Archaeological Resources

Airport Vicinity Development Checklist

Parking Study

Trip Generation Comparison

Parking Master Plan

To:	Thomas B. Nelson HCW, LLC	**Date:**	December 3, 2018
From:	Jamie Blakeman, PE, PTOE		
Job Number:	15.0811.007		
RE:	Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis		

INTRODUCTION

J2 Engineering and Environmental Design (J2) has prepared this document as an update to the original Traffic Impact and Mitigation Analysis (TI&MA) for Scottsdale Fashion Square dated May 9, 2017. This document includes the analysis for the proposed Caesars Republic development at the Scottsdale Fashion Square Mall located in Scottsdale, Arizona. The proposed Caesars Republic development is located on the southeast corner of Goldwater Boulevard and Highland Avenue. The objective of this Traffic Impact and Mitigation Analysis is to analyze the traffic related impacts of this proposed development to the adjacent roadway network.

The proposed Caesars Republic will include a 233 room hotel 11-story hotel with five (5) condominiums on the top floors and a 2,000 square foot restaurant. See Attachment A for the proposed site plan.

The following are the six (6) intersections studied throughout this analysis:

- Goldwater Boulevard and Camelback Road (1)
- Goldwater Boulevard and Scottsdale Fashion (2)
- Goldwater Boulevard and Highland Avenue (3)
- Highland Avenue and Driveway (4)
- Highland Avenue and Scottsdale Fashion/Optima Driveway (5)
- Scottsdale Road and Highland Avenue (6)

j2 design

TRIP GENERATION

TRIP GENERATION - SCOTTSDALE FASHION SQUARE TI&MA, DATED MAY 9, 2017

In the Scottsdale Fashion Square TI&MA, dated May 9, 2017, the southeast corner of Goldwater Boulevard and Highland Avenue was assumed to be a 400 unit condominium. The trip generation was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 9th Edition*. The trip generation calculations also included internal trip capture due to the anticipated interaction between the proposed and existing uses. The total trips generated for the 400 unit condominium, including internal trip capture, is shown in Error! Not a valid bookmark self-reference.

Table 1 –Trip Generation – Previously Assumed for Parcel South of Highland Avenue

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Condominium/Townhouse/Apartment	230	400	Dwelling Units	2,149	156	27	129	126	84	41
			TOTAL	**2,149**	**156**	27	129	**126**	84	41

TRIP GENERATION - CAESARS REPUBLIC

Since the May 9, 2017 TI&MA, the ITE *Trip Generation, 10th Edition* was released. Therefore, the trip generation for the proposed Caesars Republic development was calculated utilizing this 10th Edition.

The ITE rates and equations are based on studies that measured the trip generation characteristics for various types of land uses. The rates and equations are expressed in terms of trips per unit of land use type. This publication is considered to be the standard for the transportation engineering profession.

The proposed Caesars Republic development includes the following uses:

233 room Hotel	Land Use 310 - Hotel
5 Condominiums	Land Use 220 - Multifamily Housing (Low-Rise)
2,000 square foot Restaurant	Land Use 931 - Quality Restaurant

The total trip generation, including internal trip capture, for the proposed Caesars Republic development is shown in Table 2 below. Detailed trip generation calculations are provided in Attachment B.

Table 2 –Trip Generation – Proposed Caesars Republic

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Hotel	310	233	Rooms	2,204	111	65	46	84	43	41
Multifamily Housing (Low-Rise)	220	5	Dwelling Units	37	2	0	2	2	1	1
Quality Restaurant	931	2	1000 SF GLA	168	0	0	0	9	6	3
			TOTAL	**2,409**	**113**	65	48	**94**	50	45

TRIP GENERATION COMPARISON

A comparison between the trips generated by the 400 unit condominium, per the May 9, 2017 SFS TI&MA, versus the proposed Caesars Republic development is shown in Table 3.

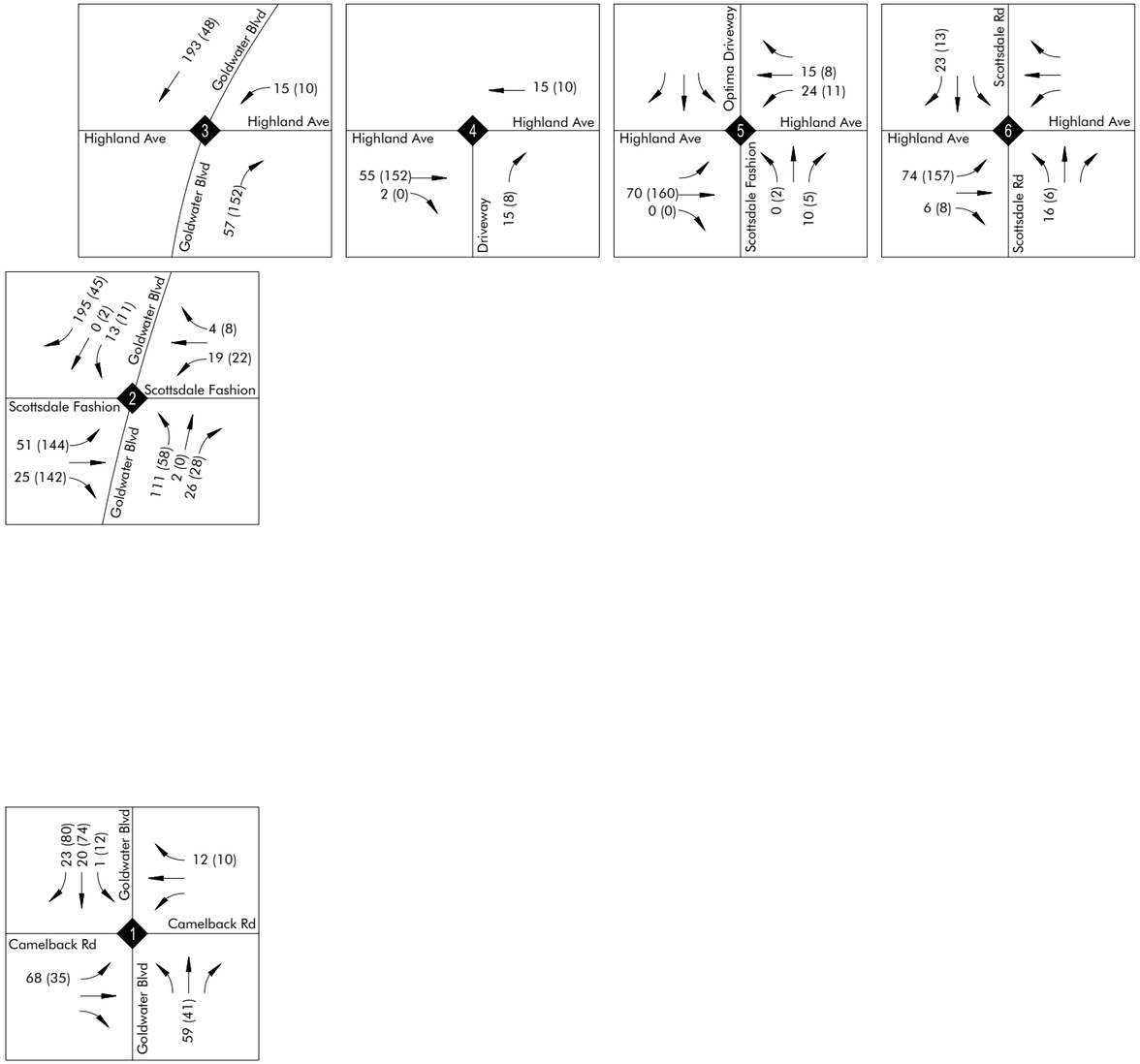
Table 3 – Trip Generation Comparison (SFS TI&MA 5/9/2017 vs. Caesars Republic)

	Weekday	AM Peak Hour			PM Peak Hour		
	Total	Total	In	Out	Total	In	Out
SFS TI&MA Dated May 9, 2017	2,149	156	27	129	126	84	41
Caesars Republic	2,409	113	65	48	94	50	45
Difference	**260**	**-43**	38	-81	**-31**	-35	3

Although the prior and proposed land uses are different, the weekday daily, and AM and PM peak hour trip generation is relatively similar.

TRIP DISTRIBUTION AND TRIP ASSIGNMENT

The trip distribution procedure determines the general pattern of travel for vehicles entering and leaving the proposed development. The trip distribution for the proposed Caesars Republic development was based on the existing traffic. See Figure 1 for proposed site traffic volumes. To keep consistent with the May 9, 2017 SFS TI&MA, the site volumes also include the buildout of the parcels to the west to Goldwater Boulevard, a 200 room hotel and a 240,000 square foot office.



Legend

AM (PM)	Site Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

FIGURE 1 | SITE TRAFFIC VOLUMES

EXISTING CONDITIONS

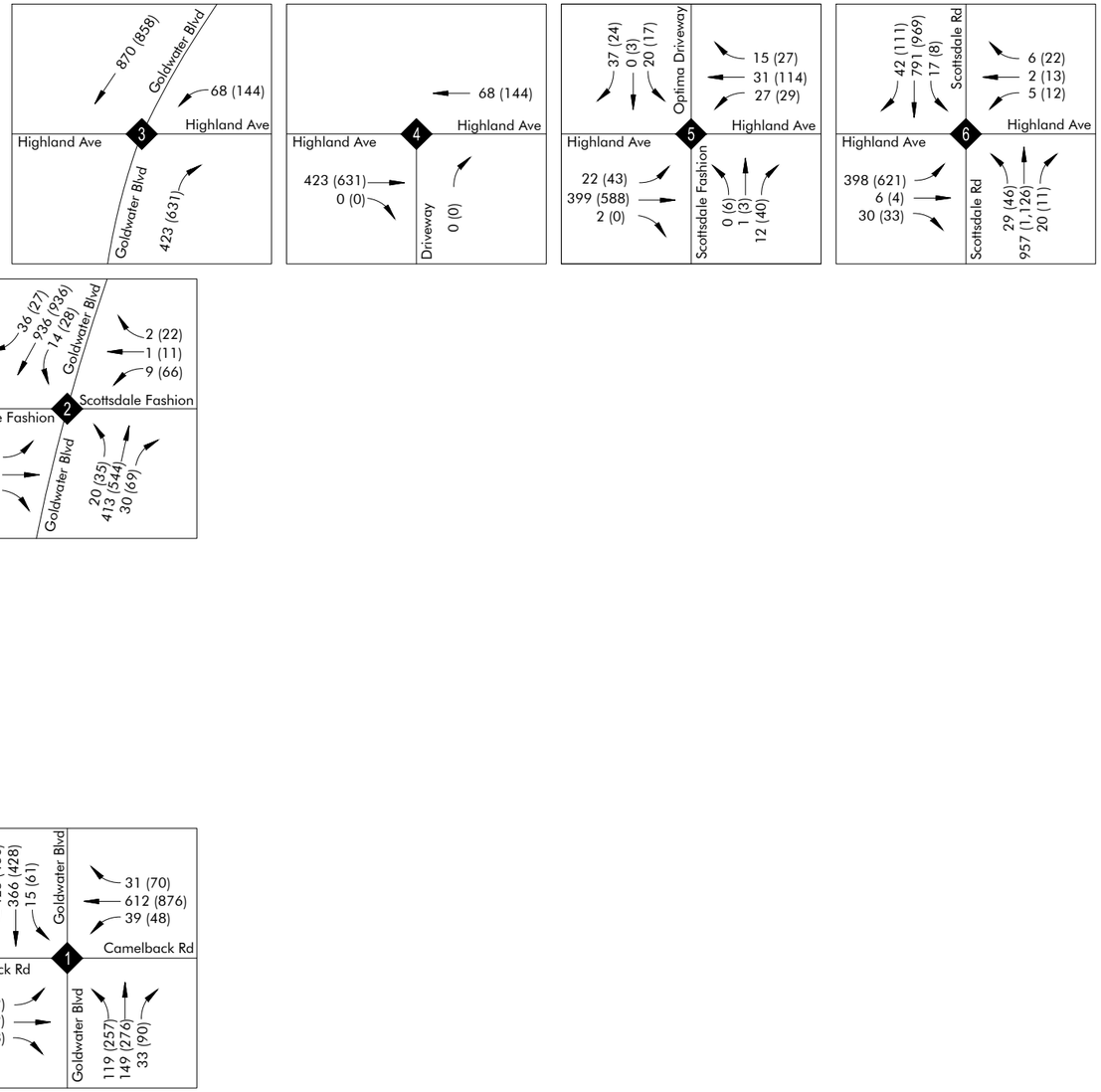
EXISTING TRAFFIC VOLUMES

The existing traffic volumes collected on Tuesday, October 6, 2015, and Wednesday, February 15, 2017 as part of the May 9, 2017 SFS TI&MA is shown in Figure 2.

