ROAD IMPROVEMENTS UNDER A SEPERATE PERMIT.

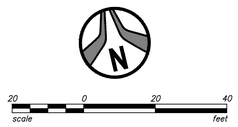


GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
4. CONSTRUCT CONCRETE SIDEWALK PER M.A.G. STD. DETAIL 230.
5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
6. PROPOSED CROSSWALK. REFER TO ARCHITECT PLANS FOR DETAILS.
7. PROPOSED SITE/RETAINING WALL. REFER TO ARCHITECT AND LANDSCAPE PLANS FOR DETAILS.
8. 10' WIDE HARDENED PATCH VEHICULAR ACCESS.
9. CONSTRUCT CONCRETE PAVEMENT, 7" P.C.C. OVER 12" PREPARED SUBGRADE PER DETAIL 8 ON SHETT C104
10. CONSTRUCT FIRE ACCESS LANE, 2" DG OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 9 ON SHEET C104

STORM DRAIN NOTES:

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3. INSTALL 24" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
4. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 2' x 3' STEEL BAR GRATE ASSEMBLY PER DETAIL 3 ON SHEET C102. RIM AND INVERT AS NOTED.
5. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 30" STANDARD GRATE ASSEMBLY PER DETAIL 5 ON SHEET C103. RIM AND INVERT AS NOTED.
6. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 30" SOLID GRATE ASSEMBLY PER DETAIL 4 ON SHEET C102. RIM AND INVERT AS NOTED.
7. CONSTRUCT HEADWALL PER M.A.G. STD. DETAIL 501-1, TYPE 'U'. INVERT AS NOTED.
8. INSTALL MAXWELL PLUS DUAL-CHAMBER DRYWELL PER DETAIL 6 ON SHEET C103. RIM AS NOTED.
9. INSTALL 30" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
10. INSTALL RIP-RAP, D^{50}=8", DEPTH=18" PER M.A.G. SPEC. SECTION 220. GROUT IN PLACE.



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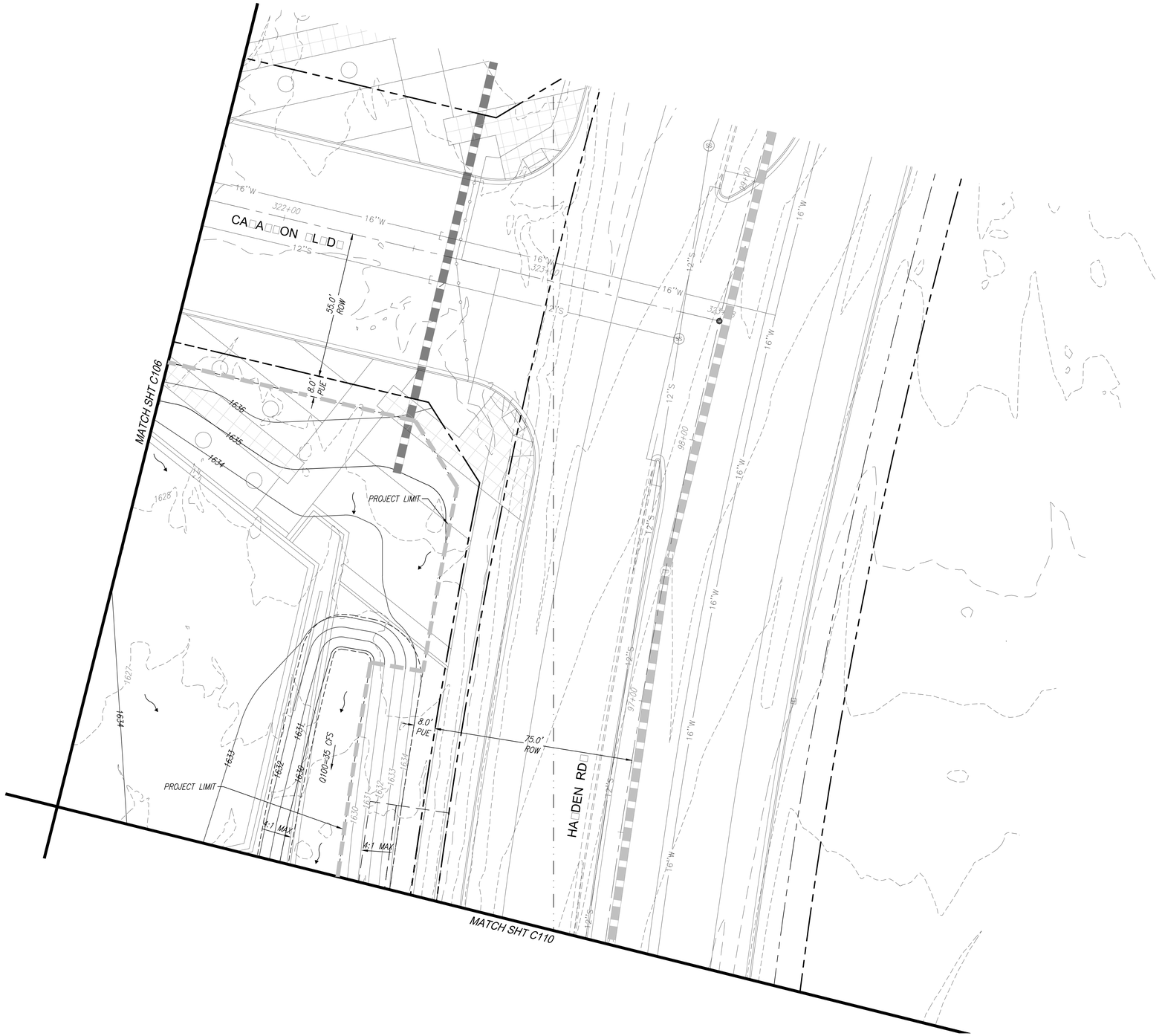
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NOTE: CAVASSON ROAD AND HAYDEN ROAD IMPROVEMENTS UNDER A SEPERATE PERMIT.





GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
4. CONSTRUCT CONCRETE SIDEWALK PER M.A.G. STD. DETAIL 230.
5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
6. PROPOSED CROSSWALK. REFER TO ARCHITECT PLANS FOR DETAILS.
7. PROPOSED SITE/RETAINING WALL. REFER TO ARCHITECT AND LANDSCAPE PLANS FOR DETAILS.
8. 10' WIDE HARDENED PATCH VEHICULAR ACCESS.
9. CONSTRUCT CONCRETE PAVEMENT, 7" P.C.C. OVER 12" PREPARED SUBGRADE PER DETAIL 8 ON SHEET C104
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3. INSTALL 24" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
4. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 2' x 3' STEEL BAR GRATE ASSEMBLY PER DETAIL 3 ON SHEET C102. RIM AND INVERT AS NOTED.
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7. CONSTRUCT HEADWALL PER M.A.G. STD. DETAIL 501-1, TYPE 'D'. INVERT AS NOTED.
8. INSTALL MAXWELL PLUS DUAL-CHAMBER DRYWELL PER DETAIL 6 ON SHEET C103. RIM AS NOTED.
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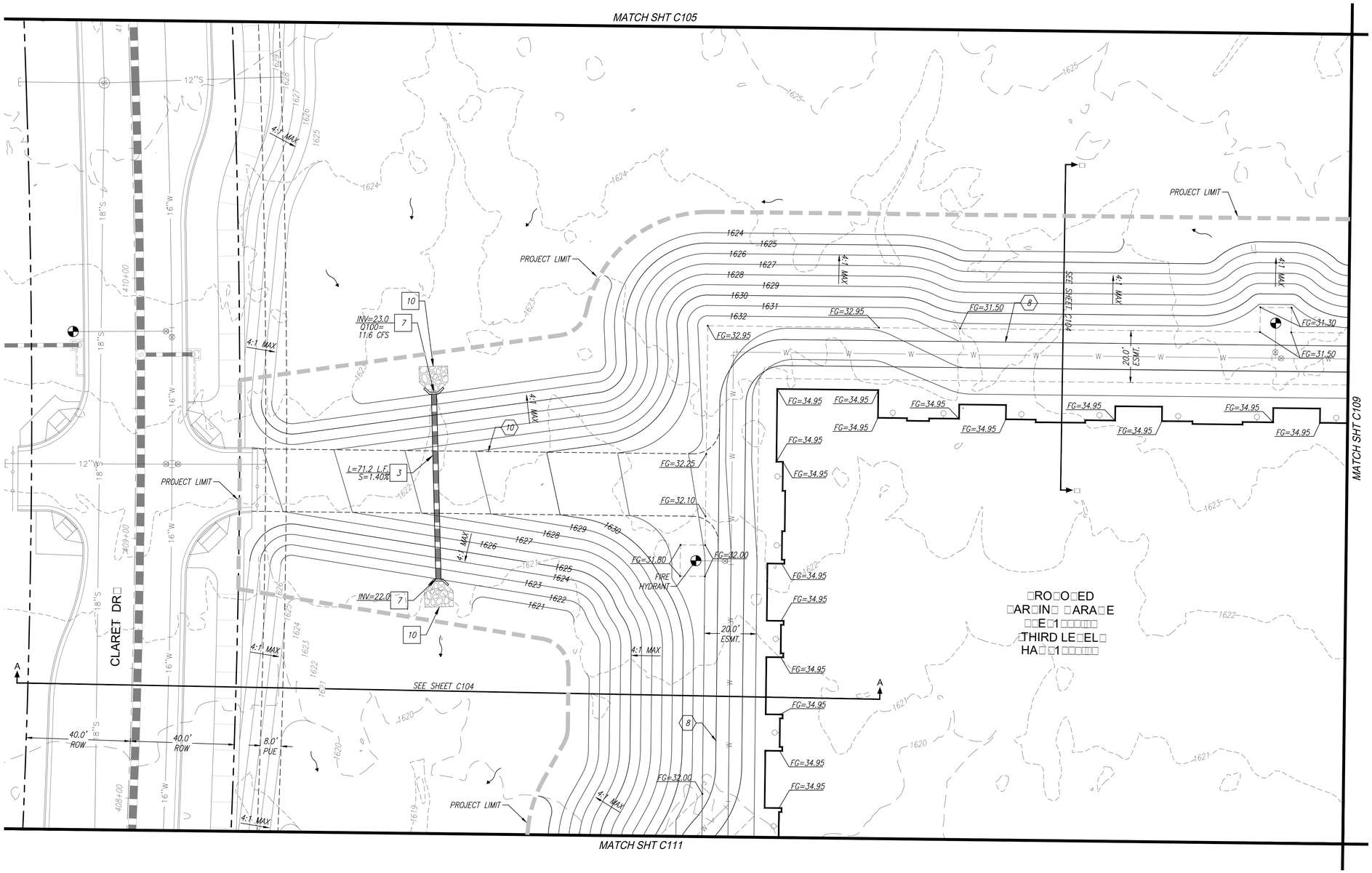
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NOTE: CLARET DRIVE IMPROVEMENTS UNDER A SEPERATE PERMIT.

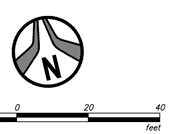


GRADING NOTES:

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7. CONSTRUCT HEADWALL PER M.A.G. STD. DETAIL 501-1, TYPE 'D'. INVERT AS NOTED.
8. INSTALL MAXWELL PLUS DUAL-CHAMBER DRYWELL PER DETAIL 6 ON SHEET C103. RIM AS NOTED.
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10. INSTALL RIP-RAP, D$_{50}$=8", DEPTH=18" PER M.A.G. SPEC. SECTION 220. GROUT IN PLACE.



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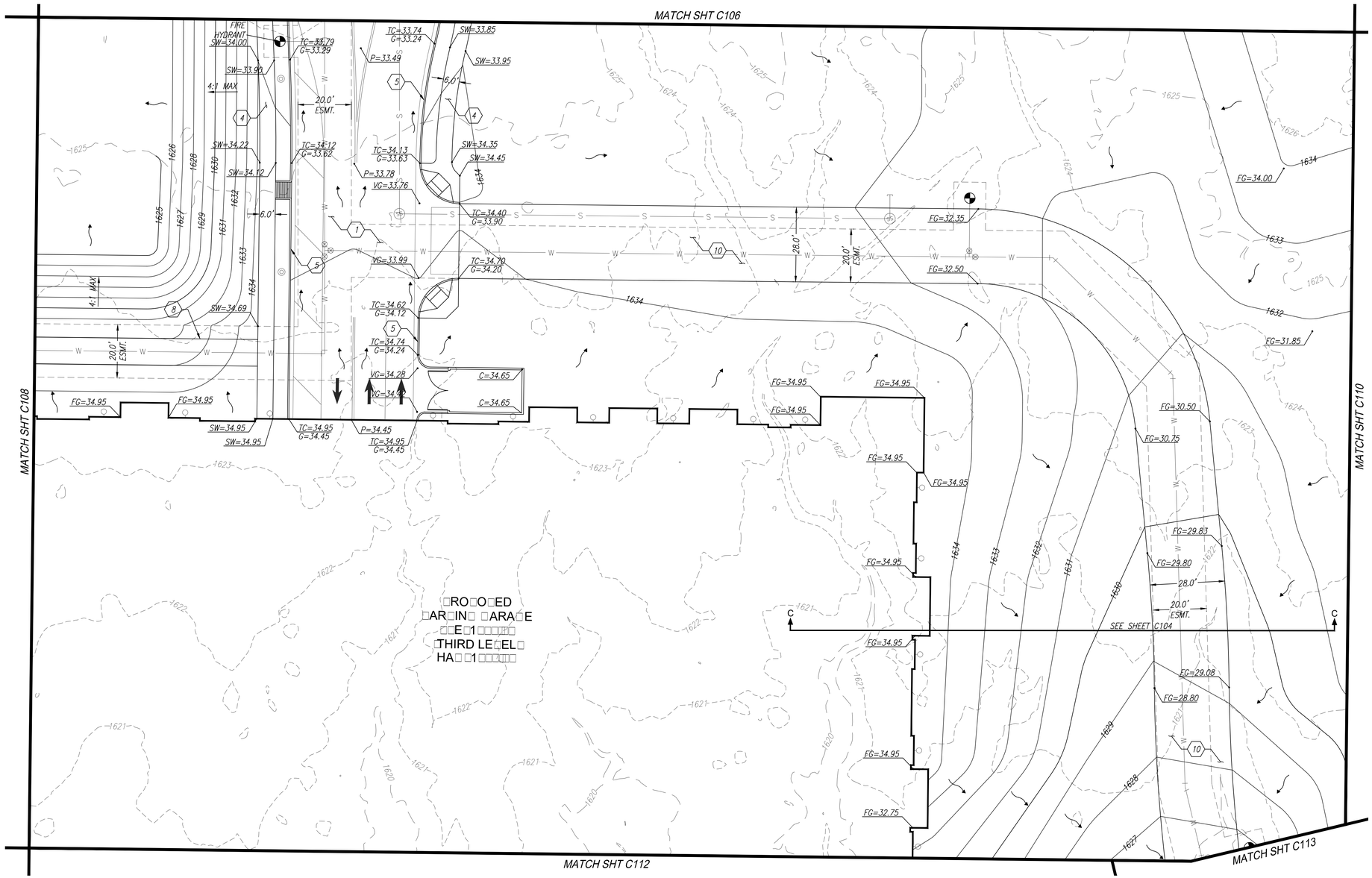
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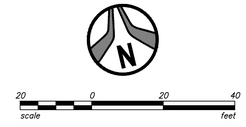


GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
4. CONSTRUCT CONCRETE SIDEWALK PER M.A.G. STD. DETAIL 230.
5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
6. PROPOSED CROSSWALK. REFER TO ARCHITECT PLANS FOR DETAILS.
7. PROPOSED SITE/RETAINING WALL. REFER TO ARCHITECT AND LANDSCAPE PLANS FOR DETAILS.
8. 10' WIDE HARDENED PATCH VEHICULAR ACCESS.
9. CONSTRUCT CONCRETE PAVEMENT, 7" P.C.C. OVER 12" PREPARED SUBGRADE PER DETAIL 8 ON SHEET C104
10. CONSTRUCT FIRE ACCESS LANE, 2" DG OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 9 ON SHEET C104

STORM DRAIN NOTES:

1. INSTALL 12" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
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4. INSTALL 30" DIAMETER NYLOPLAST DRAIN BASIN PER DETAIL 2 ON SHEET C102 WITH 2' x 3' STEEL BAR GRATE ASSEMBLY PER DETAIL 3 ON SHEET C102. RIM AND INVERT AS NOTED.
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7. CONSTRUCT HEADWALL PER M.A.G. STD. DETAIL 501-1, TYPE 'D'. INVERT AS NOTED.
8. INSTALL MAXWELL PLUS DUAL-CHAMBER DRYWELL PER DETAIL 6 ON SHEET C103. RIM AS NOTED.
9. INSTALL 30" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
10. INSTALL RIP-RAP, D^{50}=8", DEPTH=18" PER M.A.G. SPEC. SECTION 220. GROUT IN PLACE.



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Civil Engineering

Landscape Architect

Structural Engineer

MEP Engineer

Technology Engineer

Food Service

41972 BRENT R. STEFFENHAGEN — Date Signed 09/25/20 — ARIZONA U.S.A. — Expires 06/30/2020

NO. — DESCRIPTION — DATE

SCOTTSDALE PRELIMINARY SUBMITTAL

NOT FOR CONSTRUCTION

SHEET TITLE

GRADING AND DRAINAGE PLANS

SHEET NUMBER

C109

NOTE: HAYDEN ROAD IMPROVEMENTS UNDER A SEPERATE PERMIT.

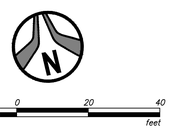


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NWC Hayden Rd & Loop 101
Scottsdale, Arizona

Prepared for:
Nationwide Realty Investors

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Prepared by:
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2141 E. Highland Ave., Suite 250
Phoenix, AZ 85016
602-957-1155

Professional Engineer Certificate No. 41972 BRENT R. STEFFENHAGEN Date Signed 05/31/19 Arizona U.S.A. Expires 06-30-20

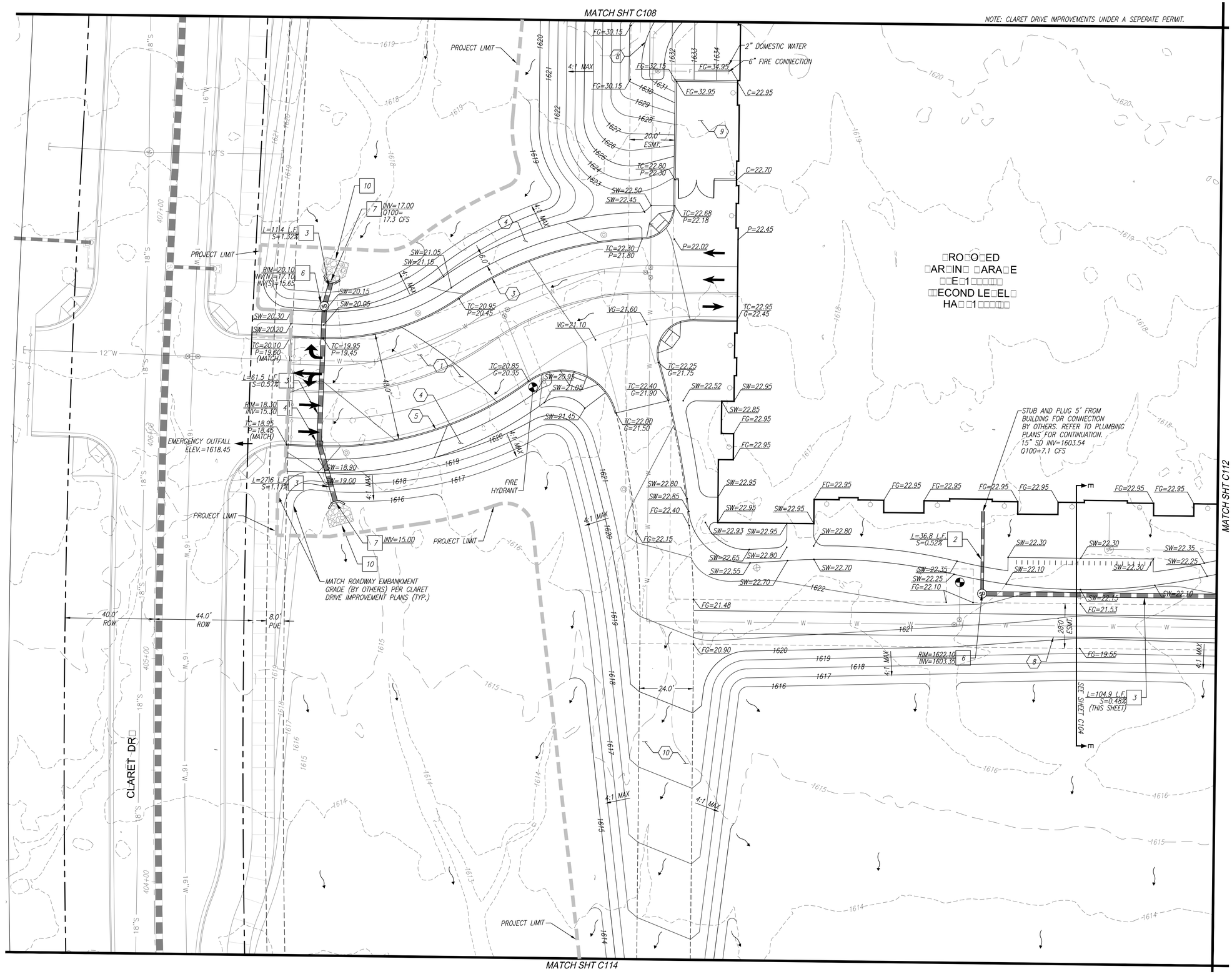
No. | REVISION | DATE

SCOTTSDALE RESUBMITTAL | 05/31/19

NOT FOR CONSTRUCTION

Sheet Title:
GRADING AND DRAINAGE PLANS

Sheet No.:
C110



GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
4. CONSTRUCT CONCRETE SIDEWALK PER M.A.G. STD. DETAIL 230.
5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
6. PROPOSED CROSSWALK. REFER TO ARCHITECT PLANS FOR DETAILS.
7. PROPOSED SITE/RETAINING WALL. REFER TO ARCHITECT AND LANDSCAPE PLANS FOR DETAILS.
8. 10' WIDE HARDENED PATCH VEHICULAR ACCESS.
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10. CONSTRUCT FIRE ACCESS LANE, 2" DG OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 9 ON SHEET C104

STORM DRAIN NOTES:

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7. CONSTRUCT HEADWALL PER M.A.G. STD. DETAIL 501-1, TYPE 'U'. INVERT AS NOTED.
8. INSTALL MAXWELL PLUS DUAL-CHAMBER DRYWELL PER DETAIL 6 ON SHEET C103. RIM AS NOTED.
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10. INSTALL RIP-RAP, D^{50}=8", DEPTH=18" PER M.A.G. SPEC. SECTION 220. GROUT IN PLACE.

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Nationwide Realty Investors

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Landscape Architect

Structural Engineer

MEP Engineer

Technology Engineer

Food Service

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Technology Engineer

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NO. DESCRIPTION DATE

SCOTTSDALE REVISED MITTAL 05/01/2019

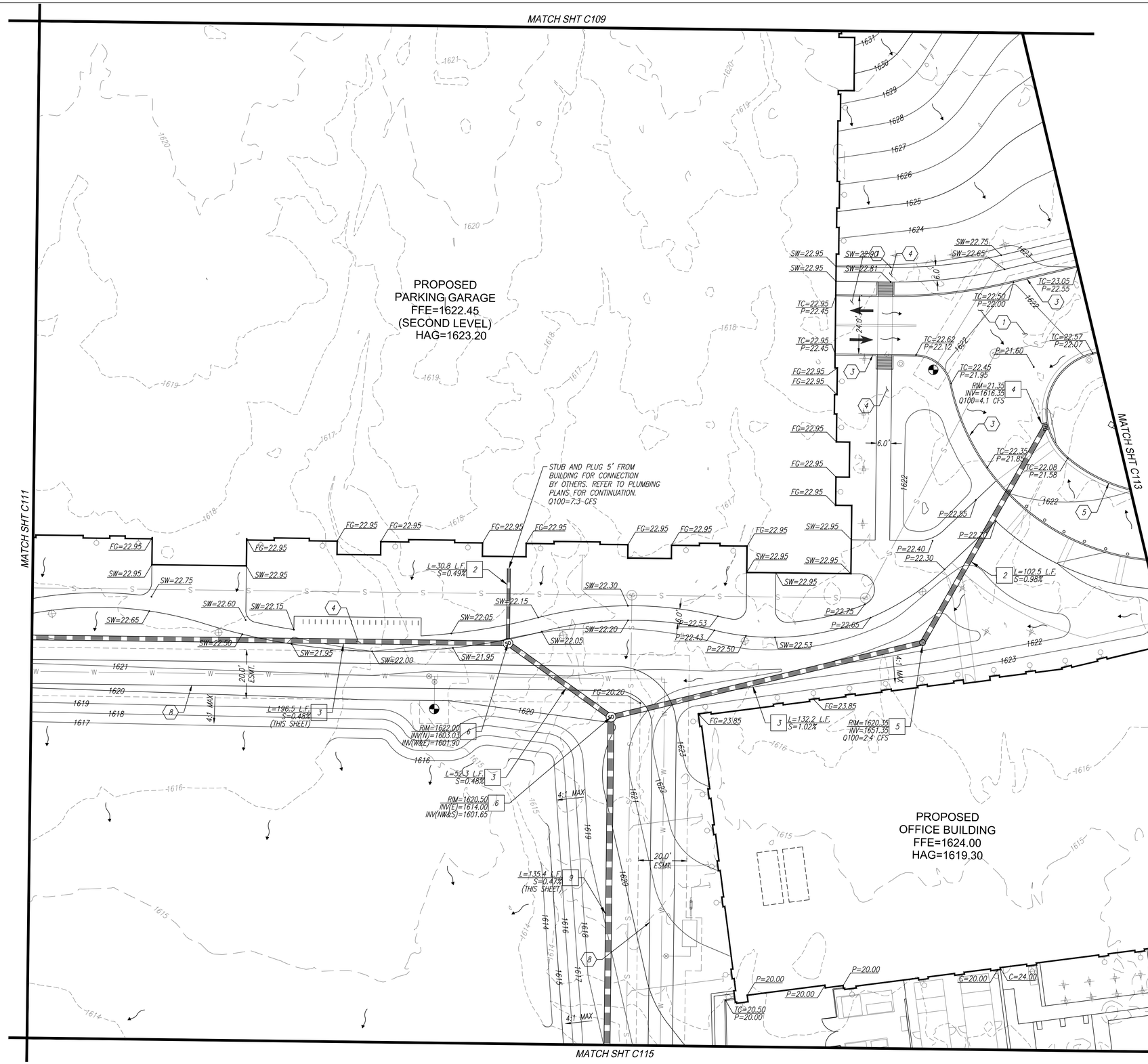
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SHEET TITLE

GRADING AND DRAINAGE PLANS

SHEET NO.

C111



GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
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5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
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Civil Engineering

Landscape Architect

MEP Engineer

Structural Engineer

Technology Engineer

Food Service

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO. 41972
BRENT R. STEFFENHAGEN
Date Signed 09/13/19
ARIZONA U.S.A.

SCOTTSDALE RESUBMITTAL

NOT FOR CONSTRUCTION

GRADING AND DRAINAGE PLANS

C112

MATCH SHT C109

MATCH SHT C110

NOTE: HAYDEN ROAD IMPROVEMENTS UNDER A SEPERATE PERMIT.

MATCH SHT C112

MATCH SHT C116

HA□DEN RD□

PROJECT LIMIT

PROJECT LIMIT

PROJECT LIMIT

20.0' ESMT.

28.0'

26.0' ESMT.

48.0'

27.0'

11.5'

24.0'

24.0'

24.0'

6.0'

6.0'

4:1 MAX

4:1 MAX

4:1 MAX

4:1 MAX

4:1 MAX

4:1 MAX

8.0' PUE

75.0' ROW

12"S

16"W

95+00

92+00

91+00

FG=30.64

FG=31.85

TC=24.25 P=23.75

TC=23.70 P=23.20

SW=25.05

SW=24.95

SW=25.65

SW=25.55

SW=26.50

SW=26.40

SW=29.00

SW=28.90

SW=29.60

TC=23.55 P=23.05

TC=24.40 P=23.90

TC=24.85 P=24.35

TC=25.45 P=24.95

TC=26.05 P=25.55

P=25.93

P=25.35

TC=29.50 P=29.00 (MATCH)

TC=27.35 P=26.85 (MATCH)

TC=23.05 P=22.55

TC=24.05 P=23.55

VC=24.40

TC=25.15 P=24.65

TC=24.78 P=24.28

TC=24.10 P=23.60

SW=25.35

SW=25.45

SW=24.83

SW=26.93

SW=27.03

FG=22.65

TC=23.00 P=22.50

TC=23.55 P=23.05

SW=23.75

SW=23.85

SW=24.00

SW=24.00

FG=23.85

FG=23.85

FG=23.85

FG=23.85

FG=23.85

FG=21.60

RIM=21.30 INV=18.30 Q100=2.6 CFS

RIM=22.10 INV=18.15

FG=22.35

Q100=35 CFS

L=28.2 L.F. S=0.53%

L=62.2 L.F. S=0.40%

STUB AND PLUG 5' FROM BUILDING FOR CONNECTION BY OTHERS. REFER TO PLUMBING PLANS FOR CONTINUATION. Q100=3.0 CFS

L=9.0 L.F. S=1.11%

RIM=22.00 INV=17.90

L=71.9 L.F. S=0.56%

FG=20.30

FG=22.50

RIM=20.50 INV=17.50

L=17.1 L.F. S=0.58%

INV=17.40

FG=21.25

FG=19.50

FG=19.08

C=24.00

C=24.00

C=24.00

FG=22.50

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1623 1624 1625 1626 1627 1628 1629 1630 1631 1622 1621 1620 1619 1618 1617 1616

GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
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scale feet

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THE Columbus ARCHITECTURAL STUDIO

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Civil Engineering
□□□□S.A□ □S□□□□R□ d S□ □□□□□□M□ □□A□ □□□□□ □□□□□□□□□□□□

Landscape Architect
□E□W□ d□ A□ S□ □□□□□□□□□□□□A□ □□□□□ □□□□□□□□□□□□

Structural Engineer
□WR□ S□ d□ □□ S□ □□□□□T□ □□A□ □□□□□ □□□□□□□□□□□□

MEP Engineer
□□□W□ □□Rd□□ □□□□O□ □□□□□ □□□□□□□□□□□□

Technology Engineer
□□□N□ □□□□□IA□□□□□ □□□□□□□□□□□□

Food Service
□□□□□□□□□O□ □□ □□Rd□O□ □□□□□ON L□ □O□ □ □□□□□□□□□□□□

N□. □ □□□□ □□□□ □ □□□

SCOTTS□ ALE□ R□ S□ □ MITTAL □□□□□□□□

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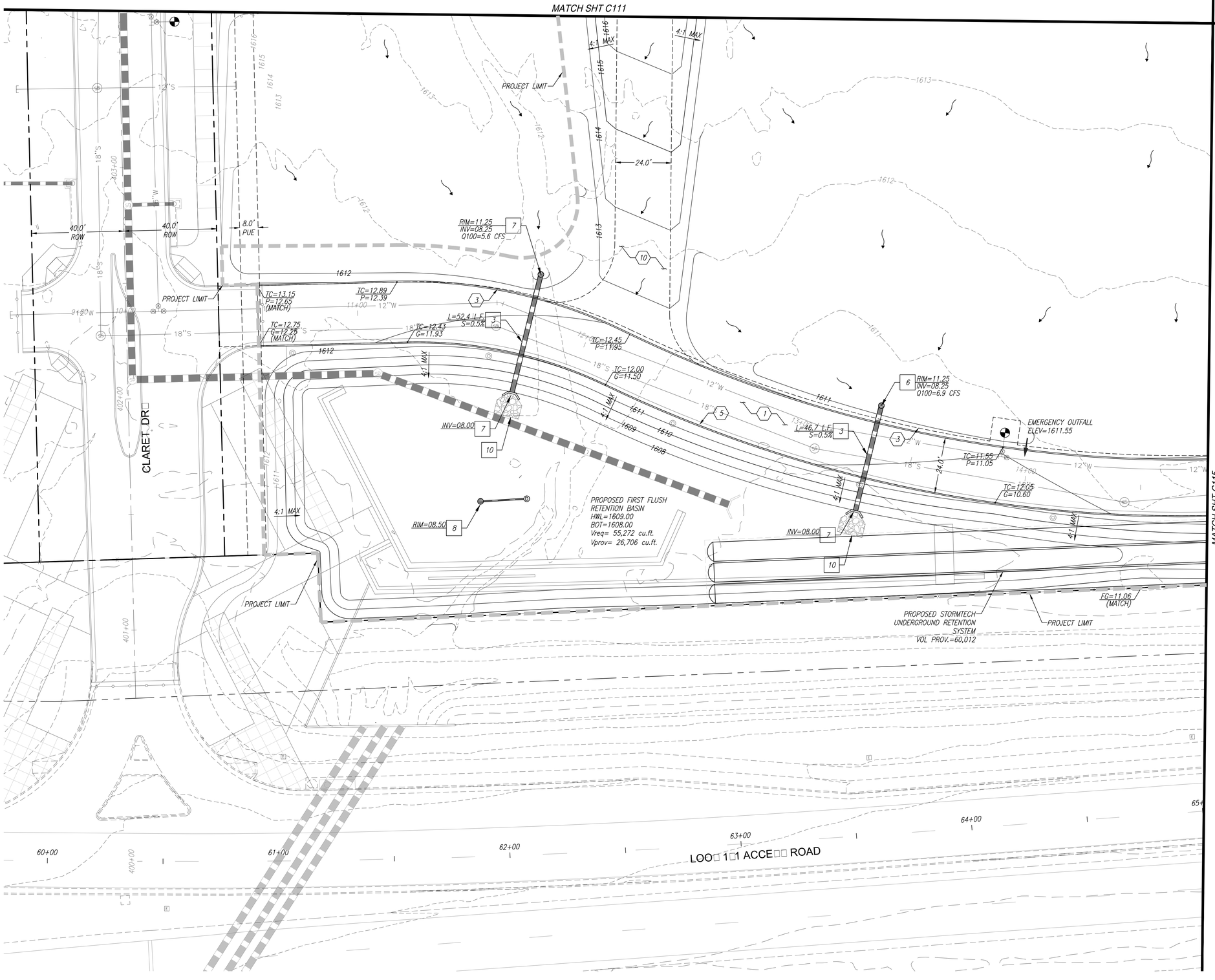
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GRADING AND DRAINAGE PLANS

S□□□□N□ □□ r

C113

NOTE: CLARET DRIVE IMPROVEMENTS UNDER A SEPERATE PERMIT.