EXISTING CAPACITY ANALYSIS

As reported in the May 9, 2017 SFS TI&MA, the existing capacity analysis was completed using the methodology presented in the *2010 Highway Capacity Manual*. The analysis was completed using the traffic software, Synchro Version 9.0. The signal timing was provided by the City of Scottsdale. See Attachment C for the existing signal timing as provided in the May 9, 2017 SFS TI&MA.

The existing capacity analysis as reported in the May 9, 2017 SFS TI&MA is shown in Figure 3. The detailed capacity analysis sheets as provided in the May 9, 2017 SFS TI&MA can be found in Attachment D.

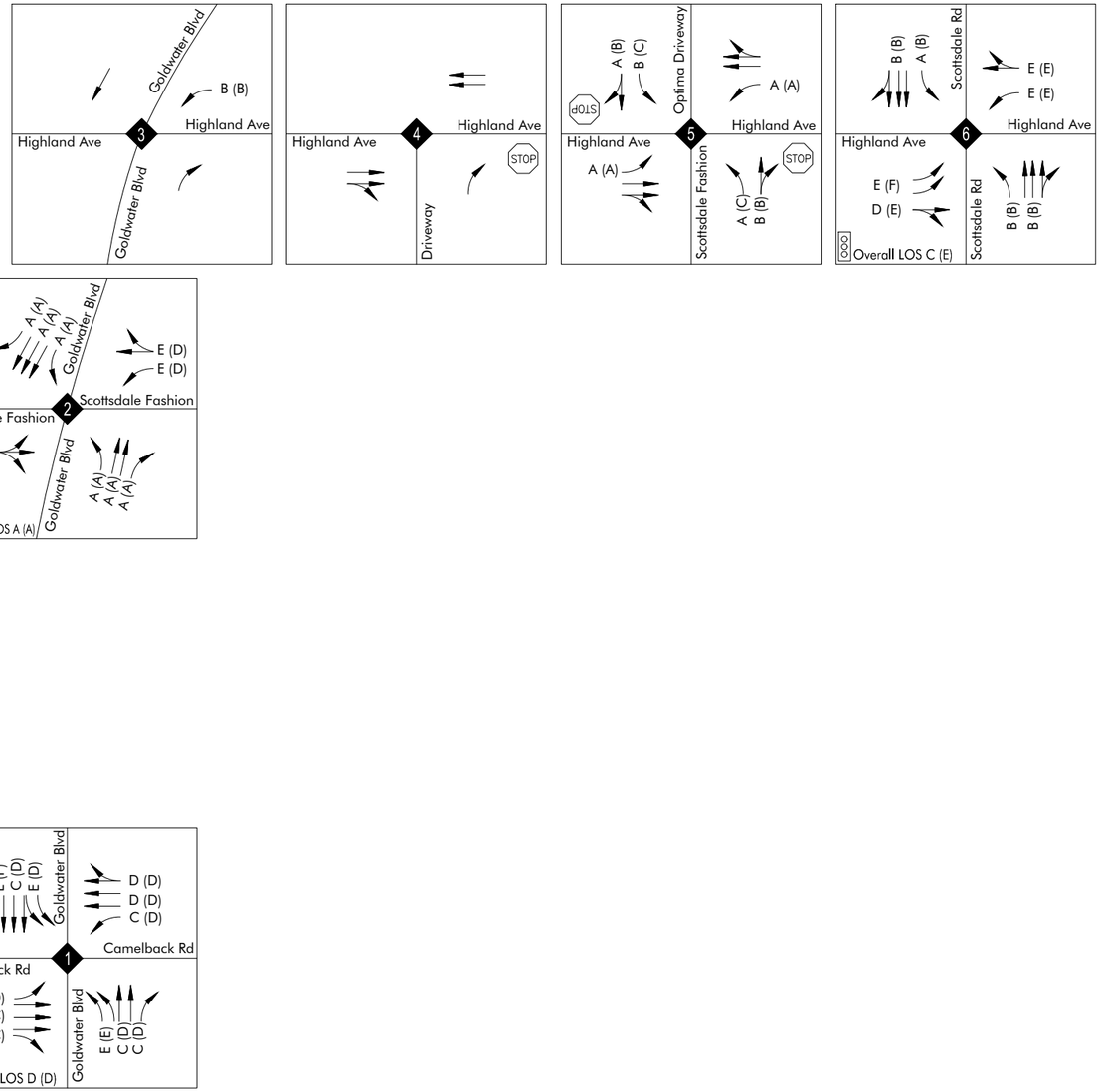


Legend

AM (PM)	Existing Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

FIGURE 2 | EXISTING TRAFFIC VOLUMES



Legend

AM (PM)	Existing Peak Hour Level of Service
X	Intersection
	Lane Configuration

FIGURE 3 | EXISTING CAPACITY ANALYSIS

YEAR 2020 CONDITIONS

YEAR 2020 BACKGROUND TRAFFIC VOLUMES

The proposed Caesars Republic development is scheduled to be completed by the end of 2020, which corresponds to the 5 year analysis included in the May 9, 2017 SFS TI&MA. Therefore, shown in Figure 4 are the 5 year background traffic volumes as shown in the May 9, 2017 SFS TI&MA, which corresponds to the year 2020 background traffic volumes for the proposed Caesars Republic.

YEAR 2020 NO BUILD CAPACITY ANALYSIS

It should be noted that per the May 9, 2017 SFS TI&MA, the following intersection improvements were necessary due to the existing AM and PM peak hours operating at LOS E and F. These improvements are included in the year 2020 no build analysis:

Goldwater Boulevard and Camelback Road (1) – Signalized
The intersection of Goldwater Boulevard and Camelback Road included dual southbound right turn lanes and two (2) through lanes, which can be accomplished with signing and pavement marking modifications.

Scottsdale Road and Highland Avenue (6) – Signalized
The intersection of Scottsdale Road and Highland Avenue included a third eastbound left turn lane.

The results of the 5 year background capacity analysis as shown in the May 9, 2017 SFS TI&MA, which corresponds to the year 2020 no build capacity analysis is shown in Figure 5. The detailed capacity analysis sheets as provided in the May 9, 2017 SFS TI&MA can be found in Attachment E.

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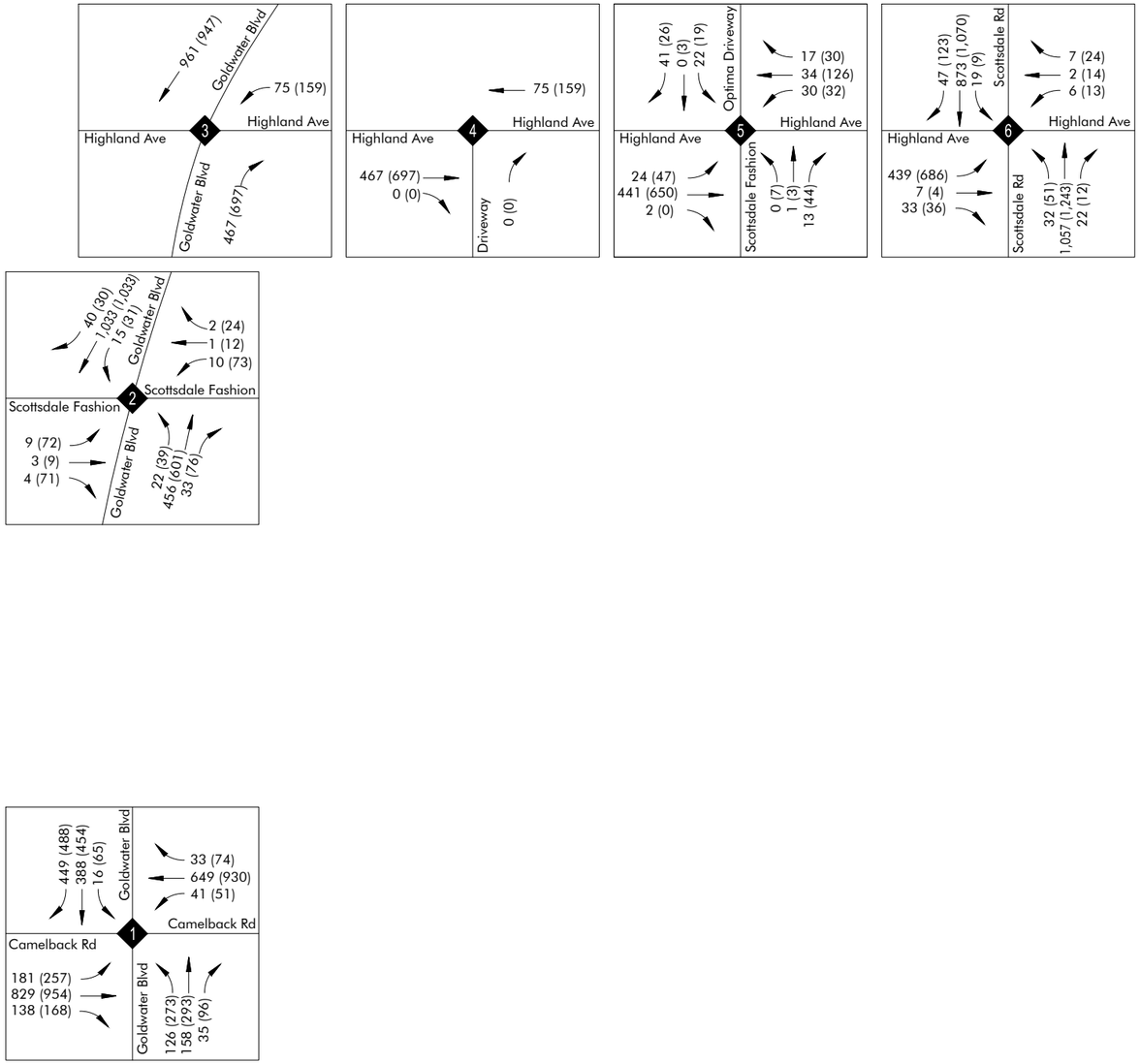


Legend

AM (PM)	Year 2020 No Build Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

FIGURE 4 YEAR 2020 NO BUILD TRAFFIC VOLUMES

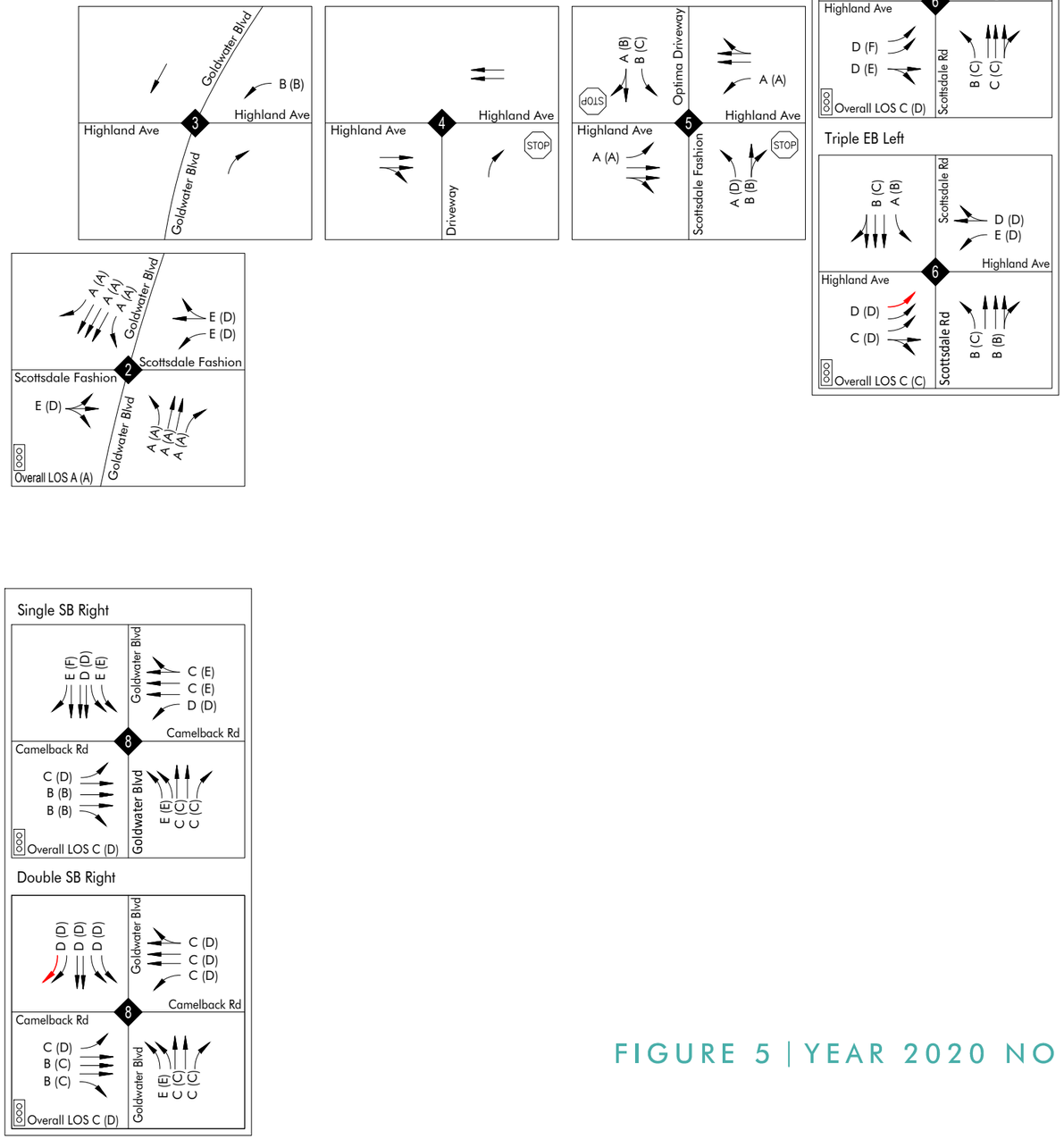


FIGURE 5 | YEAR 2020 NO BUILD CAPACITY ANALYSIS

YEAR 2020 BUILD TRAFFIC VOLUMES

The year 2020 build traffic volumes include the proposed Caesars Republic site traffic volumes, shown in Figure 1 added to the year 2020 background traffic volumes shown in Figure 4. See Figure 6 for the year 2020 build traffic volumes.

YEAR 2020 BUILD CAPACITY ANALYSIS

The year 2020 build capacity analysis was completed using the methodology presented in the *2010 Highway Capacity Manual*. The analysis was completed using the traffic software, Synchro Version 9.2. The signal timing splits were optimized to match future traffic volumes. The recently revised City of Scottsdale Design Standards and Policies Manual recommends using a PHF of 0.92, but in order to stay consistent with the previously completed report a PHF of 0.9 was assumed.

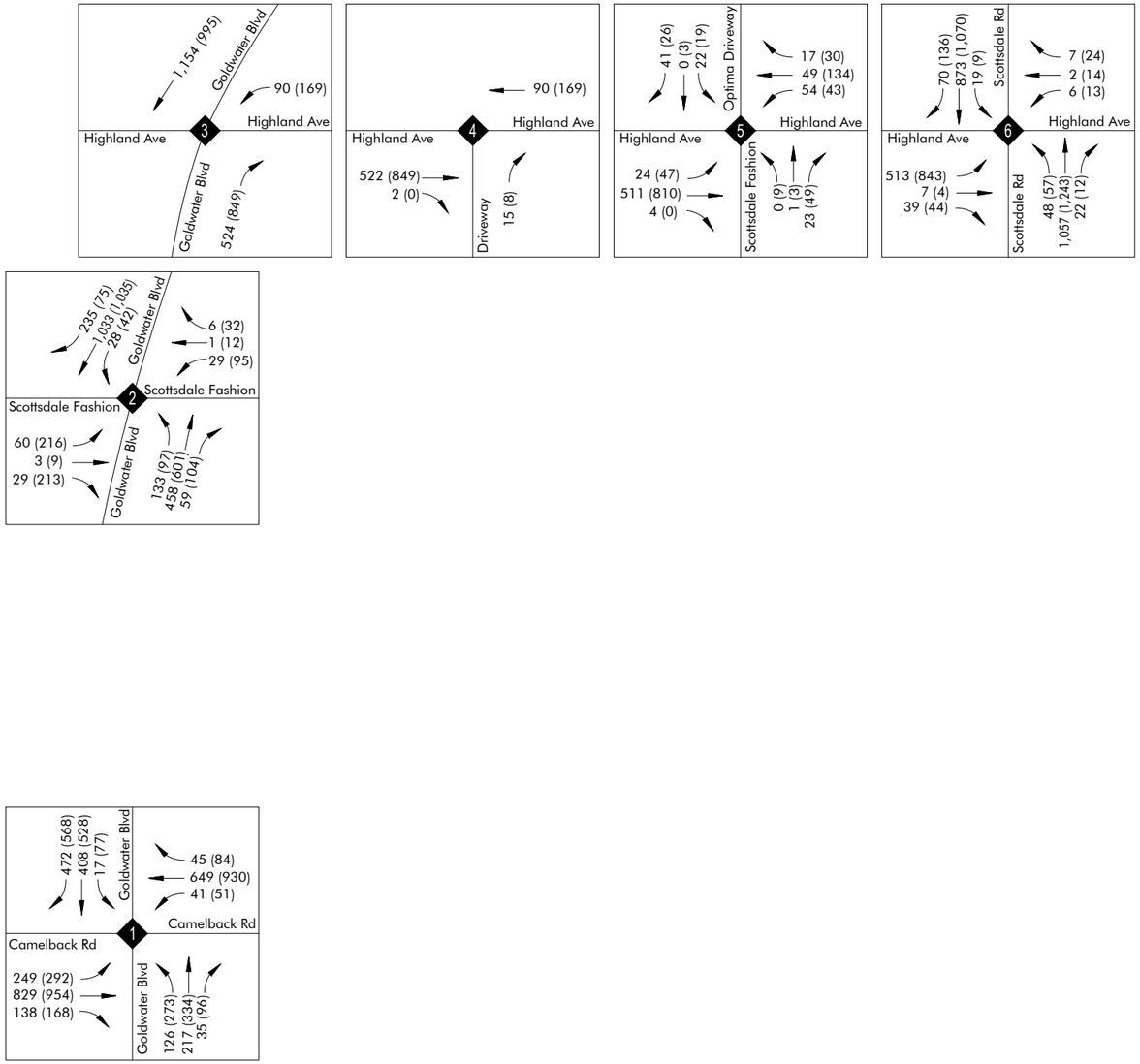
In addition to the improvements that were included as part of the year 2020 no build analysis, the following improvements were included in the year 2020 build analysis:

> *Goldwater Boulevard and Fashion Square (3) – Signalized*
> The lane configuration for the eastbound approach at the intersection of Goldwater Boulevard and Fashion Square was assumed to provide a dedicated left turn lane and a shared through-right turn lane. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications. Additionally, the signal cycle length was reduced to 60 seconds.

The results of the year 2020 build capacity analysis are shown in Figure 7. The detailed capacity analysis sheets can be found in Attachment F.

With the build out of the proposed Caesars Republic, all movements operate at a LOS D or better, or are maintained at the year 2020 no build level of service.

30-DR-2019
5/24/2019

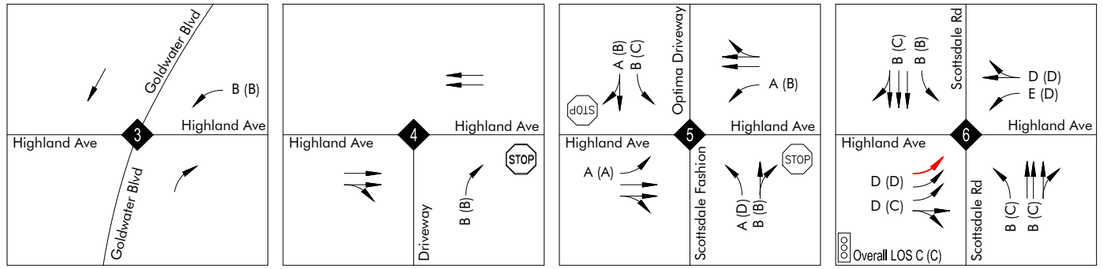


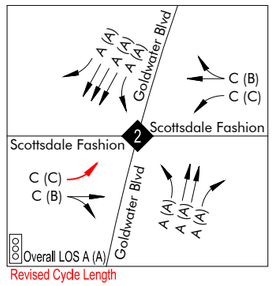
Legend

AM (PM)	Year 2020 Build Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

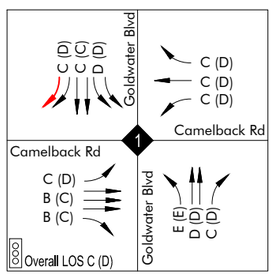
*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

FIGURE 6 | YEAR 2020 BUILD TRAFFIC VOLUMES





Revised Cycle Length



Legend

AM (PM)	Year 2020 Build Peak Hour Level of Service
X	Intersection
	Lane Configuration

FIGURE 7 | YEAR 2020 BUILD CAPACITY ANALYSIS

STIPULATIONS

As part of the Scottsdale Fashion Square Mall Zoning Application Case Number 25-ZN-2015 & 1-II-2016, stipulations were established including transportation related stipulations. See Attachment G for City of Scottsdale Ordinance No. 4299.

The proposed Caesars Republic development is located within "Parcel B" shown on Exhibit A to Exhibit 1 in the recorded stipulations. The following are the transportation stipulations related to the proposed Caesars Republic development:

- 12. TRAFFIC IMPACT STUDY. As determined by the Transportation Director, or designee, with a Development Review Board application for a new or expanded building, the property owner shall submit an updated traffic impact study to address the new development. The owner shall obtain approval of the study from the Transportation Director, or designee, prior to the Development Review Board hearing for the related new building, or building expansion. The owner shall be responsible for any infrastructure improvements identified by the updated traffic impact study(ies) that are the result of the traffic generated by new or expanded buildings on the site.

  This report fulfills this stipulation for the proposed Caesars Republic development.

- 13.a.1. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the east side of North Goldwater Boulevard, from the intersection of East Via Soleri Drive and North Goldwater Boulevard to the intersection of East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.3. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the south side of East Highland Avenue, from the intersection of East Highland Avenue and North Goldwater Boulevard to the intersection of East Highland Avenue and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.4. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the west side of North Scottsdale Road, from the intersection of East Highland Avenue and North Scottsdale Road to the intersection of East Fashion Square Drive and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A or B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.8. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently construct all street and pedestrian improvements supported by the updated traffic impact study that corresponds with the new or expanded building, and approved by the Transportation Director, or designee.

  This report provides street improvement recommendations.

- 13.a.9. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently modify any existing traffic signals and equipment supported by the updated traffic impact study approved by the Transportation Director, or designee that to address the new development associated with the requested building permit.

  This report provides traffic signal improvement recommendations.

- 14.a. The property owner shall design and construct a third eastbound lane on Highland Avenue, beginning just east of Goldwater Boulevard and terminating as a third eastbound left-turn lane at Scottsdale Road, prior to any certification of occupancy for a combined total building area exceeding 75,000 square feet in new or expanded building south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard within the area identifies as Parcel B on Exhibit A to Exhibit 1.

  The proposed Caesars Republic development will be 239,133 square feet in new building and therefore appears to trigger the third eastbound lane on Highland Avenue.

- 14.b. The property owner shall design and construct intersection modifications to provide separate eastbound left-turn lane and shared through-right-turn lane at the East Scottsdale Fashion Square and North Goldwater Boulevard intersection, prior to any certificate of occupancy for any new building south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard, within the area identified as Parcel B on Exhibit A to Exhibit 1.

  This lane configuration appears to be triggered with the proposed Caesars Republic development and is shown as part of the year 2020 build analysis. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications.

- 14.c. The property owner shall contract with a traffic engineering consultant to conduct a study of the East Highland Avenue and North Goldwater Boulevard intersection prior to any certificate of occupancy for any new or expanded building within the area identified as Parcel B on Exhibit A to Exhibit 1. The study shall recommend intersection improvements to improve the safety and convenience for the westbound left-turn movement, improve intersection sight distance, and reduce speeding on North Goldwater Boulevard. The study shall not include any options that consider a connection to the existing East Highland Avenue west of North Goldwater Boulevard. The property owner shall not be obligated for any costs and/or improvement associated with the study that exceed $50,000, and the final study shall be submitted to the City of Scottsdale for review and approval.

  A traffic study of the East Highland Avenue and North Goldwater Boulevard intersection appears to be triggered with the proposed Caesars Republic development.

- 14.d. If directed by the Transportation Director based upon future traffic analysis, the property owner shall design and construct an additional left-turn lane on East Camelback Road at the North Goldwater Boulevard signalized intersection. The timing of the improvements shall be based upon the need as determined by the traffic analysis tied to proposed new building or building expansion on the site. The property owner shall be responsible for all necessary street reconstruction, pavement marking modifications, and signal equipment modification to accomplish the addition of the eastbound left-turn lane.

  With an existing LOS E during the AM peak hour and LOS F during the PM peak hour for the eastbound left turn movement at this intersection, a third eastbound left turn lane is assumed to be built out as part of the year 2020 no build analysis.

- 15.e. There shall be an east/west driveway maintained through the site from North Goldwater Boulevard to North Scottsdale Road in or near the area identified as Parcel B on Exhibit A to Exhibit 1. The alignment of such driveway shall be determined at the time of the applicable Development Review Board application.

  The proposed Caesars Republic development maintains the existing east/west driveway.

- 16.b. The developer shall design and construct a pedestrian hybrid beacon on Highland Avenue between Scottsdale Road and Goldwater Boulevard prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. Adequate stopping sight distance for drivers on Goldwater Boulevard/Highland Avenue must be provided with the design. This requirement shall not be in effect if a traffic signal is determined to be warranted and approved prior to the construction of the pedestrian hybrid beacon. If a traffic signal is determined to be warranted by the Transportation Director at this intersection in the future, the pedestrian hybrid beacon shall be replaced by the full traffic signal.