GRADING NOTES:

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STORM DRAIN NOTES:

1. INSTALL 12" DIAMETER HDPE STORM DRAIN PIPE PER M.A.G. SPEC. SECTION 618. LENGTH AND SLOPE AS NOTED.
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Civil Engineer:
The Columbus Architectural Studio

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Structural Engineer
MEP Engineer
Technology Engineer
Food Service

Professional Engineer
Certificate No.
21972
BRENT R.
STEFFENHAGEN
Date Signed 05/31/19
ARIZONA U.S.A.
Expires 09/30/20

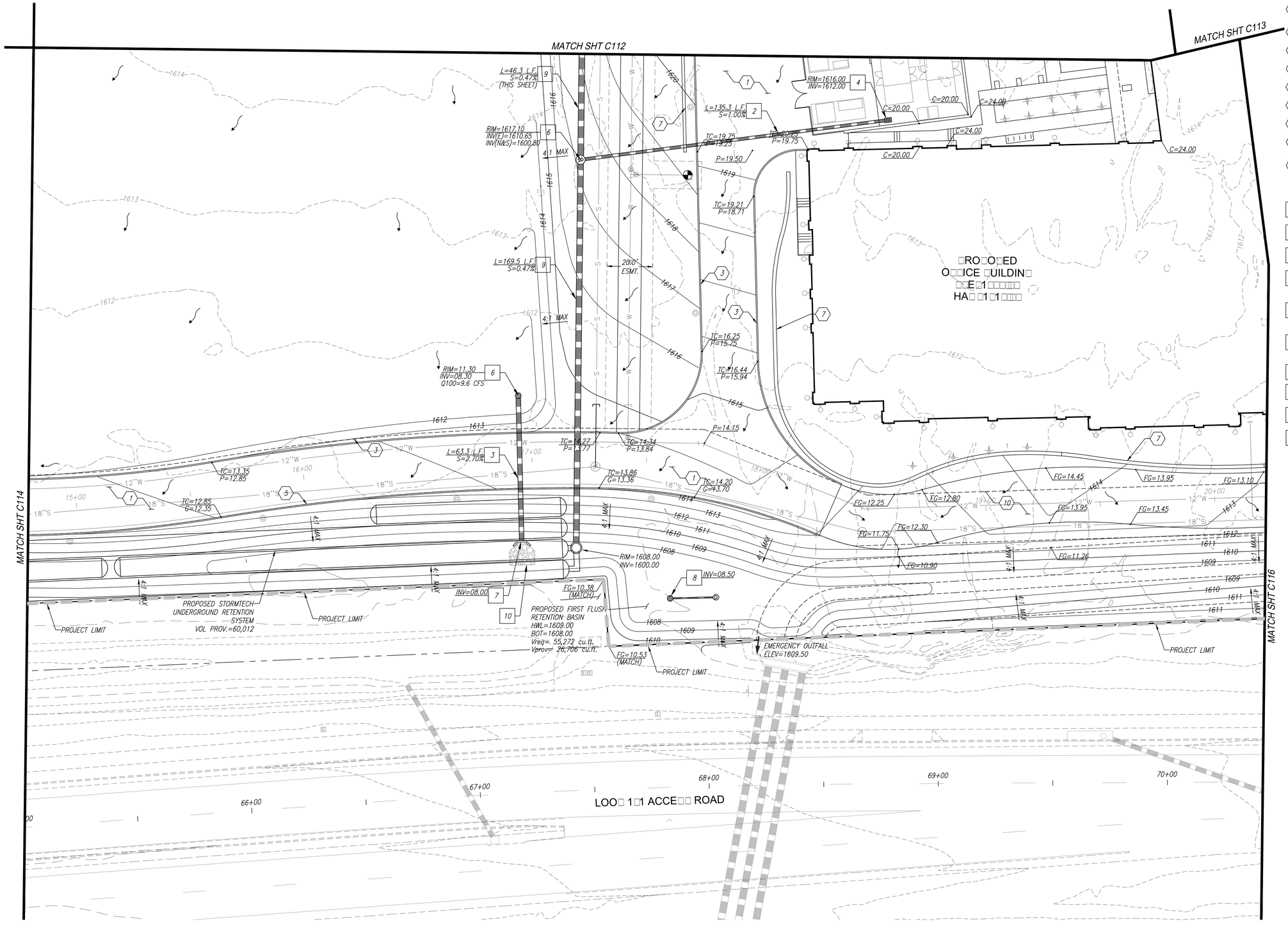
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NOT FOR CONSTRUCTION

Project No.

Sheet Title:
GRADING AND DRAINAGE PLANS

Sheet No.:
C114



GRADING NOTES:

1. CONSTRUCT HEAVY-DUTY ASPHALT PAVEMENT, 3" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
2. CONSTRUCT LIGHT-DUTY ASPHALT PAVEMENT, 2" AC OVER 6" ABC OVER 12" PREPARED SUBGRADE PER DETAIL 7 ON SHEET C104
3. INSTALL SINGLE CURB PER M.A.G. STD. DETAIL 222 TYPE 'A'.
4. CONSTRUCT CONCRETE SIDEWALK PER M.A.G. STD. DETAIL 230.
5. INSTALL CURB AND GUTTER PER M.A.G. STD. DETAIL 220-1 TYPE 'A'.
6. PROPOSED CROSSWALK. REFER TO ARCHITECT PLANS FOR DETAILS.
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Civil Engineering

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MEP Engineer
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Columbus, Ohio

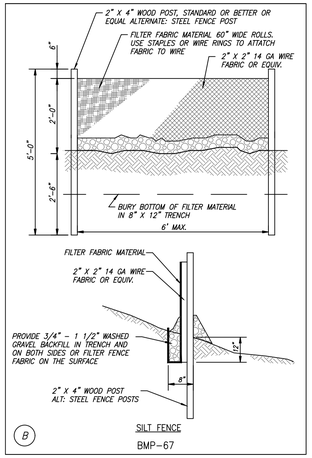
Professional Engineer
Certificate No. 31972
Brent R. Steffenhagen
Date Signed 05/15/19
Arizona U.S.A.
03-308

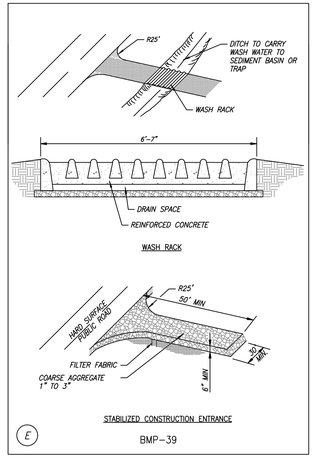
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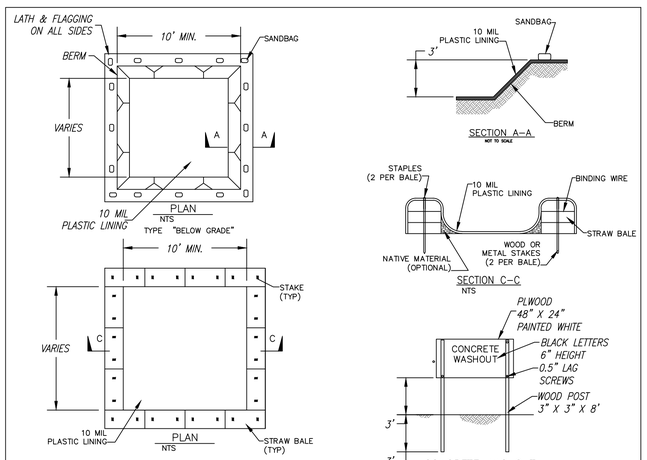
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Project No. 2018-0XX
Sheet Title
GRADING AND DRAINAGE PLANS

Sheet No.
C116







NOTES:
1. *ACTUAL LAYOUT DETERMINED IN FIELD.*
2. *THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.*

DEFINITION
A TEMPORARY PIT OR BERMED AREA FOR WASHOUT OF CONCRETE TRUCKS, TOOLS, MORTAR MIXERS, ETC.

PURPOSE
IMPROPER WASHOUT OF CONCRETE TRUCKS, TOOLS, ETC. MAY ALLOW FRESH CONCRETE OR CEMENT LADEN MORTAR TO ENTER A STORM DRAINAGE SYSTEM.

APPROPRIATE APPLICATIONS
EFFECTIVE WHEN VEHICLES, TOOLS, AND MIXERS CAN BE MOVED TO THE PIT LOCATION.
WHERE THIS IS NOT PRACTICAL, TEMPORARY PONDS MAY BE CONSTRUCTED TO ALLOW FOR SETTLING AND HARDENING OF CEMENT AND AGGREGATES. WASHOUT AREA/PITS ARE APPROPRIATE FOR MINOR AMOUNTS OF WASH WATER WHICH RESULT FROM CLEANING OF AGGREGATE MATERIALS OR CONCRETE TRUCKS, TOOLS, ETC.

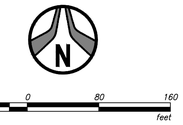
PLANNING CONSIDERATIONS
1. WASH OUT INTO A SLURRY PIT WHICH WILL LATER BE BACKFILLED. DO THIS ONLY WITH THE APPROVAL OF THE PROPERTY OWNER.
2. WASH OUT INTO A TEMPORARY PIT WHERE THE CONCRETE WASH CAN HARDEN, BE BROKEN UP, AND THEN PROPERLY DISPOSED OF OFF-SITE.

DESIGN & SIZING CRITERIA
1. LOCATE WASH OUT PITS AWAY FROM STORM DRAINS, OPEN DITCHES, OR STORMWATER RECEIVING WATERS.
2. DO NOT WASH OUT CONCRETE TRUCKS INTO-STORM DRAINS, SANITARY SEWERS, STREET GUTTERS, OR STORMWATER CHANNELS.

MAINTENANCE REWIREMENTS
PROPERLY DISPOSE OF HARDENED CONCRETE PRODUCTS ON A ROUTINE BASIS TO PREVENT THE BUILDUP OF WASTE MATERIALS TO AN UNMANAGEABLE SIZE AND TO MAINTAIN PERCOLATION OF WATER.

WASH DOWN AREA
BMP-106
D

INDEX MAP
NTS



SHEET INDEX

C7.1	*EROSION AND SEDIMENT COVER SHEET*
C7.2	*EROSION AND SEDIMENT PLAN SHEET*

CONSTRUCTION NOTES

- (A) *DUST SUPPRESSANT PER DUST CONTROL TABLE 5.2, AND BMP EC-7.*
- (B) *SILT FENCE PER BMP-67.*
- (C) *INSTALL 8" DIA. STRAW WATTLES FOR INLET PROTECTION.*
- (D) *DESIGNATED WASH DOWN AREA PER BMP-106.*
- (E) *STABILIZED CONSTRUCTION ENTRANCE PER BMP-35.*

LEGEND

- (B) *CONSTRUCTION NOTE REFERENCE*
- *SILT FENCE*
- *DRAINAGE FLOW ARROW*
- *STRAW WATTLES*
- W.A. *DESIGNATED WASH OUT AREA*
- *STABILIZED CONSTRUCTION ENTRANCE*

CITY OF SCOTTSDALE STORMWATER MANAGEMENT PLAN NOTES

1. *A COPY OF THE APPROVED GRADING AND DRAINAGE PLAN FOR THIS PROJECT, TOGETHER WITH A COPY OF THE NOTICE OF INTENT (NOI) AND THIS STORM WATER MANAGEMENT PLAN (SWMP), SHALL BE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW. THOSE ELEMENTS OF THE GRADING AND DRAINAGE PLAN PERTINENT TO OR REFERENCED ON THE SWMP SHALL BE CONSIDERED PART OF THE SWMP.*
2. *PLANNING AND DEVELOPMENT DEPARTMENT'S CIVIL/SITE INSPECTION GROUP SHALL BE NOTIFIED 48 HOURS BEFORE ANY ON-SITE AND/OR OFF-SITE CONSTRUCTION BEGINS.*
3. *THE OPERATOR SHALL OBTAIN A DUST CONTROL PERMIT FROM MARICOPA COUNTY HEALTH DEPARTMENT AND PERFORM MEASURES AS REQUIRED BY THE PERMIT TO PREVENT EXCESS DUST.*
4. *THE OPERATOR SHALL PERFORM, AT A MINIMUM, A VISUAL INSPECTION OF THE CONSTRUCTION SITE ONCE EVERY MONTH AND WITHIN 24 HOURS OF A RAINFALL GREATER THAN OR EQUAL TO A HALF OF AN INCH OR MORE. THE OPERATOR SHALL PREPARE A REPORT DOCUMENTING HIS/HER FINDINGS ON THE CONDITIONS OF THE SWMP CONTROLS AND NOTE ANY EROSION PROBLEM AREAS. THE OPERATOR'S REPORT IS TO BE SUBMITTED TO THE PLANNING AND DEVELOPMENT DEPARTMENT CIVIL/SITE INSPECTOR FOR REVIEW AND APPROVAL. FACILITIES SHALL BE MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED.*
5. *THE OPERATOR SHALL AMEND THIS PLAN AS NECESSARY DURING THE COURSE OF CONSTRUCTION TO RESOLVE ANY PROBLEM AREAS, WHICH BECOME EVIDENT DURING THE CONSTRUCTION AND/OR DURING RAINFALLS.*
6. *THE PERMITTEE SHALL FILE A NOTICE OF TERMINATION (N.O.T.) AFTER COMPLETION OF CONSTRUCTION AND PLACEMENT OF FINAL LANDSCAPE MATERIALS. THE N.O.T. IS TO BE SUBMITTED TO THE PLANNING AND DEVELOPMENT DEPARTMENT CIVIL/SITE INSPECTOR TO FINAL THE SWMP PERMIT.*
7. *THE PERMITTEE SHALL SAVE ALL RECORDS, INCLUDING THE N.O.I., SWMP, N.O.T., AND INSPECTION REPORTS, ON FILE FOR A MINIMUM OF THREE YEARS FROM THE DATE OF FILING THE N.O.T.*
8. *THE IMPLEMENTATION OF THESE PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED AND THE N.O.T. IS SUBMITTED TO THE PLANNING AND DEVELOPMENT DEPARTMENT CIVIL/SITE INSPECTOR.*
9. *THE FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO INSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS, AND MUST BE INSTALLED AND IN OPERATION PRIOR TO ANY GRADING OR LAND CLEARING. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.*
10. *THE CONTRACTOR'S N.O.I. MUST BE RECEIVED PRIOR TO THE SWMP PERMIT BEING ISSUED. THE CONTRACTOR THAT WILL BE PULLING THE GRADING AND DRAINAGE PERMIT MUST HAVE THE SWMP PERMIT ISSUED IN THEIR NAME.*
11. *PLAN APPROVAL IS VALID FOR 180 DAYS. PRIOR TO PLAN APPROVAL EXPIRATION, ALL ASSOCIATED PERMITS SHALL BE PURCHASED OR THE PLANS SHALL BE RESUBMITTED FOR EXTENSION OF PLAN APPROVAL. THE EXPIRATION, EXTENSION, AND REINSTATEMENT OF CIVIL ENGINEERING PLANS AND PERMITS SHALL FOLLOW THE SAME GUIDELINES AS THOSE INDICATED IN THE PHOENIX BUILDING CONSTRICTION CODE ADMINISTRATIVE PROVISIONS SECTION 105.3 FOR BUILDING PERMITS*

GRADING/EROSION CONTROL NOTES:

1. *THE SCHEMATIC EROSION CONTROL MEASURES SHOWN ARE A MINIMUM. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEANS TO PROTECT EXISTING FACILITIES AND ADJACENT PROPERTIES FROM NOISE, DUST, AND STORM WATER RUNOFF THROUGHOUT CONSTRUCTION OF THE PROJECT AND BUILDINGS ON LOTS.*
2. *ALL EROSION CONTROL STRUCTURES SHALL REMAIN IN PLACE UNTIL EXPOSED SLOPES HAVE BEEN PERMANENTLY STABILIZED.*
3. *CONTRACTOR SHALL INSPECT ALL EROSION CONTROL STRUCTURES AFTER EVERY RAINFALL EVENT (.10" IN 24HR.), REMOVE DEBRIS AND SEDIMENT AND MAKE NEEDED REPAIRS.*
4. *REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.*
5. *CONTRACTOR SHALL PROTECT ALL PERMANENT STORM WATER FACILITIES FROM SEDIMENT/SILT DURING CONSTRUCTION.*
6. *THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL STRUCTURES (SILT FENCE) UPON COMPLETION AND ACCEPTANCE OF THE PROJECT.*
7. *CONTRACTOR SHALL CONDUCT CONSTRUCTION ACTIVITIES TO ENSURE MINIMAL INTERFERENCE WITH EXISTING NEIGHBORHOODS, ROADWAYS, AND IMPROVEMENTS WITHIN THE PROJECT.*

CERTIFICATION

I CERTIFY THAT THE REFERENCED PLANS COMPLY WITH ALL APPLICABLE CITY ORDINANCES AND STANDARDS, INCLUDING FEDERAL, STATE AND COUNTY REQUIREMENTS AND REGULATIONS. IN ADDITION, I CERTIFY THAT THIS CHECKLIST HAS BEEN COMPLETED ENSURING ALL ITEMS LISTED ARE PROPERLY ADDRESSED. I UNDERSTAND THAT IF I FAIL TO ADDRESS ALL APPLICABLE ITEMS IN THIS CHECKLIST, THE PLANS MAY BE IMMEDIATELY RETURNED TO ME WITHOUT ANY FORMAL REVIEW BEING PERFORMED.

ENGINEER'S NAME

ENGINEER'S SIGNATURE *DATE*



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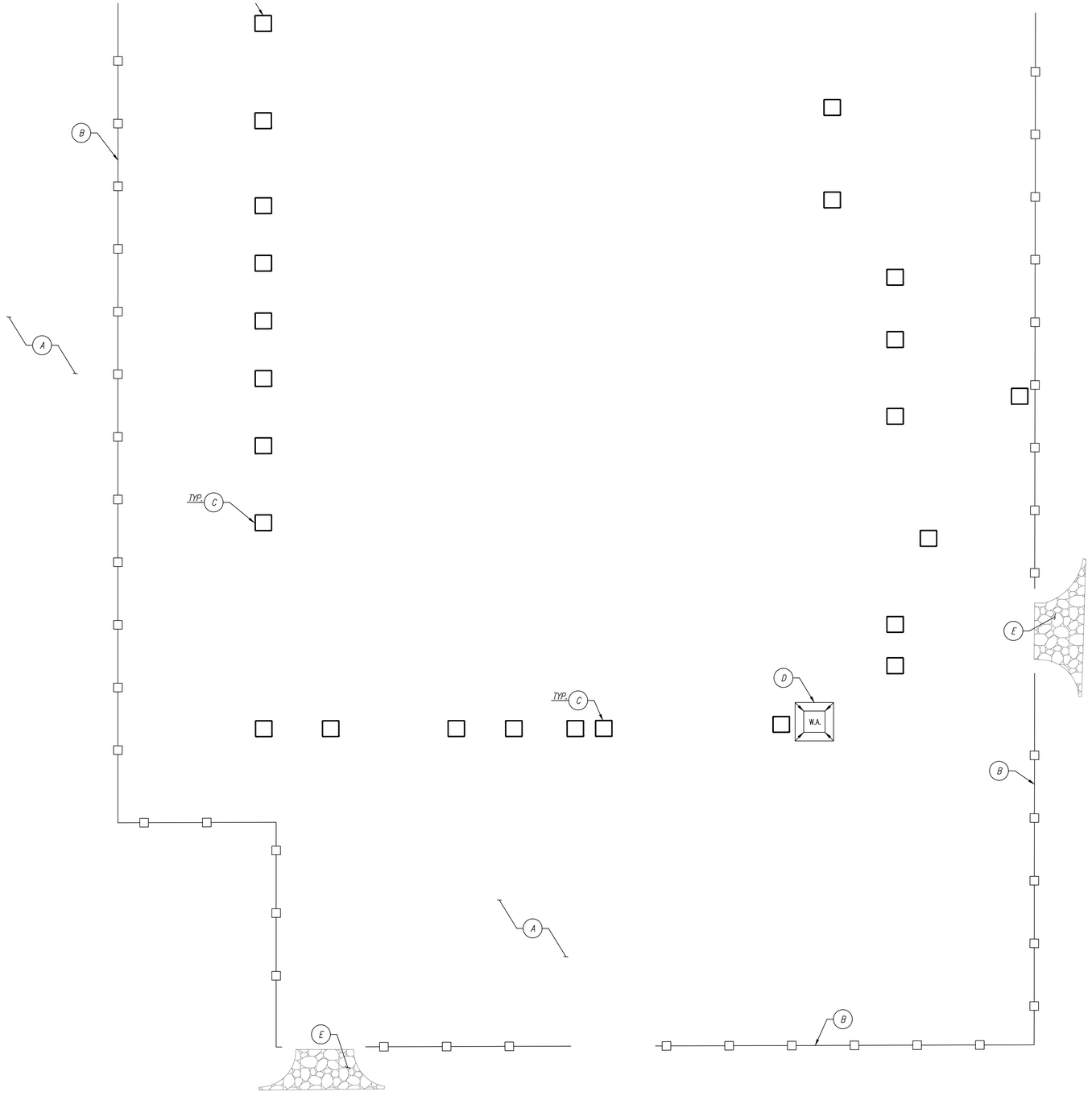
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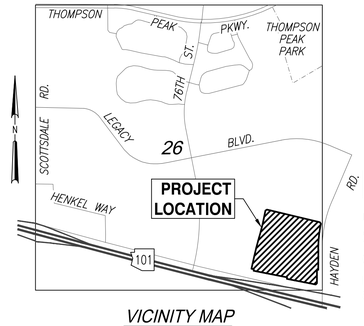
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SWPPP COVER SHEET

C701





VICINITY MAP

NTS

OWNER

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7377 E. DOUBLETREE RANCH ROAD #100
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(614) FAX: 857-2346
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MESA, AZ 85210
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FAX: (480) 892-7051
CONTACT: ADRIAN BURCHAM, PLS

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(E) *STABILIZED CONSTRUCTION ENTRANCE PER BMP-35.*

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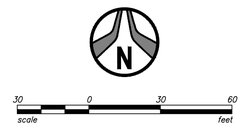
SILT FENCE

DRAINAGE FLOW ARROW

STRAW WATTLES

W.A. — *DESIGNATED WASH OUT AREA*

STABILIZED CONSTRUCTION ENTRANCE



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Landscape Architect
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Structural Engineer
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MEP Engineer
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Technology Engineer
[illegible]

Food Service
[illegible]

[illegible]

ARIZONA U.S.A. — CERTIFICATE NO. 31972 — BRENT R. STEFFENHAGEN — Date Signed 09/27/19 — Expires 06/30/20

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SHEET TITLE

SWPPP SHEET

SHEET NUMBER

C702

CAVASSON

LOCATED NEAR THE SOUTHWEST CORNER OF NORTH HAYDEN ROAD AND EAST LEGACY BOULEVARD

PRELIMINARY DRAINAGE REPORT- PHASE I

March 20, 2019

Project No.: 18114-203

PREPARED FOR:

NATIONWIDE REALTY INVESTORS
375 N. FRONT STREET
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(614) 221-2012

PREPARED BY:

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HUBBARD ENGINEERING

Plan #
Case # 6-DR-2019
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N.Baronas 5/13/19
Reviewed By Date

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1. INTRODUCTION

1.1 Project Scope

This report presents the results of a *Final Drainage Study* conducted by Hubbard Engineering at the request of Nationwide Realty Investors ("client"), for Phase I of the Cavasson master development ("site"). The purpose of this report is to provide a hydrologic evaluation for the site as required for Design Review through the City of Scottsdale per the City of Scottsdale Ordinances 4346 and 4347. This report addresses off-site and on-site conditions as well as storm water runoff storage requirements for the Hayden Road improvements. Drainage calculations and methodologies conform to the City of Scottsdale requirements and standards and to Hubbard Engineering's submitted *Master Drainage Report* for the Cavasson development.

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from and performed with currently accepted engineering methodologies and practices. Additionally, the criteria for this evaluation are designed to conform to currently applicable ordinances, regulations and policies affected by the appropriate jurisdictional regulatory authorities for the site.

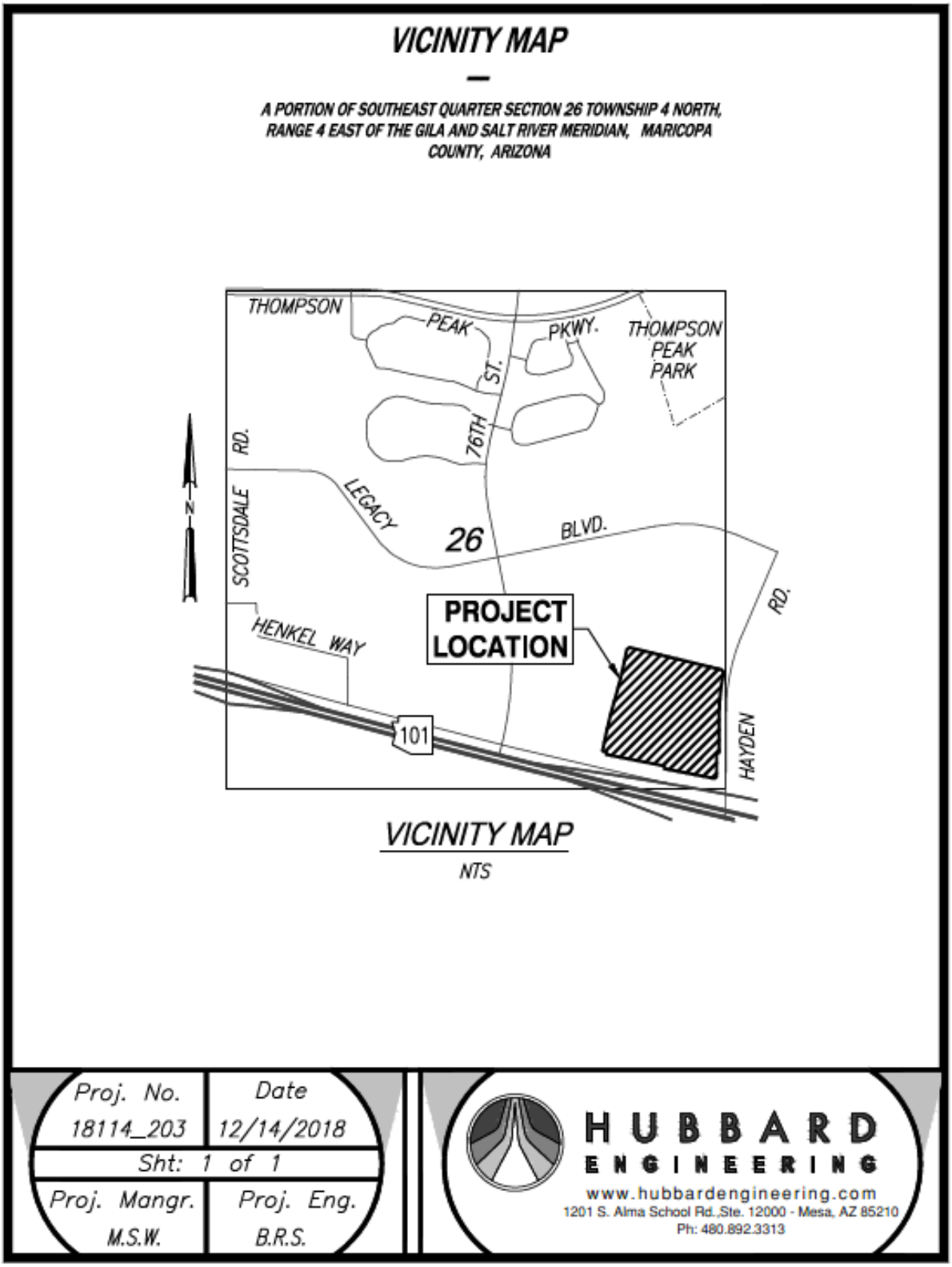
The analysis presented herein focuses on developing design estimates of storm water runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. The scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency event. Hubbard assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development costs resulting from or related to any such events. Nor shall Hubbard be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

1.2 Site Description

The site is located in the southeast quarter of Section 26, Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is currently undeveloped, and prior to Nationwide Reality Investor's acquisition, was held in trust by the Arizona State Land Department (ASLD) as a portion of the overall Crossroads East development, which encompasses approximately 883 gross acres. The topography of the undeveloped land shows an alluvial fan, indicating a significant amount of surface water is conveyed over the land. Phase I of the Cavasson site development is in the southwest corner of the overall development, near the Hayden Road and Loop 101 frontage 101 intersection. The land naturally falls northeast to southwest. The site is located within the Zone AO (1' Depth) flood zone.

Phase I of Cavasson is bounded by the Loop 101 Freeway to the south, North Hayden Road to the east, and undeveloped land to the west and north. The site location is shown in **Figure 1.1** on the *Vicinity Map*.

Figure 1.1 – Vicinity Map



1.3 Project Type

The Cavasson development is being developed by Nationwide Reality Investors as a master planned mixed use development with office, retail, hotels, and multifamily residential parcels with public and private roadways that run adjacent and through the development. Phase I of the improvements includes construction of new office building and a parking garage of 3,750+/- spaces. Improvements will include surrounding access drives and utilities through the property to provide domestic water, fire, and sewer services to the proposed building and garage. The analyses of pre-development and post-development peak discharges were addressed in Hubbard's *Master Drainage Report* and will be referenced and further discussed as it applies to the Phase I improvements.

1.4 Special Conditions- 404 Washes

Located throughout the project site are waters of the United States 404 washes. The handling of the 404 washes will be coordinated with engineering consultants and the City of Scottsdale as the project develops. The Section 404 Certification form will be completed by consultants. As discussed in the *Master Drainage Report*, a Hubbard has met with the Army Corps of Engineer (USACE) and is currently working with consultants and the Corps to complete a mitigation plan. Approval of a permit is anticipated by March 1, 2019. ADEQ has issued the 401

1.5 Regulatory Criteria

The criterion used in the drainage design and analysis of the site was established using the guidelines as described in the following:

- City of Scottsdale, *Design Standards & Policies Manual*, January 18, 2018.
- City of Scottsdale, *Ordinance No. 4346,* June 17, 2018.
- *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*.
- *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*.

2. EXISTING DRAINAGE CONDITIONS

2.1 Existing Off-Site Conditions Characteristics

Development in the surrounding area has increased in the last decade and many of the surrounding properties which sit in the Reata Pass basin, part of the Pinnacle Peak South Area, have installed infrastructure to route the offsite flows through their developments. As-built plans for the developments show that channels and culverts have been constructed to divert and route off-site flows. Historical runoff for the areas on and surrounding the project site flow south towards collections points (i.e. existing culverts) where the off-site storm runoff is ultimately conveyed to the TPC golf course just north of the Central Arizona Project canal. Existing culverts located at the edges of Hayden Road are currently utilized to route off-site runoff. Off-site routing for the developed surrounding areas has been verified with their corresponding as-builts, including Hayden Road Improvement Plans, 76th Street & Infrastructure Design, Center Drive (now Legacy Boulevard) Improvements, and One Scottsdale Civil Center Improvement Plans.

Hubbard Engineering completed a *Master Drainage Report* which included an extensive analysis of the off-site flow conditions affecting the entire Crossroads East area, including Cavasson and Hayden Road, for the existing site and proposed development. Results from the study indicate that the storm event affecting Hayden Road is a 100-year, 6-hour storm event. Since the submittal of the *Master Drainage Report,* Hubbard has met with the City of Scottsdale and the developers south of the Cavasson development. It was determined in the meeting that the HEC-1 models be adjusted to reflect a time interval of 15 minutes rather than 3 minutes, as was originally modeled in TY Lin's report. The flows affecting Hayden Road will be discussed in section 3.1. Details on Hubbard's HEC-1 methodology and analyses, in addition to the modeling results, can be referenced in the approved *Cavasson Master Drainage Report* dated December 18, 2018.

2.2 On-site Drainage

As the Cavasson project site is currently undeveloped, there are no on-site drainage structures. The project site was included in two previous studies, Bob Ward's *Core North/ Core South Drainage Study* and TY Lin's *Pinnacle Peak South Area Drainage Master Study.* The TY Lin report analyzed the Crossroads East area and included FLO2d models combined with HEC-1 analyses on localized basins. The TY Lin report provided a basis on which Hubbard completed its hydrologic studies for the Cavasson project development.

The project site naturally falls from north to south at approximately 1.2% and approximately 0.7% east to west. There is currently no ultimate outfall.

2.2.1 HEC-1 Analysis

The TY-Lin *Pinnacle Peak South Area Drainage Master Study* report provides an analysis of the entire Pinnacle Peak South Area, which covers an approximate area of 40 square miles. According to the report, the project site is located within the Dobson Wash Watershed, which includes inflow from the southwestern flow split of the Reata Pass Wash. TY Lin's existing and proposed exhibits and results can be found in **Appendices A** and **B**, respectively. Hubbard replicated TY-Lin's model in application to the approximate nine square miles including and

surrounding the project site, shown in **Exhibit 1,** and included the inflow hydrographs from TY Lin's Master Drainage study to account for run-off affecting the project site from the 76th Street Channel and the Powerline for both the 100-year, 6-hour and 100-year, 24-hour storm events. Data collected for the model includes the precipitation, soil, and land use for the existing site conditions in application to the delineated sub-basins. All data Hubbard obtained and used in the model was compared to the existing TY Lin model for accuracy and adjusted accordingly based on current site conditions at maximum densities per approved zoning cases. Precipitation data was obtained from the NOAA Atlas 14 precipitation database. The map index used in DDMSW is 64, cells 687-689. Existing soil data was obtained from the United States Department of Agriculture's Natural Resources Conservation Service. Additionally, land use data was determined based on current zoning of the project site. Data for the HEC-1 analysis are in **Appendix C**. The results of the ultimate condition at full build out (after the powerline channel is constructed) are included in **Appendix D**.

Hubbard has met with the City of Scottsdale and the developers south of the Cavasson development in order to coordinate the analyses for the Crossroads East development. It was determined in the meeting that the HEC-1 models be adjusted to reflect a time interval of 15 minutes rather than 3 minutes, as was originally modeled in TY Lin's report. Thus, the inflow hydrographs provided by TY Lin were convoluted to accurately represent this change in time interval resulting in more accurate time to peak values. In addition, it was also decided in the meeting that Hubbard's analysis for the existing, proposed, and ultimate conditions will be used by developers south of Hayden Road. Hubbard's sub-basin delineation, shown in **Exhibit 1**, deviates from TY Lin's analysis in that Hubbard added collection points at existing culverts along Legacy Boulevard and Hayden road to model the peak flows coming through each infrastructure for utilization in routing design. Additionally, detailed analysis of the existing topography and as-builts along Hayden road and Legacy Boulevard revealed that the basins were not segmented by Hayden Road or Legacy Boulevard, in the TY Lin Report. These larger basins were subdivided in the Hubbard analysis and a similar naming convention was used to compare baseline flows.

Hubbard's analysis split the original TY Lin sub-basins 7 and 8 into east and west components to more accurately model the conveyance of the flows on either side of Hayden Road. An additional basin, SB09N was also added per the city's request as this was not included in the TY Lin analysis. In Hubbard's routing, flows from SB07E and SB08E are routed east, following the topography. Since the TY-Lin model does not delineate a SB-08W, the TY-Lin model shows the flow from SB08 flowing from the southwest corner of the basin east across Hayden Road. This analysis is not correct considering that the eastern elevation is approximately 20 feet higher than the western elevation (CP-08 in TY-Lin's exhibit). This routing also neglects the flow being conveyed across the Loop 101 from SB07W and SB08W. Hubbard therefore routed the flow from SB07W and SB08W to the existing ADOT culvert along Frontage road and across the Loop 101, thus affecting the developments south of the Loop 101, a condition not represented in the TY-Lin report.

In TY-Lin's analysis, the 100-year, 24-hour storm event controlled for the entire area, with the 100-year, 6-hour storm event controlling the localized flows. TY-Lin recommended the creation of the Powerline Channel to intercept and route the 100-year, 24-hour flows to Basin 53R. Since it was determined in meetings with the City of Scottsdale that the channel will be built during construction of the Cavasson development, Hubbard's existing model includes this channel and results for the 100-year, 24-hour, 100-year, 6-hour, and 10-year, 6-hour storm events are shown in **Appendix D.** The Existing 100-year, 6-hour flows prior to the offsite channel being constructed

were 196 cfs entering the site and an Existing condition 100-Year, 6-hour discharge exiting the site at the Loop 101 of 740 cfs. With the addition of the channel and routing to Basin 53R, a significant amount of flow is being diverted from the affected study area to Basin 53R. The addition of the channel results in higher peak flows for the Crossroads East development from the 100-year, 6-hour storm event rather than the 100-year, 24-hour storm.

In addition to the existing model post-channel and proposed model, Hubbard completed an ultimate condition model considering the surrounding lots will be developed. In the model, this was represented by increasing the imperviousness of SB01-B, SB01-C, and SB07W to reflect maximum assumed densities per the zoning stipulations pertinent to the Cavasson development and Cross Roads East approved zoning cases.

2.3 Flood Zone Information

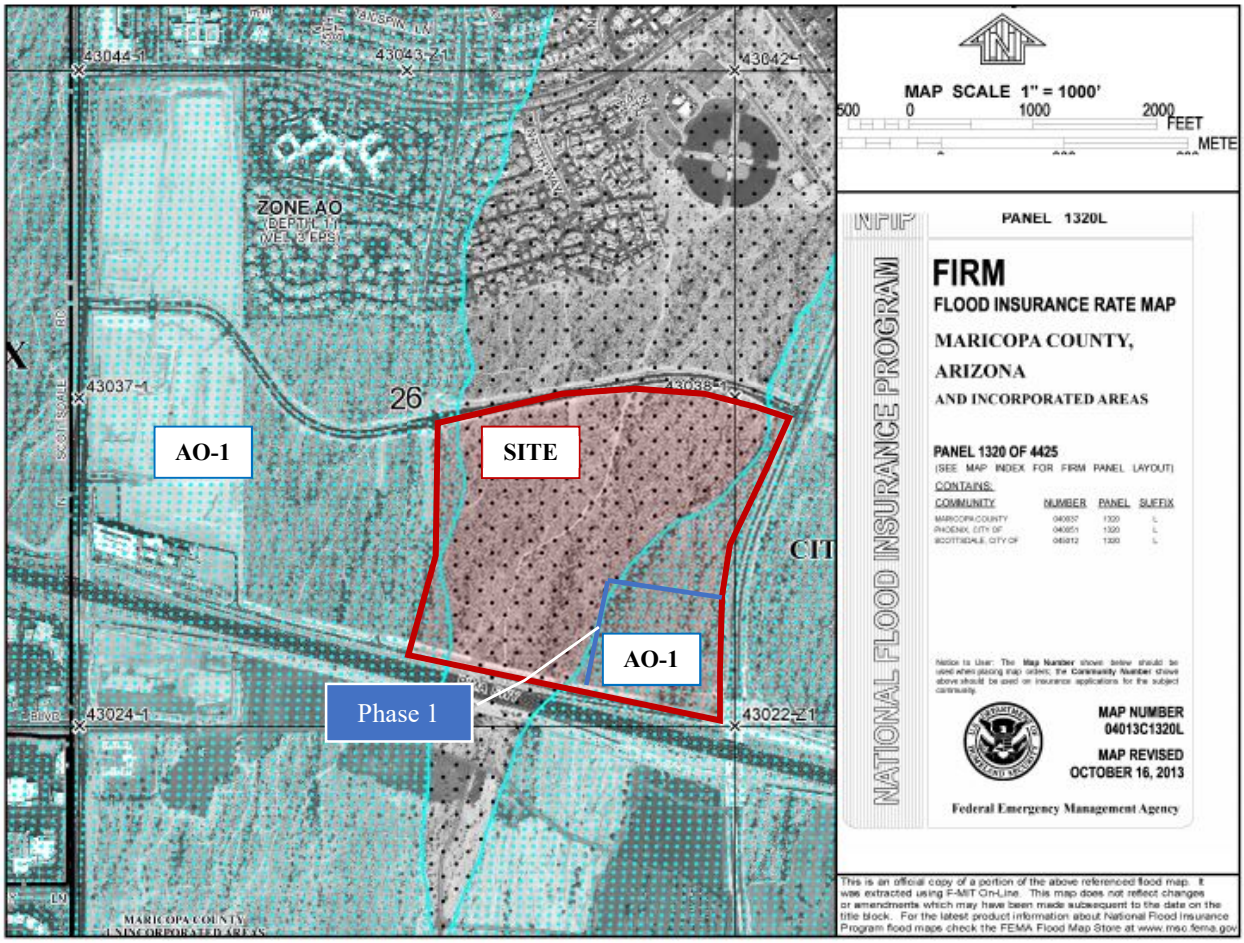
The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (F.I.R.M.) number 04013C1320L, Panel number 1320 of 4425, dated October 16, 2013 indicates that Phase I falls within Zone AO (Depth 1 foot).

Zone AO is defined as:

"*Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.*"

Refer to FEMA Firmette in **Figure 2.1.**

Figure 2.1 – FIRM 04013C1320L



3. PROPOSED DRAINAGE PLAN

3.1 Off-Site Flows

Off-site flows for the site were analyzed and addressed in Hubbard's *Master Drainage Report.* The historical *existing conditions* discharge from the site at the Loop 101 were *740 cfs* for the 100-Year, 6-hour event. Results from the analysis show that after the powerline Channel is constructed 62 cfs is currently being conveyed across Legacy from the existing box culvert located at the Legacy Boulevard and Hayden Road intersection. According to the original analysis results for the existing site conditions, an additional 54 cfs is shown to be crossing Hayden Road through two 30-inch pipe culverts, approximately 695 feet north of the Hayden Road and Loop 101 Frontage Road intersection. However, upon inspection of the culverts after major storm events, it was noted from the accumulated sediment at the culvert entrance and the sandy wash bottoms of the flow paths that the velocity of the flow is too great to exit through these culverts and that the flow instead conveys southeast via an existing channel toward Basin 53R. Hubbard thus proposes filling the existing 30" culverts with concrete. Therefore, the total flow exiting the Cavasson site pre-development, and post-Powerline Channel is *193 cfs*. Since Hayden Road will be widening, the existing channel will be moved nine feet, at most, to the east to accommodate the new road. The channel capacity and overall routing will otherwise remain unchanged. Post development, the flow exiting the site is 82 cfs after the first flush detention is taken into account. Developers downstream of this collection point and the City of Scottsdale have been notified of the flow affecting their project developments and will coordinate their analyses and results based on Hubbard's results. Capacity calculations for the existing culverts were completed and addressed in Hubbard's *Master Drainage Report*.

A channel was designed on the west side of Hayden Road along the eastern edge of the Cavasson development to convey the flow originating from north of Legacy Boulevard (SB07W), through proposed culverts under each proposed driveway coming off Hayden Road, and to the existing culverts along the Loop 101. The proposed culverts are single barreled 36-inch pipes. Calculations for the proposed culverts can be found in **Appendix E**. The channel design is shown in **Exhibit 2**.

3.2 On-Site Hydrology

The storm event affecting the site was determined to be a 100-year, 6-hour storm, as discussed in Hubbard's *Master Drainage Report.*

The anticipated nature of the site configurations and grading designs indicate that the Rational Method of hydrology as described in the *Drainage Design Manual for Maricopa County, Volume I* (Reference 2) will be applicable in developing design storm discharges as the site develops further on the individual site as they are submitted to the City of Scottsdale for sizing storm drain and inlets. A weighted runoff coefficient computed per the City of Scottsdale *Design Standards and Policies Manual*.

3.3 Storm Water Storage

The project development is required to provide detention for the first flush storm event. The required first flush volume determined for each drainage area site will be designed per City of Scottsdale *Drainage Policies & Standards for Maricopa County, Arizona* (Reference 1). This detention will occur using underground storage tanks. During the development of Phase 1, temporary sediment ponds will be constructed along the north side of Cavasson Boulevard to capture and control runoff from Parcel 1C.

3.3.1 Time to Drain

Each site will be required to dewater the required storm water detention through natural percolation and/or drywells. The City of Scottsdale allows each drywell to dissipate 43,560 cubic feet in the 36-hour period for each drywell installed. All drywells will be dual chamber drywell systems to meet both environmental and dissipation criteria.

4. SUMMARY AND CONCLUSION

- The site is located in Section 26 of Township 4N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.
- The site is located in the Flood Plain Zone AO-1.
- The Finish Floor Elevations of the proposed buildings meet the requirement of 2 feet higher than the natural grade (HAG).
- The storm event affecting the site was modeled as a 100-yr, 6-hour event in Hubbard's *Master Drainage Report*.
- The peak flow exiting the site pre-development is 740 cfs and the peak flow exiting the site post-development is 82 cfs. This is due to the construction of the offsite Powerline Channel.
- The site will be required to provide retention for the first flush storm event.
- A retention basin and underground storage will provide 59,400 cf for the required retention of 55,272 cf.
- Off-site flows will be directed to existing culverts and a designed channel.

5. REFERENCES

1) City of Scottsdale. *Drainage Policies & Standards for Maricopa County, Arizona.* January 18, 2018.

2) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*. November 2003.

3) Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*. November 2003.

4) City of Scottsdale. *Ordinance No. 4346.* June 17, 2018.

5) TY Lin, *Pinnacle Peak South Area Drainage Master Study,* 2014.

6) City of Scottsdale, *Ordinance No. 4346,* June 17, 2018.

6. LIMITATIONS

This report is focused on providing practical design information, evaluation, and calculations for statistical flood events up to and including the 100-year frequency flood. The procedures used herein are derived from, and performed with, currently accepted engineering methodologies and practices. Additionally, the criteria for this evaluation is designed to conform to currently applicable ordinances, regulations and policies effected by the appropriate jurisdictional regulatory authorities for the site.

The analysis presented herein focuses on developing design estimates of storm water runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency event may cause or create the risk of greater flood impact than is addressed and presented herein. However, the scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency event. Hubbard Engineering assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development cost resulting from or related to any such events.

Nor shall Hubbard Engineering be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

In performing the services contained herein, Hubbard Engineering has received or will receive information prepared or compiled by others. Hubbard Engineering, as engineering professionals, are not required to verify the information, but may rely on the information unless actual knowledge concerning the validity of the information is known or is obvious to the professional. Therefore, Hubbard Engineering is entitled to rely upon the accuracy and completeness of this information without independent evaluation or verification.

Appendix A
TY Lin HEC-1 Existing
Cavasson-Phase I

WATERSHED MAP

0 200 400 800 Feet

TY LIN INTERNATIONAL
engineers| planners| scientists

Legend

- Flow Path
- Sub-basins
- Proposed ROW

SB01
SB02
SB03
SB04
SB05
SB06
SB07
SB08
SB09
SB10
SB11

N 76TH ST
E LEGACY BL
N HAYDEN RD
N 84TH WY
N GRAYHAWK DR
N 84TH ST
E HUALAPAI DR
N 89TH PL
N 88TH WY
N 88TH ST
N 90TH PL
N 90TH WY
N SCOTTSDALE RD
L101 EB
L101 WB
E UNION HILLS DR
N PERIMETER DR
N 81ST WY
N 82ND ST
E ST JOHN RD
E PRINCESS BL
E PRINCESS DR
N 77TH PL

Drainage Sub-Basin ID	Area (sq. mi.)	Longest Flow Path (mi.)	Upstream Ground Elev. (ft)	Downstream Ground Elev. (ft)	Slope (ft/mi)
SB01	0.112	0.641	1678	1637	64.0
SB02	0.157	0.728	1651	1605	63.2
SB03	0.048	0.352	1600	1594	17.1
SB04	0.144	0.695	1592	1546	66.2
SB05	0.130	0.699	1650	1613	52.9
SB06	0.136	0.575	1584	1557	47.0
SB07	0.074	0.601	1602	1567	58.3
SB08	0.224	0.321	1683	1653	93.5
SB09	0.052	0.450	1654	1618	80.0
SB10	0.040	0.271	1603	1590	48.1
SB11	0.071	0.457	1606	1583	50.4

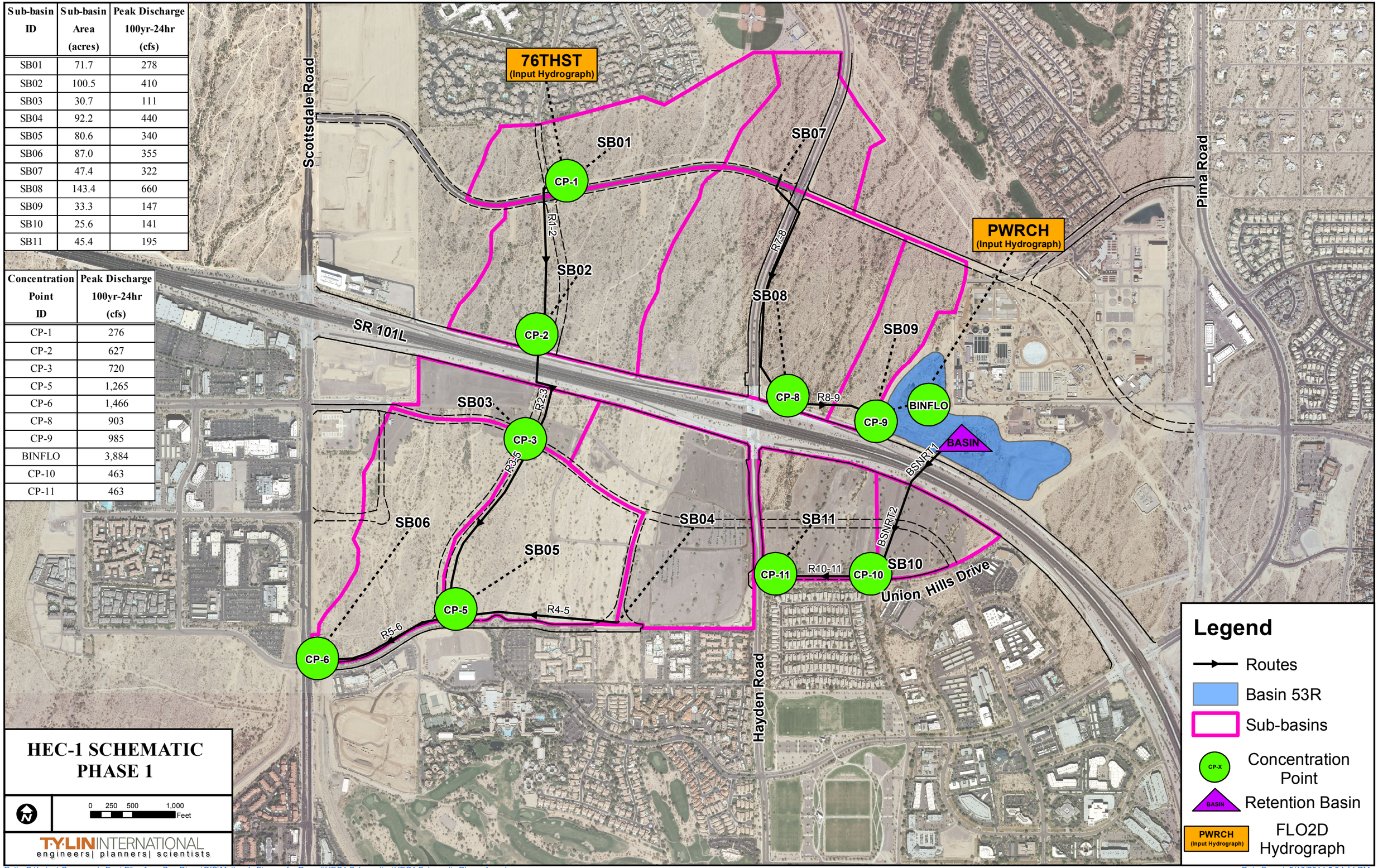
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Appendix B
TY Lin HEC-1 Proposed
Cavasson-Phase I

Sub-basin ID	Sub-basin Area (acres)	Peak Discharge 100yr-24hr (cfs)
SB01	71.7	278
SB02	100.5	410
SB03	30.7	111
SB04	92.2	440
SB05	80.6	340
SB06	87.0	355
SB07	47.4	322
SB08	143.4	660
SB09	33.3	147
SB10	25.6	141
SB11	45.4	195

Concentration Point ID	Peak Discharge 100yr-24hr (cfs)
CP-1	276
CP-2	627
CP-3	720
CP-5	1,265
CP-6	1,466
CP-8	903
CP-9	985
BINFLO	3,884
CP-10	463
CP-11	463



HEC-1 SCHEMATIC PHASE 1

0 250 500 1,000 Feet

T·Y·LIN INTERNATIONAL
engineers| planners| scientists

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  *
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                *          609 SECOND STREET
  *
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   12SEP14  TIME  11:45:27  *                                                *           (916) 756-1104
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X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            3           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            4           ID       100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            5           ID           PIMA ROAD FLOWS)
            6           ID
            7           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            8           ID       MODELERS: RK, MW
            9           ID
           10           IT       3       0       0    1000
           11           IN       3
           12           IO       5
                        *DIAGRAM
                        *
           13           JD   3.849  0.0001
           14           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
           15           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
           16           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
           17           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.172
           18           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
           19           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
           20           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
           21           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
           22           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
           23           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
           24           JD   3.657    10.0
           25           JD   3.533    20.0
                        *
           26           KK  76THST
           27           KM        76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           28           KM        100-YR, 6-HR FLO-2D MODEL (XS 98)
           29           BA    0.24
           30           QI       0       0       0       0       0       0       0       0       0
           31           QI       0       0       0       0       0       0       0       0       0
           32           QI       0       0       0       0       0       0       0       0       0
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     44          QI       0       0       0       0    0.01    0.01       0       0       0       0
     45          QI       0       0       0       0       0       0       0       0       0       0
     46          QI       0       0       0       0       0       0       0       0       0       0
     47          QI    0.01       0       0    0.01       0       0       0       0    0.01    0.01
     48          QI       0    0.01    0.01    0.02    0.02    0.02    0.02    0.02    0.03    0.03
     49          QI    0.03    0.04    0.04    0.05    0.05    0.05    0.06    0.06    0.07    0.08
     50          QI    0.09    0.09     0.1     0.1    0.11    0.11    0.12    0.12    0.13    0.14
     51          QI    0.14    0.15    0.16    0.18    0.19    0.21    0.23    0.25    0.27     0.3
1                                        HEC-1 INPUT                                          PAGE  2

   LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

     52          QI    0.34    0.36     0.4    0.44    0.47    0.51    0.56     0.6    0.66    0.71
     53          QI    0.76    0.95    1.61    1.73    1.95     3.7    4.26    6.53    8.52   10.41
     54          QI   17.69   31.39   35.75   41.23   44.49   47.79   51.13   56.33   62.34   66.18
     55          QI   68.57   67.36   65.05   61.38   58.37   54.61   52.38   50.75    48.4   44.37
     56          QI   42.75    40.4   38.91   37.61   36.75   35.61   34.75   34.25   33.52   32.65
     57          QI   32.34   31.59   31.31   30.73   30.02   29.25   28.51   28.42   27.67   26.83
     58          QI   26.13   25.37   24.53   23.95   23.37   22.83   22.17   21.48   20.81   20.94
     59          QI   19.41   19.05   18.62    18.3   18.17   18.11   17.52    17.1    16.7    16.5
     60          QI   16.15   15.74   15.37   15.07   14.74   14.54   14.51   14.24   14.07   13.65
     61          QI   13.75   13.24   12.99   13.09   12.94   12.53   12.53   12.38   12.22   12.18
     62          QI      12   11.59   11.89   11.53   11.85   11.44   11.16   11.22   11.21   10.82
     63          QI   10.52   10.43   10.88   10.42    10.1    9.81    9.72    9.66    9.78    9.55
     64          QI    9.34    9.36    9.33    9.23     9.1    9.09    9.48     9.3    9.02    9.07
     65          QI    9.11     9.1    8.93    8.81    8.73    8.71    8.57     8.5     8.5    8.43
     66          QI    8.37    8.31    8.26    8.17    8.14    8.05    7.98    7.97    7.83    7.62
     67          QI    7.67    7.67    7.57    7.66    7.74    7.75    7.91    7.88    7.62    7.55
     68          QI    7.47     7.3    7.22    7.25     7.2    7.08    7.02    7.01    6.99    6.96
     69          QI    6.97    6.92    6.89    6.85    6.81    6.77    6.75     6.7    6.67    6.62
     70          QI    6.59    6.56    6.51    6.48    6.47    6.44    6.44    6.47    6.43    6.37
     71          QI    6.32    6.27    6.23    6.22    6.16    6.12    6.08    6.05    6.02    5.98
     72          QI    5.95    5.95    5.95    5.93     5.9    5.87    5.84    5.76    5.72    5.64
     73          QI     5.7    5.76    5.62    5.65    5.74    5.84    5.95     4.5    4.58    5.32
     74          QI    5.41    5.43    4.49    5.32    5.36    5.44    5.48     5.6    5.67    4.68
     75          QI    4.56    4.55    4.53    4.82    4.84    4.81    4.81    4.83    4.82     4.6
     76          QI    4.75    4.82    4.66    4.85    4.81    4.78    4.77    4.75    4.73    4.72
     77          QI    4.69    4.64    4.62    4.61    4.63    4.67    4.71    4.72    4.71    4.66
     78          QI    4.61    4.53    4.43    4.39    4.37    4.36    4.33    4.33    4.28    4.26
     79          QI     4.2    4.17    4.13    4.07    4.03       4    3.96    3.92    3.86     3.8
     80          QI    3.75    3.71    3.65     3.6    3.56    3.51    3.45    3.42    3.39    2.43
     81          QI    2.49    2.39    2.38    3.55    3.52    3.43    2.35     2.4    2.46    3.65
     82          QI    3.61     3.3    2.37     2.4    2.46    3.65    3.59    3.59    3.61    3.67
     83          QI    2.48    2.53    2.53    2.47    2.41    2.36    2.32    2.28    2.25    2.22
     84          QI    2.19    2.16    2.14    2.12    2.09    2.07    2.04    2.02       2    1.97
     85          QI    1.94    1.91    1.88    1.85     1.8    1.72    1.63    1.56    1.58    1.65
     86          QI    1.71    1.72    1.67    1.57    1.49    1.36    1.49    1.56    1.58    1.57
     87          QI    1.48    1.35    1.21    1.15    1.13    1.13    1.13    1.13    1.13    1.13
     88          QI    1.13    1.13    1.12    1.14    1.17     1.2    1.23    1.22    1.18    1.09
     89          QI     1.1    1.11    1.13    1.18    1.26    1.06     1.1    1.08    1.06    1.05
     90          QI    1.06    1.05    1.04    1.02    1.01       1    0.98    0.97    0.96    0.95
     91          QI    0.94    0.93    0.92    0.91     0.9    0.89    0.88    0.87    0.86    0.86
     92          QI    0.85    0.84    0.84    0.83    0.82    0.81     0.8     0.8    0.79    0.78
     93          QI    0.78    0.77    0.76    0.76    0.75    0.74    0.73    0.73    0.72    0.72
     94          QI    0.72    0.71    0.71    0.71     0.7     0.7    0.69    0.69    0.68    0.67
     95          QI    0.67    0.66    0.66    0.65    0.65    0.64    0.64    0.63    0.63    0.62
     96          QI    0.62    0.61    0.61     0.6     0.6    0.59    0.59    0.59    0.58    0.58
     97          QI    0.57    0.57    0.56    0.56    0.56    0.55    0.55    0.54    0.54    0.53
     98          QI    0.53    0.53    0.52    0.52    0.52    0.51    0.51     0.5     0.5     0.5
     99          QI    0.49    0.49    0.48    0.48    0.48    0.47    0.47    0.47    0.46    0.46
    100          QI    0.45    0.45    0.45    0.44    0.44    0.44    0.43    0.43    0.43    0.42
    101          QI    0.42    0.42    0.41    0.41    0.41     0.4     0.4     0.4     0.4    0.39
    102          QI    0.39    0.39
                 *
1                                        HEC-1 INPUT                                          PAGE  3

   LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


    103          KK    SB01   BASIN
    104          BA   0.112
    105          LG    0.25    0.25    4.10    0.55      45
    106          UC   0.318   0.253
    107          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
    108          UA     100
                 *


    109          KK    CP-1 COMBINE
    110          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
    111          HC       2
                 *


    112          KK    R1-2   ROUTE
    113          KM        MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
    114          RK    2104  0.0015   0.03             TRAP      66       4
                 *


    115          KK    SB02   BASIN
    116          BA   0.157
    117          LG    0.15    0.25    4.15    0.58      56
    118          UC   0.328   0.240
    119          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
    120          UA     100
                 *
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 121          KK    CP-2 COMBINE
 122          KM        SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)
 123          HC       2
              *

 124          KK    R2-3   ROUTE
 125          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
 126          RK    1260  0.0015   0.03             TRAP      92       4
              *

 127          KK    SB03   BASIN
 128          BA   0.048
 129          LG    0.15    0.25    4.50    0.47      55
 130          UC   0.364   0.294
 131          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 132          UA     100
              *

 133          KK    CP-3 COMBINE
 134          KM        MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)
 135          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 136          KK    R3-5   ROUTE
 137          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 138          RK    2396  0.0015   0.03             TRAP      98       4
              *

 139          KK    SB04   BASIN
 140          BA   0.144
 141          LG    0.14    0.25    4.60    0.44      61
 142          UC   0.305   0.199
 143          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 144          UA     100
              *

 145          KK    R4-5   ROUTE
 146          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 147          RK    2005  0.0013   0.03             TRAP      39       4
              *

 148          KK    SB05   BASIN
 149          BA   0.126
 150          LG    0.22    0.25    4.50    0.44      48
 151          UC   0.327   0.226
 152          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 153          UA     100
              *

 154          KK    CP-5 COMBINE
 155          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 156          HC       3
              *

 157          KK    R5-6   ROUTE
 158          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 159          RK    1550  0.0015   0.03             TRAP     188       4
              *

 160          KK    SB06   BASIN
 161          BA   0.136
 162          LG    0.16    0.25    4.55    0.45      53
 163          UC   0.321   0.246
 164          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 165          UA     100
              *

 166          KK    CP-6 COMBINE
 167          KM        PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)
 168          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 169          KK    SB07   BASIN
 170          BA   0.074
 171          LG    0.21    0.25    4.00    0.58      49
 172          UC   0.206   0.113
 173          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 174          UA     100
              *

 175          KK    R7-8   ROUTE
 176          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 177          RK    2778  0.0014   0.03             TRAP      46       4
              *
```

```
178          KK    SB08   BASIN
179          BA   0.224
180          LG    0.14    0.25    4.10    0.59      59
181          UC   0.338   0.195
182          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
183          UA     100
             *

184          KK    CP-8 COMBINE
185          KM        SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)
186          HC       2
             *

187          KK    R8-9   ROUTE
188          KM        HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R
189          RK    1250  0.0013   0.03             TRAP      67       4
             *

190          KK    SB09   BASIN
191          BA   0.052
192          LG    0.15    0.25    4.00    0.61      55
193          UC   0.254   0.230
194          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
195          UA     100
             *

196          KK    CP-9 COMBINE
197          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
198          HC       2
             *

199          KK   PWRCH
200          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
201          KM        FROM PINNACLE PEAK SOUTH ADMS 100-YR, 24-HR FLO-2D MODEL
202          BA     7.0
203          QI       0       0       0       0       0       0       0       0       0       0
204          QI       0       0       0       0       0       0       0       0       0       0
205          QI       0       0       0       0       0       0       0       0       0       0
206          QI       0       0       0       0       0       0       0       0       0       0
207          QI       0       0       0       0       0       0       0       0       0       0
208          QI       0       0       0       0       0       0       0       0       0       0
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LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

209          QI       0       0       0       0       0       0       0       0       0       0
210          QI       0       0       0       0       0       0       0       0       0       0
211          QI       0       0       0       0       0       0       0       0       0       0
212          QI       0       0       0       0       0       0       0       0       0       0
213          QI       0       0       0       0       0       0       0       0       0       0
214          QI       0       0       0       0       0       0       0       0       0       0
215          QI       0       0       0       0       0       0       0       0       0       0
216          QI       0       0       0       0       0       0       0       0       0       0
217          QI       0       0       0       0       0       0       0       0       0       0
218          QI       0       0       0       0       0       0       0       0       0       0
219          QI       0       0       0       0       0       0       0       0       0       0
220          QI       0       0       0       0       0       0       0       0       0       0
221          QI       0       0       0       0       0       0       0       0       0       0
222          QI       0       0       0       0       0       0       0       0       0       0
223          QI       0       0       0       0       0       0       0       0       0       0
224          QI       0       0       0       0       0       0       0       0       0       0
225          QI       0       0       1       1       1       1       1       1       1       1
226          QI       1       2       2       2       3       3       5       9      18      28
227          QI      43      50      65      87     194     495     872     967    1051    1095
228          QI    1099    1091    1093    1100    1117    1198    1243    1370    1495    1777
229          QI    2055    2422    2906    3246    3546    3747    3874    3884    3837    3741
230          QI    3658    3562    3456    3370    3270    3175    3085    3024    2955    2888
231          QI    2822    2744    2640    2543    2461    2378    2309    2239    2183    2132
232          QI    2084    2045    2005    1973    1933    1898    1860    1821    1779    1740
233          QI    1699    1659    1619    1576    1544    1499    1461    1432    1397    1364
234          QI    1331    1298    1268    1237    1206    1179    1152    1126    1100    1074
235          QI    1047    1023    1000     979     959     940     918     901     882     867
236          QI     851     834     818     803     789     773     759     744     731     719
237          QI     705     693     683     670     657     645     635     627     617     608
238          QI     597     588     581     573     566     559     553     545     537     529
239          QI     521     514     507     501     495     488     482     476     471     465
240          QI     460     456     450     444     440     435     429     424     419     414
241          QI     410     404     400     396     393     387     385     381     377     375
242          QI     370     367     364     362     360     356     352     349     346     343
243          QI     339     338     334     333     330     328     326     322     318     315
244          QI     317     313     308     306     305     303     300     298     295     294
245          QI     293     291     288     285     286     281     278     276     275     276
246          QI     270     265     269     267     264     257     265     257     255     255
247          QI     258     251     251     253     245     248     247     242     246     239
248          QI     240     241     236     238     232     237     231     231     228     231
249          QI     223     227     223     223     221     220     219     215     219     215
250          QI     214     215     211     215     211     209     213     209     207     208
251          QI     205     201     207     200     200     201     201     199     197     193
252          QI     192     190     190     191     189     188     187     185     186     184
253          QI     180     179     180     173     173     179     169     172     164     169
254          QI     164     165     163     161     156     158     155     158     153     158
255          QI     149     153     146     144     146     142     149     139     136     138
256          QI     137     143     131     130     132     126     126     124     123     133
257          QI     120     119     124     117     116     117     114     111     113     109
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 258          QI     107     109     105     106     104     102     104     100      99     103
 259          QI      97      96     100      94      93      99      91      90      97      88
 260          QI      86      90      84      85      87      83      83      85      80      79
 261          QI      82      78      75      82      74      74      82      72      71      76
 262          QI      70      71      70      68      72      66      67      65      64      69
 263          QI      62      65      61      61      63      59      65      58      58      60
1                                        HEC-1 INPUT                                        PAGE  7

        LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 264          QI      57      63      56      55      58      55      58      54      52      58
 265          QI      52      52      53      50      57      50      50      55      48      48
 266          QI      50      46      47      47      44      48      45      43      49      43
 267          QI      42      48      42      41      45      41      40      44      40      38
 268          QI      40      40      38      37      40      37      36      42      36      36
 269          QI      35      41      35      34      34      40      34      33      33      33
 270          QI      36      33      32      32      33      32      31      31      30      33
 271          QI      31      30      29      29      31      30      28      29      28      29
 272          QI      31      28      28      27      27      30      27      26      26      26
 273          QI      31      26      25      25      25      30      26      25      25      24
 274          QI      24      28      23      23      24      23      24      25      24      23
 275          QI      23      22

              *

 276          KK  BINFLO
 277          KM         TOTAL INFLOW INTO BASIN 53R.
 278          HC       2
              *

 279          KK   BASIN
 280          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 281          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 282          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 283          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 284          RS       1    STOR       0
 285          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 286          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 287          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 288          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 289          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 290          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 291          KK  BSNRT1
 292          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 293          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 294          KM        EXCESS CAPACITY.
 295          RK     550  0.0052   0.024            CIRC     7.0
              *

 296          KK  BSNRT2
 297          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL
 298          RK    1200  0.0077   0.013            CIRC     7.0
              *

 299          KK    SB10   BASIN
 300          BA   0.040
 301          LG    0.15    0.25    4.25    0.55      55
 302          UC   0.233   0.161
 303          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 304          UA     100
              *
1                                        HEC-1 INPUT                                        PAGE  8

        LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 305          KK   CP-10 COMBINE
 306          KM         UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 307          HC       2
              *

 308          KK  R10-11   ROUTE
 309          KM         UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 310          RK    1277  0.0014   0.03             TRAP     220       4
              *

 311          KK    SB11   BASIN
 312          BA   0.071
 313          LG    0.15    0.25    4.15    0.58      55
 314          UC   0.296   0.232
 315          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 316          UA     100
              *

 317          KK   CP-11 COMBINE
 318          KM         UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 319          HC       2
              *
 320          ZZ
1
      SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
```

```
LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW
 NO.      (.) CONNECTOR        (<----) RETURN OF DIVERTED OR PUMPED FLOW

  26      76THST
               .
               .
 103           .        SB01
               .          .
               .          .
 109         CP-1.............
                V
                V
 112         R1-2
               .
               .
 115           .        SB02
               .          .
               .          .
 121         CP-2.............
                V
                V
 124         R2-3
               .
               .
 127           .        SB03
               .          .
               .          .
 133         CP-3.............
                V
                V
 136         R3-5
               .
               .
 139           .        SB04
               .          V
               .          V
 145           .        R4-5
               .          .
               .          .
 148           .          .        SB05
               .          .          .
               .          .          .
 154         CP-5.........................
                V
                V
 157         R5-6
               .
               .
 160           .        SB06
               .          .
               .          .
 166         CP-6.............
               .
               .
 169           .        SB07
               .          V
               .          V
 175           .        R7-8
               .          .
               .          .
 178           .          .        SB08
               .          .          .
               .          .          .
 184           .        CP-8.............
               .          V
               .          V
 187           .        R8-9
               .          .
               .          .
 190           .          .        SB09
               .          .          .
               .          .          .
 196           .        CP-9.............
               .          .
               .          .
 199           .          .       PWRCH
               .          .          .
               .          .          .
 276           .      BINFLO.............
               .          V
               .          V
 279           .       BASIN
               .          V
               .          V
 291           .      BSNRT1
               .          V
               .          V
 296           .      BSNRT2
               .          .
               .          .
 299           .          .        SB10
               .          .          .
               .          .          .
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   305           .       CP-10.....
                 .          V
                 .          V
   308           .      R10-11
                 .          .
                 .          .
   311           .          .        SB11
                 .          .          .
                 .          .          .
   317           .       CP-11.....