  This pedestrian hybrid beacon installation appears to be triggered with the proposed Caesars Republic development.

- 16.c. Prior to the certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall explore a grade separated pedestrian crossing between the building or parking structure and the existing Optima residential development on the north side of East Highland Avenue.

  The exploration of a grade separated pedestrian crossing appears to be triggered with the proposed Caesars Republic development.

- 17.b. The property owner shall design and construct transit stop improvements on North Scottsdale Road south of East Highland Avenue, prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

  Transit stop improvements on North Scottsdale Road south of East Highland Avenue appears to be triggered with the proposed Caesars Republic development.

- 18.a. Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Highland Avenue street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

  Pedestrian lighting installation along East Highland Avenue appears to be triggered with the proposed Caesars Republic development.

SUMMARY

This report is an update to the originally recorded Traffic Impact and Mitigation Analysis for Scottsdale Fashion Square, dated May 9, 2017, which assumed a 400 unit condominium development on the southeast corner of Goldwater Boulevard and Highland Avenue. This report replaces the residential development with the proposed Caesars Republic development, which is a 233 room hotel with 5 condominiums and 2,000 square feet of restaurant.

	Weekday	AM Peak Hour			PM Peak Hour		
	Total	Total	In	Out	Total	In	Out
SFS TI&MA Dated May 9, 2017	2,149	156	27	129	126	84	41
Caesars Republic	2,409	113	65	48	94	50	45
Difference	**260**	**-43**	38	-81	**-31**	-35	3

Although the prior and proposed land uses are different, the weekday daily, and AM and PM peak hour trip generation is relatively similar.

The year 2020 no build capacity analysis includes the following intersection improvements due to existing AM and PM peak hours operating at LOS E and/or F:

Goldwater Boulevard and Camelback Road (1) – Signalized
The intersection of Goldwater Boulevard and Camelback Road included dual southbound right turn lanes and two (2) through lanes, which can be accomplished with signing and pavement marking modifications.

Scottsdale Road and Highland Avenue (6) – Signalized
The intersection of Scottsdale Road and Highland Avenue included a third eastbound left turn lane.

These improvements were identified due to existing traffic operation and conditions and not as a result of the proposed Caesars Republic development.

In addition to the improvements that were included as part of the year 2020 no build analysis, the following improvements were included in the year 2020 build analysis:

Goldwater Boulevard and Fashion Square (3) – Signalized
The lane configuration for the eastbound approach at the intersection of Goldwater Boulevard and Fashion Square was assumed to provide a dedicated left turn lane and a shared through-right turn lane. There is more than adequate width to provide

the separation of these movements with signing and pavement marking modifications. Additionally, the signal cycle length was reduced to 60 seconds.

This improvement is recommended with the build out of the proposed Caesars Republic development.

With the build out of the proposed Caesars Republic, all movements operate at a LOS D or better, or are maintained at the year 2020 no build level of service. No new driveways are proposed with this development.

As part of the Scottsdale Fashion Square Mall Zoning Application Case Number 25-ZN-2015 & 1-II-2016, stipulations were established including transportation related stipulations. A number of these stipulations appear to be triggered with the proposed Caesars Republic developments, including but not limited to, sidewalk improvements, street improvements, pedestrian improvements, required traffic studies, installation of a pedestrian hybrid beacon, transit stop improvements, and pedestrian lighting installation.

ATTACHMENT A – CAESARS REPUBLIC SITE PLAN

j2 design

A

30-DR-2019
5/24/2019

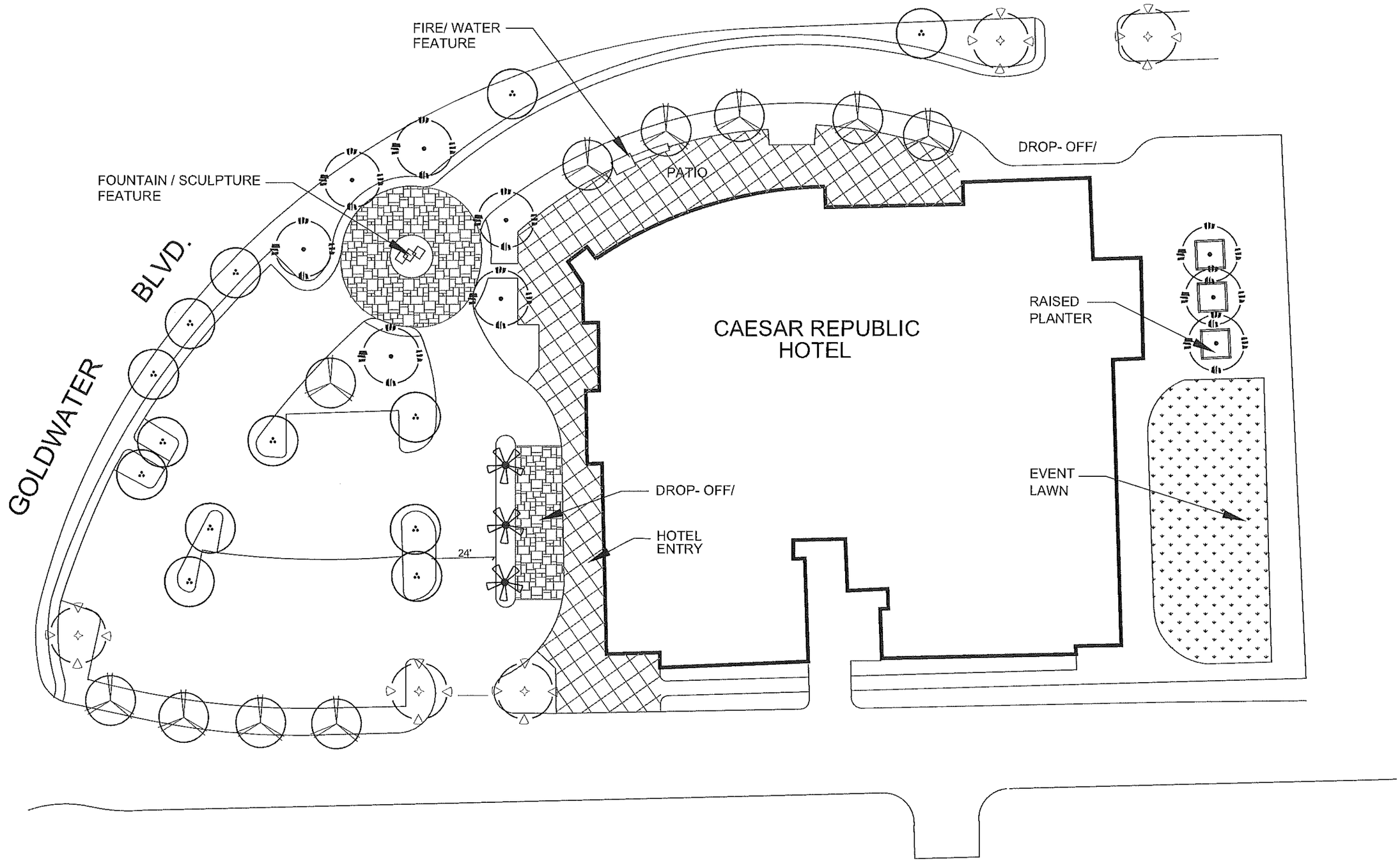
30-DR-2019
5/24/2019

Caesars Republic Site Plan - Scottsdale, AZ

30-DR-2019
5/24/2019

CAESARS REPUBLIC SITE PLAN - SCOTTSDALE, AZ

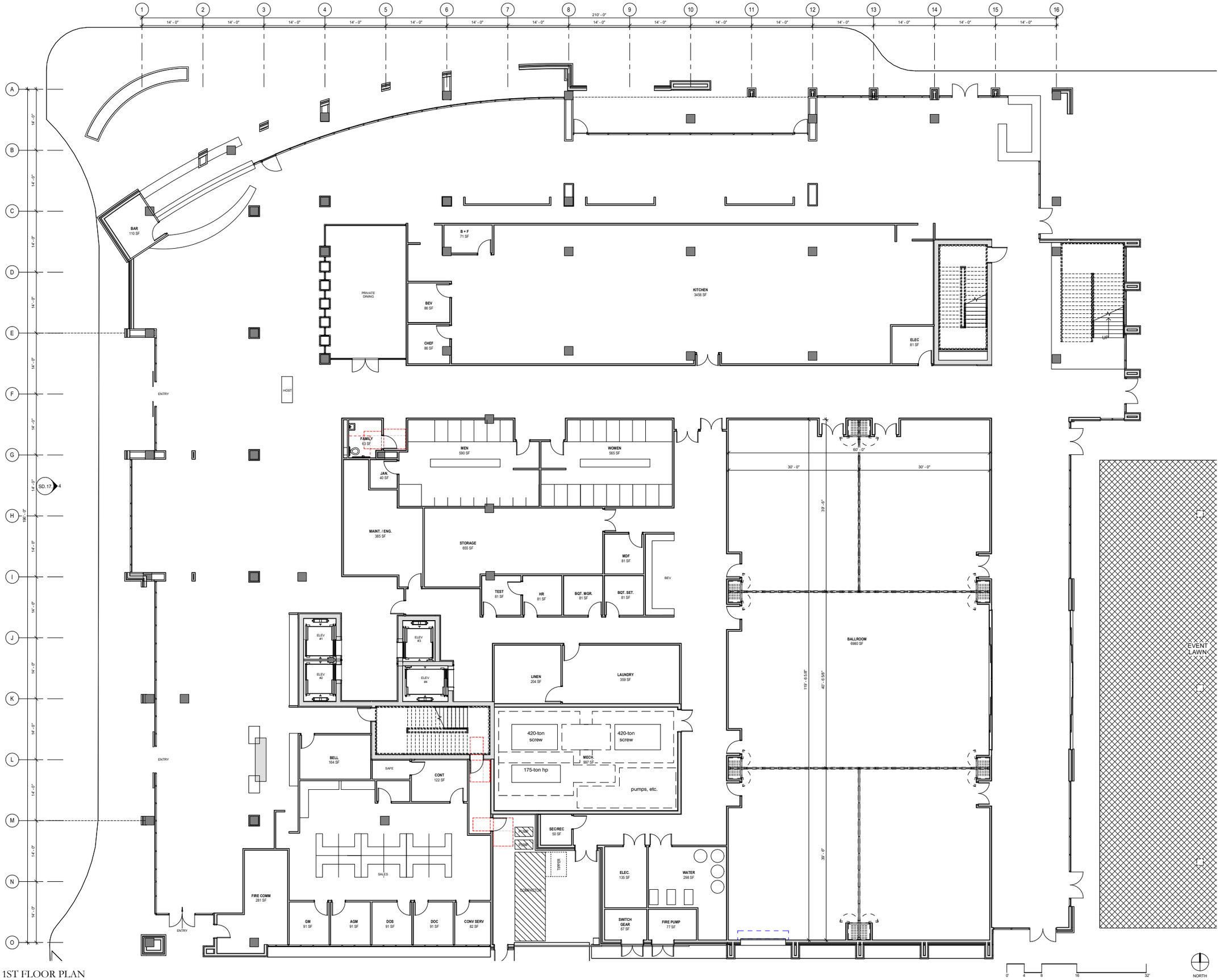
30-DR-2019
1 OF 20
5/24/2019



CONCEPTUAL SITE PLAN

NTS

30-DR-2019
5/24/2019



1ST FLOOR PLAN

CAESARS REPUBLIC

SCOTTSDALE, AZ
SCHEMATIC DESIGN

brp ARCHITECTS
319 N Main, Suite 200
Springfield, MO 65806
417.521.6100
YOUR VISION EXPRESSED

30-DR-2019
5/24/2019

ATTACHMENT B – TRIP GENERATION

j2 design

B

Scottsdale Fashion Square
HCW, LLC

Completed: SAS 11/18/2018
Checked: GT 11/20/2018

engineering and environmental design

Trip Generation Calculations - Ceasars Republic

310 Hotel

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Hotel	310	233	Rooms	8.36	50%	50%	0.47	59%	41%	0.6	51%	49%	1,948	974	974	110	65	45	140	71	69	Average
Hotel	310	233	Rooms	5.31	50%	50%	0.20	59%	41%	0.26	51%	49%	1,237	619	618	47	28	19	61	31	30	Minimum
Hotel	310	233	Rooms	9.53	50%	50%	0.84	59%	41%	1.06	51%	49%	2,220	1110	1110	196	116	80	247	126	121	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Hotel	**310**	**233**	**Rooms**	**T=11.29(X)-426.97**	**50%**	**50%**	**T=0.50(X)-5.34**	**59%**	**41%**	**T=0.75(X)-26.02**	**51%**	**49%**	**2,204**	**1,102**	**1,102**	**111**	**65**	**46**	**149**	**76**	**73**	**Equation**