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
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 *                                      *                                        *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                        *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                        *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                        *          609 SECOND STREET
  *
 *                                      *                                        *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   12SEP14  TIME  11:45:27  *                                        *           (916) 756-1104
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CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 24-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND PIMA ROAD FLOWS)

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

```
   12 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                        NMIN           3  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      3    0  ENDING DATE
                      NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL    0.05 HOURS
                         TOTAL TIME BASE   49.95 HOURS

            ENGLISH UNITS
                 DRAINAGE AREA         SQUARE MILES
                 PRECIPITATION DEPTH   INCHES
                 LENGTH, ELEVATION     FEET
                 FLOW                  CUBIC FEET PER SECOND
                 STORAGE VOLUME        ACRE-FEET
                 SURFACE AREA          ACRES
                 TEMPERATURE           DEGREES FAHRENHEIT

   13 JD           INDEX STORM NO. 1
                        STRM        3.85  PRECIPITATION DEPTH
                        TRDA        0.00  TRANSPOSITION DRAINAGE AREA

   14 PI             PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.01      0.01      0.00      0.01      0.00      0.01
                        0.01      0.00      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.02      0.02      0.02      0.03      0.10      0.28      0.04      0.03
                        0.02      0.02      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                        0.01      0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00

   24 JD           INDEX STORM NO. 2
                        STRM        3.66  PRECIPITATION DEPTH
                        TRDA       10.00  TRANSPOSITION DRAINAGE AREA

    0 PI             PRECIPITATION PATTERN
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                        0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.01
0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.02	0.02	0.03	0.10	0.28	0.04	0.03
0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00				

25 JD INDEX STORM NO. 3
STRM 3.53 PRECIPITATION DEPTH
TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.01
0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.02	0.02	0.03	0.10	0.28	0.04	0.03
0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
	HYDROGRAPH AT									
+		76THST	69.	12.50	23.	8.	4.	0.24		
	HYDROGRAPH AT									
+		SB01	278.	2.55	30.	8.	4.	0.11		
	2 COMBINED AT									

+	CP-1	276.	2.55	30.	15.	8.	0.35
ROUTED TO							
+	R1-2	273.	2.70	30.	15.	8.	0.35
HYDROGRAPH AT							
+	SB02	410.	2.55	46.	12.	6.	0.16
2 COMBINED AT							
+	CP-2	627.	2.65	76.	26.	13.	0.51
ROUTED TO							
+	R2-3	618.	2.70	76.	26.	13.	0.51
HYDROGRAPH AT							
+	SB03	111.	2.60	14.	4.	2.	0.05
2 COMBINED AT							
+	CP-3	720.	2.70	90.	30.	15.	0.56
ROUTED TO							
+	R3-5	713.	2.80	90.	30.	15.	0.56
HYDROGRAPH AT							
+	SB04	440.	2.55	45.	11.	5.	0.14
ROUTED TO							
+	R4-5	432.	2.65	45.	11.	5.	0.14
HYDROGRAPH AT							
+	SB05	340.	2.55	36.	9.	4.	0.13
3 COMBINED AT							
+	CP-5	1265.	2.75	170.	50.	25.	0.83
ROUTED TO							
+	R5-6	1242.	2.80	169.	50.	25.	0.83
HYDROGRAPH AT							
+	SB06	355.	2.55	40.	10.	5.	0.14
2 COMBINED AT							
+	CP-6	1466.	2.80	208.	60.	29.	0.96
HYDROGRAPH AT							
+	SB07	322.	2.50	21.	5.	2.	0.07
ROUTED TO							
+	R7-8	310.	2.65	21.	5.	3.	0.07
HYDROGRAPH AT							
+	SB08	660.	2.55	68.	17.	8.	0.22
2 COMBINED AT							
+	CP-8	903.	2.65	89.	22.	11.	0.30
ROUTED TO							
+	R8-9	880.	2.70	89.	22.	11.	0.30
HYDROGRAPH AT							
+	SB09	147.	2.55	15.	4.	2.	0.05
2 COMBINED AT							
+	CP-9	985.	2.70	104.	26.	12.	0.35
HYDROGRAPH AT							
+	PWRCH	3884.	13.35	1547.	503.	248.	7.00
2 COMBINED AT							
+	BINFLO	3884.	13.35	1547.	503.	260.	7.35
ROUTED TO							
+	BASIN	463.	18.45	458.	399.	251.	7.35
ROUTED TO							
+	BSNRT1	463.	18.50	458.	399.	251.	7.35
ROUTED TO							
+	BSNRT2	463.	18.50	458.	399.	251.	7.35
HYDROGRAPH AT							
+	SB10	141.	2.50	12.	3.	1.	0.04
2 COMBINED AT							
+	CP-10	463.	18.50	458.	399.	252.	7.39
ROUTED TO							
+	R10-11	463.	18.55	458.	399.	252.	7.39
HYDROGRAPH AT							
+	SB11	195.	2.55	21.	5.	3.	0.07
2 COMBINED AT							
+	CP-11	463.	18.55	458.	399.	254.	7.46

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1-2	MANE	3.00	287.35	160.24	1.72	3.00	284.38	162.00	1.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3222E+02 EXCESS=0.0000E+00 OUTFLOW=0.3226E+02 BASIN STORAGE=0.5145E-01 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R1-2	MANE	3.00	270.30	162.31	1.67	3.00	267.71	162.00	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3132E+02 EXCESS=0.0000E+00 OUTFLOW=0.3135E+02 BASIN STORAGE=0.5145E-01 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 20.00									
R1-2	MANE	3.00	259.93	162.15	1.64	3.00	259.40	162.00	1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3073E+02 EXCESS=0.0000E+00 OUTFLOW=0.3080E+02 BASIN STORAGE=0.5496E-01 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R2-3	MANE	1.51	651.07	161.96	2.07	3.00	651.05	162.00	2.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5609E+02 EXCESS=0.0000E+00 OUTFLOW=0.5610E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
R2-3	MANE	1.68	617.22	162.52	1.98	3.00	607.09	162.00	1.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5389E+02 EXCESS=0.0000E+00 OUTFLOW=0.5385E+02 BASIN STORAGE=0.3635E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00									
R2-3	MANE	1.57	606.67	162.84	1.93	3.00	594.12	162.00	1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5252E+02 EXCESS=0.0000E+00 OUTFLOW=0.5252E+02 BASIN STORAGE=0.3881E-01 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	2.90	746.61	169.74	2.14	3.00	740.89	168.00	2.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6349E+02 EXCESS=0.0000E+00 OUTFLOW=0.6368E+02 BASIN STORAGE=0.7132E-01 PERCENT ERROR=
-0.4

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R3-5	MANE	2.99	705.69	168.12	2.05	3.00	703.45	168.00	2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6077E+02 EXCESS=0.0000E+00 OUTFLOW=0.6099E+02 BASIN STORAGE=0.7609E-01 PERCENT ERROR=
-0.5

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R3-5	MANE	2.97	683.83	168.92	2.00	3.00	669.67	168.00	2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5920E+02 EXCESS=0.0000E+00 OUTFLOW=0.5943E+02 BASIN STORAGE=0.7619E-01 PERCENT ERROR=
-0.5

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.44	447.26	159.45	3.02	3.00	444.07	159.00	3.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2308E+02 EXCESS=0.0000E+00 OUTFLOW=0.2320E+02 BASIN STORAGE=0.4656E-04 PERCENT ERROR=
-0.5

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R4-5	MANE	2.59	429.78	158.16	2.87	3.00	425.33	159.00	2.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2182E+02 EXCESS=0.0000E+00 OUTFLOW=0.2203E+02 BASIN STORAGE=0.4483E-04 PERCENT ERROR=
-1.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R4-5	MANE	2.60	410.95	158.84	2.76	3.00	410.03	159.00	2.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2100E+02 EXCESS=0.0000E+00 OUTFLOW=0.2116E+02 BASIN STORAGE=0.3691E-04 PERCENT ERROR=
-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	1.77	1321.25	168.17	2.39	3.00	1316.26	168.00	2.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1051E+03 EXCESS=0.0000E+00 OUTFLOW=0.1053E+03 BASIN STORAGE=0.6328E-01 PERCENT ERROR=-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R5-6	MANE	1.94	1236.19	169.97	2.28	3.00	1225.73	171.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1002E+03 EXCESS=0.0000E+00 OUTFLOW=0.1004E+03 BASIN STORAGE=0.6753E-01 PERCENT ERROR=-0.2

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R5-6	MANE	1.82	1180.28	168.70	2.20	3.00	1169.55	171.00	2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9721E+02 EXCESS=0.0000E+00 OUTFLOW=0.9718E+02 BASIN STORAGE=0.6757E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7-8	MANE	2.98	320.52	158.47	2.78	3.00	316.88	159.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1062E+02 EXCESS=0.0000E+00 OUTFLOW=0.1097E+02 BASIN STORAGE=0.1432E-03 PERCENT ERROR=-3.3

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R7-8	MANE	2.87	305.35	159.01	2.61	3.00	304.85	159.00	2.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1001E+02 EXCESS=0.0000E+00 OUTFLOW=0.1032E+02 BASIN STORAGE=0.1568E-03 PERCENT ERROR=-3.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R7-8	MANE	3.00	287.36	160.28	2.59	3.00	278.18	159.00	2.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9623E+01 EXCESS=0.0000E+00 OUTFLOW=0.1023E+02 BASIN STORAGE=0.1386E-03 PERCENT ERROR=-6.3

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8-9	MANE	1.46	914.50	162.26	2.88	3.00	911.54	162.00	2.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4580E+02 EXCESS=0.0000E+00 OUTFLOW=0.4583E+02 BASIN STORAGE=0.2113E-03 PERCENT ERROR=-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R8-9	MANE	1.32	877.55	161.38	2.73	3.00	866.18	162.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4326E+02 EXCESS=0.0000E+00 OUTFLOW=0.4337E+02 BASIN STORAGE=0.2285E-03 PERCENT ERROR=-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R8-9	MANE	1.49	824.02	161.14	2.64	3.00	818.74	162.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4190E+02 EXCESS=0.0000E+00 OUTFLOW=0.4192E+02 BASIN STORAGE=0.2053E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.33	462.77	1107.64	2.65	3.00	462.77	1110.00	2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.9252E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.33	462.63	1107.74	2.64	3.00	462.63	1110.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1035E+04 EXCESS=0.0000E+00 OUTFLOW=0.1035E+04 BASIN STORAGE=0.9241E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.34	462.54	1107.73	2.64	3.00	462.54	1110.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1033E+04 EXCESS=0.0000E+00 OUTFLOW=0.1033E+04 BASIN STORAGE=0.9237E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.48	462.77	1110.07	2.65	3.00	462.77	1110.00	2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.1054E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.37	462.63	1110.22	2.64	3.00	462.63	1110.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1035E+04 EXCESS=0.0000E+00 OUTFLOW=0.1035E+04 BASIN STORAGE=0.1056E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.33	462.54	1110.65	2.64	3.00	462.54	1110.00	2.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1033E+04 EXCESS=0.0000E+00 OUTFLOW=0.1033E+04 BASIN STORAGE=0.1056E+00 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	2.40	462.77	1113.47	2.64	3.00	462.77	1113.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1043E+04 EXCESS=0.0000E+00 OUTFLOW=0.1042E+04 BASIN STORAGE=0.1560E+01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

R10-11	MANE	2.40	462.63	1113.70	2.64	3.00	462.62	1116.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1040E+04 EXCESS=0.0000E+00 OUTFLOW=0.1039E+04 BASIN STORAGE=0.1557E+01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 20.00

R10-11	MANE	2.47	462.54	1114.58	2.63	3.00	462.54	1113.00	2.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1038E+04 EXCESS=0.0000E+00 OUTFLOW=0.1037E+04 BASIN STORAGE=0.1559E+01 PERCENT ERROR=0.0

*** NORMAL END OF HEC-1 ***

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1****************************************
****************************************
 *                                      *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
  *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   12SEP14  TIME  11:47:04  *                                                    *           (916) 756-1104
  *
 *                                      *                                                    *
  *
 ****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE ALTERNATIVES
            2           ID        RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            3           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            4           ID       100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            5           ID           PIMA ROAD FLOWS)
            6           ID        PHASE 2 BASIN - SIDESLOPES STEEPENED FROM ~5:1 TO 3:1
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           IT       3       0       0    1000
           12           IO       3
                        *DIAGRAM
                        *
           13           JD   2.755  0.0001
           14           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           16           PC   0.962   0.972   0.983   0.991   1.000
           17           JD   2.738  0.5000
           18           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           19           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           20           PC   0.962   0.972   0.983   0.991   1.000
           21           JD   2.686     2.8
           22           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           23           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           24           PC   0.950   0.963   0.975   0.988   1.000
           25           JD   2.540    16.0
           26           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
           27           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
           28           PC   0.946   0.960   0.973   0.987   1.000
           29           JD   2.232    90.0
           30           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
           31           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
           32           PC   0.927   0.945   0.964   0.982   1.000
                        *

           33           KK  76THST
           34           KM        76TH STREET CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
           35           KM        100-YR, 6-HR FLO-2D MODEL (XS 98)
           36           BA    0.24
           37           QI       0       0       0       0       0       0       0       0       0
           38           QI       0       0       0       0       0       0       0       0       0
           39           QI       0       0       0       0       0       0       0       0       0
           40           QI       0       0       0       0       0       0       0       0       0
           41           QI       0       0       0       0       0       0       0       0       0
           42           QI       0       0    0.01       0       0       0       0       0       0
           43           QI    0.01       0       0    0.01    0.01    0.01    0.02    0.03    0.05    0.07
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   44          QI    0.09    0.16    0.27    0.42    0.63     0.9    2.34    3.89    7.48   10.26
   45          QI    12.7   14.07   17.67   27.43   38.25   42.26   42.56   42.35   43.77   48.39
   46          QI   49.92   51.19   50.98   50.52   49.38    48.6   44.64   42.62   39.72   36.96
   47          QI   34.49   32.83   31.02    29.6   28.15   26.72   25.66   24.48   23.53   22.56
   48          QI   21.55   20.83   19.46   20.34   18.32   17.51   16.55   16.22   15.59   15.15
   49          QI   14.81   14.23   13.72   13.18   13.21   12.84   12.36   12.34   12.16      12
   50          QI   11.63   11.31   11.37   11.23   11.13   10.56   10.63   10.27    9.98    9.86
   51          QI    9.58    9.02    9.34    8.67    8.51    8.32    8.08    7.75    7.43    7.37
1                                        HEC-1 INPUT                                        PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   52          QI    7.29    7.19    7.08       7    6.89    6.73    6.55     6.4    6.23    6.02
   53          QI    5.83    5.66    5.06    4.57    4.75    4.76    4.65    4.55    4.44    4.32
   54          QI    4.23    4.15    4.05    3.95    3.87    3.81    3.68    3.54    3.48    3.42
   55          QI     3.4    2.42    2.38     3.4    3.61    3.55    3.49    2.89    2.36    2.36
   56          QI    2.36    2.37    2.44    3.67    2.44    2.51    2.49    2.47    2.42    2.37
   57          QI    2.32    2.29    2.26    2.23    2.19    2.16    2.13     2.1    2.07    2.05
   58          QI    2.02    1.99    1.96    1.91    1.86    1.83    1.78    1.69    1.58    1.54
   59          QI    1.58    1.65    1.69    1.67    1.59     1.5    1.36    1.41    1.51    1.54
   60          QI    1.52    1.35    1.43    1.37    1.25    1.21     1.2     1.2    1.23    1.28
   61          QI    1.31    1.34    1.35    1.35    1.34    1.34    1.33    1.33    1.26    1.09
   62          QI    1.09    1.11    1.16    1.22    1.06    1.07    1.15    1.06    1.05    1.05
   63          QI    1.04    1.02    1.01       1    0.98    0.97    0.96    0.95    0.94    0.92
   64          QI    0.91     0.9    0.89    0.88    0.87    0.86    0.85    0.85    0.84    0.84
   65          QI    0.83    0.82    0.81     0.8    0.79    0.79    0.78    0.77    0.77    0.76
   66          QI    0.76    0.75    0.74    0.74    0.73    0.72    0.71    0.71     0.7    0.69
   67          QI    0.69    0.68    0.68    0.67    0.67    0.67    0.66    0.66    0.65    0.65
   68          QI    0.65    0.64    0.64    0.63    0.63    0.62    0.62    0.62    0.61    0.61
   69          QI     0.6     0.6    0.59    0.59    0.58    0.58    0.57    0.57    0.56    0.56
   70          QI    0.55    0.55    0.54    0.54    0.54    0.53    0.53    0.52    0.52    0.52
   71          QI    0.51    0.51     0.5     0.5     0.5    0.49    0.49    0.48    0.48    0.48
   72          QI    0.47    0.47    0.46    0.46    0.46    0.45    0.45    0.45    0.44    0.44
   73          QI    0.44
               *

   74          KK    SB01   BASIN
   75          BA   0.112
   76          LG    0.25    0.25    4.10    0.55      45
   77          UC   0.317   0.252
   78          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   79          UA     100
               *

   80          KK    CP-1 COMBINE
   81          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   82          HC       2
               *

   83          KK    R1-2   ROUTE
   84          KM        MILLER RD CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
   85          RK    2104  0.0015   0.03             TRAP      66       4
               *

   86          KK    SB02   BASIN
   87          BA   0.157
   88          LG    0.15    0.25    4.15    0.58      56
   89          UC   0.324   0.237
   90          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
   91          UA     100
               *
1                                        HEC-1 INPUT                                        PAGE  3

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   92          KK    CP-2 COMBINE
   93          KM        SR 101L FREEWAY AND 76TH ST (MILLER RD CHANNEL)
   94          HC       2
               *

   95          KK    R2-3   ROUTE
   96          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
   97          RK    1260  0.0015   0.03             TRAP      92       4
               *

   98          KK    SB03   BASIN
   99          BA   0.048
  100          LG    0.15    0.25    4.50    0.47      55
  101          UC   0.360   0.290
  102          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  103          UA     100
               *

  104          KK    CP-3 COMBINE
  105          KM        MAYO BLVD AND 76TH ST (MILLER RD CHANNEL)
  106          HC       2
               *

  107          KK    R3-5   ROUTE
  108          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
  109          RK    2396  0.0015   0.03             TRAP      98       4
               *
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 110          KK    SB04   BASIN
 111          BA   0.144
 112          LG    0.14    0.25    4.60    0.44      61
 113          UC   0.301   0.196
 114          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 115          UA     100
              *

 116          KK    R4-5   ROUTE
 117          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 118          RK    2005  0.0013   0.03             TRAP      39       4
              *

 119          KK    SB05   BASIN
 120          BA   0.126
 121          LG    0.22    0.25    4.50    0.44      48
 122          UC   0.326   0.224
 123          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 124          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 125          KK    CP-5 COMBINE
 126          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
 127          HC       3
              *

 128          KK    R5-6   ROUTE
 129          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
 130          RK    1550  0.0015   0.03             TRAP     188       4
              *

 131          KK    SB06   BASIN
 132          BA   0.136
 133          LG    0.16    0.25    4.55    0.45      53
 134          UC   0.318   0.243
 135          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 136          UA     100
              *

 137          KK    CP-6 COMBINE
 138          KM        PRINCESS BLVD AND SCOTTSDALE RD (PRINCESS BLVD CHANNEL)
 139          HC       2
              *

 140          KK    SB07   BASIN
 141          BA   0.074
 142          LG    0.21    0.25    4.00    0.58      49
 143          UC   0.204   0.113
 144          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 145          UA     100
              *

 146          KK    R7-8   ROUTE
 147          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 148          RK    2778  0.0014   0.03             TRAP      46       4
              *

 149          KK    SB08   BASIN
 150          BA   0.224
 151          LG    0.14    0.25    4.10    0.59      59
 152          UC   0.333   0.193
 153          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 154          UA     100
              *

 155          KK    CP-8 COMBINE
 156          KM        SR 101L FREEWAY AND HAYDEN ROAD (HAYDEN ROAD NORTH CHANNEL)
 157          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 158          KK    R8-9   ROUTE
 159          KM        HAYDEN ROAD NORTH CHANNEL FROM HAYDEN ROAD TO BASIN 53R
 160          RK    1250  0.0013   0.03             TRAP      67       4
              *

 161          KK    SB09   BASIN
 162          BA   0.052
 163          LG    0.15    0.25    4.00    0.61      55
 164          UC   0.251   0.227
 165          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 166          UA     100
              *

 167          KK    CP-9 COMBINE
 168          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
 169          HC       2
```

```
             *
 170         KK  PIMACH
 171         KM        PIMA ROAD CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
 172         KM        100-YR, 6-HR FLO-2D MODEL (XS 183)
 173         BA    12.3
 174         QI       0       0       0       0       0       0       0       0       0       0
 175         QI       0       0       0       0       0       0       0       0       0       0
 176         QI       0       0       0       0       0       0       0       0       0       0
 177         QI       0       0       0       0       0       0       0       0       0       0
 178         QI       0       0       0       0       0       0       0       0       0       0
 179         QI       0       0       0       0       0       0       0       0       0       0
 180         QI       0       0       0       0       0       0    0.01    0.01    0.01    0.01
 181         QI    0.02    0.06    0.12    0.19    0.29    0.43    1.62    3.73    6.28   13.12
 182         QI   19.17   18.99   20.23   23.44    37.1    65.6  118.28  536.07  740.49  784.96
 183         QI  795.73  792.08  785.39  784.16  826.86  835.79  839.66  856.83  890.85 1074.56
 184         QI 1522.8 1924.46 2612.09 2761.62 3125.86 3450.94 3565.35 3786.18 3953.42 4005.23
 185         QI 4017.2 3956.42 3828.66 3704.96 3584.74 3457.47 3327.91 3209.52  3068.2 2902.83
 186         QI 2698.1 2519.92 2353.91 2218.47 2091.25 1970.95 1868.74 1749.96 1656.67 1564.23
 187         QI 1473.2 1392.42 1326.33 1253.44 1190.18 1121.44 1068.33  1012.4  961.04  907.15
 188         QI    859  817.16  777.05  741.05  708.67  676.64  650.15     620  595.68  569.46
 189         QI  552.9  528.08  508.87  488.92  471.15  456.27  440.43  424.35  410.65  396.26
 190         QI 384.05   374.5  363.39  351.31  341.86  332.93  325.13  317.66  308.91  300.01
 191         QI 291.96  282.64   276.3  270.44  264.03  257.52  251.57  244.49  238.62  232.96
 192         QI 227.38  223.46  217.91  210.73  207.24  202.22  197.15  192.34  189.04  184.57
 193         QI 178.93   173.7  170.95   166.9  162.57  158.97  155.56  151.97  149.46  146.92
 194         QI  143.8  141.62  138.05  136.38   130.4  128.32  123.98  120.84   117.3  114.09
 195         QI 113.28  110.56  108.01  104.98  103.24  100.82   98.69   97.77    95.8   93.56
 196         QI   92.8   91.19   88.35   86.44   84.49   82.18    80.7   78.31   76.07   74.85
 197         QI  73.81   73.17   71.94   70.66   69.66   69.54   67.38   67.61   65.17   62.74
 198         QI  61.41   60.29   61.36   59.06   56.97   56.32   55.01   53.88   52.91   52.23
 199         QI  52.11   50.68   50.15    49.6   48.36    47.6   46.82    46.4   45.54   44.69
 200         QI  43.67   43.34   42.77    41.9   41.04   40.86   40.39   39.72   38.49   38.26
 201         QI  37.01   36.83   36.64   35.35   35.64   34.94   35.17    33.9    33.7   33.71
 202         QI  33.78   32.55   32.35   31.97   31.61   31.38   31.21   30.84   30.41      30
 203         QI  29.61   29.27   28.72   28.17   27.62   27.26   26.95   26.26   25.93   25.66
 204         QI   25.7   25.62    25.7   25.39   24.94   24.57   24.28   23.92   23.55   22.97
 205         QI   22.7   22.79   22.23   21.94   21.87    21.6    21.3   21.18   21.05   20.75
1                                          HEC-1 INPUT                                        PAGE  6

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 206         QI  20.64    20.4   20.19   19.93    19.9   19.01   18.72    18.7   18.37   18.27
 207         QI   18.1   18.05    17.3   17.39   17.27   17.09   16.86   16.81   16.73    16.6
 208         QI  16.55   16.33   16.05   15.82   15.63   15.43   15.38   15.42   15.17   14.98
 209         QI  14.82   14.78   14.76   14.57   14.24   14.01   13.85   13.94   13.77   13.77
 210         QI   12.6
             *
 211         KK  PIMAIN
 212         KM    BYPASS ALONG SE SIDE OF BASIN 53R TO ADOT CULVERT NEAR UNION HILLS DR
 213         DT  PIMABY
 214         DI       0    1000   10000
 215         DQ       0    1000    1000
             *
 216         KK   PWRCH
 217         KM        POWERLINE CHANNEL HYDROGRAPH FROM FLO-2D
 218         KM        100-YR, 6-HR FLO-2D MODEL (XS 107)
 219         BA     7.0
 220         QI       0       0       0       0       0       0       0       0       0       0
 221         QI       0       0       0       0       0       0       0       0       0       0
 222         QI       0       0       0       0       0       0       0       0       0       0
 223         QI       0       0       0       0       0       0       0       0       0       0
 224         QI       0       0       0       0       0       0       0       0       0       0
 225         QI       0       0       0       0       0       0       0       0       0       0
 226         QI       0       0       0       0       0       0       0       0       0       0
 227         QI       0       0    0.03    0.05    0.08    0.11    0.58    1.13    1.62    2.35
 228         QI   17.74   24.61   32.43    41.1      46   50.91  131.64  355.54   399.7  422.85
 229         QI  433.53  433.73  422.44  409.12  397.71  391.08  388.91   381.3  371.02  361.84
 230         QI  359.13  372.83  390.54  400.38  398.98  391.64  390.01  419.65  505.31  577.51
 231         QI  616.52   654.6  689.73   713.7  727.81  737.85  739.81  733.87  725.12  714.86
 232         QI  699.64  690.12  677.33  666.62  655.55  645.41  637.05  633.81  630.71  627.88
 233         QI  621.52  616.56  611.87  606.82  603.07  599.48  598.68  597.46  596.17  595.28
 234         QI  594.12  590.26  586.44  582.19  576.08  570.84  564.08  555.83  546.74  537.07
 235         QI  525.86  516.15  505.83  495.17  484.12  472.45  462.13  451.31  441.83  429.35
 236         QI  419.09  410.42  401.94   394.3  384.43  375.56  366.51  358.68  350.24   342.9
 237         QI     335  326.95  320.66  313.52  306.21  299.42  294.88  279.13  274.41  272.37
 238         QI   270.9  258.49  256.83  252.87  239.19  235.68  236.09  226.97  221.44  220.04
 239         QI  211.13  213.73  201.19  203.88   194.6  196.81  183.61  188.47  178.11  181.39
 240         QI  172.83  170.18  168.28  163.33  169.45  155.83  153.79  154.42  148.45  145.47
 241         QI  146.04  140.33  138.63  140.19  133.49  130.23  135.24  122.64  121.61  121.05
 242         QI   120.9  117.47  115.13  113.28   116.6  110.32  107.03  105.71  109.02  101.22
 243         QI   99.25   97.86   99.48  103.28   92.95    90.9   89.54   87.83   91.59   84.19
 244         QI   82.93    81.6   80.75   79.42   82.41   77.68   75.61   74.44   74.51   72.29
 245         QI    79.3   70.93   70.15   69.48   68.44   67.58   66.72   72.25   65.21   64.67
 246         QI    63.5   62.83    62.6   62.06   61.31   64.86   60.25   59.05   58.48   55.87
 247         QI   56.01   55.72    54.8   54.06   53.38   51.64   51.71   50.75   49.83    49.2
 248         QI   48.75   46.82   45.85   45.55    47.8   43.99   43.77   43.28   42.64   42.31
 249         QI   42.04   41.65   41.41   40.69    40.3   40.09   39.93   39.53   42.18   38.64
 250         QI   37.99   37.44   37.13   36.96    36.8   36.19   35.56   35.28   34.71    33.9
 251         QI   33.42   33.14   32.73   39.25   32.39   31.56   30.95   30.66    30.3      30
 252         QI   29.22   28.72   29.47   28.39   28.32   28.13   28.24   28.22   27.67   27.34
 253         QI   27.15   27.03   26.51   25.94   25.77   31.57   25.38   25.06   25.04   24.52
```

```
          254          QI   24.31   24.43   24.27   23.35   23.93    23.1   22.66   22.71   22.57   22.79
          255          QI   22.09   21.91   21.94   21.84   21.71   21.66   21.87   21.85   21.36   21.06
          256          QI   20.95
                       *
1                                          HEC-1 INPUT                                                PAGE  7

          LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          257          KK  BINFLO
          258          KM         TOTAL INFLOW INTO BASIN 53R.
          259          HC       3
                       *

          260          KK   BASIN
          261          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
          262          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
          263          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
          264          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
          265          RS       1    STOR       0
          266          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
          267          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
          268          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
          269          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
          270          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
          271          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
                       *

          272          KK  BSNRT1
          273          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
          274          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
          275          KM        EXCESS CAPACITY.
          276          RK     550  0.0052   0.024            CIRC     7.0
                       *

          277          KK  BSNRT2
          278          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BASIN 53R OUTFAL
          279          RK    1200  0.0077   0.013            CIRC     7.0
                       *

          280          KK  PIMABY
          281          KM    RETRIEVE PIMA BYPASS CHANNEL HYDROGRAPH
          282          DR  PIMABY
                       *

          283          KK  PMB-RT
          284          KM        UNION HILLS DR CHANNEL FROM SR 101L FREEWAY TO 82ND ST
          285          RK    3157  0.0082   0.013       0    TRAP      24       4
                       *

          286          KK    SB10   BASIN
          287          BA   0.040
          288          LG    0.15    0.25    4.25    0.55      55
          289          UC   0.230   0.159
          290          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          291          UA     100
                       *
1                                          HEC-1 INPUT                                                PAGE  8

          LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          292          KK   CP-10 COMBINE
          293          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
          294          HC       3
                       *

          295          KK  R10-11   ROUTE
          296          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
          297          RK    1277  0.0014   0.03             TRAP     220       4
                       *

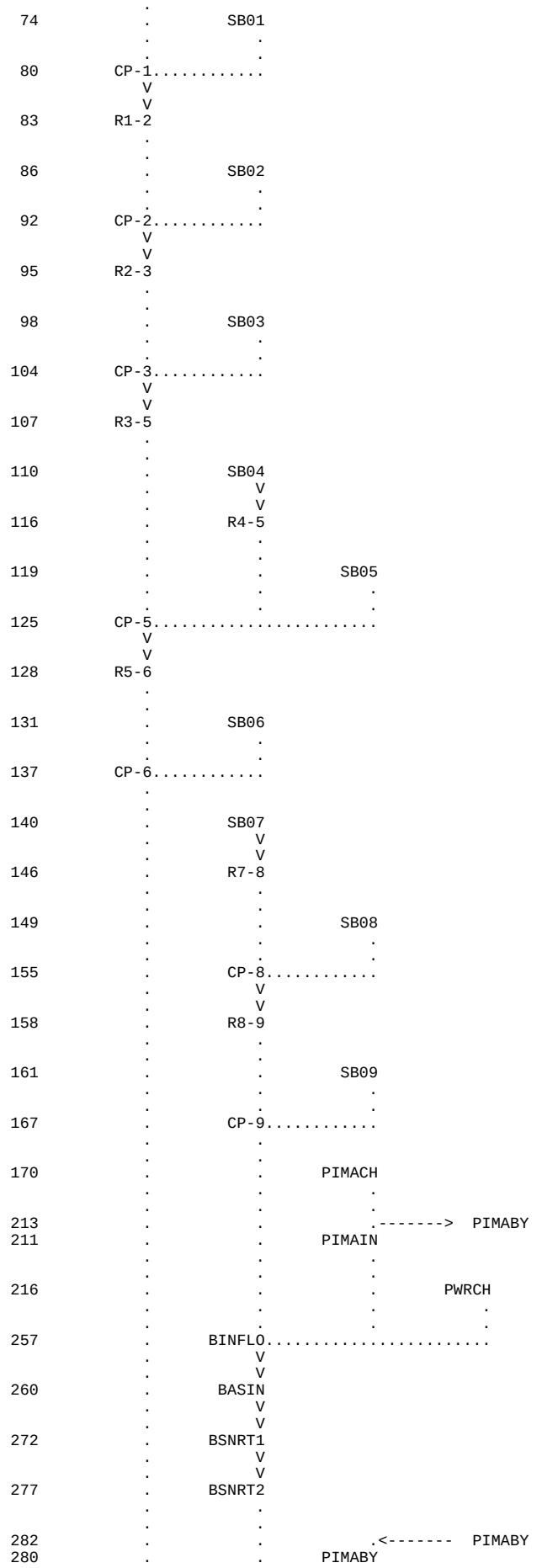
          298          KK    SB11   BASIN
          299          BA   0.071
          300          LG    0.15    0.25    4.15    0.58      55
          301          UC   0.292   0.229
          302          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
          303          UA     100
                       *

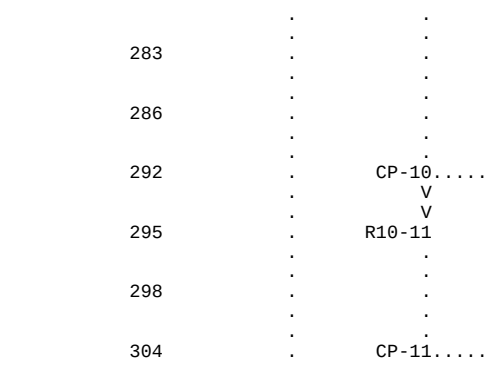
          304          KK   CP-11 COMBINE
          305          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
          306          HC       2
                       *
          307          ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     33     76THST
              .
```


74 SB01
80 CP-1
83 R1-2
86 SB02
92 CP-2
95 R2-3
98 SB03
104 CP-3
107 R3-5
110 SB04
116 R4-5
119 SB05
125 CP-5
128 R5-6
131 SB06
137 CP-6
140 SB07
146 R7-8
149 SB08
155 CP-8
158 R8-9
161 SB09
167 CP-9
170 PIMACH
213 PIMABY
211 PIMAIN
216 PWRCH
257 BINFLO
260 BASIN
272 BSNRT1
277 BSNRT2
282 PIMABY
280 PIMABY



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**********

****

* * *

* FLOOD HYDROGRAPH PACKAGE (HEC-1) * * U.S. ARMY CORPS OF ENGINEERS

* JUN 1998 * * HYDROLOGIC ENGINEERING CENTER

* VERSION 4.1 * * 609 SECOND STREET

* * * DAVIS, CALIFORNIA 95616

* RUN DATE 12SEP14 TIME 11:47:04 * * (916) 756-1104

* * *

****

****

CROSS ROADS EAST DRAINAGE ALTERNATIVES
RESERVOIR ROUTING OF BASIN N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
PIMA ROAD FLOWS)
PHASE 2 BASIN - SIDESLOPES STEEPENED FROM ~5:1 TO 3:1

PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
MODELERS: RK, MW

12 IO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 3 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 1000 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 3 0 ENDING DATE
NDTIME 0157 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 49.95 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1
STRM 2.76 PRECIPITATION DEPTH
TRDA 0.00 TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN
0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
0.01 0.02 0.02 0.08 0.16 0.46 0.08 0.02 0.02 0.01
0.01 0.01 0.01 0.01

17 JD INDEX STORM NO. 2
STRM 2.74 PRECIPITATION DEPTH
TRDA 0.50 TRANSPOSITION DRAINAGE AREA

18 PI PRECIPITATION PATTERN

```
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.02      0.02      0.08      0.16      0.46      0.08      0.02      0.02      0.01
                    0.01      0.01      0.01      0.01

   21 JD          INDEX STORM NO. 3
                        STRM        2.69  PRECIPITATION DEPTH
                        TRDA        2.80  TRANSPOSITION DRAINAGE AREA

   22 PI            PRECIPITATION PATTERN
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.02      0.04      0.09      0.20      0.24      0.14      0.06      0.04      0.01
                    0.01      0.01      0.01      0.01

   25 JD          INDEX STORM NO. 4
                        STRM        2.54  PRECIPITATION DEPTH
                        TRDA       16.00  TRANSPOSITION DRAINAGE AREA

   26 PI            PRECIPITATION PATTERN
                    0.01      0.00      0.01      0.02      0.02      0.01      0.01      0.01      0.01      0.02
                    0.02      0.02      0.05      0.08      0.17      0.20      0.13      0.07      0.04      0.03
                    0.01      0.01      0.01      0.01

   29 JD          INDEX STORM NO. 5
                        STRM        2.23  PRECIPITATION DEPTH
                        TRDA       90.00  TRANSPOSITION DRAINAGE AREA

   30 PI            PRECIPITATION PATTERN
                    0.02      0.01      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                    0.02      0.03      0.05      0.08      0.14      0.16      0.12      0.07      0.05      0.04
                    0.02      0.02      0.02      0.02


 *** *** ***
```

	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION 76THST
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 51.	4.55	15.	4.	2.	2.
	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION 76THST
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 51.	4.55	15.	4.	2.	2.
	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT 76THST

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 51.	4.55	15.	4.	2.	2.
	(INCHES)	0.582	0.664	0.728	0.728
	(AC-FT)	7.	9.	9.	9.

CUMULATIVE AREA = 0.24 SQ MI

*** *** *** *

15.	58.	129.	172.	167.	153.	134.	112.	91.	75.
61.	50.	41.	34.	28.	23.	19.	15.	12.	10.
8.	7.	6.	5.	4.	3.	3.	2.	2.	1.

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.59, TOTAL EXCESS = 2.17

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 326.	0.95	26.	7.	3.	3.
		(INCHES) 2.159	2.159	2.159	2.159
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

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HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.59, TOTAL EXCESS = 2.15

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 323.	0.95	26.	6.	3.	3.
		(INCHES) 2.143	2.143	2.143	2.143
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.63, TOTAL EXCESS = 2.05

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 287.	1.00	25.	6.	3.	3.
		(INCHES) 2.044	2.044	2.044	2.044
		(AC-FT) 12.	12.	12.	12.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.68, TOTAL EXCESS = 1.86

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 241.	1.00	22.	6.	3.	3.
		(INCHES) 1.850	1.850	1.850	1.850
		(AC-FT) 11.	11.	11.	11.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB01
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.72, TOTAL EXCESS = 1.52

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 182.	1.00	18.	5.	2.	2.
		(INCHES) 1.510	1.510	1.510	1.510
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.11 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB01

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 324.	0.95	26.	6.	3.	3.
		(INCHES) 2.146	2.146	2.146	2.146
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.11 SQ MI

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CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-1
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 182.	1.00	29.	9.	4.	4.
		(INCHES) 0.776	0.927	0.977	0.977
		(AC-FT) 15.	17.	18.	18.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-1

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 323.	0.95	37.	11.	5.	5.
		(INCHES) 0.982	1.128	1.178	1.178
		(AC-FT) 18.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

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CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	321.94	63.70	1.18	3.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2212E+02 EXCESS=0.0000E+00 OUTFLOW=0.2223E+02 BASIN STORAGE=0.5936E-01 PERCENT ERROR=-0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00		314.95	66.00	1.18

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
315.	1.10	37.	11.	5.	5.
		(INCHES) 0.988	1.134	1.184	1.184
		(AC-FT) 19.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	281.88	67.46	1.15	3.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2153E+02 EXCESS=0.0000E+00 OUTFLOW=0.2160E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00		280.31	66.00	1.15

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
280.	1.10	36.	10.	5.	5.
		(INCHES) 0.955	1.100	1.149	1.149
		(AC-FT) 18.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	3.00	701.33	239.43	66.99	1.09	3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2036E+02 EXCESS=0.0000E+00 OUTFLOW=0.2044E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=-0.7

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00		234.05	69.00	1.09

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 234.	1.15	34.	10.	5.	5.
		(INCHES) 0.887	1.038	1.087	1.087
		(AC-FT) 17.	19.	20.	20.

CUMULATIVE AREA = 0.35 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.17	1.56	2.91	526.00	179.26	70.19	0.98	3.16

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1834E+02 EXCESS=0.0000E+00 OUTFLOW=0.1842E+02 BASIN STORAGE=0.6416E-01 PERCENT ERROR= -0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.17	1.56	3.00	178.38	69.00	0.98

*** *** *** *** ***

HYDROGRAPH AT STATION R1-2
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 178.	1.15	30.	9.	4.	4.
		(INCHES) 0.780	0.932	0.981	0.981
		(AC-FT) 15.	17.	18.	18.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R1-2

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 315.	1.10	37.	11.	5.	5.
		(INCHES) 0.989	1.134	1.184	1.184
		(AC-FT) 19.	21.	22.	22.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *

90 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.32 HR, R= 0.24 HR
SNYDER TP= 0.19 HR, CP= 0.49

UNIT HYDROGRAPH
28 END-OF-PERIOD ORDINATES

21.	81.	185.	250.	242.	220.	192.	160.	129.	104.
85.	68.	55.	45.	36.	29.	24.	19.	16.	13.
10.	8.	7.	5.	4.	4.	3.	2.		

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.45, TOTAL EXCESS = 2.30

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 492.	0.95	39.	10.	5.	5.
		(INCHES) 2.292	2.292	2.292	2.292
		(AC-FT) 19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.45, TOTAL EXCESS = 2.29

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 488.	0.95	38.	10.	5.	5.
		(INCHES) 2.276	2.276	2.276	2.276
		(AC-FT) 19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.49, TOTAL EXCESS = 2.19

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 433.	1.00	37.	9.	4.	4.
		(INCHES) 2.183	2.183	2.183	2.183
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.00

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 365.	1.00	34.	8.	4.	4.
		(INCHES) 1.994	1.994	1.994	1.994
		(AC-FT) 17.	17.	17.	17.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB02
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.56, TOTAL EXCESS = 1.67

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 278.	1.00	28.	7.	3.	3.
		(INCHES) 1.660	1.660	1.660	1.660
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.16 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB02

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 489.	0.95	38.	10.	5.	5.
		(INCHES) 2.278	2.278	2.278	2.278
		(AC-FT) 19.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

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HYDROGRAPH AT STATION CP-2
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 556.	1.10	66.	18.	9.	9.
		(INCHES) 1.207	1.332	1.367	1.367
		(AC-FT) 33.	36.	37.	37.

CUMULATIVE AREA = 0.51 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-2
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 422.	1.10	56.	16.	8.	8.
		(INCHES) 1.028	1.156	1.190	1.190
		(AC-FT) 28.	31.	32.	32.

CUMULATIVE AREA = 0.51 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-2

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 731.	1.05	75.	20.	10.	10.
		(INCHES) 1.362	1.485	1.520	1.520
		(AC-FT) 37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

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HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 726.	1.10	75.	20.	10.	10.
		(INCHES) 1.373	1.495	1.529	1.529
		(AC-FT) 37.	41.	42.	42.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.61	420.00	719.73	65.75	1.52	4.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4128E+02 EXCESS=0.0000E+00 OUTFLOW=0.4128E+02 BASIN STORAGE=0.4197E-01 PERCENT ERROR= -0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		719.25	66.00	1.52

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 719.	1.10	75.	20.	10.	10.
		(INCHES) 1.364	1.486	1.521	1.521
		(AC-FT) 37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.65	420.00	650.44	66.16	1.47	4.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3985E+02 EXCESS=0.0000E+00 OUTFLOW=0.3986E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR= -0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		647.31	66.00	1.47

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 647.	1.10	72.	20.	10.	10.
		(INCHES) 1.313	1.435	1.469	1.469
		(AC-FT) 36.	39.	40.	40.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.61	420.00	553.64	68.36	1.37	4.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3711E+02 EXCESS=0.0000E+00 OUTFLOW=0.3710E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR= -0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		550.82	69.00	1.37

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HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 551.	1.15	66.	18.	9.	9.
		(INCHES) 1.206	1.332	1.366	1.366
		(AC-FT) 33.	36.	37.	37.

CUMULATIVE AREA = 0.51 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.13	1.58	1.77	420.00	421.93	69.46	1.19	3.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3232E+02 EXCESS=0.0000E+00 OUTFLOW=0.3234E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR= -0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.13	1.58	3.00		418.11	69.00	1.19

*** *** *** *** ***

HYDROGRAPH AT STATION R2-3
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 418.	1.15	56.	16.	8.	8.
		(INCHES) 1.029	1.157	1.192	1.192
		(AC-FT) 28.	31.	32.	32.

CUMULATIVE AREA = 0.51 SQ MI

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INTERPOLATED HYDROGRAPH AT R2-3

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 719.	1.10	75.	20.	10.	10.
		(INCHES) 1.363	1.486	1.520	1.520
		(AC-FT) 37.	40.	41.	41.

CUMULATIVE AREA = 0.51 SQ MI

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  100 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.15  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.50  WETTING FRONT SUCTION
                        XKSAT        0.47  HYDRAULIC CONDUCTIVITY
                        RTIMP       55.00  PERCENT IMPERVIOUS AREA

  101 UC          CLARK UNITGRAPH
                           TC        0.36  TIME OF CONCENTRATION
                            R        0.29  STORAGE COEFFICIENT

  102 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

                                                      ***

                                                UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  0.36 HR,       R=  0.29 HR
                                            SNYDER   TP=  0.21 HR,      CP=  0.43

                                                   UNIT HYDROGRAPH
                                            34 END-OF-PERIOD ORDINATES
                      5.       17.       43.       62.       64.       61.       56.       49.       42.       35.
                     30.       25.       21.       18.       15.       12.       10.        9.        7.        6.
                      5.        4.        4.        3.        3.        2.        2.        2.        1.        1.
                      1.        1.        1.        1.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.44, TOTAL EXCESS =    2.31

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      130.      1.00                   12.          3.          1.          1.
                          (INCHES)     2.302       2.302       2.302       2.302
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.44, TOTAL EXCESS =    2.30

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      129.      1.00                   12.          3.          1.          1.
                          (INCHES)     2.286       2.286       2.286       2.286
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.48, TOTAL EXCESS =    2.21

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      117.      1.00                   11.          3.          1.          1.
                          (INCHES)     2.198       2.198       2.198       2.198
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB03
                          TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.52, TOTAL EXCESS =    2.02

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
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+      99.      1.05                    10.          3.          1.          1.
                          (INCHES)     2.014       2.014       2.014       2.014
                           (AC-FT)       5.          5.          5.          5.

                           CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     SB03
                        TRANSPOSITION AREA     90.0 SQ MI

     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.54, TOTAL EXCESS =    1.69

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+      77.      1.05                    9.          2.          1.          1.
                          (INCHES)     1.679       1.679       1.679       1.679
                           (AC-FT)       4.          4.          4.          4.

                           CUMULATIVE AREA =    0.05 SQ MI

       ***             ***             ***             ***             ***


                           INTERPOLATED HYDROGRAPH AT     SB03

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     129.      1.00                   12.          3.          1.          1.
                          (INCHES)     2.290       2.290       2.290       2.290
                           (AC-FT)       6.          6.          6.          6.

                           CUMULATIVE AREA =    0.05 SQ MI



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TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 755.	1.10	83.	22.	11.	11.
		(INCHES) 1.385	1.500	1.532	1.532
		(AC-FT) 41.	45.	46.	46.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-3
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 638.	1.15	76.	21.	10.	10.
		(INCHES) 1.271	1.390	1.422	1.422
		(AC-FT) 38.	41.	42.	42.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-3
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 487.	1.15	65.	18.	9.	9.
		(INCHES) 1.080	1.202	1.234	1.234
		(AC-FT) 32.	36.	37.	37.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-3

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 828.	1.10	86.	23.	11.	11.
		(INCHES) 1.435	1.552	1.583	1.583
		(AC-FT) 43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *

MAIN	0.12	1.58	2.78	798.67	817.36	73.14	1.60	5.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4741E+02 EXCESS=0.0000E+00 OUTFLOW=0.4763E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		816.94	72.00	1.60

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 817.	1.20	87.	24.	12.	12.
		(INCHES) 1.450	1.571	1.602	1.602
		(AC-FT) 43.	47.	48.	48.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.12	1.58	2.79	798.67	810.60	70.45	1.59	4.99

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4713E+02 EXCESS=0.0000E+00 OUTFLOW=0.4736E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=-0.7

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		810.54	72.00	1.59

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 811.	1.20	86.	23.	11.	11.
		(INCHES) 1.440	1.562	1.593	1.593
		(AC-FT) 43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.12	1.58	2.90	798.67	742.52	73.90	1.54	4.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4551E+02 EXCESS=0.0000E+00 OUTFLOW=0.4571E+02 BASIN STORAGE=0.8226E-01 PERCENT ERROR=-0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		740.16	72.00	1.54

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 740.	1.20	83.	23.	11.	11.
		(INCHES) 1.385	1.506	1.537	1.537

(AC-FT) 41. 45. 46. 46.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.12	1.58	3.00	798.67	634.55	73.70	1.43	4.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4224E+02 EXCESS=0.0000E+00 OUTFLOW=0.4240E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR= -0.6

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		626.49	75.00	1.43

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
626.	1.25	76.	21.	10.	10.
		(INCHES) 1.271	1.396	1.427	1.427
		(AC-FT) 38.	41.	42.	42.

CUMULATIVE AREA = 0.56 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.12	1.58	3.00	798.67	478.66	74.64	1.24	4.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3665E+02 EXCESS=0.0000E+00 OUTFLOW=0.3688E+02 BASIN STORAGE=0.8233E-01 PERCENT ERROR= -0.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.12	1.58	3.00		478.05	75.00	1.24

*** *** *** *** ***

HYDROGRAPH AT STATION R3-5
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
478.	1.25	65.	18.	9.	9.
		(INCHES) 1.082	1.210	1.242	1.242
		(AC-FT) 32.	36.	37.	37.

CUMULATIVE AREA = 0.56 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R3-5

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
806.	1.20	86.	23.	11.	11.
		(INCHES) 1.437	1.558	1.589	1.589
		(AC-FT) 43.	46.	47.	47.

CUMULATIVE AREA = 0.56 SQ MI

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            *            *
  110 KK    *      SB04  *        BASIN
            *            *
            **************

               SUBBASIN RUNOFF DATA

  111 BA          SUBBASIN CHARACTERISTICS
                        TAREA        0.14  SUBBASIN AREA

  112 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.14  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.60  WETTING FRONT SUCTION
                        XKSAT        0.44  HYDRAULIC CONDUCTIVITY
                        RTIMP       61.00  PERCENT IMPERVIOUS AREA

  113 UC          CLARK UNITGRAPH
                           TC        0.30  TIME OF CONCENTRATION
                            R        0.20  STORAGE COEFFICIENT

  114 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

                                                        ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=  0.30 HR,       R=  0.20 HR
                                         SNYDER   TP=  0.18 HR,      CP=  0.54

                                                    UNIT HYDROGRAPH
                                                24 END-OF-PERIOD ORDINATES
                    26.      107.      218.      267.      245.      215.      177.      137.      106.       82.
                    63.       49.       38.       29.       23.       18.       14.       11.        8.        6.
                     5.        4.        3.        2.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB04
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.38, TOTAL EXCESS =    2.38

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     528.      0.95                37.          9.          4.          4.
                         (INCHES)     2.369       2.369       2.369       2.369
                          (AC-FT)       18.         18.         18.         18.

                           CUMULATIVE AREA =    0.14 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB04
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.37, TOTAL EXCESS =    2.36

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     524.      0.95                36.          9.          4.          4.
                         (INCHES)     2.353       2.353       2.353       2.353
                          (AC-FT)       18.         18.         18.         18.

                           CUMULATIVE AREA =    0.14 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB04
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.40, TOTAL EXCESS =    2.28

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     452.      0.95                35.          9.          4.          4.
                         (INCHES)     2.272       2.272       2.272       2.272
                          (AC-FT)       17.         17.         17.         17.

                           CUMULATIVE AREA =    0.14 SQ MI
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       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     SB04
                        TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.44, TOTAL EXCESS =    2.10

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     382.      1.00                   32.          8.          4.          4.
                         (INCHES)     2.095       2.095       2.095       2.095
                          (AC-FT)       16.         16.         16.         16.

                          CUMULATIVE AREA =    0.14 SQ MI


       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     SB04
                        TRANSPOSITION AREA     90.0 SQ MI

     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.46, TOTAL EXCESS =    1.77

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     293.      1.00                   27.          7.          3.          3.
                         (INCHES)     1.763       1.763       1.763       1.763
                          (AC-FT)       14.         14.         14.         14.

                          CUMULATIVE AREA =    0.14 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     SB04

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     525.      0.95                   36.          9.          4.          4.
                         (INCHES)     2.356       2.356       2.356       2.356
                          (AC-FT)       18.         18.         18.         18.

                          CUMULATIVE AREA =    0.14 SQ MI



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INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		513.38	63.00	2.40

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 513.	1.05	37.	9.	4.	4.
		(INCHES) 2.401	2.402	2.402	2.402
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.42	668.33	516.56	62.40	2.38	4.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1807E+02 EXCESS=0.0000E+00 OUTFLOW=0.1825E+02 BASIN STORAGE=0.4744E-04 PERCENT ERROR= -1.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		510.06	63.00	2.39

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 510.	1.05	37.	9.	4.	4.
		(INCHES) 2.386	2.386	2.386	2.386
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.55	668.33	451.64	62.77	2.29	4.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1745E+02 EXCESS=0.0000E+00 OUTFLOW=0.1762E+02 BASIN STORAGE=0.4583E-04 PERCENT ERROR= -1.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		451.16	63.00	2.30

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 451.	1.05	36.	9.	4.	4.
		(INCHES) 2.301	2.302	2.302	2.302
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.73	668.33	379.50	64.90	2.12	4.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1609E+02 EXCESS=0.0000E+00 OUTFLOW=0.1629E+02 BASIN STORAGE=0.4132E-04 PERCENT ERROR=-1.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		374.76	63.00	2.12

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
375.	1.05	33.	8.	4.	4.
		(INCHES) 2.115	2.116	2.116	2.116
		(AC-FT) 16.	16.	16.	16.

CUMULATIVE AREA = 0.14 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.23	1.51	2.87	668.33	291.80	65.24	1.78	3.94

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1354E+02 EXCESS=0.0000E+00 OUTFLOW=0.1370E+02 BASIN STORAGE=0.4337E-04 PERCENT ERROR=-1.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.23	1.51	3.00		288.81	66.00	1.78

*** *** *** *** ***

HYDROGRAPH AT STATION R4-5
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
289.	1.10	28.	7.	3.	3.
		(INCHES) 1.782	1.782	1.782	1.782
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R4-5

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
511.	1.05	37.	9.	4.	4.
		(INCHES) 2.388	2.388	2.388	2.388
		(AC-FT) 18.	18.	18.	18.

CUMULATIVE AREA = 0.14 SQ MI

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SUBBASIN RUNOFF DATA

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  120 BA          SUBBASIN CHARACTERISTICS
                        TAREA        0.13  SUBBASIN AREA

  121 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.22  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.50  WETTING FRONT SUCTION
                        XKSAT        0.44  HYDRAULIC CONDUCTIVITY
                        RTIMP       48.00  PERCENT IMPERVIOUS AREA

  122 UC          CLARK UNITGRAPH
                           TC        0.33  TIME OF CONCENTRATION
                            R        0.22  STORAGE COEFFICIENT

  123 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0
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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.33 HR, R= 0.22 HR
SNYDER TP= 0.19 HR, CP= 0.50

UNIT HYDROGRAPH
27 END-OF-PERIOD ORDINATES

18.	67.	154.	208.	200.	181.	156.	129.	103.	82.
66.	53.	42.	34.	27.	21.	17.	14.	11.	9.
7.	6.	4.	4.	3.	2.	2.			

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.23

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 402.	0.95	30.	8.	4.	4.
		(INCHES) 2.223	2.223	2.223	2.223
		(AC-FT) 15.	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.52, TOTAL EXCESS = 2.22

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 399.	0.95	30.	7.	4.	4.
		(INCHES) 2.208	2.208	2.208	2.208
		(AC-FT) 15.	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.56, TOTAL EXCESS = 2.13

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 352.	1.00	29.	7.	3.	3.
		(INCHES) 2.118	2.118	2.118	2.118
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.60, TOTAL EXCESS = 1.94

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 296.	1.00	26.	7.	3.	3.
		(INCHES) 1.930	1.930	1.930	1.930
		(AC-FT) 13.	13.	13.	13.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB05
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.63, TOTAL EXCESS = 1.60

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 225.	1.00	22.	5.	3.	3.
		(INCHES) 1.593	1.593	1.593	1.593
		(AC-FT) 11.	11.	11.	11.

CUMULATIVE AREA = 0.13 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB05

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 399.	0.95	30.	7.	4.	4.
		(INCHES) 2.210	2.210	2.210	2.210
		(AC-FT) 15.	15.	15.	15.

CUMULATIVE AREA = 0.13 SQ MI

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       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     CP-5
                        TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1335.      1.15                146.         39.         19.          19.
                        (INCHES)     1.638       1.737       1.759        1.759
                         (AC-FT)       72.         77.         78.          78.

                          CUMULATIVE AREA =    0.83 SQ MI


       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     CP-5
                        TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1121.      1.15                133.         36.         17.          17.
                        (INCHES)     1.499       1.602       1.623        1.623
                         (AC-FT)       66.         71.         72.          72.

                          CUMULATIVE AREA =    0.83 SQ MI


       ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     CP-5
                        TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     844.      1.20                112.         30.         15.          15.
                        (INCHES)     1.262       1.368       1.389        1.389
                         (AC-FT)       56.         60.         61.          61.

                          CUMULATIVE AREA =    0.83 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     CP-5

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1410.      1.15                150.         40.         19.          19.
                        (INCHES)     1.684       1.784       1.805        1.805
                         (AC-FT)       74.         79.         80.          80.

                          CUMULATIVE AREA =    0.83 SQ MI



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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.71	516.67	1430.15	73.26	1.84	5.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8096E+02 EXCESS=0.0000E+00 OUTFLOW=0.8101E+02 BASIN STORAGE=0.7278E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00		1428.13	72.00	1.84	

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1428.	1.20	153.	40.	20.	20.
		(INCHES) 1.715	1.815	1.836	1.836
		(AC-FT) 76.	80.	81.	81.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.72	516.67	1417.75	71.63	1.82	5.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8047E+02 EXCESS=0.0000E+00 OUTFLOW=0.8049E+02 BASIN STORAGE=0.7282E-01 PERCENT ERROR=-0.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00		1417.68	72.00	1.82	

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1418.	1.20	151.	40.	19.	19.
		(INCHES) 1.703	1.803	1.824	1.824
		(AC-FT) 75.	80.	80.	80.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.83	516.67	1320.58	72.30	1.76	4.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7757E+02 EXCESS=0.0000E+00 OUTFLOW=0.7762E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00		1310.29	72.00	1.76	

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR

+	(CFS)	(HR)				
			(CFS)			
+	1310.	1.20	146.	39.	19.	19.
		(INCHES)	1.639	1.739	1.760	1.760
		(AC-FT)	72.	77.	78.	78.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	1.92	516.67	1120.07	73.97	1.62	4.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7160E+02 EXCESS=0.0000E+00 OUTFLOW=0.7164E+02 BASIN STORAGE=0.7274E-01 PERCENT ERROR= -0.2

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	1117.54	75.00	1.62

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1118.	1.25	133.	36.	17.	17.
		(INCHES)	1.500	1.603	1.624	1.624
		(AC-FT)	66.	71.	72.	72.

CUMULATIVE AREA = 0.83 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.07	1.62	2.16	516.67	837.38	77.35	1.39	4.17

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6127E+02 EXCESS=0.0000E+00 OUTFLOW=0.6143E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR= -0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.07	1.62	3.00	834.70	75.00	1.39

*** *** *** *** ***

HYDROGRAPH AT STATION R5-6
TRANSPOSITION AREA 90.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	835.	1.25	112.	30.	15.	15.
		(INCHES)	1.264	1.371	1.392	1.392
		(AC-FT)	56.	60.	61.	61.

CUMULATIVE AREA = 0.83 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R5-6

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1386.	1.20	150.	40.	19.	19.
		(INCHES)	1.684	1.785	1.806	1.806
		(AC-FT)	74.	79.	80.	80.

CUMULATIVE AREA = 0.83 SQ MI

*** *** *** *

(AC-FT) 16. 16. 16. 16.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB06
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.53, TOTAL EXCESS = 2.01

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 316.	1.00	29.	7.	4.	4.
		(INCHES) 1.997	1.997	1.997	1.997
		(AC-FT) 14.	14.	14.	14.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB06
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.56, TOTAL EXCESS = 1.67

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 241.	1.00	24.	6.	3.	3.
		(INCHES) 1.661	1.661	1.661	1.661
		(AC-FT) 12.	12.	12.	12.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB06

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 420.	0.95	33.	8.	4.	4.
		(INCHES) 2.272	2.272	2.272	2.272
		(AC-FT) 16.	16.	16.	16.

CUMULATIVE AREA = 0.14 SQ MI

*** *** *** *

TRANSPOSITION AREA 0.5 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1650.	1.20	183.	48.	23.	23.
			(INCHES) 1.769	1.869	1.887	1.887
			(AC-FT) 91.	96.	97.	97.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-6
TRANSPOSITION AREA 2.8 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1542.	1.20	176.	47.	23.	23.
			(INCHES) 1.702	1.801	1.820	1.820
			(AC-FT) 87.	93.	93.	93.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-6
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1308.	1.20	161.	43.	21.	21.
			(INCHES) 1.555	1.659	1.677	1.677
			(AC-FT) 80.	85.	86.	86.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-6
TRANSPOSITION AREA 90.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	982.	1.25	135.	37.	18.	18.
			(INCHES) 1.305	1.412	1.430	1.430
			(AC-FT) 67.	73.	73.	73.

CUMULATIVE AREA = 0.96 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-6

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1609.	1.20	181.	48.	23.	23.
			(INCHES) 1.743	1.843	1.862	1.862
			(AC-FT) 90.	95.	96.	96.

CUMULATIVE AREA = 0.96 SQ MI

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  142 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.21  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.00  WETTING FRONT SUCTION
                        XKSAT        0.58  HYDRAULIC CONDUCTIVITY
                        RTIMP       49.00  PERCENT IMPERVIOUS AREA

  143 UC          CLARK UNITGRAPH
                           TC        0.20  TIME OF CONCENTRATION
                            R        0.11  STORAGE COEFFICIENT

  144 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

                                                      ***

                                                  UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  0.20 HR,       R=  0.11 HR
                                            SNYDER   TP=  0.13 HR,      CP=  0.62

                                                      UNIT HYDROGRAPH
                                                14 END-OF-PERIOD ORDINATES
                    39.      156.      219.      180.      130.       84.       53.       34.       22.       14.
                     9.        6.        4.        2.

       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.54, TOTAL EXCESS =    2.22

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      386.      0.90                   18.          4.          2.          2.
                         (INCHES)     2.209       2.209       2.209       2.209
                          (AC-FT)        9.          9.          9.          9.

                           CUMULATIVE AREA =    0.07 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.54, TOTAL EXCESS =    2.20

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      384.      0.90                   17.          4.          2.          2.
                         (INCHES)     2.193       2.193       2.193       2.193
                          (AC-FT)        9.          9.          9.          9.

                           CUMULATIVE AREA =    0.07 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.58, TOTAL EXCESS =    2.10

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      308.      0.90                   17.          4.          2.          2.
                         (INCHES)     2.095       2.095       2.095       2.095
                          (AC-FT)        8.          8.          8.          8.

                           CUMULATIVE AREA =    0.07 SQ MI


       ***             ***             ***             ***             ***

                           HYDROGRAPH AT STATION     SB07
                          TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.63, TOTAL EXCESS =    1.91

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                          (CFS)
+      249.      0.90                   15.          4.          2.          2.
                         (INCHES)     1.901       1.901       1.901       1.901
                          (AC-FT)        8.          8.          8.          8.
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CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB07
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.66, TOTAL EXCESS = 1.57

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 181.	0.90	12.	3.	1.	1.
		(INCHES) 1.563	1.563	1.563	1.563
		(AC-FT) 6.	6.	6.	6.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB07

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 384.	0.90	17.	4.	2.	2.
		(INCHES) 2.197	2.197	2.197	2.197
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *

(INCHES)	2.311	2.314	2.314	2.314
(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	2.80	694.50	373.06	62.02	2.31	4.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8655E+01 EXCESS=0.0000E+00 OUTFLOW=0.9098E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=
-5.1

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00		359.23	63.00	2.30

*** *** *** *** ***

HYDROGRAPH AT STATION R7-8
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
+ 359.	1.05	18.	5.	2.	2.
	(INCHES)	2.295	2.298	2.298	2.298
	(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	3.00	694.50	300.60	62.65	2.18	4.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8267E+01 EXCESS=0.0000E+00 OUTFLOW=0.8591E+01 BASIN STORAGE=0.1511E-03 PERCENT ERROR=
-3.9

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00		299.77	63.00	2.18

*** *** *** *** ***

HYDROGRAPH AT STATION R7-8
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW + (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
+ 300.	1.05	17.	4.	2.	2.
	(INCHES)	2.176	2.178	2.179	2.179
	(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.21	1.53	3.00	694.50	243.19	65.55	1.99	3.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7502E+01 EXCESS=0.0000E+00 OUTFLOW=0.7866E+01 BASIN STORAGE=0.1118E-03 PERCENT ERROR=
-4.8

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.21	1.53	3.00		238.95	66.00	2.00

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      ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     R7-8
                      TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                              (CFS)
+     239.      1.10                16.          4.          2.           2.
                            (INCHES)     1.995       1.997       1.997        1.997
                             (AC-FT)        8.          8.          8.           8.

                             CUMULATIVE AREA =    0.07 SQ MI

                                      COMPUTED KINEMATIC PARAMETERS
                                           VARIABLE TIME STEP
                                       (DT SHOWN IS A MINIMUM)

                        ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                                        PEAK                CELERITY
                                                                    (MIN)      (FT)     (CFS)     (MIN)       (IN)      (FPS)

                       MAIN          0.21      1.53       2.82    555.60    178.83     67.24      1.61      3.33


 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6168E+01  EXCESS=0.0000E+00 OUTFLOW=0.6362E+01 BASIN STORAGE=0.1260E-03 PERCENT ERROR=
-3.1


                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL


                       MAIN          0.21      1.53       3.00              176.29     66.00      1.61

      ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     R7-8
                      TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                              (CFS)
+     176.      1.10                13.          3.          2.           2.
                            (INCHES)     1.609       1.611       1.611        1.611
                             (AC-FT)        6.          6.          6.           6.

                             CUMULATIVE AREA =    0.07 SQ MI

      ***            ***            ***            ***            ***


                         INTERPOLATED HYDROGRAPH AT     R7-8

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                              (CFS)
+     360.      1.05                18.          5.          2.           2.
                            (INCHES)     2.299       2.301       2.301        2.301
                             (AC-FT)        9.          9.          9.           9.

                             CUMULATIVE AREA =    0.07 SQ MI



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R 0.19 STORAGE COEFFICIENT

153 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
0.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 0.33 HR, R= 0.19 HR
SNYDER TP= 0.19 HR, CP= 0.55

UNIT HYDROGRAPH
24 END-OF-PERIOD ORDINATES
35. 127. 298. 409. 385. 339. 288. 232. 179. 138.
106. 82. 63. 49. 37. 29. 22. 17. 13. 10.
8. 6. 5. 4.

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 0.0 SQ MI

TOTAL RAINFALL = 2.76, TOTAL LOSS = 0.42, TOTAL EXCESS = 2.34

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 796.	0.95	56.	14.	7.	7.
		(INCHES) 2.325	2.325	2.325	2.325
		(AC-FT) 28.	28.	28.	28.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 0.5 SQ MI

TOTAL RAINFALL = 2.74, TOTAL LOSS = 0.42, TOTAL EXCESS = 2.32

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 791.	0.95	56.	14.	7.	7.
		(INCHES) 2.309	2.309	2.309	2.309
		(AC-FT) 28.	28.	28.	28.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.46, TOTAL EXCESS = 2.23

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 686.	1.00	53.	13.	6.	6.
		(INCHES) 2.218	2.218	2.218	2.218
		(AC-FT) 26.	26.	26.	26.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.04

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 577.	1.00	49.	12.	6.	6.
		(INCHES) 2.032	2.032	2.032	2.032
		(AC-FT) 24.	24.	24.	24.

CUMULATIVE AREA = 0.22 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB08
TRANSPOSITION AREA 90.0 SQ MI

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     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.53, TOTAL EXCESS =    1.71

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     439.      1.00                41.         10.          5.           5.
                         (INCHES)    1.699       1.699       1.699        1.699
                          (AC-FT)      20.         20.         20.          20.

                          CUMULATIVE AREA =    0.22 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     SB08

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     792.      0.95                56.         14.          7.           7.
                         (INCHES)    2.311       2.311       2.311        2.311
                          (AC-FT)      28.         28.         28.          28.

                          CUMULATIVE AREA =    0.22 SQ MI



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       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     CP-8
                       TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     783.      1.05                65.         16.          8.           8.
                        (INCHES)     2.023       2.023       2.023        2.023
                         (AC-FT)      32.         32.         32.          32.

                          CUMULATIVE AREA =    0.30 SQ MI


       ***             ***             ***             ***             ***

                         HYDROGRAPH AT STATION     CP-8
                       TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     561.      1.10                54.         13.          6.           6.
                        (INCHES)     1.676       1.677       1.677        1.677
                         (AC-FT)      27.         27.         27.          27.

                          CUMULATIVE AREA =    0.30 SQ MI

       ***             ***             ***             ***             ***


                          INTERPOLATED HYDROGRAPH AT     CP-8

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+    1035.      1.05                74.         18.          9.           9.
                        (INCHES)     2.307       2.308       2.308        2.308
                         (AC-FT)      37.         37.         37.          37.