Hotel	Standard Deviation	1.86		0.14		0.22
	Number of Studies	6		25		28
	Average Size	146		178		183
	R^2	0.92		0.85		0.80

220 Multifamily Housing (Low-Rise)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Multifamily Housing (Low-Rise)	**220**	**5**	**Dwelling Units**	**7.32**	**50%**	**50%**	**0.46**	**23%**	**77%**	**0.56**	**63%**	**37%**	**37**	**19**	**18**	**2**	**0**	**2**	**3**	**2**	**1**	**Average**
Multifamily Housing (Low-Rise)	220	5	Dwelling Units	4.45	50%	50%	0.18	23%	77%	0.18	63%	37%	22	11	11	1	0	1	1	1	0	Minimum
Multifamily Housing (Low-Rise)	220	5	Dwelling Units	10.97	50%	50%	0.74	23%	77%	1.25	63%	37%	55	28	27	4	1	3	6	4	2	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Multifamily Housing (Low-Rise)	220	5	Dwelling Units	T=7.56(X)-40.86	50%	50%	Ln(T)=0.95Ln(X)-0.51	23%	77%	Ln(T)=0.89Ln(X)-0.02	63%	37%	-3	-2	-1	3	1	2	4	3	1	Equation

Multifamily Housing (Low-Rise)	Standard Deviation	1.31		0.12		0.16
	Number of Studies	29		42		50
	Average Size	168		199		187
	R^2	0.96		0.90		0.86

931 Quality Restaurant

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Quality Restaurant	**931**	**2**	**1000 SF GLA**	**83.84**	**50%**	**50%**	**0.73**	**N/A**	**N/A**	**7.80**	**67%**	**33%**	**168**	**84**	**84**	**0**	**0**	**0**	**16**	**11**	**5**	**Average**
Quality Restaurant	931	2	1000 SF GLA	33.45	50%	50%	0.25	N/A	N/A	2.62	67%	33%	67	34	33	0	0	0	5	3	2	Minimum
Quality Restaurant	931	2	1000 SF GLA	139.93	50%	50%	1.60	N/A	N/A	18.68	67%	33%	280	140	140	0	0	0	37	25	12	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Quality Restaurant	931	2	1000 SF GLA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Equation

Quality Restaurant	Standard Deviation	40.01		0.42		4.49
	Number of Studies	10		7		19
	Average Size	9		10		9
	R^2	N/A		N/A		N/A

New Trip Gen	**2409**	1205	1204	**113**	65	48	**168**	89	79

30-DR-2019
5/24/2019

Scottsdale Fashion Square
HCW, LLC

Completed:	SAS	11/16/2018
Checked:	GT	11/20/2018

Internal Capture

			After Internal Capture							After Internal Capture							After Internal Capture				After Pass-By		
			BEFORE REDUCTION AM PEAK HR ADJ STREET			Internal Capture Calcs				AM REDUCED			BEFORE REDUCTION PM PEAK HR ADJ STREET			Internal Capture Calcs				PM REDUCED			PASS-BY	PM REDUCED		
LAND USE	SF	DU	ENTER	EXIT	TOTAL	Origin FROM	Destin TO	TOTAL	Rate %	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	Origin FROM	Destin TO	TOTAL	Rate %	ENTER	EXIT	TOTAL	Rate %	ENTER	EXIT	TOTAL
Hotel		200	63	43	106	62	-	0	0%	63	43	106	61	59	120	52	446	52	44%	34	33	68	0%	34	33	68
General Office Building	240,000		262	36	298	241	19	19	6%	245	34	279	49	241	290	13	809	13	4%	47	230	278	0%	47	230	278
CAESARS REPUBLIC (HOTEL)		240	65	46	111	64	0	0	0%	65	46	111	76	73	149	65	446	65	44%	43	41	84	0%	43	41	84
CAESARS REPUBLIC (5 CONDOS)		5	-	2	2	0	8	0	0%	-	2	2	2	1	3	1	1,233	1	47%	1	1	2	0%	1	1	2
CAESARS REPUBLIC (RESTUARANT)	2,000		-	-	-	0	240	0	0%	-	-	-	11	5	16	8	779	8	47%	6	3	9	0%	6	3	9
General Office Building	600,000		655	90	745	603	19	19	3%	638	87	726	123	603	726	32	850	32	4%	118	576	694	0%	118	576	694
Shopping Center	30,000		5	3	9				0%	5	3	9	21	23	43				0%	21	23	43	34%	14	15	29
Shopping Center	60,000		11	6	17				0%	11	6	17	41	45	86				0%	41	45	86	34%	27	30	57
Shopping Center	200,000		35	22	57				0%	35	22	57	138	150	288				0%	138	150	288	34%	91	99	190
General Office Building	30,000		33	4	37	30	19	19	51%	16	2	18	6	30	36	2	850	2	4%	6	29	35	0%	6	29	35
Existing Shopping Center	2,086,445		617	378	995				0%				2,202	2,385	4,587				0%				34%	1,453	1,574	3,027
TOTAL			1,129	252	1,381					1,079	245	1,324	529	1,230	1,759					455	1,130	1,586		387	1,057	1,444
									96%														90%			82%

For Trip Origins, Table 6.1 ITE Trip Generation Handbook, 3rd Edition			
	Land Use Pairs	AM	PM
From Office	To Restaurant	63%	4%
	To Retail	28%	20%
	To Residential	1%	2%
	To Hotel	0%	0%
From Residential	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Hotel	0%	3%
From Hotel	To Office	75%	0%
	To Retail	14%	16%
	To Residential	0%	2%
	To Restaurant	9%	68%
From Restaurant	To Office	31%	3%
	To Retail	14%	41%
	To Residential	4%	18%
	To Hotel	3%	7%

For Trip Origins, Table 6.2 ITE Trip Generation Handbook, 3rd Edition			
	Land Use Pairs	AM	PM
To Office	From Restaurant	14%	30%
	From Retail	4%	31%
	From Residential	3%	57%
	From Hotel	3%	0%
To Residential	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Hotel	0%	0%
To Hotel	From Office	0%	0%
	From Retail	0%	17%
	From Residential	0%	12%
	From Restaurant	4%	71%
To Restaurant	From Office	23%	2%
	From Retail	50%	29%
	From Residential	20%	14%
	From Hotel	6%	5%

Scottsdale Fashion Square
Macerich

Completed: SAS ########
Checked: GT ########

engineering and environmental design

Trip Generation Calculations - 5 Year Build Out

South of Highland - From FINAL Scottsdale Fashion Report May 9, 2017 (ITE Trip Generation, 9th Edition)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	**Total**	In	Out	**Total**	In	Out	**Total**	In	Out
Condominium/Townhouse/Apartment	230	400	Dwelling Units	Ln(T)=0.87Ln(X)+2.46	50%	50%	Ln(T)=0.80Ln(X)+0.26	17%	83%	Ln(T)=0.82Ln(X)+0.32	67%	33%	2,149	1,075	1,074	156	27	129	126	84	41
												Trip Gen	**2,149**	1,075	1,074	**156**	27	129	**126**	84	41

South of Highland - HCW Proposal November 5, 2018 (ITE Trip Generation, 10th Edition)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	**Total**	In	Out	**Total**	In	Out	**Total**	In	Out
Hotel	310	233	Rooms	T=11.29(X)-426.97	50%	50%	T=0.50(X)-5.34	59%	41%	T=0.75(X)-26.02	51%	49%	2,204	1,102	1,102	111	65	46	84	43	41
Multifamily Housing (Low-Rise)	220	5	Dwelling Units	7.32	50%	50%	0.46	23%	77%	0.56	63%	37%	37	19	18	2	0	2	2	1	1
Quality Restaurant	931	2	1000 SF GLA	83.84	50%	50%	0.73	N/A	N/A	7.80	67%	33%	168	84	84	0	0	0	9	6	3
												New Trip Gen	**2,409**	1,205	1,204	**113**	65	48	**94**	50	45

ATTACHMENT C – 5/9/17 SFS TI&MA
EXISTING SIGNAL TIMING

j2 design

C

68th ST. & CAMELBACK

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN STANDARD
F.D.W.	23	17	
YELLOW	4.2	4.2	3.0
ALL-RED	2.8	1.8	1.0

DATE DESIGNED: 3/10/2010

SYSTEM #: 56

SECTION #: 101

COMMUNICATIONS MM-1-5-1

I.P. ADDRESS: 172.17. 10.56

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

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

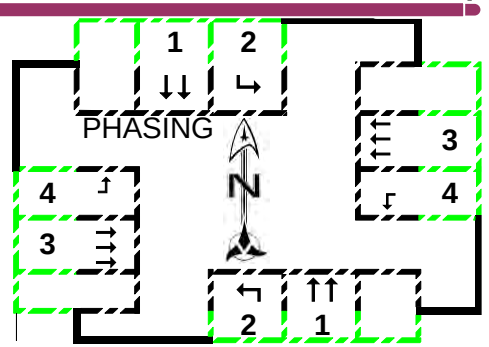
REDS

VOL DENSITY

MM-2-8 RECALLS

PHASE	1	2	3	4
MOVEMENT	NST	NSL	EWT	EWL
NOTES				
MIN GRN	8	4	10	4
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		33	
WALK2				
WLK MAX				
PED CLR/FDW	23		17	
PD CLR2				
PC MAX				
PED CO				
VEH EXT	2	1	1	1
VH EXT2				
MAX 1	30	25	70	25
MAX 2	60	50	90	50
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.2	3	4.2	3
RED CLR	2.8	1	1.8	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
-7	-4	-6	-4	0	0	0	0
-7	-4	-6	-4	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
5/24/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

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

MOVEMENTS NST NSL EWT EWL

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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	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									
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	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									120
COORD RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

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

30-DR-2019
5/24/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MID-DAY SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

	R1	1 ↕	2 ↰↳	3 ↔	4 ↴↱
MOVEMENTS NST NSL EWT EWL	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 MID-DAY TIME-SPACE DIAGRAMS

PLAN # 4

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0900-1530 1830-2100

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

TARGET CYCLE 0

ACTUAL CYCLE

RING 1

RING 2

PLAN # 5

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES as needed

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

TARGET CYCLE 0

ACTUAL CYCLE

RING 1

RING 2

PLAN # 6

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES as needed

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

TARGET CYCLE 0

ACTUAL CYCLE

RING 1

RING 2

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

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

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								
COORD RECALLS (V, P, Mx) GREEN	-7	-4	-6	-4	0	0	0	0

TARGET

ACTUAL CYCLE

RING 1

RING 2

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

TARGET

ACTUAL CYCLE

RING 1

RING 2

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

TARGET 120

ACTUAL CYCLE

RING 1

RING 2

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

30-DR-2019

5/24/2019

GOLDWATER & CAMELBACK

BASIC TIMING PLANS

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	22	23	STANDARD	11/27/2012
YELLOW	3.6	3.6	3.0	SYSTEM # / SECTION #
ALL-RED	2.4	2.4	1.0	57 / 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.57

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

RECOMMENDED CLEARANCES

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

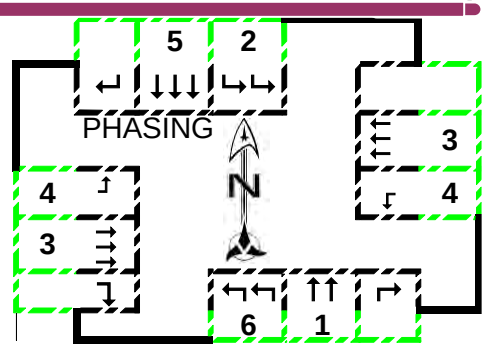
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4	5	6
MOVEMENT	NBT	SBL	EWT	EWL	SBT	NBL
NOTES		PROT		perm/PROT		PROT
MIN GRN	10	4	10	4	10	4
BK MGRN						
CS MGRN						
DLY GRN						
WALK	8		7		8	
WALK2						
WLK MAX						
PED CLR/FDW	22		23		22	
PD CLR2						
PC MAX						
PED CO						
VEH EXT	2	1		1	3	1
VH EXT2						
MAX 1	50	15	45	15	50	15
MAX 2	60	50	60	45	60	50
MAX 3						
DYM MAX						
DYM STP						
YELLOW	3.6	3	3.6	3	3.6	3
RED CLR	2.4	1	2.4	1	2.4	1
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			
MAX RECALL						
SOFT RECALL						
NO REST						
ADD INIT CAL						

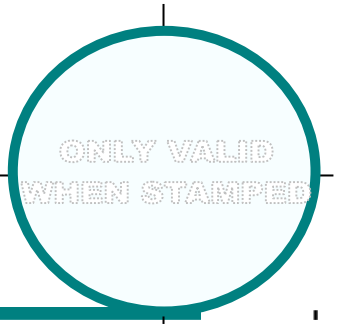
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
46	15	43	15	46	15	49	19
56	45	57	42	56	45	63	46