                          CUMULATIVE AREA =    0.30 SQ MI



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MAIN	0.15	1.56	3.00	1013.13	66.00	2.33

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1013.	1.10	75.	19.	9.	9.
		(INCHES) 2.329	2.330	2.330	2.330
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.33	416.67	1027.12	65.64	2.31	5.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3678E+02 BASIN STORAGE=0.2024E-03 PERCENT ERROR=
-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	1010.29	66.00	2.32

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1010.	1.10	74.	19.	9.	9.
		(INCHES) 2.314	2.315	2.316	2.316
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.45	416.67	913.69	66.38	2.21	5.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3510E+02 EXCESS=0.0000E+00 OUTFLOW=0.3519E+02 BASIN STORAGE=0.1735E-03 PERCENT ERROR=
-0.3

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00	911.34	66.00	2.21

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 911.	1.10	71.	18.	9.	9.
		(INCHES) 2.212	2.214	2.214	2.214
		(AC-FT) 35.	35.	35.	35.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)

MAIN	0.15	1.56	1.48	416.67	772.14	65.64	2.03	5.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3216E+02 EXCESS=0.0000E+00 OUTFLOW=0.3228E+02 BASIN STORAGE=0.1954E-03 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00		769.23	66.00	2.03

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 769.	1.10	65.	16.	8.	8.
		(INCHES) 2.031	2.033	2.033	2.033
		(AC-FT) 32.	32.	32.	32.

CUMULATIVE AREA = 0.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	0.15	1.56	1.59	416.67	554.15	67.90	1.68	4.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2666E+02 EXCESS=0.0000E+00 OUTFLOW=0.2676E+02 BASIN STORAGE=0.1898E-03 PERCENT ERROR=-0.4

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.15	1.56	3.00		554.05	69.00	1.68

*** *** *** *** ***

HYDROGRAPH AT STATION R8-9
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 554.	1.15	54.	13.	6.	6.
		(INCHES) 1.682	1.684	1.684	1.684
		(AC-FT) 27.	27.	27.	27.

CUMULATIVE AREA = 0.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT R8-9

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1010.	1.10	74.	19.	9.	9.
		(INCHES) 2.315	2.316	2.316	2.316
		(AC-FT) 37.	37.	37.	37.

CUMULATIVE AREA = 0.30 SQ MI

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  162 BA          SUBBASIN CHARACTERISTICS
                        TAREA        0.05  SUBBASIN AREA

  163 LG          GREEN AND AMPT LOSS RATE
                        STRTL        0.15  STARTING LOSS
                          DTH        0.25  MOISTURE DEFICIT
                         PSIF        4.00  WETTING FRONT SUCTION
                        XKSAT        0.61  HYDRAULIC CONDUCTIVITY
                        RTIMP       55.00  PERCENT IMPERVIOUS AREA

  164 UC          CLARK UNITGRAPH
                          TC        0.25  TIME OF CONCENTRATION
                           R        0.23  STORAGE COEFFICIENT

  165 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       0.0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                     100.0

                                                      ***

                                                 UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  0.25 HR,       R=  0.23 HR
                                            SNYDER   TP=  0.15 HR,      CP=  0.42

                                                    UNIT HYDROGRAPH
                                                27 END-OF-PERIOD ORDINATES
                      11.       51.       86.       89.       82.       70.       56.       45.       36.       29.
                      23.       19.       15.       12.       10.        8.        6.        5.        4.        3.
                       3.        2.        2.        1.        1.        1.        1.

       ***             ***             ***             ***             ***

                            HYDROGRAPH AT STATION     SB09
                           TRANSPOSITION AREA      0.0 SQ MI

     TOTAL RAINFALL =    2.76, TOTAL LOSS =    0.47, TOTAL EXCESS =    2.29

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      174.      0.95                    13.          3.          2.          2.
                           (INCHES)     2.280       2.280       2.280       2.280
                            (AC-FT)       6.          6.          6.          6.

                            CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                            HYDROGRAPH AT STATION     SB09
                           TRANSPOSITION AREA      0.5 SQ MI

     TOTAL RAINFALL =    2.74, TOTAL LOSS =    0.46, TOTAL EXCESS =    2.27

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      173.      0.95                    13.          3.          2.          2.
                           (INCHES)     2.264       2.264       2.264       2.264
                            (AC-FT)       6.          6.          6.          6.

                            CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                            HYDROGRAPH AT STATION     SB09
                           TRANSPOSITION AREA      2.8 SQ MI

     TOTAL RAINFALL =    2.69, TOTAL LOSS =    0.51, TOTAL EXCESS =    2.18

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
                           (CFS)
+      153.      0.95                    12.          3.          1.          1.
                           (INCHES)     2.168       2.168       2.168       2.168
                            (AC-FT)       6.          6.          6.          6.

                            CUMULATIVE AREA =    0.05 SQ MI


       ***             ***             ***             ***             ***

                            HYDROGRAPH AT STATION     SB09
                           TRANSPOSITION AREA     16.0 SQ MI

     TOTAL RAINFALL =    2.54, TOTAL LOSS =    0.55, TOTAL EXCESS =    1.99

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     49.95-HR
+    (CFS)       (HR)
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                          (CFS)
+     127.      0.95                  11.          3.          1.          1.
                       (INCHES)     1.978       1.978       1.978       1.978
                        (AC-FT)       5.          5.          5.          5.

                        CUMULATIVE AREA =    0.05 SQ MI


       ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     SB09
                      TRANSPOSITION AREA     90.0 SQ MI

     TOTAL RAINFALL =    2.23, TOTAL LOSS =    0.58, TOTAL EXCESS =    1.65

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+      96.      0.95                  9.          2.          1.          1.
                       (INCHES)     1.642       1.642       1.642       1.642
                        (AC-FT)       5.          5.          5.          5.

                        CUMULATIVE AREA =    0.05 SQ MI

       ***            ***            ***            ***            ***


                        INTERPOLATED HYDROGRAPH AT     SB09

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     173.      0.95                  13.          3.          2.          2.
                       (INCHES)     2.269       2.269       2.269       2.269
                        (AC-FT)       6.          6.          6.          6.

                        CUMULATIVE AREA =    0.05 SQ MI



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HYDROGRAPH AT STATION CP-9
TRANSPOSITION AREA 2.8 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1023.	1.10	83.	21.	10.	10.
			(INCHES) 2.206	2.207	2.207	2.207
			(AC-FT) 41.	41.	41.	41.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-9
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	869.	1.10	76.	19.	9.	9.
			(INCHES) 2.023	2.024	2.025	2.025
			(AC-FT) 38.	38.	38.	38.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-9
TRANSPOSITION AREA 90.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	622.	1.15	63.	16.	8.	8.
			(INCHES) 1.676	1.678	1.678	1.678
			(AC-FT) 31.	31.	31.	31.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-9

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
			(CFS)			
+	1124.	1.10	87.	22.	10.	10.
			(INCHES) 2.307	2.309	2.309	2.309
			(AC-FT) 43.	43.	43.	43.

CUMULATIVE AREA = 0.35 SQ MI

*** *** *** *

	(AC-FT)	541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMACH
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PIMACH

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 4017.	5.50	1092.	292.	146.	146.
		(INCHES) 0.825	0.884	0.919	0.919
		(AC-FT) 541.	580.	603.	603.

CUMULATIVE AREA = 12.30 SQ MI

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BYPASS ALONG SE SIDE OF BASIN 53R TO ADOT CULVERT NEAR UNION HILLS DR

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      DT          DIVERSION
                       ISTAD      PIMABY  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW        0.00   1000.00  10000.00

      DQ      DIVERTED FLOW        0.00   1000.00   1000.00

                                                                        ***

       ***            ***            ***            ***            ***

                          DIVERSION HYDROGRAPH   PIMABY
                         TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    1000.      4.95                605.        171.         88.          88.
                     (INCHES)     0.458       0.516       0.551        0.551
                      (AC-FT)      300.        338.        361.         361.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          HYDROGRAPH AT STATION   PIMAIN
                         TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    3017.      5.50                486.        122.         58.          58.
                     (INCHES)     0.368       0.368       0.368        0.368
                      (AC-FT)      241.        241.        241.         241.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          DIVERSION HYDROGRAPH   PIMABY
                         TRANSPOSITION AREA      0.5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    1000.      4.95                605.        171.         88.          88.
                     (INCHES)     0.458       0.516       0.551        0.551
                      (AC-FT)      300.        338.        361.         361.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          HYDROGRAPH AT STATION   PIMAIN
                         TRANSPOSITION AREA      0.5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    3017.      5.50                486.        122.         58.          58.
                     (INCHES)     0.368       0.368       0.368        0.368
                      (AC-FT)      241.        241.        241.         241.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***

                          DIVERSION HYDROGRAPH   PIMABY
                         TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                     (CFS)
+    1000.      4.95                605.        171.         88.          88.
                     (INCHES)     0.458       0.516       0.551        0.551
                      (AC-FT)      300.        338.        361.         361.

                       CUMULATIVE AREA =   12.30 SQ MI


       ***            ***            ***            ***            ***
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HYDROGRAPH AT STATION PIMAIN
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH PIMABY
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMAIN
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH PIMABY
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMAIN
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED DIVERSION HYDROGRAPH AT PIMABY

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PIMAIN

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
(CFS)	(HR)				
		(CFS)			
3017.	5.50	486.	122.	58.	58.
		(INCHES) 0.368	0.368	0.368	0.368
		(AC-FT) 241.	241.	241.	241.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *

		(CFS)				
+	740.	5.80	432.	136.	75.	75.
		(INCHES)	0.574	0.724	0.826	0.826
		(AC-FT)	214.	270.	308.	308.

CUMULATIVE AREA = 7.00 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PWRCH
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 740.	5.80	432.	136.	75.	75.
	(INCHES)	0.574	0.724	0.826	0.826
	(AC-FT)	214.	270.	308.	308.

CUMULATIVE AREA = 7.00 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PWRCH

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 740.	5.80	432.	136.	75.	75.
	(INCHES)	0.574	0.724	0.826	0.826
	(AC-FT)	214.	270.	308.	308.

CUMULATIVE AREA = 7.00 SQ MI

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        275.        143.         143.
                (INCHES)           0.435       0.521       0.564        0.564
                 (AC-FT)           456.        546.        591.         591.

                 CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                   HYDROGRAPH AT STATION   BINFLO
                  TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        274.        142.         142.
                (INCHES)           0.435       0.518       0.560        0.560
                 (AC-FT)           456.        543.        587.         587.

                 CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                   HYDROGRAPH AT STATION   BINFLO
                  TRANSPOSITION AREA     90.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        270.        141.         141.
                (INCHES)           0.435       0.512       0.554        0.554
                 (AC-FT)           456.        536.        581.         581.

                 CUMULATIVE AREA =   19.65 SQ MI

       ***            ***             ***             ***             ***


                   INTERPOLATED HYDROGRAPH AT   BINFLO

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    3634.      5.50                919.        273.        142.         142.
                (INCHES)           0.435       0.517       0.560        0.560
                 (AC-FT)           456.        542.        587.         587.

                 CUMULATIVE AREA =   19.65 SQ MI



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  270 SQ          DISCHARGE          0.       95.      153.      210.      244.      265.      284.      303.      320.
337.
                                   353.      369.      384.      398.      412.      426.      439.      452.      465.
477.

                                                                                                        ***

       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     363.      8.30                  355.        250.        141.         141.
                          (INCHES)    0.168       0.474       0.556        0.556
                          (AC-FT)     176.        496.        582.         582.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+  (AC-FT)      (HR)
      351.      8.30                  332.        189.        101.         101.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+   (FEET)      (HR)
   1606.68      8.30               1606.11     1601.55     1598.29      1598.29

                           CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA      0.5 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     363.      8.30                  355.        250.        141.         141.
                          (INCHES)    0.168       0.474       0.555        0.555
                          (AC-FT)     176.        496.        582.         582.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+  (AC-FT)      (HR)
      351.      8.30                  332.        189.        100.         100.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+   (FEET)      (HR)
   1606.67      8.30               1606.11     1601.55     1598.28      1598.28

                           CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA      2.8 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
+     363.      8.30                  354.        250.        141.         141.
                          (INCHES)    0.168       0.473       0.553        0.553
                          (AC-FT)     176.        495.        580.         580.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+  (AC-FT)      (HR)
      350.      8.30                  331.        188.        100.         100.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     49.95-HR
+   (FEET)      (HR)
   1606.65      8.30               1606.08     1601.53     1598.27      1598.27

                           CUMULATIVE AREA =   19.65 SQ MI


       ***            ***             ***             ***             ***

                          HYDROGRAPH AT STATION    BASIN
                        TRANSPOSITION AREA     16.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                          (CFS)
```

+							
+	362.	8.30		353.	249.	140.	140.
			(INCHES)	0.167	0.471	0.550	0.550
			(AC-FT)	175.	494.	577.	577.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (AC-FT)	(HR)				
349.	8.35	330.	187.	99.	99.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (FEET)	(HR)				
1606.61	8.30	1606.04	1601.50	1598.24	1598.24

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION BASIN
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 361.	8.35	352.	247.	138.	138.
		(INCHES) 0.167	0.468	0.544	0.544
		(AC-FT) 175.	491.	570.	570.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (AC-FT)	(HR)				
346.	8.35	327.	185.	98.	98.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	49.95-HR
+ (FEET)	(HR)				
1606.52	8.35	1605.96	1601.44	1598.18	1598.18

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT BASIN

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 362.	8.30	353.	249.	140.	140.
		(INCHES) 0.167	0.471	0.550	0.550
		(AC-FT) 175.	493.	576.	576.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.29	183.33	363.48	498.70	0.56	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5822E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.48	501.00	0.56

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 0.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	363.	8.35	355.	250.	141.	141.
		(INCHES)	0.168	0.474	0.556	0.556
		(AC-FT)	176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT - NEWTON RAPHSON FAILEDFIXED POINT ITERATION USED - ITERATION= 1

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.29	183.33	363.42	498.84	0.56	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5819E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.42	501.00	0.56

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 0.5 SQ MI

	PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	363.	8.35	(CFS) 355.	250.	141.	141.
			(INCHES) 0.168	0.474	0.555	0.555
			(AC-FT) 176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.45	183.33	363.06	498.87	0.55	10.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5801E+03 EXCESS=0.0000E+00 OUTFLOW=0.5800E+03 BASIN STORAGE=0.3288E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	363.06	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
363.	8.35	354. (CFS)	250.	141.	141.
		0.168 (INCHES)	0.473	0.553	0.553
		176. (AC-FT)	495.	580.	580.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.38	183.33	362.38	500.88	0.55	10.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5767E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3287E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	362.38	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
362.	8.35	353. (CFS)	249.	140.	140.
		0.167 (INCHES)	0.471	0.550	0.550
		175. (AC-FT)	494.	577.	577.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.34	1.25	0.34	183.33	361.10	501.33	0.54	10.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5702E+03 BASIN STORAGE=0.3284E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.34	1.25	3.00	361.10	501.00	0.54

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT1
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 361.	8.35	352.	248.	138.	138.
		(INCHES) 0.167	0.468	0.544	0.544
		(AC-FT) 175.	491.	570.	570.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT BSNRT1

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 362.	8.35	353.	249.	140.	140.
		(INCHES) 0.167	0.471	0.549	0.549
		(AC-FT) 175.	494.	576.	576.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *

						PEAK		CELERITY
		(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.44	400.00	363.42	501.35	0.56	20.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5818E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		363.42	501.00	0.56

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)			
+ 363.	8.35	355.	250.	141.	141.
		(INCHES) 0.168	0.474	0.555	0.555
		(AC-FT) 176.	496.	582.	582.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.36	400.00	363.06	501.42	0.55	20.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5800E+03 EXCESS=0.0000E+00 OUTFLOW=0.5799E+03 BASIN STORAGE=0.3755E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		363.06	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)			
+ 363.	8.35	354.	250.	140.	140.
		(INCHES) 0.168	0.473	0.553	0.553
		(AC-FT) 176.	495.	580.	580.

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	7.51	1.25	0.48	400.00	362.38	501.44	0.55	20.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5766E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3753E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		362.38	501.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)	(CFS)			

+ 362.	8.35		353.	249.	140.	140.	
		(INCHES)	0.167	0.471	0.550	0.550	
		(AC-FT)	175.	494.	577.	577.	

CUMULATIVE AREA = 19.65 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.51	1.25	0.38	400.00	361.10	501.56	0.54	20.36

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5701E+03 BASIN STORAGE=0.3750E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.51	1.25	3.00		361.09	501.00	0.54

*** *** *** *** ***

HYDROGRAPH AT STATION BSNRT2
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 361.	8.35		352.	248.	138.	138.
		(INCHES)	0.167	0.468	0.544	0.544
		(AC-FT)	175.	491.	570.	570.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT BSNRT2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 362.	8.35		353.	249.	139.	139.
		(INCHES)	0.167	0.471	0.549	0.549
		(AC-FT)	175.	494.	576.	576.

CUMULATIVE AREA = 19.65 SQ MI

*** *** *** *

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION PIMABY
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.286	0.323	0.345	0.345
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PIMABY

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	4.95	605.	171.	88.	88.
		(INCHES) 0.458	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *

L	3157.	CHANNEL LENGTH
S	0.0082	SLOPE
N	0.013	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	24.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=
0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=
0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
		(CFS)			
1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=
0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	1.87	1.47	0.99	1052.33	1000.00	299.31	0.55	20.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	1.87	1.47	3.00	1000.00	300.00	0.55

*** *** *** *** ***

HYDROGRAPH AT STATION PMB-RT
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT PMB-RT

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1000.	5.00	605.	171.	87.	87.
		(INCHES) 0.457	0.516	0.551	0.551
		(AC-FT) 300.	338.	361.	361.

CUMULATIVE AREA = 12.30 SQ MI

*** *** *** *

HYDROGRAPH AT STATION SB10
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.19

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 142.	0.95	9.	2.	1.	1.
		(INCHES) 2.179	2.179	2.179	2.179
		(AC-FT) 5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB10
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.54, TOTAL EXCESS = 2.00

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 118.	0.95	9.	2.	1.	1.
		(INCHES) 1.990	1.990	1.990	1.990
		(AC-FT) 4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB10
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.57, TOTAL EXCESS = 1.66

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 88.	0.95	7.	2.	1.	1.
		(INCHES) 1.655	1.655	1.655	1.655
		(AC-FT) 4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB10

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 169.	0.90	10.	2.	1.	1.
		(INCHES) 2.276	2.276	2.276	2.276
		(AC-FT) 5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** *** *** *

+ (CFS)	(HR)					
		(CFS)				
+ 1355.	6.85		909.	420.	230.	230.
		(INCHES)	0.429	0.794	0.903	0.903
		(AC-FT)	451.	834.	948.	948.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1355.	6.85		909.	420.	230.	230.
		(INCHES)	0.429	0.794	0.903	0.903
		(AC-FT)	451.	834.	948.	948.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1355.	6.85		909.	420.	229.	229.
		(INCHES)	0.429	0.793	0.901	0.901
		(AC-FT)	451.	833.	946.	946.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1354.	6.85		907.	419.	228.	228.
		(INCHES)	0.429	0.791	0.897	0.897
		(AC-FT)	450.	831.	942.	942.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-10
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1353.	6.85		905.	417.	226.	226.
		(INCHES)	0.427	0.788	0.890	0.890
		(AC-FT)	449.	828.	935.	935.

CUMULATIVE AREA = 19.69 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-10

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1354.	6.85		907.	419.	228.	228.
		(INCHES)	0.428	0.791	0.896	0.896
		(AC-FT)	450.	831.	941.	941.

CUMULATIVE AREA = 19.69 SQ MI

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              *            *
  295 KK      *    R10-11  *        ROUTE
              *            *
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UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD

HYDROGRAPH ROUTING DATA

297 RK KINEMATIC WAVE STREAM ROUTING

L	1277.	CHANNEL LENGTH
S	0.0014	SLOPE
N	0.030	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	220.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.62	425.67	1355.03	412.64	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9482E+03 EXCESS=0.0000E+00 OUTFLOW=0.9474E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1354.77	411.00	0.90

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 1355.	6.85	909.	420.	229.	229.
	(INCHES)	0.429	0.794	0.902	0.902
	(AC-FT)	451.	834.	947.	947.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.56	425.67	1354.98	412.72	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9479E+03 EXCESS=0.0000E+00 OUTFLOW=0.9473E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1354.72	411.00	0.90

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
	(CFS)				
+ 1355.	6.85	909.	420.	229.	229.
	(INCHES)	0.429	0.794	0.902	0.902
	(AC-FT)	451.	834.	947.	947.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.57	425.67	1354.58	412.38	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9458E+03 EXCESS=0.0000E+00 OUTFLOW=0.9450E+03 BASIN STORAGE=0.9164E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1354.33	411.00	0.90	

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 2.8 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	1354.	6.85	908.	420.	229.	229.
		(INCHES)	0.429	0.793	0.900	0.900
		(AC-FT)	450.	833.	945.	945.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.67	425.67	1353.83	412.54	0.90	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9420E+03 EXCESS=0.0000E+00 OUTFLOW=0.9412E+03 BASIN STORAGE=0.9165E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1353.59	411.00	0.90	

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 16.0 SQ MI

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR
+	(CFS)	(HR)				
		(CFS)				
+	1354.	6.85	907.	419.	228.	228.
		(INCHES)	0.428	0.791	0.896	0.896
		(AC-FT)	450.	831.	941.	941.

CUMULATIVE AREA = 19.69 SQ MI

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	0.06	1.62	1.66	425.67	1352.40	412.19	0.89	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9349E+03 EXCESS=0.0000E+00 OUTFLOW=0.9341E+03 BASIN STORAGE=0.9161E+00 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	0.06	1.62	3.00		1352.18	411.00	0.89	

*** *** *** *** ***

HYDROGRAPH AT STATION R10-11
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.95-HR

```
+   (CFS)       (HR)
                  (CFS)
+    1352.      6.85                904.        417.        226.         226.
                (INCHES)     0.427       0.788       0.889        0.889
                 (AC-FT)      448.        828.        934.         934.

                 CUMULATIVE AREA =   19.69 SQ MI

       ***            ***            ***            ***            ***


                 INTERPOLATED HYDROGRAPH AT   R10-11

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     49.95-HR
+   (CFS)       (HR)
                  (CFS)
+    1353.      6.85                906.        419.        228.         228.
                (INCHES)     0.428       0.791       0.895        0.895
                 (AC-FT)      449.        831.        940.         940.

                 CUMULATIVE AREA =   19.69 SQ MI


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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 231.	0.95	17.	4.	2.	2.
		(INCHES) 2.267	2.267	2.267	2.267
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB11
TRANSPOSITION AREA 2.8 SQ MI

TOTAL RAINFALL = 2.69, TOTAL LOSS = 0.50, TOTAL EXCESS = 2.18

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 201.	1.00	17.	4.	2.	2.
		(INCHES) 2.172	2.172	2.172	2.172
		(AC-FT) 8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB11
TRANSPOSITION AREA 16.0 SQ MI

TOTAL RAINFALL = 2.54, TOTAL LOSS = 0.55, TOTAL EXCESS = 1.99

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 169.	1.00	15.	4.	2.	2.
		(INCHES) 1.982	1.982	1.982	1.982
		(AC-FT) 8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION SB11
TRANSPOSITION AREA 90.0 SQ MI

TOTAL RAINFALL = 2.23, TOTAL LOSS = 0.58, TOTAL EXCESS = 1.65

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 129.	1.00	13.	3.	2.	2.
		(INCHES) 1.647	1.647	1.647	1.647
		(AC-FT) 6.	6.	6.	6.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT SB11

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	49.95-HR
+ (CFS)	(HR)				
		(CFS)			
+ 231.	0.95	17.	4.	2.	2.
		(INCHES) 2.270	2.270	2.270	2.270
		(AC-FT) 9.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** *** *** *

306 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 0.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1355.	6.85	909.	420.	232.	232.
		(INCHES) 0.428	0.791	0.907	0.907
		(AC-FT) 451.	834.	956.	956.

CUMULATIVE AREA = 19.76 SQ MI

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HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 0.5 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1355.	6.85	909.	420.	232.	232.
		(INCHES) 0.428	0.791	0.907	0.907
		(AC-FT) 451.	834.	956.	956.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 2.8 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1354.	6.85	908.	420.	231.	231.
		(INCHES) 0.427	0.790	0.904	0.904
		(AC-FT) 450.	833.	953.	953.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 16.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1354.	6.85	907.	419.	230.	230.
		(INCHES) 0.427	0.789	0.900	0.900
		(AC-FT) 450.	831.	949.	949.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION CP-11
TRANSPOSITION AREA 90.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR
1352.	6.85	904.	417.	228.	228.
		(INCHES) 0.425	0.785	0.892	0.892
		(AC-FT) 448.	828.	940.	940.

CUMULATIVE AREA = 19.76 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT CP-11

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	49.95-HR

+	1353.	6.85		906.	419.	230.	230.
			(INCHES)	0.426	0.788	0.899	0.899
			(AC-FT)	449.	831.	948.	948.

CUMULATIVE AREA = 19.76 SQ MI

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	76THST	51.	4.55	15.	4.	2.	0.24		
+	HYDROGRAPH AT	SB01	324.	0.95	26.	6.	3.	0.11		
+	2 COMBINED AT	CP-1	323.	0.95	37.	11.	5.	0.35		
+	ROUTED TO	R1-2	315.	1.10	37.	11.	5.	0.35		
+	HYDROGRAPH AT	SB02	489.	0.95	38.	10.	5.	0.16		
+	2 COMBINED AT	CP-2	731.	1.05	75.	20.	10.	0.51		
+	ROUTED TO	R2-3	719.	1.10	75.	20.	10.	0.51		
+	HYDROGRAPH AT	SB03	129.	1.00	12.	3.	1.	0.05		
+	2 COMBINED AT	CP-3	828.	1.10	86.	23.	11.	0.56		
+	ROUTED TO	R3-5	806.	1.20	86.	23.	11.	0.56		
+	HYDROGRAPH AT	SB04	525.	0.95	36.	9.	4.	0.14		
+	ROUTED TO	R4-5	511.	1.05	37.	9.	4.	0.14		
+	HYDROGRAPH AT	SB05	399.	0.95	30.	7.	4.	0.13		
+	3 COMBINED AT	CP-5	1410.	1.15	150.	40.	19.	0.83		
+	ROUTED TO	R5-6	1386.	1.20	150.	40.	19.	0.83		
+	HYDROGRAPH AT	SB06	420.	0.95	33.	8.	4.	0.14		
+	2 COMBINED AT	CP-6	1609.	1.20	181.	48.	23.	0.96		
+	HYDROGRAPH AT	SB07	384.	0.90	17.	4.	2.	0.07		
+	ROUTED TO	R7-8	360.	1.05	18.	5.	2.	0.07		
+	HYDROGRAPH AT	SB08	792.	0.95	56.	14.	7.	0.22		
+	2 COMBINED AT	CP-8	1035.	1.05	74.	18.	9.	0.30		
+	ROUTED TO	R8-9	1010.	1.10	74.	19.	9.	0.30		
+	HYDROGRAPH AT	SB09	173.	0.95	13.	3.	2.	0.05		
+	2 COMBINED AT	CP-9	1124.	1.10	87.	22.	10.	0.35		
+	HYDROGRAPH AT	PIMACH	4017.	5.50	1092.	292.	146.	12.30		
+	DIVERSION TO	PIMABY	1000.	4.95	605.	171.	88.	12.30		
	HYDROGRAPH AT									

+	PIMAIN	3017.	5.50	486.	122.	58.	12.30
	HYDROGRAPH AT						
+	PWRCH	740.	5.80	432.	136.	75.	7.00
	3 COMBINED AT						
+	BINFLO	3634.	5.50	919.	273.	142.	19.65
	ROUTED TO						
+	BASIN	362.	8.30	353.	249.	140.	19.65
	ROUTED TO						
+	BSNRT1	362.	8.35	353.	249.	140.	19.65
	ROUTED TO						
+	BSNRT2	362.	8.35	353.	249.	139.	19.65
	HYDROGRAPH AT						
+	PIMABY	1000.	4.95	605.	171.	88.	12.30
	ROUTED TO						
+	PMB-RT	1000.	5.00	605.	171.	87.	12.30
	HYDROGRAPH AT						
+	SB10	169.	0.90	10.	2.	1.	0.04
	3 COMBINED AT						
+	CP-10	1354.	6.85	907.	419.	228.	19.69
	ROUTED TO						
+	R10-11	1353.	6.85	906.	419.	228.	19.69
	HYDROGRAPH AT						
+	SB11	231.	0.95	17.	4.	2.	0.07
	2 COMBINED AT						
+	CP-11	1353.	6.85	906.	419.	230.	19.76

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) =			0.00						
R1-2	MANE	3.00	324.42	63.63	1.19	3.00	317.42	66.00	1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2221E+02 EXCESS=0.0000E+00 OUTFLOW=0.2234E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=
-0.8

FOR STORM = 2 STORM AREA (SQ MI) =			0.50						
R1-2	MANE	3.00	321.94	63.70	1.18	3.00	314.95	66.00	1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2212E+02 EXCESS=0.0000E+00 OUTFLOW=0.2223E+02 BASIN STORAGE=0.5936E-01 PERCENT ERROR=
-0.8

FOR STORM = 3 STORM AREA (SQ MI) =			2.80						
R1-2	MANE	3.00	281.88	67.46	1.15	3.00	280.31	66.00	1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2153E+02 EXCESS=0.0000E+00 OUTFLOW=0.2160E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=

-0.6

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1-2	MANE	3.00	239.43	66.99	1.09	3.00	234.05	69.00	1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2036E+02 EXCESS=0.0000E+00 OUTFLOW=0.2044E+02 BASIN STORAGE=0.5560E-01 PERCENT ERROR=
-0.7

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1-2	MANE	2.91	179.26	70.19	0.98	3.00	178.38	69.00	0.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1834E+02 EXCESS=0.0000E+00 OUTFLOW=0.1842E+02 BASIN STORAGE=0.6416E-01 PERCENT ERROR=
-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	1.61	726.00	65.69	1.53	3.00	725.57	66.00	1.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4152E+02 EXCESS=0.0000E+00 OUTFLOW=0.4152E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	1.61	719.73	65.75	1.52	3.00	719.25	66.00	1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4128E+02 EXCESS=0.0000E+00 OUTFLOW=0.4128E+02 BASIN STORAGE=0.4197E-01 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	1.65	650.44	66.16	1.47	3.00	647.31	66.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3985E+02 EXCESS=0.0000E+00 OUTFLOW=0.3986E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	1.61	553.64	68.36	1.37	3.00	550.82	69.00	1.37

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3711E+02 EXCESS=0.0000E+00 OUTFLOW=0.3710E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	1.77	421.93	69.46	1.19	3.00	418.11	69.00	1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3232E+02 EXCESS=0.0000E+00 OUTFLOW=0.3234E+02 BASIN STORAGE=0.4192E-01 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	2.78	817.36	73.14	1.60	3.00	816.94	72.00	1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4741E+02 EXCESS=0.0000E+00 OUTFLOW=0.4763E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=
-0.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	2.79	810.60	70.45	1.59	3.00	810.54	72.00	1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4713E+02 EXCESS=0.0000E+00 OUTFLOW=0.4736E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=
-0.7

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	2.90	742.52	73.90	1.54	3.00	740.16	72.00	1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4551E+02 EXCESS=0.0000E+00 OUTFLOW=0.4571E+02 BASIN STORAGE=0.8226E-01 PERCENT ERROR=
-0.6

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R3-5	MANE	3.00	634.55	73.70	1.43	3.00	626.49	75.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4224E+02 EXCESS=0.0000E+00 OUTFLOW=0.4240E+02 BASIN STORAGE=0.8222E-01 PERCENT ERROR=
-0.6

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R3-5	MANE	3.00	478.66	74.64	1.24	3.00	478.05	75.00	1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3665E+02 EXCESS=0.0000E+00 OUTFLOW=0.3688E+02 BASIN STORAGE=0.8233E-01 PERCENT ERROR=
-0.8

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.41	520.58	62.34	2.39	3.00	513.38	63.00	2.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1819E+02 EXCESS=0.0000E+00 OUTFLOW=0.1838E+02 BASIN STORAGE=0.3179E-04 PERCENT ERROR=
-1.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5 MANE 2.42 516.56 62.40 2.38 3.00 510.06 63.00 2.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1807E+02 EXCESS=0.0000E+00 OUTFLOW=0.1825E+02 BASIN STORAGE=0.4744E-04 PERCENT ERROR=
-1.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5 MANE 2.55 451.64 62.77 2.29 3.00 451.16 63.00 2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1745E+02 EXCESS=0.0000E+00 OUTFLOW=0.1762E+02 BASIN STORAGE=0.4583E-04 PERCENT ERROR=
-1.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5 MANE 2.73 379.50 64.90 2.12 3.00 374.76 63.00 2.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1609E+02 EXCESS=0.0000E+00 OUTFLOW=0.1629E+02 BASIN STORAGE=0.4132E-04 PERCENT ERROR=
-1.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5 MANE 2.87 291.80 65.24 1.78 3.00 288.81 66.00 1.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1354E+02 EXCESS=0.0000E+00 OUTFLOW=0.1370E+02 BASIN STORAGE=0.4337E-04 PERCENT ERROR=
-1.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6 MANE 1.71 1430.15 73.26 1.84 3.00 1428.13 72.00 1.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8096E+02 EXCESS=0.0000E+00 OUTFLOW=0.8101E+02 BASIN STORAGE=0.7278E-01 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6 MANE 1.72 1417.75 71.63 1.82 3.00 1417.68 72.00 1.82

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8047E+02 EXCESS=0.0000E+00 OUTFLOW=0.8049E+02 BASIN STORAGE=0.7282E-01 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6 MANE 1.83 1320.58 72.30 1.76 3.00 1310.29 72.00 1.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7757E+02 EXCESS=0.0000E+00 OUTFLOW=0.7762E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=
-0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R5-6	MANE	1.92	1120.07	73.97	1.62	3.00	1117.54	75.00	1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7160E+02 EXCESS=0.0000E+00 OUTFLOW=0.7164E+02 BASIN STORAGE=0.7274E-01 PERCENT ERROR=-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R5-6	MANE	2.16	837.38	77.35	1.39	3.00	834.70	75.00	1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6127E+02 EXCESS=0.0000E+00 OUTFLOW=0.6143E+02 BASIN STORAGE=0.6818E-01 PERCENT ERROR=-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7-8	MANE	2.79	374.54	61.97	2.32	3.00	360.59	63.00	2.31

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8717E+01 EXCESS=0.0000E+00 OUTFLOW=0.9160E+01 BASIN STORAGE=0.1297E-03 PERCENT ERROR=-5.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7-8	MANE	2.80	373.06	62.02	2.31	3.00	359.23	63.00	2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8655E+01 EXCESS=0.0000E+00 OUTFLOW=0.9098E+01 BASIN STORAGE=0.1282E-03 PERCENT ERROR=-5.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7-8	MANE	3.00	300.60	62.65	2.18	3.00	299.77	63.00	2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8267E+01 EXCESS=0.0000E+00 OUTFLOW=0.8591E+01 BASIN STORAGE=0.1511E-03 PERCENT ERROR=-3.9

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7-8	MANE	3.00	243.19	65.55	1.99	3.00	238.95	66.00	2.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7502E+01 EXCESS=0.0000E+00 OUTFLOW=0.7866E+01 BASIN STORAGE=0.1118E-03 PERCENT ERROR=-4.8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7-8	MANE	2.82	178.83	67.24	1.61	3.00	176.29	66.00	1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6168E+01 EXCESS=0.0000E+00 OUTFLOW=0.6362E+01 BASIN STORAGE=0.1260E-03 PERCENT ERROR=
-3.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8-9	MANE	1.32	1031.83	65.57	2.33	3.00	1013.13	66.00	2.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3691E+02 EXCESS=0.0000E+00 OUTFLOW=0.3702E+02 BASIN STORAGE=0.1702E-03 PERCENT ERROR=
-0.3