SPLIT PLAN MAXIMUMS

NOTES



30-DR-2019
5/24/2019

GOLDWATER & CAMELBACK

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	22	0	23	0	22	0	0	0
YELLOW	3.6	3.0	3.6	3.0	3.6	3.0	0.0	0.0
ALL RED	2.4	1.0	2.4	1.0	2.4	1.0	0.0	0.0

SYSTEM # 57

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 ↰		

MOVEMENTS NBT SBL EWT EWL SBT NBL

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

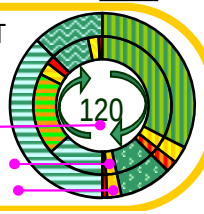
N/S

PLAN # 1

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	45	15	45	15	45	15	45	15	120
COORD RECALLS (V, P, Mx)			X P				X P		ACTUAL CYCLE
GREEN	39	11	39	11	39	11	45	15	RING 1 RING 2



PLAN # 2

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

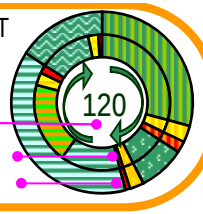
	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	52	18	38	12	52	18	38	12	120
COORD RECALLS (V, P, Mx)			X P				X P		ACTUAL CYCLE
GREEN	46	14	32	8	46	14	38	12	RING 1 RING 2

PLAN # 3

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	41	14	46	19	41	14	46	19	120
COORD RECALLS (V, P, Mx)			X P				X P		ACTUAL CYCLE
GREEN	35	10	40	15	35	10	46	19	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	10
2	SB	10
3	NS	10
4	EB	104
5	WB	104
6	EW	104

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1, 2, 3, 4, 5, 6

30-DR-2019

5/24/2019

GOLDWATER & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	22	0	23	0	22	0	0	0
YELLOW	3.6	3.0	3.6	3.0	3.6	3.0	0.0	0.0
ALL RED	2.4	1.0	2.4	1.0	2.4	1.0	0.0	0.0

SYSTEM # 57

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

R1	1 ↑	2 ↪	3 ↔	4 ↴↓			
R2	5 ↓	6 ↩					
MOVEMENTS	NBT	SBL	EWT	EWL	SBT	NBL	

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	107	1
2	SB	107	2
3	NS	107	3
4	EB	107	4
5	WB	107	5
6	EW	107	6

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	19	41	15	45	19	41	15	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	39	15	35	11	39	15	41	15	RING 1
									RING 2

PLAN # 8

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

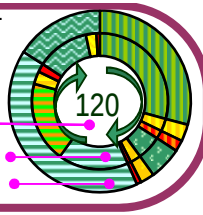
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	52	16	40	12	52	16	40	12	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	46	12	34	8	46	12	40	12	RING 1
									RING 2

PLAN # 9

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	41	11	49	19	41	11	49	19	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	35	7	43	15	35	7	49	19	RING 1
									RING 2



30-DR-2019

5/24/2019

GOLDWATER & FASHION SQUARE ACCESS

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED	
F.D.W.	13	19	STANDARD		
YELLOW	4.1	2.9	3.0	SYSTEM #	SECTION #
ALL-RED	1.9	3.1	1.0	137	101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 11.37

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

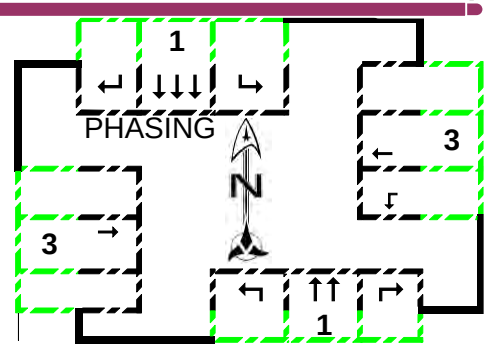
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	17	6
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	105	35
MAX 2	110	55
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.1	3
RED CLR	1.9	3
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
101	0		35	0	0	0	0	0
102	0		55	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
5/24/2019

GOLDWATER & FASHION SQUARE ACCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 137

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 11/27/2006

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88	0	32	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 1 1; 1 2; 1 3

PLAN # 2

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	107	0	13	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	101	0	7	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 2 1; 2 2; 2 3

PLAN # 3

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	94	0	26	0	0	0	0	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

AVAILABLE COORDINATOR PATTERN #s: 3 1; 3 2; 3 3

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

30-DR-2019

5/24/2019

GOLDWATER & FASHION SQUARE ACCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 137

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

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 11/27/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	94	0	26	0	0	0	0	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

7 1

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	110
	SB	
	NS	
	EB	
	WB	
	EW	

PLAN # 8

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

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

120

8 1

PLAN # 9

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84	0	36	0	0	0	0	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

GOLDWATER & SOLARI

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN
F.D.W.	13	18	STANDARD
YELLOW	4.1	3	3.0
ALL-RED	1.9	3	1.0

DATE DESIGNED: 11/28/2012

SYSTEM #: 219

SECTION #: 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.19

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

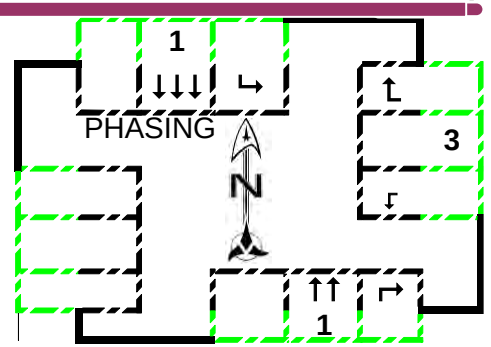
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	5
BK MGRN		
CS MGRN		
DLY GRN		
WALK	17	7
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	105	30
MAX 2	110	50
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.1	3
RED CLR	1.9	3
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
101	0		26	0	0	0	0	0
103	0		49	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
5/24/2019

GOLDWATER & SOLARI

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 219

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 ↕ | 3 ←
R2:

MOVEMENTS NST EWT

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
2 1
2 2
2 3
3 1
3 2
3 3

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88	0	32	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	107	0	13	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	101	0	7	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	100	0	20	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	94	0	14	0	0	0	0	0	RING 1
									RING 2

120

30-DR-2019
5/24/2019

GOLDWATER & SOLARI

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 219

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

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 5/14/2008

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	47	0	13	0	0	0	0	0	60
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	41	0	7	0	0	0	0	0	RING 1
									RING 2

60

7 1

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	55	1
	SB		2
	NS		3
	EB		4
	WB		5
	EW		6

PLAN # 8

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	105	0	15	0	0	0	0	0	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	99	0	9	0	0	0	0	0	RING 1
									RING 2

120

8 1

PLAN # 9

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	95	0	25	0	0	0	0	0	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	89	0	19	0	0	0	0	0	RING 1
									RING 2

120

9 1

30-DR-2019

5/24/2019

SCOTTSDALE RD. & CAMELBACK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN STANDARD	DATE DESIGNED	
F.D.W.	17	25		3/31/2010	
YELLOW	4.4	4.1	3.0	SYSTEM #	SECTION #
ALL-RED	2.6	2.9	1.0	59	517

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 10.59

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

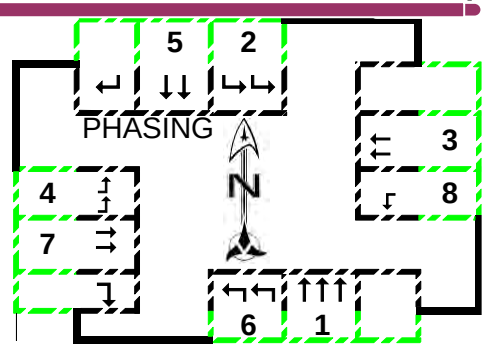
VOL DENSITY

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	5	10	5	15	5	20	5
BK MGRN								
CS MGRN								
DLY GRN								
WALK	8		7		8		7	
WALK2								
WLK MAX								
PED CLR/FDW	17		25		17		25	
PD CLR2								
PC MAX								
PED CO								
VEH EXT	0	2	3	2	0	2	3	2
VH EXT2								
MAX 1	50	20	45	20	50	20	40	20
MAX 2	55	35	50	40	55	35	45	40
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.2	3	3.8	3	4.2	3	3.8	3
RED CLR	2.8	1	3.2	1	2.8	1	3.2	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								
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
47	18	41	20	47	18	39	20
51	35	46	40	51	35	41	40

SPLIT PLAN MAXIMUMS

NOTES

1/19/11 - Sensys installed, veh ext increased.

ONLY VALID WHEN STAMPED

30-DR-2019
5/24/2019

SCOTTSDALE RD. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	25	0	17	0	25	0
YELLOW	4.2	3.0	3.8	3.0	4.2	3.0	3.8	3.0
ALL RED	2.8	1.0	3.2	1.0	2.8	1.0	3.2	1.0

SYSTEM # 59

SECTION # 517

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

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

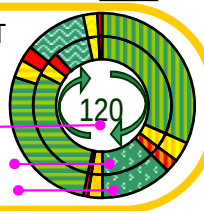
PLAN # 1

DATE EFFECTIVE 3/26/2007

OPERATIVE TIMES 0630-0900

MOVEMENTS	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
PHASE	1	2	3	4	5	6	7	8
SPLIT	45	19	42	14	45	19	39	17
COORD	X				X			
RECALLS (V, P, Mx)	M				M			
GREEN	38	15	35	10	38	15	32	13

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 3/30/2009

OPERATIVE TIMES

MOVEMENTS	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
PHASE	1	2	3	4	5	6	7	8
SPLIT	50	21	35	14	50	21	31	18
COORD	X				X			
RECALLS (V, P, Mx)	M				M			
GREEN	43	17	28	10	43	17	24	14

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

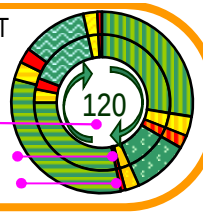
PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

MOVEMENTS	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
PHASE	1	2	3	4	5	6	7	8
SPLIT	40	16	41	23	40	16	46	18
COORD	X				X			
RECALLS (V, P, Mx)	M				M			
GREEN	33	12	34	19	33	12	39	14

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	50
2	SB	50
3	NS	50
4	EB	49
5	WB	49
6	EW	49

30-DR-2019

5/24/2019

SCOTTSDALE RD. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	25	0	17	0	25	0
YELLOW	4.2	3.0	3.8	3.0	4.2	3.0	3.8	3.0
ALL RED	2.8	1.0	3.2	1.0	2.8	1.0	3.2	1.0

SYSTEM # 59

SECTION # 517

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

	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
MOVEMENTS								
R1	1 ↑		2 ↪		3 ←		4 ↱	
R2	5 ↓		6 ↰		7 →		8 ↱	

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	49
2	SB	49
3	NS	49
4	EB	49
5	WB	49
6	EW	49

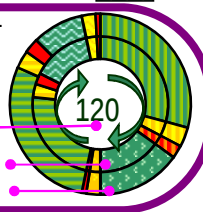
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 3/26/2007

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	42	22	35	21	42	22	41	15	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	35	18	28	17	35	18	34	11	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	19	33	14	54	19	33	14	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	47	15	26	10	47	15	26	10	RING 1 / RING 2

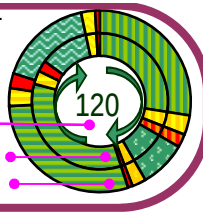
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	14	48	18	40	14	42	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	33	10	41	14	33	10	35	20	RING 1 / RING 2



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

30-DR-2019

5/24/2019

SCOTTSDALE & DRINKWATER

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	20	19	STANDARD	5/10/2013
YELLOW	3.7	3.8	3.0	SYSTEM # 142 / SECTION # 101
ALL-RED	2.3	3.2	1.0	

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 11.42

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

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

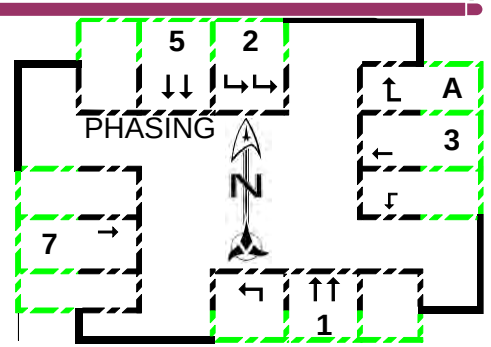
REDS

VOL DENSITY

MM-2-8 RECALLS

PHASE	1	2	3	5	7
MOVEMENT	NBT	SBL	WBT	SBT	EBT
NOTES		Ld Prm			
MIN GRN	20	d Prm 12		20	8
BK MGRN					
CS MGRN					
DLY GRN					
WALK	7		6	7	6
WALK2					
WLK MAX					
PED CLR/FDW	19		19	19	19
PD CLR2					
PC MAX					
PED CO					
VEH EXT	1	3	3	1	1
VH EXT2					
MAX 1	45	30	50	80	50
MAX 2	50	40	55	85	55
MAX 3					
DYM MAX					
DYM STP					
YELLOW	3.6	3	4.7	3.6	4.7
RED CLR	2.4	1	2.3	2.4	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		
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
43	30	47	0	77	0	47	0
48	40	40	0	77	0	44	0

SPLIT PLAN MAXIMUMS

NOTES

OL-A active during phs 2 + 3 unless ph 3 ped active.