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8-9	MANE	1.33	1027.12	65.64	2.31	3.00	1010.29	66.00	2.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3666E+02 EXCESS=0.0000E+00 OUTFLOW=0.3678E+02 BASIN STORAGE=0.2024E-03 PERCENT ERROR=
-0.3

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8-9	MANE	1.45	913.69	66.38	2.21	3.00	911.34	66.00	2.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3510E+02 EXCESS=0.0000E+00 OUTFLOW=0.3519E+02 BASIN STORAGE=0.1735E-03 PERCENT ERROR=
-0.3

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8-9	MANE	1.48	772.14	65.64	2.03	3.00	769.23	66.00	2.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3216E+02 EXCESS=0.0000E+00 OUTFLOW=0.3228E+02 BASIN STORAGE=0.1954E-03 PERCENT ERROR=
-0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8-9	MANE	1.59	554.15	67.90	1.68	3.00	554.05	69.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2666E+02 EXCESS=0.0000E+00 OUTFLOW=0.2676E+02 BASIN STORAGE=0.1898E-03 PERCENT ERROR=
-0.4

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.29	363.48	498.70	0.56	3.00	363.48	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5822E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.29	363.42	498.84	0.56	3.00	363.42	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5819E+03 BASIN STORAGE=0.3289E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.45	363.06	498.87	0.55	3.00	363.06	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5801E+03 EXCESS=0.0000E+00 OUTFLOW=0.5800E+03 BASIN STORAGE=0.3288E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.38	362.38	500.88	0.55	3.00	362.38	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5767E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3287E-01 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.34	361.10	501.33	0.54	3.00	361.10	501.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5702E+03 BASIN STORAGE=0.3284E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	363.48	501.11	0.56	3.00	363.48	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5822E+03 EXCESS=0.0000E+00 OUTFLOW=0.5821E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	363.42	501.35	0.56	3.00	363.42	501.00	0.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5819E+03 EXCESS=0.0000E+00 OUTFLOW=0.5818E+03 BASIN STORAGE=0.3756E-01 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.36	363.06	501.42	0.55	3.00	363.06	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5800E+03 EXCESS=0.0000E+00 OUTFLOW=0.5799E+03 BASIN STORAGE=0.3755E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.48	362.38	501.44	0.55	3.00	362.38	501.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5766E+03 EXCESS=0.0000E+00 OUTFLOW=0.5766E+03 BASIN STORAGE=0.3753E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.38	361.10	501.56	0.54	3.00	361.09	501.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5702E+03 EXCESS=0.0000E+00 OUTFLOW=0.5701E+03 BASIN STORAGE=0.3750E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

PMB-RT	MANE	0.99	1000.00	299.31	0.55	3.00	1000.00	300.00	0.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3615E+03 EXCESS=0.0000E+00 OUTFLOW=0.3612E+03 BASIN STORAGE=0.1613E+00 PERCENT ERROR=

0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	1.62	1355.03	412.64	0.90	3.00	1354.77	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9482E+03 EXCESS=0.0000E+00 OUTFLOW=0.9474E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	1.56	1354.98	412.72	0.90	3.00	1354.72	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9479E+03 EXCESS=0.0000E+00 OUTFLOW=0.9473E+03 BASIN STORAGE=0.9166E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	1.57	1354.58	412.38	0.90	3.00	1354.33	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9458E+03 EXCESS=0.0000E+00 OUTFLOW=0.9450E+03 BASIN STORAGE=0.9164E+00 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	1.67	1353.83	412.54	0.90	3.00	1353.59	411.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9420E+03 EXCESS=0.0000E+00 OUTFLOW=0.9412E+03 BASIN STORAGE=0.9165E+00 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	1.66	1352.40	412.19	0.89	3.00	1352.18	411.00	0.89

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9349E+03 EXCESS=0.0000E+00 OUTFLOW=0.9341E+03 BASIN STORAGE=0.9161E+00 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

Appendix C
Cavasson HEC-1 Data
Cavasson-Phase I

ID	Method	Duration	2 Yr	5 Yr	10 Yr	25 Yr	50 Yr	100 Yr
DEFAULT	NOAA14	5 MIN	0.258	0.349	0.418	0.511	0.583	0.656
	NOAA14	10 MIN	0.393	0.530	0.636	0.778	0.887	0.998
	NOAA14	15 MIN	0.487	0.658	0.789	0.965	1.099	1.237
	NOAA14	30 MIN	0.656	0.886	1.063	1.299	1.480	1.666
	NOAA14	1 HOUR	0.812	1.096	1.315	1.608	1.832	2.062
	NOAA14	2 HOUR	0.939	1.251	1.490	1.814	2.060	2.315
	NOAA14	3 HOUR	1.024	1.339	1.588	1.936	2.212	2.498
	NOAA14	6 HOUR	1.215	1.549	1.817	2.182	2.465	2.760
	NOAA14	12 HOUR	1.374	1.734	2.016	2.399	2.690	2.993
	NOAA14	24 HOUR	1.622	2.097	2.476	3.005	3.425	3.865

Soil Map—Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties



Map Scale: 1:17,700 if printed on B landscape (17" x 11") sheet.

N

Meters: 0, 250, 500, 1000, 1500

Feet: 0, 500, 1000, 2000, 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties
Survey Area Data: Version 11, Sep 11, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 31, 2014—Dec 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
55	Gilman loams	768.3	30.2%
90	Momoli gravelly sandy loam, 1 to 5 percent slopes	1,778.8	69.8%
Totals for Area of Interest		**2,547.2**	**100.0%**

Appendix D
Cavasson HEC-1 Ultimate
Cavasson-Phase I

```
1****************************************
****************************************
 *                                      *                                                    *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
  *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   14NOV18  TIME  11:30:17  *                                                    *           (916) 756-1104
  *
 *                                      *                                                    *
  *
 ****************************************
****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1           ID        CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
            2           ID        POWERLINE CORRIDOR
            3           ID        RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
            4           ID        INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
            5           ID       100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
            6           ID           PIMA ROAD FLOWS.
            7           ID
            8           ID        PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
            9           ID       MODELERS: RK, MW
           10           ID
           11           ID        REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
           12           ID       MODELERS: MSW, ES
           13           ID       REVISIONS NOTED WITH HE
           14           ID           ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
           15           ID           THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
           16           ID           UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.
           17           ID
           18           IT       3       0       0    1000
           19           IN      15
           20           IO       5
                       *DIAGRAM
                       *
           21           JD   2.755  0.0001
           22           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           23           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           24           PC   0.962   0.972   0.983   0.991   1.000
           25           JD   2.738  0.5000
           26           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           27           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           28           PC   0.962   0.972   0.983   0.991   1.000
           29           JD   2.686     2.8
           30           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
           31           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
           32           PC   0.950   0.963   0.975   0.988   1.000
           33           JD   2.540    16.0
           34           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
           35           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
           36           PC   0.946   0.960   0.973   0.987   1.000
           37           JD   2.232    90.0
           38           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
           39           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
           40           PC   0.927   0.945   0.964   0.982   1.000
           41           JD   3.657    10.0
           42           JD   3.533    20.0
                       *

           43           KK  76THST
```

```
   44          KM       76TH ST CHANNEL HYDROGRAPH FROM PINNACLE PEAK SOUTH ADMS
   45          KM       100-YR, 6-HR FLO-2D MODEL (XS 98)
   46          BA    0.24
   47          QI       0       0       0       0       0       0       0       0       0       0
   48          QI       0       0    0.01    0.01    0.09     0.9    12.7   42.26   49.92    48.6
   49          QI   34.49   26.72   21.55   17.51   14.81   12.84   11.63   10.56    9.58    8.32
   50          QI    7.29    6.73    5.83    4.76    4.23    3.81     3.4    3.55    2.36    2.51
   51          QI    2.32    2.16    2.02    1.83    1.58     1.5    1.52    1.21    1.31    1.34
1                                          HEC-1 INPUT                                          PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   52          QI    1.09    1.07    1.04    0.97    0.91    0.86    0.83    0.79    0.76    0.72
   53          QI    0.69    0.67    0.65    0.62     0.6    0.58    0.55    0.53    0.51    0.49
   54          QI    0.47    0.45    0.44

               *

   55          KK   SB01A   BASIN
   56          BA   0.055
   57          PB   2.721
   58          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.075
   59          PC   0.087   0.099   0.119   0.150   0.234   0.413   0.766   0.875   0.916   0.944
   60          PC   0.956   0.968   0.979   0.990   1.000
   61          LG    0.10    0.25    4.72    0.51       0
   62          UC   0.439   0.231
   63          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   64          UA     100
               *

   65          KK    CP-1 COMBINE
   66          KM        LEGACY BLVD AND 76TH ST (MILLER RD CHANNEL)
   67          HC       2   0.295
               *

   68          KK   R1A-2   ROUTE
   69          RK    2139  0.0180   0.020            TRAP   2.000    0.00
               *

   70          KK   SB01B   BASIN
   71          KM        IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
   72          BA   0.022
   73          LG    0.10    0.25    4.72    0.51      73
   74          UC   0.490   0.471
   75          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   76          UA     100
               *

   77          KK   R1B-2   ROUTE
   78          RK    2636  0.0015   0.030            TRAP   2.000    0.00
               *

   79          KK   SB01C   BASIN
   80          KM         IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
   81          BA   0.032
   82          LG    0.10    0.25    4.72    0.51      73
   83          UC   0.581   0.550
   84          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   85          UA     100
               *

   86          KK   R1C-2   ROUTE
   87          RK    3046  0.0015   0.030            TRAP   2.000    0.00
               *
1                                          HEC-1 INPUT                                          PAGE  3

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


   88          KK   SB02E   BASIN
   89          KM         IMPERVIOUSNESS INCREASED TO 85 TO REFLECT DEVELOPMENT
   90          BA   0.100
   91          LG    0.10    0.25    4.03    0.74      85
   92          UC   0.859   0.688
   93          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
   94          UA     100
               *

   95          KK   SB02W   BASIN
   96          BA   0.060
   97          LG    0.10    0.25    4.33    0.61       0
   98          UC   0.686   0.535
   99          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  100          UA     100
               *

  101          KK   CP-02 COMBINE
  102          HC       5
               *

  103          KK    R2-3   ROUTE
  104          KM        MILLER RD CHANNEL FROM SR 101L FREEWAY TO MAYO BLVD
  105          RK    1260  0.0015   0.03             TRAP      92       4
               *
```

```
 106          KK    SB03   BASIN
 107          BA   0.048
 108          LG    0.15    0.25    4.50    0.47      55
 109          UC   0.364   0.294
 110          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 111          UA     100
              *

 112          KK   CP-03 COMBINE
 113          HC       2
              *

 114          KK    R3-5   ROUTE
 115          KM        MILLER RD CHANNEL FROM MAYO BLVD TO PRINCESS BLVD
 116          RK    2396  0.0015   0.03             TRAP      98       4
              *

 117          KK    SB05   BASIN
 118          BA   0.126
 119          LG    0.22    0.25    4.50    0.44      48
 120          UC   0.327   0.226
 121          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 122          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  4

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 123          KK   CP-5A COMBINE
 124          HC       2
              *
 125          KM
              *

 126          KK   SB07W   BASIN
 127          KM        IMPERVIOUSNESS INCREASED TO 73 TO REFLECT DEVELOPMENT
 128          BA   0.048
 129          LG    0.10    0.25    4.03    0.74       73
 130          UC   0.677   0.558
 131          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 132          UA     100
              *

 133          KK  R7W-8W   ROUTE
 134          KM        HAYDEN ROAD NORTH CHANNEL FROM LEGACY BLVD TO SR 101L FREEWAY
 135          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 136          RK    3721  0.0013   0.03             TRAP      46       4
              *

 137          KK  SB08W   BASIN
 138          KM        INCREASED IMPERVIOUSNESS TO 85 TO REFLECT DEVELOPMENT
 139          KM        HE MODIFIED BASIN 8 INTO 8W WEST 8E EAST OF HAYDEN
 140          BA   0.112
 141          LG    0.10    0.25    4.08    0.71       85
 142          UC   0.784   0.547
 143          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 144          UA     100
              *

 145          KK  CP-08W COMBINE
 146          KM        SR 101L FREEWAY AND HAYDEN ROAD (CULVERT UNDER LOOP 101 WEST OF HAYDEN)
 147          HC       2
              *

 148          KK   R8W-4   ROUTE
 149          KM        SR 101L FREEWAY TO CP4
 150          KM        HE MODIFIED ROUTE TO LOOP 101 W OF HAYDEN
 151          RK    3137  0.0130   0.030            TRAP   2.000    0.00
              *

 152          KK    SB04   BASIN
 153          BA   0.144
 154          LG    0.14    0.25    4.60    0.44      61
 155          UC   0.305   0.199
 156          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 157          UA     100
              *
1                                        HEC-1 INPUT                                          PAGE  5

        LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 158          KK    CP-4 COMBINE
 159          KM        PRINCESS BLVD AND EAST OF 77TH ST
 160          HC       2
              *

 161          KK    R4-5   ROUTE
 162          KM        PRINCESS BLVD CHANNEL FROM 77TH ST TO 76TH ST
 163          RK    1992  0.0013   0.03             TRAP      39       4
              *
```

```
164          KK   CP-05 COMBINE
165          KM        PRINCESS BLVD AND 76TH ST (PRINCESS BLVD CHANNEL)
166          KM        COMBINE CP-05A AND R4-5
167          HC       2
             *

168          KK    R5-6   ROUTE
169          KM        PRINCESS BLVD CHANNEL FROM 76TH ST TO SCOTTSDALE RD
170          RK    1694  0.0015   0.03             TRAP     188       4
             *

171          KK    SB06   BASIN
172          BA   0.136
173          LG    0.16    0.25    4.55    0.45      53
174          UC   0.321   0.246
175          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
176          UA     100
             *

177          KK   CP-06 COMBINE
178          HC       2
             *
             *
             * END WEST RUN
             *
             *
             * BEGIN EAST SIDE OF HAYDEN
             *

179          KK  SB07E   BASIN
180          BA   0.026
181          LG    0.10    0.25    4.03    0.74       0
182          UC   0.574   0.527
183          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
184          UA     100
             *

185          KK  R7E-8E   ROUTE
186          RK    3662  0.0130   0.030            TRAP   2.000    0.00
             *
```

1 HEC-1 INPUT PAGE 6

```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

187          KK  SB08E   BASIN
188          BA   0.078
189          LG    0.10    0.25    4.08    0.72       0
190          UC   0.798   0.652
191          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
192          UA     100
             *

193          KK  SB09N   BASIN
194          BA   0.028
195          LG    0.10    0.25    4.79    0.49       0
196          UC   0.740   1.111
197          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
198          UA     100
             *

199          KK  R9N-R9   ROUTE
200          RK    2586  0.0013   0.020            TRAP   2.000    0.00
             *

201          KK  CP-08E COMBINE
202          KM       SB07E, SB08E, SB09N
203          HC       3
             *

204          KK   SB09   BASIN
205          BA   0.086
206          LG    0.10    0.25    4.79    0.49       0
207          UC   0.683   0.518
208          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
209          UA     100
             *

210          KK  8E-R9   ROUTE
211          RK     501  0.0013   0.020            TRAP   2.000    0.00
             *

212          KK   CP-09 COMBINE
213          KM        SR 101L FREEWAY AND BASIN 53R (HAYDEN ROAD NORTH CHANNEL)
214          HC       2
             *

215          KK   PWRCH
216          KM        POWERLINE CHANNEL (XS 107) & 50% PIMA ROAD CHANNEL (XS 183) HYDROGRAPHS
217          KM        100-YR, 6-HR FLO-2D MODEL (XS 107)
218          BA     7.0
219          QI       0       0       0       0       0       0       0       0       0       0
220          QI       0       0       0       0       0    0.11   17.74   50.91  433.53  391.08
221          QI  359.13  391.64  616.52  737.85  699.64  645.41  621.52  599.48  594.12  570.84
```

```
 222          QI  525.86  472.45  419.04  375.56     335  299.45   270.9  235.68  211.13  196.81
 223          QI  172.83  155.83  146.04  130.32   120.9  110.32   99.25    90.9   82.93   77.68
 224          QI    79.3   67.58    63.5   64.86   56.01   51.64   48.75   43.99   42.04   40.99
 225          QI   37.99   36.19   33.42   31.56   29.22   28.13   27.15   31.57   24.31    23.1
 226          QI   22.09   21.66   20.95
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 227          KK  BINFLO
 228          KM         TOTAL INFLOW INTO BASIN 53R.
 229          HC       2
              *

 230          KK   BASIN
 231          KM    BASIN STAGE/STORAGE FROM PROPOSED CONTOURS BETWEEN
 232          KM    ELEV 1594 AND 1615; BASIN SIDE SLOPES STEEPENED TO 3:1
 233          KM        OUTFLOW RATING CURVE FROM CULVERTMASTER FOR 2-60" PIPES
 234          KM        THE OUTLET PIPES ARE INLET CONTROLLED.
 235          RS       1    STOR       0
 236          SV       0    44.9    76.8   108.7   140.6   171.5   202.5   233.5   264.5   295.5
 237          SV   328.7   362.0   395.2   428.5   461.7   497.2   532.7   568.3   603.8   639.3
 238          SE    1594    1597    1598    1599    1600    1601    1602    1603    1604    1605
 239          SE    1606    1607    1608    1609    1610    1611    1612    1613    1614    1615
 240          SQ       0    94.6   153.4   209.8   244.2   264.5   284.0   302.5   320.1   336.9
 241          SQ   353.0   368.5   383.5   398.0   412.0   425.7   438.9   451.9   464.5   476.8
              *

 242          KK  BSNRT1
 243          KM        2-60" CMP OULFLOW PIPES FOR BASIN 53R UNDER SR 101L FREEWAY.
 244          KM        DOWNSTREAM CONNECTING PIPES ARE 60-INCH RCP AND WILL HAVE
 245          KM        EXCESS CAPACITY.
 246          RK     550  0.0052   0.024            CIRC     7.0
              *

 247          KK  BSNRT2
 248          KM        2-60" RCP PIPES FROM SR 101L FREEWAY TO UNION HILLS DR (BAS 53R OUTFALL)
 249          RK    1200  0.0077   0.013            CIRC     7.0
              *

 250          KK    SB10   BASIN
 251          BA   0.040
 252          LG    0.15    0.25    4.25    0.55      55
 253          UC   0.233   0.161
 254          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 255          UA     100
              *

 256          KK   CP-10 COMBINE
 257          KM        UNION HILLS DR AND 82ND ST (UNION HILLS DR CHANNEL)
 258          HC       2
              *

 259          KK  R10-11   ROUTE
 260          KM        UNION HILLS DR CHANNEL FROM 82ND ST TO HAYDEN ROAD
 261          RK    1277  0.0014   0.03             TRAP     220       4
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 262          KK    SB11   BASIN
 263          BA   0.071
 264          LG    0.15    0.25    4.15    0.58      55
 265          UC   0.296   0.232
 266          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 267          UA     100
              *

 268          KK   CP-11 COMBINE
 269          KM        UNION HILLS DR AND HAYDEN ROAD (HAYDEN RD SOUTH CHANNEL)
 270          HC       2
              *
 271          ZZ
```