ONLY VALID WHEN STAMPED

30-DR-2019
5/24/2019

SCOTTSDALE & DRINKWATER

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	19	0	19	0	19	0
YELLOW	3.6	3.0	4.7	0.0	3.6	0.0	4.7	0.0
ALL RED	2.4	1.0	2.3	0.0	2.4	0.0	2.3	0.0

SYSTEM # 142

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 # 2
ACTION PLAN #

SEQUENCE

R1: 2 ↳ | 1 ↑ | 3 ←
R2: 5 ↓ | | 7 →

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

N/S

MOVEMENTS: NBT SBL WBT SBT EBT

PLAN # 1

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	39	34	47	0	73		47	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P	M			P				
GREEN	33	30	40	0	67	0	40	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	49	34	37	0	83		37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	43	30	30	0	77	0	30	0	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	34	46	0	74		46	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	34	30	39	0	68	0	39	0	RING 1
									RING 2

120

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

1 1
1 2
1 3
2 1
2 2
2 3
3 1
3 2
3 3

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	45
2	SB	45
3	NS	45
4	EB	
5	WB	
6	EW	

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

30-DR-2019
5/24/2019

SCOTTSDALE & DRINKWATER

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	19	0	19	0	19	0
YELLOW	3.6	3.0	4.7	0.0	3.6	0.0	4.7	0.0
ALL RED	2.4	1.0	2.3	0.0	2.4	0.0	2.3	0.0

SYSTEM # 142

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 ←	
R2	5 ↓		7 →	

MOVEMENTS NBT SBL WBT SBT EBT

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

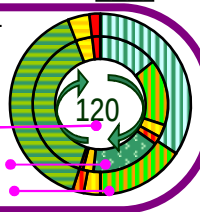
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	42	24	54	0	66		54	0	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	36	20	47	0	60	0	47	0	RING 1 / RING 2



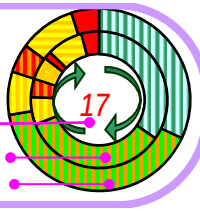
7 1 | 7 2 | 7 3

PLAN # 8

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES

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



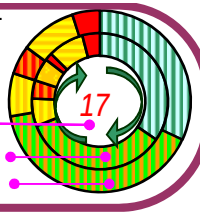
8 1 | 8 2 | 8 3

PLAN # 9

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES

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



9 1 | 9 2 | 9 3

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	98
2	SB	98
3	NS	98
	EB	
	WB	
	EW	

1 2 3 4 5 6

30-DR-2019

5/24/2019

SCOTTSDALE & FASHION SQUARE

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	9	20	STANDARD	8/18/2010
YELLOW	4.6	2.9	3.0	SYSTEM # / SECTION #
ALL-RED	1.4	3.1	1.0	63 / 101

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.63

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

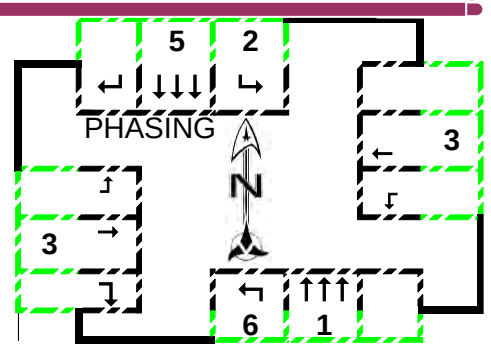
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	2	3		5	6
MOVEMENT	NBT	SBL	EWT		SBT	NBL
NOTES		LD PRM				LD PRM
MIN GRN	10	4	6		10	4
BK MGRN						
CS MGRN						
DLY GRN						
WALK	20		6		20	
WALK2						
WLK MAX						
PED CLR/FDW	10		20		10	
PD CLR2						
PC MAX						
PED CO						
VEH EXT		1	1.5			1
VH EXT2						
MAX 1	65	15	15		65	15
MAX 2	75	30	30		75	30
MAX 3						
DYM MAX						
DYM STP						
YELLOW	4.5	3	3.1		4.5	3
RED CLR	1.5	1	3.9		1.5	1
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
64	16	26	26	64	16	33	26
75	30	30	34	75	30	37	34

SPLIT PLAN MAXIMUMS

NOTES

USE
SEQUENCE 16
AT ALL TIMES

ONLY VALID WHEN STAMPED

30-DR-2019
5/24/2019

SCOTTSDALE & FASHION SQUARE

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	20	0	10	0	0	0
YELLOW	4.5	3.0	3.1	0.0	4.5	3.0	0.0	0.0
ALL RED	1.5	1.0	3.9	0.0	1.5	1.0	0.0	0.0

SYSTEM # 63

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 # 16

ACTION PLAN #

SEQUENCE

R1: 2 → 1 ↑ 3 ↔

R2: 6 ← 5 ↓

MOVEMENTS: NBT SBL EWT SBT NBL

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

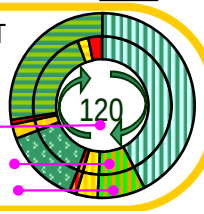
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	67	20	33		67	20	33		120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	61	16	26	0	61	16	33	0	RING 1
									RING 2



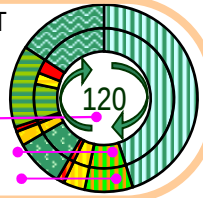
1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	70	14	17	19	70	14	17	19	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	64	10	10	19	64	10	17	19	RING 1
									RING 2



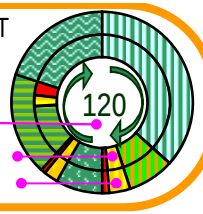
2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	60	14	22	24	60	14	22	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	54	10	15	24	54	10	22	24	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	38
2	SB	38
3	NS	38
4	EB	35
5	WB	35
6	EW	35

SCOTTSDALE & FASHION SQUARE

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	20	0	10	0	0	0
YELLOW	4.5	3.0	3.1	0.0	4.5	3.0	0.0	0.0
ALL RED	1.5	1.0	3.9	0.0	1.5	1.0	0.0	0.0

SYSTEM # 63

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 16

ACTION PLAN

SEQUENCE

R1: 2 → 1 ↑ 3 ↔

R2: 6 ← 5 ↓

MOVEMENTS NBT SBL EWT SBT NBL

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	35
2	SB	35
3	NS	35
4	EB	35
5	WB	35
6	EW	35

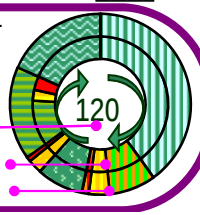
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	64	14	20	22	64	14	20	22	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	58	10	13	22	58	10	20	22	RING 1 / RING 2

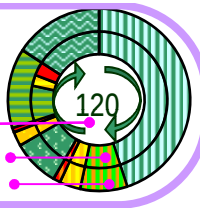


PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	70	14	17	19	70	14	17	19	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	64	10	10	19	64	10	17	19	RING 1 / RING 2

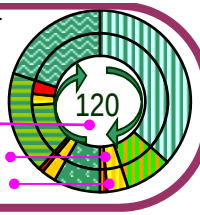


PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	60	14	22	24	60	14	22	24	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	54	10	15	24	54	10	22	24	RING 1 / RING 2



30-DR-2019
5/24/2019

SCOTTSDALE & HIGHLAND

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	16	19	STANDARD	11/4/2010
YELLOW	4.2	3.6	3.0	SYSTEM # 64 / SECTION # 721
ALL-RED	1.8	3.4	1.0	

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.64

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

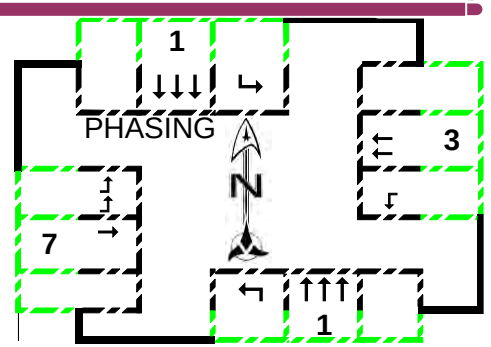
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	3	7
MOVEMENT	NST	WBT	EBT
NOTES			
MIN GRN	10	6	8
BK MGRN			
CS MGRN			
DLY GRN			
WALK	14	6	6
WALK2			
WLK MAX			
PED CLR/FDW	16	19	19
PD CLR2			
PC MAX			
PED CO			
VEH EXT		2	3
VH EXT2			
MAX 1	80	15	35
MAX 2	85	30	40
MAX 3			
DYM MAX			
DYM STP			
YELLOW	4.2	2.9	3.4
RED CLR	1.8	3.1	2.6
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		
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
78	0	11	35	84	0	29	17
72	0	28	46	78	0	40	34

SPLIT PLAN MAXIMUMS

NOTES

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

30-DR-2019
5/24/2019

SCOTTSDALE & HIGHLAND

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	19	0	0	0	19	0
YELLOW	4.2	0.0	2.9	0.0	0.0	0.0	3.4	0.0
ALL RED	1.8	0.0	3.1	0.0	0.0	0.0	2.6	0.0

SYSTEM # 64

SECTION # 721

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 ↕ | 3 ← |

R2: | 7 →

MOVEMENTS NST WBT EBT

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	79		15	26	79		26	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	9	26	79	0	20	15	RING 1
									RING 2

120

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				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84		15	21	84		21	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	9	21	84	0	15	15	RING 1
									RING 2

120

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				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	72		17	31	72		31	17	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	66	0	11	31	72	0	25	17	RING 1
									RING 2

120

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

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	39
2	SB	39
3	NS	39
4	EB	15
5	WB	15
6	EW	15

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5/24/2019

SCOTTSDALE & HIGHLAND

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	19	0	0	0	19	0
YELLOW	4.2	0.0	2.9	0.0	0.0	0.0	3.4	0.0
ALL RED	1.8	0.0	3.1	0.0	0.0	0.0	2.6	0.0

SYSTEM # 64

SECTION # 721

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

SEQUENCE

R1: 1 ↕ | 3 ←
R2: 7 →

MOVEMENTS NST WBT EBT

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

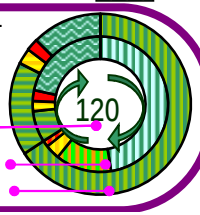
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	79		15	26	79		26	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	9	26	79	0	20	15	RING 1 / RING 2



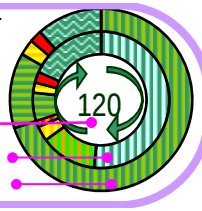
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84		14	22	84		22	14	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	8	22	84	0	16	14	RING 1 / RING 2



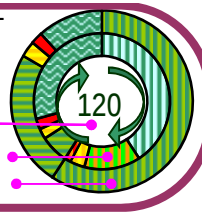
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	71		14	35	71		35	14	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	65	0	8	35	71	0	29	14	RING 1 / RING 2



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

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

SCOTTSDALE & RANCHO VISTA

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	13	22	STANDARD	5/5/2015
YELLOW	4.3	3.2	3.0	SYSTEM # 230 / SECTION # 721
ALL-RED	1.7	3.8	1.0	

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.30

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

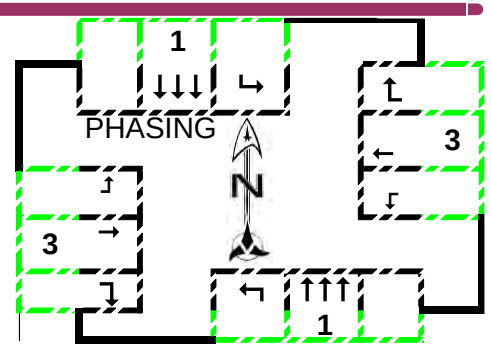
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	15	5
BK MGRN		
CS MGRN		
DLY GRN		
WALK	12	6
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	100	30
MAX 2	105	45
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.3	2.8
RED CLR	1.7	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	26	0	0	0	0	0	
102	0	41	0	0	0	0	0	

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
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SCOTTSDALE & RANCHO VISTA

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.3	0.0	2.8	0.0	0.0	0.0	0.0	0.0
ALL RED	1.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 230

SECTION # 721

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

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	30
2	SB	30
3	NS	30
4	EB	50
5	WB	50
6	EW	50

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1
DATE EFFECTIVE 3/30/2009
OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88		32						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 2
DATE EFFECTIVE 3/30/2009
OPERATIVE TIMES 0600-0900

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

120

PLAN # 3
DATE EFFECTIVE 3/30/2009
OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	41		19						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	35	0	13	0	0	0	0	0	RING 1
									RING 2