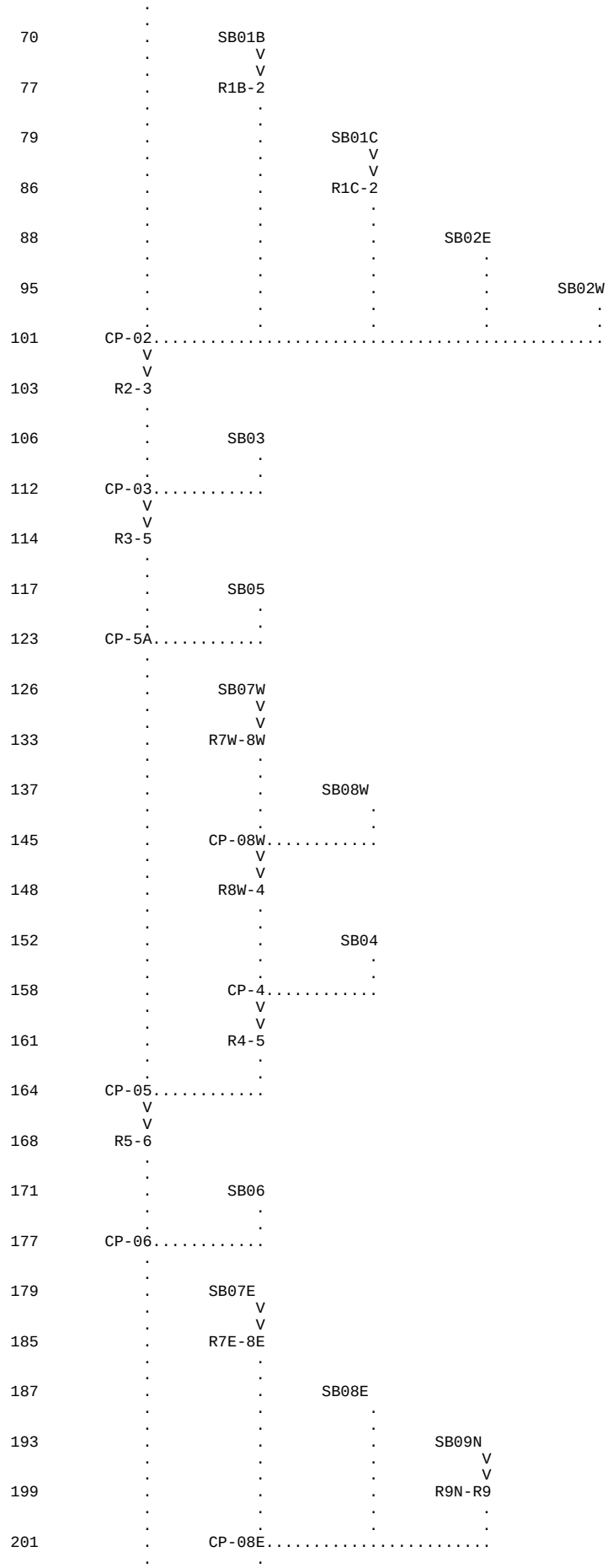
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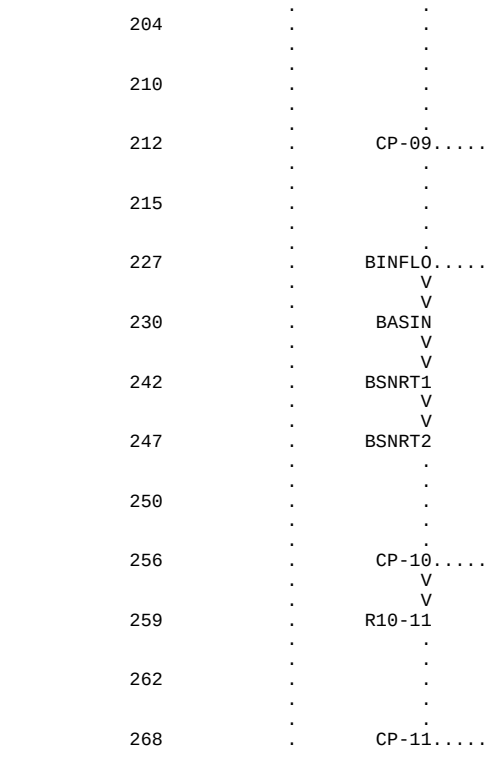
SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     43      76THST
                .
                .
     55         .       SB01A
                .          .
                .          .
     65        CP-1.............
                V
                V
     68       R1A-2
```


70 SB01B
77 R1B-2
79 SB01C
86 R1C-2
88 SB02E
95 SB02W
101 CP-02
103 R2-3
106 SB03
112 CP-03
114 R3-5
117 SB05
123 CP-5A
126 SB07W
133 R7W-8W
137 SB08W
145 CP-08W
148 R8W-4
152 SB04
158 CP-4
161 R4-5
164 CP-05
168 R5-6
171 SB06
177 CP-06
179 SB07E
185 R7E-8E
187 SB08E
193 SB09N
199 R9N-R9
201 CP-08E



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*****************************************
 *                                       *                                       *
  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                       *    U.S. ARMY CORPS OF ENGINEERS
  *
 *               JUN   1998              *                                       *    HYDROLOGIC ENGINEERING CENTER
  *
 *            VERSION 4.1                *                                       *         609 SECOND STREET
  *
 *                                       *                                       *       DAVIS, CALIFORNIA 95616
  *
 *  RUN DATE   14NOV18  TIME  11:30:17   *                                       *           (916) 756-1104
  *
 *                                       *                                       *
  *
 *****************************************
*****************************************
```

```
                                CROSS ROADS EAST DRAINAGE INFRASTRUCTURE
                                POWERLINE CORRIDOR
                                RESERVE ROUTING OF BASIN 53R N OF SR101 & E OF HAYDEN RD, SCOTTSDALE, AZ
                                INFLOW HYDROGRAPHS FROM THE PPSADMS DRAFT FLO-2D MODEL:
                                  100-YR, 6-HR BASE W/WALLS (W/ MODIFICATIONS TO CONTAIN POWERLINE AND
                                   PIMA ROAD FLOWS. MODIFIED TO INCLUDE EXISTING LEGACY AND HAYDEN CULVE

                                PREPARED BY: T.Y.LIN INTERNATIONAL; LAST MODIFIED: 09/14
                                  MODELERS: RK, MW

                                REVISED BY: HUBBARD ENGINEERING; LAST MODIFIED: 11/14/18
                                  MODELERS: MSW, ES
                                  REVISIONS NOTED WITH HE
                                   ULTIMATE CONDITION MODEL,WITH POWERLINE AND BASIN 53R AND
                                   THIS IS THE POST-DEVELOPMENT MODEL WITH DEVELOPMENT N OF LEGACY
                                   UPDATED INFLOW HYDROGRAPHS TO REFLECT 15MIN INC.


   20 IO          OUTPUT CONTROL VARIABLES
                        IPRNT           5  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                         NMIN           3  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1    0  STARTING DATE
                        ITIME        0000  STARTING TIME
                           NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      3    0  ENDING DATE
                       NDTIME        0157  ENDING TIME
                       ICENT          19  CENTURY MARK
```

```
               COMPUTATION INTERVAL    0.05 HOURS
                    TOTAL TIME BASE   49.95 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

21 JD            INDEX STORM NO. 1
                       STRM        2.76  PRECIPITATION DEPTH
                       TRDA        0.00  TRANSPOSITION DRAINAGE AREA

22 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                     0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                     0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

25 JD            INDEX STORM NO. 2
                       STRM        2.74  PRECIPITATION DEPTH
                       TRDA        0.50  TRANSPOSITION DRAINAGE AREA

26 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                     0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                     0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

29 JD            INDEX STORM NO. 3
                       STRM        2.69  PRECIPITATION DEPTH
                       TRDA        2.80  TRANSPOSITION DRAINAGE AREA

30 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                     0.04      0.04      0.04      0.04      0.04      0.05      0.05      0.05      0.05      0.05
                     0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                     0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

33 JD            INDEX STORM NO. 4
                       STRM        2.54  PRECIPITATION DEPTH
                       TRDA       16.00  TRANSPOSITION DRAINAGE AREA

34 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                     0.03      0.03      0.03      0.03      0.03      0.04      0.04      0.04      0.04      0.04
                     0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                     0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

37 JD            INDEX STORM NO. 5
                       STRM        2.23  PRECIPITATION DEPTH
                       TRDA       90.00  TRANSPOSITION DRAINAGE AREA

38 PI              PRECIPITATION PATTERN
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                     0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

41 JD INDEX STORM NO. 6

STRM 3.66 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

42 JD INDEX STORM NO. 7

STRM 3.53 PRECIPITATION DEPTH
TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	76THST	50.	4.50	15.	4.	2.	0.24		
HYDROGRAPH AT	SB01A	77.	4.25	6.	2.	1.	0.05		
2 COMBINED AT	CP-1	119.	4.25	21.	6.	3.	0.29		
ROUTED TO	R1A-2	119.	4.30	21.	6.	3.	0.29		
HYDROGRAPH AT	SB01B	30.	4.35	5.	1.	1.	0.02		
ROUTED TO	R1B-2	30.	4.40	5.	1.	1.	0.02		
HYDROGRAPH AT	SB01C	39.	4.40	8.	2.	1.	0.03		
ROUTED TO	R1C-2	39.	4.45	8.	2.	1.	0.03		
HYDROGRAPH AT	SB02E	61.	4.60	11.	3.	1.	0.10		
HYDROGRAPH AT	SB02W	45.	4.45	6.	2.	1.	0.06		
5 COMBINED AT	CP-02	254.	4.45	51.	14.	7.	0.51		
ROUTED TO	R2-3	253.	4.55	51.	14.	7.	0.51		
HYDROGRAPH AT	SB03	78.	4.15	10.	3.	1.	0.05		
2 COMBINED AT	CP-03	283.	4.50	60.	16.	8.	0.56		
ROUTED TO	R3-5	282.	4.65	60.	16.	8.	0.56		
HYDROGRAPH AT	SB05	229.	4.10	25.	6.	3.	0.13		
2 COMBINED AT	CP-5A	324.	4.55	82.	22.	11.	0.68		
HYDROGRAPH AT									

+	SB07W	35.	4.45	5.	1.	1.	0.05
ROUTED TO							
+	R7W-8W	35.	5.00	6.	1.	1.	0.05
HYDROGRAPH AT							
+	SB08W	82.	4.55	13.	3.	2.	0.11
2 COMBINED AT							
+	CP-08W	82.	4.55	18.	5.	2.	0.16
ROUTED TO							
+	R8W-4	81.	4.55	18.	5.	2.	0.16
HYDROGRAPH AT							
+	SB04	292.	4.10	32.	8.	4.	0.14
2 COMBINED AT							
+	CP-4	301.	4.10	50.	13.	6.	0.30
ROUTED TO							
+	R4-5	297.	4.20	50.	13.	6.	0.30
2 COMBINED AT							
+	CP-05	471.	4.50	125.	33.	16.	0.99
ROUTED TO							
+	R5-6	468.	4.60	125.	33.	16.	0.99
HYDROGRAPH AT							
+	SB06	243.	4.10	29.	7.	3.	0.14
2 COMBINED AT							
+	CP-06	602.	4.25	149.	39.	19.	1.12
HYDROGRAPH AT							
+	SB07E	19.	4.40	3.	1.	0.	0.03
ROUTED TO							
+	R7E-8E	19.	4.45	3.	1.	0.	0.03
HYDROGRAPH AT							
+	SB08E	46.	4.55	8.	2.	1.	0.08
HYDROGRAPH AT							
+	SB09N	13.	4.55	3.	1.	0.	0.03
ROUTED TO							
+	R9N-R9	13.	4.65	3.	1.	0.	0.03
3 COMBINED AT							
+	CP-08E	76.	4.55	13.	3.	2.	0.13
HYDROGRAPH AT							
+	SB09	71.	4.45	10.	2.	1.	0.09
ROUTED TO							
+	8E-R9	70.	4.45	10.	2.	1.	0.09
2 COMBINED AT							
+	CP-09	145.	4.50	23.	6.	3.	0.22
HYDROGRAPH AT							
+	PWRCH	738.	5.75	429.	135.	74.	7.00
2 COMBINED AT							
+	BINFLO	749.	5.75	439.	138.	76.	7.22
ROUTED TO							
+	BASIN	241.	9.20	228.	130.	73.	7.22
ROUTED TO							
+	BSNRT1	241.	9.25	228.	130.	73.	7.22
ROUTED TO							
+	BSNRT2	241.	9.25	228.	130.	73.	7.22
HYDROGRAPH AT							
+	SB10	87.	4.05	8.	2.	1.	0.04
2 COMBINED AT							
+	CP-10	241.	9.25	228.	130.	74.	7.26
ROUTED TO							
+	R10-11	241.	9.35	228.	130.	74.	7.26
HYDROGRAPH AT							
+	SB11	130.	4.10	15.	4.	2.	0.07
2 COMBINED AT							
+	CP-11	241.	9.35	228.	132.	75.	7.33

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(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = 0.00									
R1A-2	MANE	0.48	119.91	256.11	0.80	3.00	119.46	258.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+02 EXCESS=0.0000E+00 OUTFLOW=0.1254E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50									
R1A-2	MANE	0.42	119.22	255.86	0.79	3.00	118.75	258.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1251E+02 EXCESS=0.0000E+00 OUTFLOW=0.1250E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80									
R1A-2	MANE	0.58	81.25	258.88	0.73	3.00	81.04	258.00	0.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1153E+02 EXCESS=0.0000E+00 OUTFLOW=0.1152E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00									
R1A-2	MANE	0.52	67.10	261.13	0.68	3.00	67.10	261.00	0.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1070E+02 EXCESS=0.0000E+00 OUTFLOW=0.1070E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00									
R1A-2	MANE	0.48	54.97	271.02	0.62	3.00	54.71	270.00	0.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9775E+01 EXCESS=0.0000E+00 OUTFLOW=0.9770E+01 BASIN STORAGE=0.6724E-02 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00									
R1A-2	MANE	0.42	83.01	261.73	0.76	3.00	82.95	261.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1204E+02 EXCESS=0.0000E+00 OUTFLOW=0.1203E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1A-2	MANE	0.57	80.42	262.10	0.75	3.00	80.39	264.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1180E+02 EXCESS=0.0000E+00 OUTFLOW=0.1180E+02 BASIN STORAGE=0.6724E-02 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1B-2	MANE	2.04	30.04	264.21	2.29	3.00	30.03	264.00	2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2685E+01 EXCESS=0.0000E+00 OUTFLOW=0.2690E+01 BASIN STORAGE=0.3333E-04 PERCENT ERROR= -0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1B-2	MANE	2.05	29.84	264.42	2.28	3.00	29.83	264.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2667E+01 EXCESS=0.0000E+00 OUTFLOW=0.2671E+01 BASIN STORAGE=0.3123E-04 PERCENT ERROR= -0.2

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1B-2	MANE	2.47	20.76	265.14	2.15	3.00	20.74	267.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2516E+01 EXCESS=0.0000E+00 OUTFLOW=0.2521E+01 BASIN STORAGE=0.2485E-04 PERCENT ERROR= -0.2

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1B-2	MANE	2.58	16.16	267.60	1.97	3.00	16.14	267.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2303E+01 EXCESS=0.0000E+00 OUTFLOW=0.2309E+01 BASIN STORAGE=0.2779E-04 PERCENT ERROR= -0.3

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1B-2	MANE	2.99	11.23	270.36	1.66	3.00	11.23	270.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1940E+01 EXCESS=0.0000E+00 OUTFLOW=0.1945E+01 BASIN STORAGE=0.3280E-04 PERCENT ERROR= -0.2

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1B-2	MANE	2.38	20.70	269.45	2.90	3.00	20.68	270.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3399E+01 EXCESS=0.0000E+00 OUTFLOW=0.3405E+01 BASIN STORAGE=0.2805E-04 PERCENT ERROR=
-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1B-2	MANE	2.51	19.87	269.28	2.79	3.00	19.86	270.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3268E+01 EXCESS=0.0000E+00 OUTFLOW=0.3273E+01 BASIN STORAGE=0.3321E-04 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R1C-2	MANE	2.23	39.13	269.34	2.29	3.00	39.04	267.00	2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3906E+01 EXCESS=0.0000E+00 OUTFLOW=0.3910E+01 BASIN STORAGE=0.3482E-04 PERCENT ERROR=
-0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R1C-2	MANE	2.23	38.85	267.30	2.28	3.00	38.74	267.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3880E+01 EXCESS=0.0000E+00 OUTFLOW=0.3884E+01 BASIN STORAGE=0.4813E-04 PERCENT ERROR=
-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R1C-2	MANE	2.53	28.06	272.03	2.15	3.00	28.01	273.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3661E+01 EXCESS=0.0000E+00 OUTFLOW=0.3664E+01 BASIN STORAGE=0.3982E-04 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R1C-2	MANE	2.64	21.97	272.96	1.97	3.00	21.97	273.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3351E+01 EXCESS=0.0000E+00 OUTFLOW=0.3356E+01 BASIN STORAGE=0.3522E-04 PERCENT ERROR=
-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R1C-2	MANE	3.00	15.44	275.05	1.66	3.00	15.43	276.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2823E+01 EXCESS=0.0000E+00 OUTFLOW=0.2828E+01 BASIN STORAGE=0.4519E-04 PERCENT ERROR=
-0.2

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R1C-2	MANE	2.53	28.45	274.96	2.90	3.00	28.42	276.00	2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4945E+01 EXCESS=0.0000E+00 OUTFLOW=0.4953E+01 BASIN STORAGE=0.4355E-04 PERCENT ERROR=
-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R1C-2	MANE	2.42	27.30	275.83	2.79	3.00	27.29	276.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4755E+01 EXCESS=0.0000E+00 OUTFLOW=0.4762E+01 BASIN STORAGE=0.4884E-04 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R2-3	MANE	2.23	256.61	271.16	1.03	3.00	255.52	273.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2798E+02 EXCESS=0.0000E+00 OUTFLOW=0.2792E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R2-3	MANE	2.23	254.83	271.34	1.02	3.00	253.67	273.00	1.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2781E+02 EXCESS=0.0000E+00 OUTFLOW=0.2775E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R2-3	MANE	2.47	177.72	275.33	0.85	3.00	177.33	276.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2321E+02 EXCESS=0.0000E+00 OUTFLOW=0.2316E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R2-3	MANE	2.72	132.74	274.62	0.72	3.00	132.65	276.00	0.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1956E+02 EXCESS=0.0000E+00 OUTFLOW=0.1950E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R2-3	MANE	3.00	88.58	279.06	0.58	3.00	88.57	279.00	0.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1573E+02 EXCESS=0.0000E+00 OUTFLOW=0.1569E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=

0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R2-3	MANE	2.47	188.88	276.72	1.00	3.00	188.78	276.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2727E+02 EXCESS=0.0000E+00 OUTFLOW=0.2723E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R2-3	MANE	2.50	179.95	275.74	0.96	3.00	179.89	276.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2614E+02 EXCESS=0.0000E+00 OUTFLOW=0.2610E+02 BASIN STORAGE=0.3924E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R3-5	MANE	3.00	289.94	278.07	1.11	3.00	288.96	279.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3305E+02 EXCESS=0.0000E+00 OUTFLOW=0.3292E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R3-5	MANE	3.00	287.78	278.27	1.10	3.00	286.96	279.00	1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3284E+02 EXCESS=0.0000E+00 OUTFLOW=0.3272E+02 BASIN STORAGE=0.9261E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R3-5	MANE	3.00	206.72	280.90	0.93	3.00	206.41	282.00	0.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2780E+02 EXCESS=0.0000E+00 OUTFLOW=0.2769E+02 BASIN STORAGE=0.8862E-01 PERCENT ERROR=
0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R3-5	MANE	3.00	155.61	283.73	0.79	3.00	155.47	285.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2363E+02 EXCESS=0.0000E+00 OUTFLOW=0.2351E+02 BASIN STORAGE=0.9562E-01 PERCENT ERROR=
0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R3-5	MANE	2.92	104.14	291.39	0.64	3.00	104.14	291.00	0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1901E+02 EXCESS=0.0000E+00 OUTFLOW=0.1888E+02 BASIN STORAGE=0.1003E+00 PERCENT ERROR=
0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R3-5	MANE	3.00	221.76	283.95	1.12	3.00	221.35	282.00	1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3347E+02 EXCESS=0.0000E+00 OUTFLOW=0.3337E+02 BASIN STORAGE=0.8863E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R3-5	MANE	3.00	211.29	283.83	1.08	3.00	210.69	282.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3209E+02 EXCESS=0.0000E+00 OUTFLOW=0.3198E+02 BASIN STORAGE=0.8863E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7W-8W	MANE	3.00	34.91	298.77	1.13	3.00	34.72	300.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2670E+01 EXCESS=0.0000E+00 OUTFLOW=0.2899E+01 BASIN STORAGE=0.3555E-03 PERCENT ERROR=
-8.6

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7W-8W	MANE	3.00	34.60	298.50	1.13	3.00	34.43	300.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2642E+01 EXCESS=0.0000E+00 OUTFLOW=0.2890E+01 BASIN STORAGE=0.3549E-03 PERCENT ERROR=
-9.4

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7W-8W	MANE	3.00	17.25	308.91	0.70	3.00	17.25	309.00	0.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1638E+01 EXCESS=0.0000E+00 OUTFLOW=0.1783E+01 BASIN STORAGE=0.3231E-03 PERCENT ERROR=
-8.9

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7W-8W	MANE	3.00	9.20	319.96	0.39	3.00	9.16	321.00	0.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9540E+00 EXCESS=0.0000E+00 OUTFLOW=0.1009E+01 BASIN STORAGE=0.3062E-03 PERCENT ERROR=
-5.8

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7W-8W	MANE	3.00	2.49	354.44	0.17	3.00	2.49	354.00	0.17

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4263E+00 EXCESS=0.0000E+00 OUTFLOW=0.4309E+00 BASIN STORAGE=0.2894E-03 PERCENT ERROR=-1.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7W-8W	MANE	3.00	19.19	311.08	0.83	3.00	19.16	312.00	0.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2080E+01 EXCESS=0.0000E+00 OUTFLOW=0.2116E+01 BASIN STORAGE=0.3187E-03 PERCENT ERROR=-1.8

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7W-8W	MANE	3.00	17.58	311.28	0.76	3.00	17.57	312.00	0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1917E+01 EXCESS=0.0000E+00 OUTFLOW=0.1933E+01 BASIN STORAGE=0.3286E-03 PERCENT ERROR=-0.9

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R8W-4	MANE	0.98	82.06	274.16	1.09	3.00	81.62	273.00	1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9333E+01 EXCESS=0.0000E+00 OUTFLOW=0.9334E+01 BASIN STORAGE=0.1460E-03 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R8W-4	MANE	0.98	81.24	274.34	1.09	3.00	80.77	273.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9257E+01 EXCESS=0.0000E+00 OUTFLOW=0.9258E+01 BASIN STORAGE=0.1453E-03 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R8W-4	MANE	1.17	42.66	275.93	0.69	3.00	42.66	276.00	0.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5909E+01 EXCESS=0.0000E+00 OUTFLOW=0.5909E+01 BASIN STORAGE=0.1342E-03 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R8W-4	MANE	1.40	23.78	276.46	0.41	3.00	23.77	276.00	0.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3533E+01 EXCESS=0.0000E+00 OUTFLOW=0.3535E+01 BASIN STORAGE=0.1362E-03 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R8W-4	MANE	2.31	7.22	279.79	0.19	3.00	7.21	279.00	0.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1610E+01 EXCESS=0.0000E+00 OUTFLOW=0.1610E+01 BASIN STORAGE=0.1291E-03 PERCENT ERROR=-0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R8W-4	MANE	1.04	47.90	305.57	0.86	3.00	47.71	306.00	0.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7312E+01 EXCESS=0.0000E+00 OUTFLOW=0.7313E+01 BASIN STORAGE=0.1449E-03 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R8W-4	MANE	1.25	43.86	279.03	0.79	3.00	43.86	279.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6746E+01 EXCESS=0.0000E+00 OUTFLOW=0.6747E+01 BASIN STORAGE=0.1346E-03 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R4-5	MANE	2.85	300.52	251.32	1.58	3.00	298.03	252.00	1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2556E+02 EXCESS=0.0000E+00 OUTFLOW=0.2560E+02 BASIN STORAGE=0.3904E-03 PERCENT ERROR=-0.2

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R4-5	MANE	2.84	298.86	251.39	1.57	3.00	296.48	252.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2537E+02 EXCESS=0.0000E+00 OUTFLOW=0.2540E+02 BASIN STORAGE=0.3915E-03 PERCENT ERROR=-0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R4-5	MANE	3.00	180.91	252.10	1.29	3.00	180.70	252.00	1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2085E+02 EXCESS=0.0000E+00 OUTFLOW=0.2087E+02 BASIN STORAGE=0.3964E-03 PERCENT ERROR=-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R4-5	MANE	2.82	134.26	255.25	1.05	3.00	134.16	255.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1696E+02 EXCESS=0.0000E+00 OUTFLOW=0.1699E+02 BASIN STORAGE=0.4906E-03 PERCENT ERROR=
-0.2

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R4-5	MANE	3.00	86.72	256.77	0.78	3.00	86.19	255.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1263E+02 EXCESS=0.0000E+00 OUTFLOW=0.1269E+02 BASIN STORAGE=0.4762E-03 PERCENT ERROR=
-0.4

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R4-5	MANE	3.00	177.37	256.91	1.70	3.00	177.10	258.00	1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2745E+02 EXCESS=0.0000E+00 OUTFLOW=0.2751E+02 BASIN STORAGE=0.3839E-03 PERCENT ERROR=
-0.2

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R4-5	MANE	3.00	169.13	255.36	1.61	3.00	168.84	255.00	1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2606E+02 EXCESS=0.0000E+00 OUTFLOW=0.2612E+02 BASIN STORAGE=0.4257E-03 PERCENT ERROR=
-0.2

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R5-6	MANE	2.68	539.09	255.07	1.35	3.00	538.31	255.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7120E+02 EXCESS=0.0000E+00 OUTFLOW=0.7105E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R5-6	MANE	2.68	535.64	255.30	1.34	3.00	532.25	255.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7069E+02 EXCESS=0.0000E+00 OUTFLOW=0.7052E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R5-6	MANE	3.00	409.09	275.01	1.14	3.00	408.53	276.00	1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5992E+02 EXCESS=0.0000E+00 OUTFLOW=0.5984E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R5-6	MANE	3.00	301.78	280.56	0.96	3.00	300.09	282.00	0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5040E+02 EXCESS=0.0000E+00 OUTFLOW=0.5038E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
-0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R5-6	MANE	3.00	192.19	286.35	0.75	3.00	192.01	288.00	0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3938E+02 EXCESS=0.0000E+00 OUTFLOW=0.3932E+02 BASIN STORAGE=0.8566E-01 PERCENT ERROR=
-0.1

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R5-6	MANE	3.00	453.67	275.96	1.45	3.00	453.64	276.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7615E+02 EXCESS=0.0000E+00 OUTFLOW=0.7611E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R5-6	MANE	3.00	428.70	278.22	1.38	3.00	428.59	276.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7269E+02 EXCESS=0.0000E+00 OUTFLOW=0.7264E+02 BASIN STORAGE=0.7458E-01 PERCENT ERROR=
0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R7E-8E	MANE	1.76	19.03	266.67	0.91	3.00	19.02	267.00	0.91

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+01 EXCESS=0.0000E+00 OUTFLOW=0.1268E+01 BASIN STORAGE=0.1101E-04 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R7E-8E	MANE	1.77	18.85	266.81	0.90	3.00	18.84	267.00	0.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1254E+01 EXCESS=0.0000E+00 OUTFLOW=0.1254E+01 BASIN STORAGE=0.1092E-04 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R7E-8E	MANE	2.41	8.57	268.50	0.49	3.00	8.54	270.00	0.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6750E+00 EXCESS=0.0000E+00 OUTFLOW=0.6756E+00 BASIN STORAGE=0.1319E-04 PERCENT ERROR=
-0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R7E-8E	MANE	3.00	3.99	269.13	0.21	3.00	3.99	270.00	0.21

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2917E+00 EXCESS=0.0000E+00 OUTFLOW=0.2928E+00 BASIN STORAGE=0.1256E-04 PERCENT ERROR=
-0.4

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R7E-8E	MANE	3.00	0.26	292.33	0.01	3.00	0.25	294.00	0.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E-01 EXCESS=0.0000E+00 OUTFLOW=0.2054E-01 BASIN STORAGE=0.1096E-04 PERCENT ERROR=
-24.8

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R7E-8E	MANE	2.36	9.61	272.07	0.60	3.00	9.60	273.00	0.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8313E+00 EXCESS=0.0000E+00 OUTFLOW=0.8321E+00 BASIN STORAGE=0.1454E-04 PERCENT ERROR=
-0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R7E-8E	MANE	2.43	8.70	271.22	0.54	3.00	8.69	273.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7492E+00 EXCESS=0.0000E+00 OUTFLOW=0.7500E+00 BASIN STORAGE=0.1049E-04 PERCENT ERROR=
-0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R9N-R9	MANE	2.26	13.31	278.00	1.08	3.00	13.26	279.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1613E+01 EXCESS=0.0000E+00 OUTFLOW=0.1611E+01 BASIN STORAGE=0.2018E-04 PERCENT ERROR=
0.1

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R9N-R9	MANE	2.27	13.16	278.20	1.07	3.00	13.12	279.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1595E+01 EXCESS=0.0000E+00 OUTFLOW=0.1593E+01 BASIN STORAGE=0.1743E-04 PERCENT ERROR=
0.1

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R9N-R9	MANE	2.76	8.13	284.79	0.74	3.00	8.13	285.00	0.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1103E+01 EXCESS=0.0000E+00 OUTFLOW=0.1102E+01 BASIN STORAGE=0.2044E-04 PERCENT ERROR=

0.1

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R9N-R9	MANE	3.00	5.05	284.63	0.46	3.00	5.05	285.00	0.46	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6843E+00 EXCESS=0.0000E+00 OUTFLOW=0.6838E+00 BASIN STORAGE=0.2050E-04 PERCENT ERROR=
0.1

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R9N-R9	MANE	3.00	1.59	293.56	0.14	3.00	1.59	294.00	0.14	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2079E+00 EXCESS=0.0000E+00 OUTFLOW=0.2079E+00 BASIN STORAGE=0.1894E-04 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R9N-R9	MANE	2.65	9.46	288.90	0.92	3.00	9.46	288.00	0.92	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1380E+01 EXCESS=0.0000E+00 OUTFLOW=0.1379E+01 BASIN STORAGE=0.1805E-04 PERCENT ERROR=
0.1

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R9N-R9	MANE	2.68	8.74	288.39	0.84	3.00	8.73	288.00	0.84	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1261E+01 EXCESS=0.0000E+00 OUTFLOW=0.1260E+01 BASIN STORAGE=0.1932E-04 PERCENT ERROR=
0.1

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

8E-R9	MANE	0.36	71.32	267.92	1.08	3.00	70.88	267.00	1.08	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4954E+01 EXCESS=0.0000E+00 OUTFLOW=0.4955E+01 BASIN STORAGE=0.3084E-06 PERCENT ERROR=
0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

8E-R9	MANE	0.23	70.66	267.60	1.07	3.00	70.16	267.00	1.07	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4899E+01 EXCESS=0.0000E+00 OUTFLOW=0.4900E+01 BASIN STORAGE=0.2753E-06 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

8E-R9	MANE	0.41	40.20	270.51	0.74	3.00	40.14	270.00	0.74	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3390E+01 EXCESS=0.0000E+00 OUTFLOW=0.3390E+01 BASIN STORAGE=0.2408E-06 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

8E-R9	MANE	0.40	25.09	270.68	0.46	3.00	25.04	270.00	0.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2102E+01 EXCESS=0.0000E+00 OUTFLOW=0.2103E+01 BASIN STORAGE=0.2729E-06 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

8E-R9	MANE	0.63	8.15	271.55	0.14	3.00	8.13	273.00	0.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6388E+00 EXCESS=0.0000E+00 OUTFLOW=0.6390E+00 BASIN STORAGE=0.2619E-06 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

8E-R9	MANE	0.44	44.57	273.86	0.92	3.00	44.54	273.00	0.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4240E+01 EXCESS=0.0000E+00 OUTFLOW=0.4241E+01 BASIN STORAGE=0.2577E-06 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

8E-R9	MANE	0.40	41.30	273.54	0.84	3.00	41.26	273.00	0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3873E+01 EXCESS=0.0000E+00 OUTFLOW=0.3874E+01 BASIN STORAGE=0.2900E-06 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT1	MANE	0.39	244.41	552.32	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3084E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT1	MANE	0.39	244.36	552.62	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3083E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT1	MANE	0.37	241.71	552.79	0.79	3.00	241.71	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3040E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT1	MANE	0.41	239.65	553.20	0.78	3.00	239.65	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3008E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3152E-01 PERCENT ERROR=0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT1	MANE	0.44	237.69	555.44	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2977E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3151E-01 PERCENT ERROR=0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT1	MANE	0.46	242.84	552.46	0.79	3.00	242.84	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT1	MANE	0.36	242.32	552.59	0.79	3.00	242.32	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3153E-01 PERCENT ERROR=0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

BSNRT2	MANE	0.44	244.41	552.57	0.80	3.00	244.41	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3084E+03 EXCESS=0.0000E+00 OUTFLOW=0.3083E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

BSNRT2	MANE	0.44	244.36	552.69	0.80	3.00	244.36	552.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3082E+03 EXCESS=0.0000E+00 OUTFLOW=0.3082E+03 BASIN STORAGE=0.3601E-01 PERCENT ERROR=0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

BSNRT2	MANE	0.41	241.71	553.15	0.79	3.00	241.71	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3039E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

BSNRT2	MANE	0.43	239.64	555.63	0.78	3.00	239.64	555.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3007E+03 EXCESS=0.0000E+00 OUTFLOW=0.3007E+03 BASIN STORAGE=0.3599E-01 PERCENT ERROR= 0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

BSNRT2	MANE	0.48	237.69	555.77	0.77	3.00	237.69	555.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2976E+03 EXCESS=0.0000E+00 OUTFLOW=0.2976E+03 BASIN STORAGE=0.3598E-01 PERCENT ERROR= 0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

BSNRT2	MANE	0.36	242.84	552.83	0.79	3.00	242.83	552.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3057E+03 EXCESS=0.0000E+00 OUTFLOW=0.3057E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

BSNRT2	MANE	0.46	242.32	552.87	0.79	3.00	242.31	555.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+03 EXCESS=0.0000E+00 OUTFLOW=0.3049E+03 BASIN STORAGE=0.3600E-01 PERCENT ERROR= 0.0

FOR STORM = 1 STORM AREA (SQ MI) = 0.00

R10-11	MANE	3.07	244.41	558.64	0.81	3.00	244.41	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3125E+03 EXCESS=0.0000E+00 OUTFLOW=0.3119E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR= 0.0

FOR STORM = 2 STORM AREA (SQ MI) = 0.50

R10-11	MANE	3.07	244.36	558.85	0.81	3.00	244.35	558.00	0.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3124E+03 EXCESS=0.0000E+00 OUTFLOW=0.3117E+03 BASIN STORAGE=0.6746E+00 PERCENT ERROR=
0.0

FOR STORM = 3 STORM AREA (SQ MI) = 2.80

R10-11	MANE	3.00	241.71	559.89	0.79	3.00	241.70	561.00	0.79

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3077E+03 EXCESS=0.0000E+00 OUTFLOW=0.3071E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR=
0.0

FOR STORM = 4 STORM AREA (SQ MI) = 16.00

R10-11	MANE	3.00	239.64	561.16	0.78	3.00	239.64	561.00	0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3040E+03 EXCESS=0.0000E+00 OUTFLOW=0.3034E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR=
0.0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

R10-11	MANE	3.07	237.69	560.84	0.77	3.00	237.69	561.00	0.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3003E+03 EXCESS=0.0000E+00 OUTFLOW=0.2996E+03 BASIN STORAGE=0.6743E+00 PERCENT ERROR=
0.0

FOR STORM = 6 STORM AREA (SQ MI) = 10.00

R10-11	MANE	3.07	242.83	560.81	0.80	3.00	242.83	558.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3108E+03 EXCESS=0.0000E+00 OUTFLOW=0.3102E+03 BASIN STORAGE=0.6744E+00 PERCENT ERROR=
0.0

FOR STORM = 7 STORM AREA (SQ MI) = 20.00

R10-11	MANE	3.00	242.31	558.78	0.80	3.00	242.31	561.00	0.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3097E+03 EXCESS=0.0000E+00 OUTFLOW=0.3090E+03 BASIN STORAGE=0.6745E+00 PERCENT ERROR=
0.0

*** NORMAL END OF HEC-1 ***

Appendix E
On-Site Hydraulic Calculations
Cavasson-Phase I

HYDROLOGIC CALCULATION SUMMARY SHEET
RATIONAL METHOD
Hubbard Engineering
Project No. 18114-203

Project Name: Cavasson - Phase 1 **Prepared by:** ES **Date:** 03/20/19
Project No.: 18114-203 **Revised by:** MSW **Date:**

Complete calculations for each concentration point are presented in the attached hydrologic calculation sheets.

Sub-Basin & Concentration Point ID	C Runoff Coefficient Frequency			I Intensity Frequency			A Area	Q Peak Discharge Frequency		
	10-year	50-year	100-year	10-year	50-year	100-year	[acres]	10-year	50-year	100-year
				[in/hr]				[cfs]		
DA-A	0.50	0.55	0.63	3.66	5.13	5.78	4.80	8.8	13.5	17.3
DA-B	0.85	0.94	0.95	3.66	5.13	5.78	0.29	0.9	1.4	1.6
DA-C	0.85	0.94	0.95	3.66	5.13	5.78	0.27	0.8	1.3	1.5
DA-D	0.50	0.55	0.63	3.66	5.13	5.78	4.51	8.3	12.7	16.3
DA-F	0.85	0.94	0.95	3.26	4.94	0.10	4.81	13.3	22.2	0.5
DA-G	0.85	0.94	0.95	3.66	5.13	5.78	1.18	3.7	5.7	6.5
DA-H	0.50	0.55	0.63	3.66	5.13	5.78	1.56	2.9	4.4	5.6
DA-I	0.50	0.55	0.63	3.66	5.13	5.78	1.90	3.5	5.4	6.9
DA-J	0.50	0.55	0.63	3.66	5.13	5.78	2.66	4.9	7.5	9.6
DA-L	0.85	0.94	0.95	3.66	5.13	5.78	0.95	3.0	4.6	5.2
DA-N	0.85	0.94	0.95	3.66	5.13	5.78	1.41	4.4	6.8	7.8

HYDRAULIC CALCULATION SHEET
Retention Calculations
Hubbard Engineering
Project No. 18114-203

Project Name: Cavasson- Phase I | **Prepared by:** ES | **Date:** 11/29/2018
Project No.: 18114-203 | **Revised:** | **Date:**

Purpose: Evaluate the required and provided retention volumes in order to assess conformance to project criteria.

Methodology: Calculate the volume of stormwater required to be retained using City of Scottsdale criteria. Calculate the estimated volume of stormwater retained using retention basin geometry.

Criteria: Retain the calculated stormwater run-off for the First Flush storm event.

References: 1.Design Standards & Policies Manual, City of Scottsdale, January 2017
2.Drainage Design Manual Hydrology, Flood Control District of Maricopa County, August 15, 2013
3.Drainage Design Manual Hydraulics, Flood Control District of Maricopa County, August 15, 2013

Calculations: Volume Required = C*P/12* A [ft^3] (Reference 2)

(Reference2)

	P = 0.5	[in] First Flush	(Reference2)
	C_{100} = 0.95	(Pavement/Roofs)	(Reference2)
	C_{100} = 0.45	(Undisturbed Natural Desert)	(Reference2)
Results:	C_{100} = 0.83	(Desert landscape- Impervious)	(Reference2)

Identifiers	**CALCULATE RETENTION VOLUME REQUIRED- FIRST FLUSH**			
Contributory Area	**Areas**	**C_w**	**Volume Required**	
ID	**Total [acres]**		**[acre-ft]**	**[ft^3]**
Parcel 1A	33.91	0.90	1.27	55,384.39
TOTAL	**33.91**		**1.27**	**55,384.39**

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 7 2018

Hayden-Proposed Cuvlert-Driveway 3

Invert Elev Dn (ft)	=	1630.20
Pipe Length (ft)	=	170.00
Slope (%)	=	0.97
Invert Elev Up (ft)	=	1631.85
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

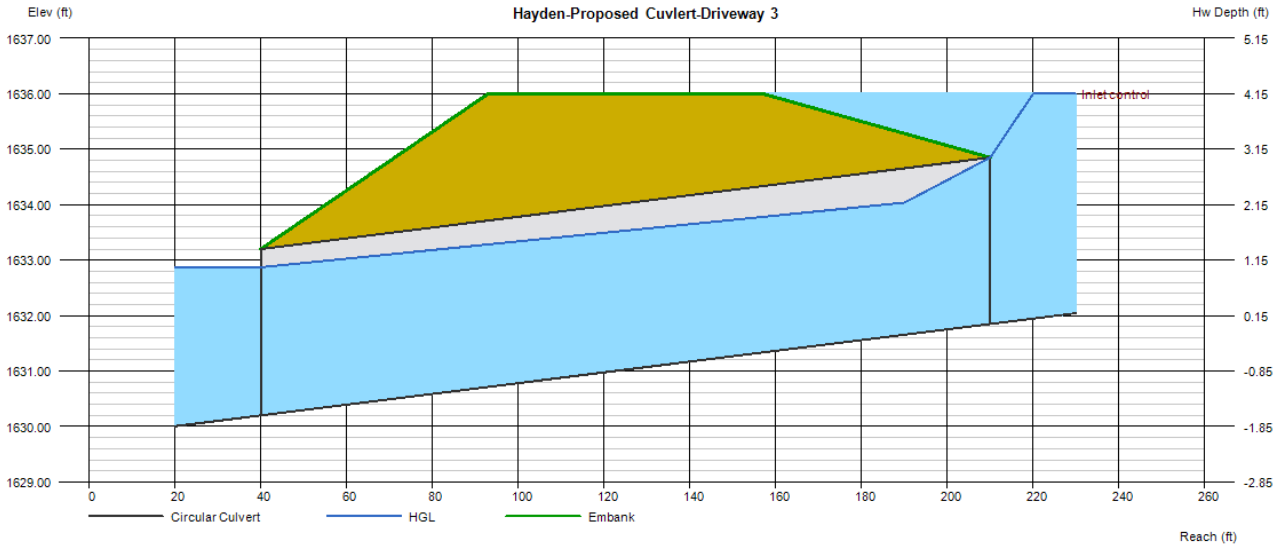
Top Elevation (ft)	=	1636.00
Top Width (ft)	=	64.00
Crest Width (ft)	=	32.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	52.00
Qpipe (cfs)	=	52.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.82
Veloc Up (ft/s)	=	8.78
HGL Dn (ft)	=	1632.87
HGL Up (ft)	=	1634.19
Hw Elev (ft)	=	1636.00
Hw/D (ft)	=	1.38
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 7 2018

Hayden-Proposed Cuvlert-DW 4

Invert Elev Dn (ft)	=	1619.65
Pipe Length (ft)	=	122.00
Slope (%)	=	2.75
Invert Elev Up (ft)	=	1623.00
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	1
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

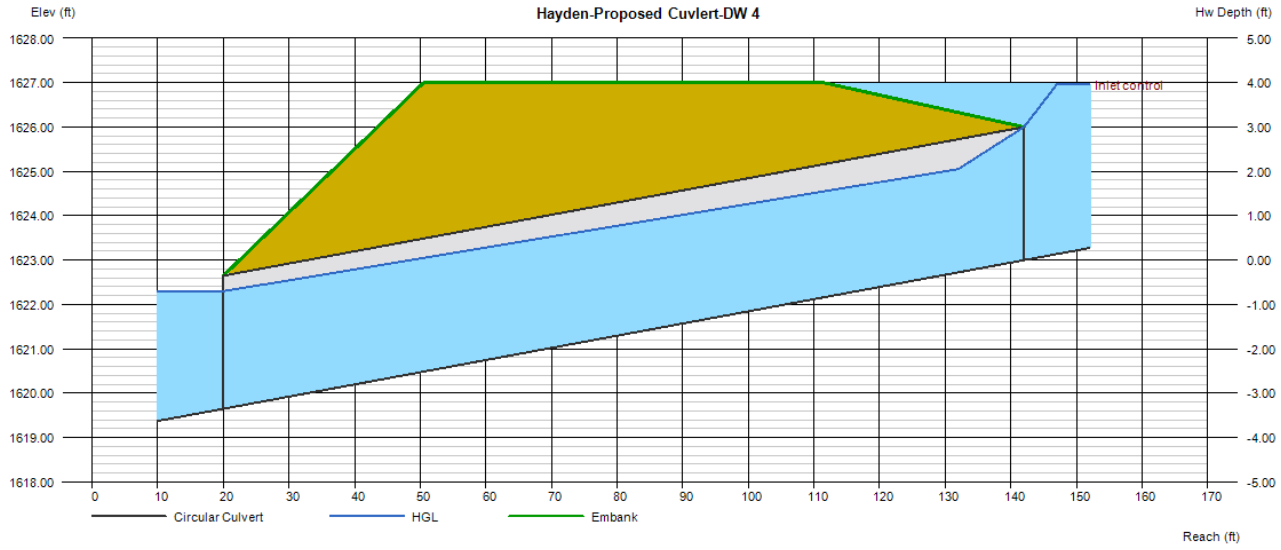
Top Elevation (ft)	=	1627.00
Top Width (ft)	=	61.00
Crest Width (ft)	=	32.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	200.00
Tailwater Elev (ft)	=	(dc+D)/2

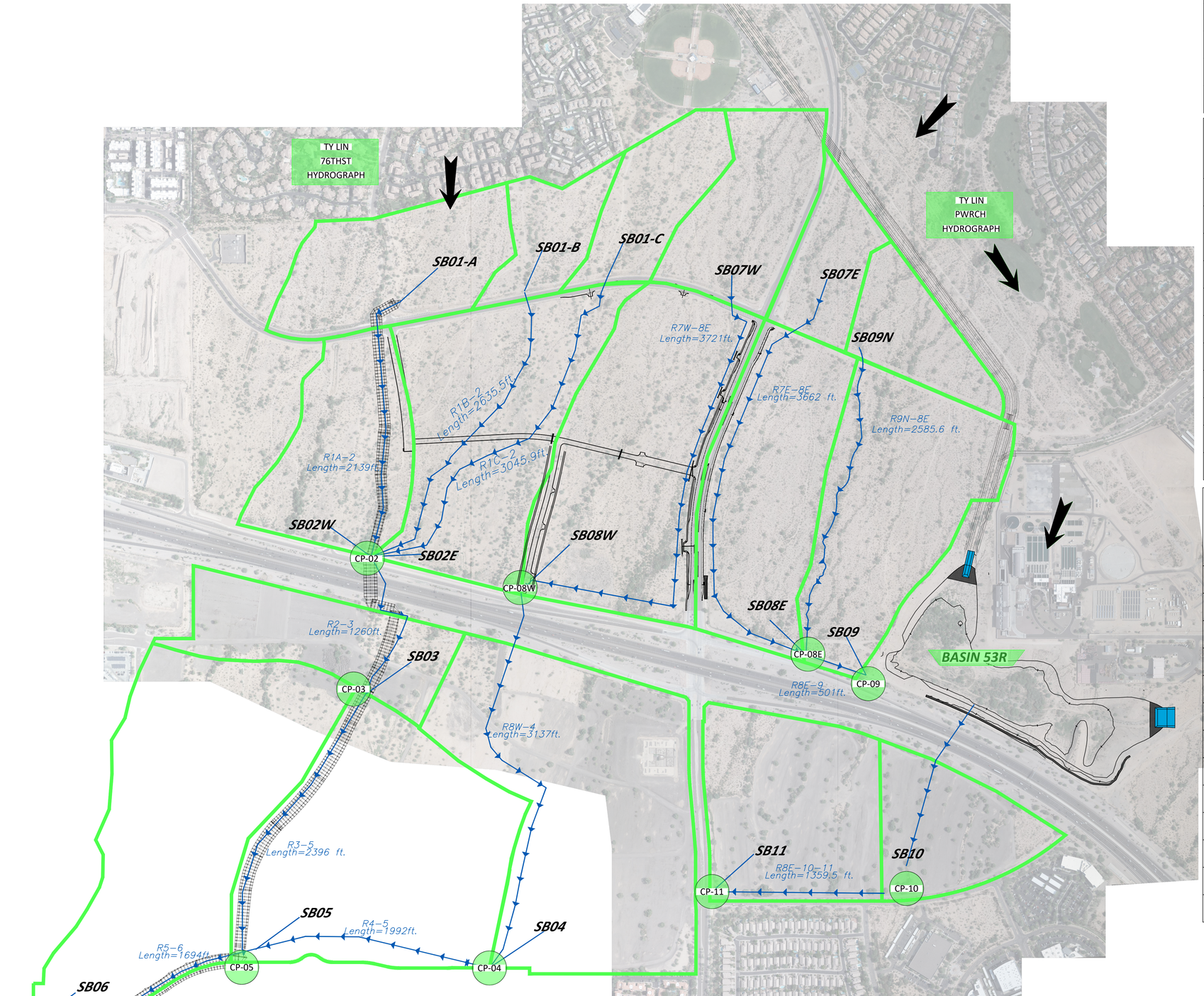
Highlighted

Qtotal (cfs)	=	50.00
Qpipe (cfs)	=	50.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.57
Veloc Up (ft/s)	=	8.60
HGL Dn (ft)	=	1622.30
HGL Up (ft)	=	1625.30
Hw Elev (ft)	=	1626.96
Hw/D (ft)	=	1.32
Flow Regime	=	Inlet Control



Exhibits
Cavasson- Phase I

HEC -1 ULTIMATE CONDITION



Proposed Development Increased Imperviousness	
Basin	**Area (mi^2)**
SB01B	0.02
SB01C	0.03
SB07W	0.05

Collection Point ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
CP-01	119	65
CP-02	231	139
CP-03	260	155
CP-04	301	182
CP-05	744	424
CP-06	594	326
CP-08W	82	39
CP-08E	76	34
CP-09	145	67
CP-10	241	171
CP-11	241	171

Route ID	Peak Discharge 100 -year, 6-hour (cfs)	Peak Discharge 10 -year, 6-hour (cfs)
R1A-2	119	65
R1B-2	30	19
R1C-2	39	24
R2-3	253	139
R3-5	282	154
R7W-8W	19	16
R7E-8E	35	8
R8W-4	81	39
R4-5	297	179
R5-6	468	252
R8E-R9	70	34
R9N-R9	13	6
R10-11	241	171

N

400 0 400 800
scale feet

HEC-1 ULTIMATE CONDITIONS
ASLD CORE NORTH

Project No.	Date	
18114-001	12/10/18	EX-04

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