60

30-DR-2019
5/24/2019

SCOTTSDALE & RANCHO VISTA

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.3	0.0	2.8	0.0	0.0	0.0	0.0	0.0
ALL RED	1.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 230

SECTION # 721

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 | N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	48		12						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	42	0	6	0	0	0	0	0	RING 1
									RING 2

60

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

PLAN # 8

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	100		20						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	94	0	14	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

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	41		19						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	35	0	13	0	0	0	0	0	RING 1
									RING 2

60

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

PROGRESSION VALUES

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

ATTACHMENT D – 5/9/17 SFS TI&MA EXISTING CAPACITY ANALYSIS

The Synchro outputs under Attachment D are taken directly from the Scottsdale Fashion Square Traffic Impact & Mitigation Analysis, dated May 9, 2017. For organizational purposes, the intersections for the Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis have been changed to:

Intersection	May 9, 2017 TI&MA Intersection Number	Caesars Republic TI&MA Intersection Number
Goldwater Boulevard and Camelback Road	8	1
Goldwater Boulevard and Fashion Square	3	2
Goldwater Boulevard and Highland Avenue	4	3
Highland Avenue and Site Driveway	N/A	4
Highland Avenue and Fashion Square/Optima Driveway	5	5
Scottsdale Road and Highland Avenue	6	6

j2 design

D

HCM 2010 Signalized Intersection Summary
1: 68th Street/68th Street & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	992	126	131	928	54	203	291	167	47	181	38
Future Volume (veh/h)	73	992	126	131	928	54	203	291	167	47	181	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	78	1067	135	141	998	58	218	313	180	51	195	41
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	1905	241	306	2172	126	435	559	475	117	231	197
Arrive On Green	0.05	0.42	0.42	0.03	0.15	0.15	0.21	0.30	0.30	0.03	0.12	0.12
Sat Flow, veh/h	1774	4573	578	1774	4917	285	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	78	791	411	141	688	368	218	313	180	51	195	41
Grp Sat Flow(s),veh/h/ln	1774	1695	1761	1774	1695	1812	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	21.3	21.3	0.0	22.3	22.3	8.2	17.0	10.8	0.0	12.3	2.8
Cycle Q Clear(g_c), s	0.0	21.3	21.3	0.0	22.3	22.3	8.2	17.0	10.8	0.0	12.3	2.8
Prop In Lane	1.00		0.33	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	273	1413	734	306	1497	800	435	559	475	117	231	197
V/C Ratio(X)	0.29	0.56	0.56	0.46	0.46	0.46	0.50	0.56	0.38	0.43	0.84	0.21
Avail Cap(c_a), veh/h	273	1413	734	306	1497	800	435	559	475	119	466	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	26.6	26.6	42.8	38.1	38.2	39.6	35.3	33.2	56.2	51.4	47.2
Incr Delay (d2), s/veh	0.2	1.6	3.1	0.4	0.9	1.7	0.9	4.0	2.3	0.9	3.2	0.2
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	2.2	10.2	11.0	4.6	10.7	11.6	6.3	9.3	5.0	1.7	6.5	1.2
LnGrp Delay(d),s/veh	36.5	28.2	29.7	43.2	39.0	39.8	40.5	39.4	35.5	57.1	54.6	47.4
LnGrp LOS	D	C	C	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1280			1197			711			287	
Approach Delay, s/veh		29.2			39.8			38.7			54.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	43.0	13.1	56.0	29.0	21.9	10.1	59.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 4	36.0	* 9	50.0	* 10	30.0	* 6	53.0
Max Q Clear Time (g_c+I1), s	2.0	19.0	2.0	23.3	10.2	14.3	2.0	24.3
Green Ext Time (p_c), s	0.0	0.6	0.1	2.8	0.0	0.6	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

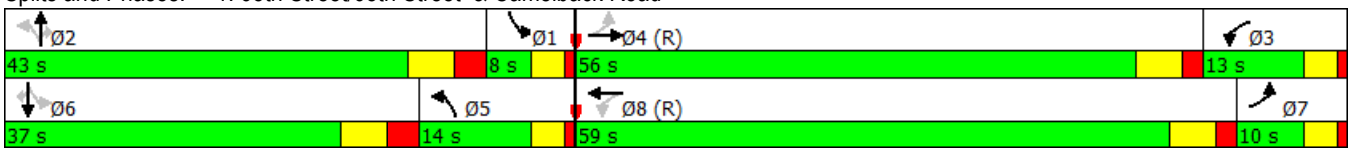
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	8	43	13	56	14	37	10	59
Maximum Split (%)	6.7%	35.8%	10.8%	46.7%	11.7%	30.8%	8.3%	49.2%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	112	69	56	0	106	69	59	0
End Time (s)	0	112	69	56	0	106	69	59
Yield/Force Off (s)	116	105	65	50	116	99	65	53
Yield/Force Off 170(s)	116	82	65	33	116	76	65	36
Local Start Time (s)	112	69	56	0	106	69	59	0
Local Yield (s)	116	105	65	50	116	99	65	53
Local Yield 170(s)	116	82	65	33	116	76	65	36

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	1202	141	1056	218	313	180	51	195	41
v/c Ratio	0.34	0.56	0.60	0.45	0.41	0.53	0.29	0.39	0.74	0.13
Control Delay	22.6	26.6	57.8	38.5	32.0	37.9	7.5	36.4	65.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	26.6	57.8	38.5	32.0	37.9	7.5	36.4	65.6	0.9
Queue Length 50th (ft)	29	252	75	262	112	199	9	24	147	0
Queue Length 95th (ft)	53	299	114	299	179	299	63	51	215	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	251	2162	268	2342	530	592	615	132	465	470
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	0.31	0.56	0.53	0.45	0.41	0.53	0.29	0.39	0.42	0.09

Intersection Summary

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	322	9	9	266
Future Vol, veh/h	2	2	322	9	9	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	398	11	11	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	754	403	0	0	409	0
Stage 1	403	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	326	647	-	-	1150	-
Stage 1	624	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	324	647	-	-	1150	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	432	1150	-
HCM Lane V/C Ratio	-	-	0.011	0.01	-
HCM Control Delay (s)	-	-	13.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	4	9	1	2	20	413	30	14	936	36
Future Volume (veh/h)	8	3	4	9	1	2	20	413	30	14	936	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	9	3	5	10	1	2	23	469	34	16	1064	41
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	13	14	108	18	35	484	3073	1375	817	4416	1375
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.87	0.87	0.87	0.87	0.87	0.87
Sat Flow, veh/h	693	407	458	1402	556	1111	508	3539	1583	892	5085	1583
Grp Volume(v), veh/h	17	0	0	10	0	3	23	469	34	16	1064	41
Grp Sat Flow(s),veh/h/ln	1558	0	0	1402	0	1667	508	1770	1583	892	1695	1583
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.2	0.9	2.4	0.3	0.3	4.2	0.4
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.7	0.0	0.2	5.1	2.4	0.3	2.7	4.2	0.4
Prop In Lane	0.53		0.29	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	0	0	108	0	53	484	3073	1375	817	4416	1375
V/C Ratio(X)	0.18	0.00	0.00	0.09	0.00	0.06	0.05	0.15	0.02	0.02	0.24	0.03
Avail Cap(c_a), veh/h	377	0	0	367	0	361	484	3073	1375	817	4416	1375
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	0.00	0.00	1.00	0.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	0.0	0.0	56.6	0.0	56.4	1.7	1.2	1.1	1.4	1.3	1.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0
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	0.6	0.0	0.0	0.3	0.0	0.1	0.2	1.2	0.2	0.1	1.9	0.2
LnGrp Delay(d),s/veh	57.2	0.0	0.0	56.7	0.0	56.5	1.9	1.3	1.1	1.5	1.4	1.1
LnGrp LOS	E			E		E	A	A	A	A	A	A
Approach Vol, veh/h		17			13			526			1121	
Approach Delay, s/veh		57.2			56.7			1.3			1.4	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		110.2		9.8		110.2		9.8
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 82		26.0		* 82		26.0
Max Q Clear Time (g_c+I1), s		7.1		3.2		6.2		2.7
Green Ext Time (p_c), s		2.4		0.0		2.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	2.4
HCM 2010 LOS	A

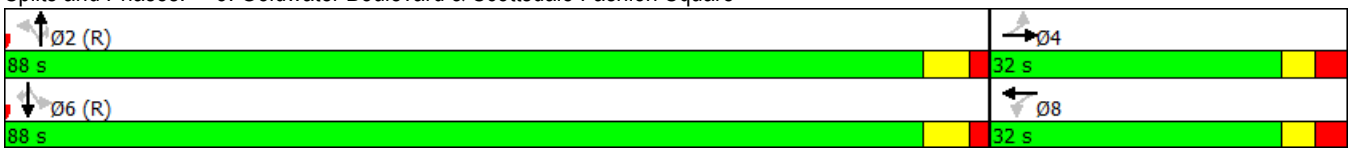
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	88	32	88	32
Maximum Split (%)	73.3%	26.7%	73.3%	26.7%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	88	0	88
End Time (s)	88	0	88	0
Yield/Force Off (s)	82	114	82	114
Yield/Force Off 170(s)	69	95	69	95
Local Start Time (s)	0	88	0	88
Local Yield (s)	82	114	82	114
Local Yield 170(s)	69	95	69	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



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Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	10	3	23	469	34	16	1064	41
v/c Ratio	0.17	0.10	0.03	0.05	0.14	0.02	0.02	0.22	0.03
Control Delay	46.8	56.1	41.7	1.8	1.2	0.8	1.3	1.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	56.1	41.7	1.8	1.2	0.8	1.3	1.0	0.5
Queue Length 50th (ft)	9	8	1	0	0	0	0	0	0
Queue Length 95th (ft)	33	25	11	m7	40	m5	5	53	4
Internal Link Dist (ft)	275		60		1010			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	391	403	364	449	3316	1486	843	4765	1486
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	0.04	0.02	0.01	0.05	0.14	0.02	0.02	0.22	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	0	0	423	0	870
Future Vol, veh/h	68	0	0	423	0	870
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	0	0	486	0	1000

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	400	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	611	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	591	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	611	-	-	-	-	-
Mov Cap-2 Maneuver	611	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	611	-
HCM Lane V/C Ratio	-	0.128	-
HCM Control Delay (s)	-	11.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.4	-

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	399	2	27	31	15	0	1	12	20	0	37
Future Vol, veh/h	22	399	2	27	31	15	0	1	12	20	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	481	2	33	37	18	0	1	14	24	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	483	0	0	619	655	242	405	647	28
Stage 1	-	-	-	-	-	-	535	535	-	111	111	-
Stage 2	-	-	-	-	-	-	84	120	-	294	536	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1548	-	-	1076	-	-	373	384	759	530	388	1041
Stage 1	-	-	-	-	-	-	497	522	-	882	803	-
Stage 2	-	-	-	-	-	-	915	796	-	690	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1548	-	-	1076	-	-	344	366	759	500	370	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	366	-	500	370	-
Stage 1	-	-	-	-	-	-	488	513	-	867	778	-
Stage 2	-	-	-	-	-	-	849	772	-	663	513	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	3.1	10.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	701	1548	-	-	1076	-	-	500	1041
HCM Lane V/C Ratio	-	0.022	0.017	-	-	0.03	-	-	0.048	0.043
HCM Control Delay (s)	0	10.3	7.4	-	-	8.4	-	-	12.6	8.6
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	398	6	30	5	2	6	29	957	20	17	791	42
Future Volume (vph)	398	6	30	5	2	6	29	957	20	17	791	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1631		1770	1645		1770	5070		1770	5047	
Flt Permitted	0.75	1.00		1.00	1.00		0.27	1.00		0.22	1.00	
Satd. Flow (perm)	2717	1631		1863	1645		497	5070		403	5047	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	457	7	34	6	2	7	33	1100	23	20	909	48
RTOR Reduction (vph)	0	27	0	0	7	0	0	2	0	0	5	0
Lane Group Flow (vph)	457	14	0	6	2	0	33	1121	0	20	952	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	24.9	24.9		3.2	3.2		73.9	73.9		73.9	73.9	
Effective Green, g (s)	24.9	24.9		3.2	3.2		73.9	73.9		73.9	73.9	
Actuated g/C Ratio	0.21	0.21		0.03	0.03		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	563	338		49	43		306	3122		248	3108	
v/s Ratio Prot		0.01			0.00			c0.22			0.19	
v/s Ratio Perm	c0.17			c0.00			0.07			0.05		
v/c Ratio	0.81	0.04		0.12	0.05		0.11	0.36		0.08	0.31	
Uniform Delay, d1	45.3	38.0		57.0	56.9		9.5	11.4		9.3	10.9	
Progression Factor	1.04	1.31		1.00	1.00		1.63	1.29		1.00	1.00	
Incremental Delay, d2	8.7	0.1		1.1	0.5		0.7	0.3		0.6	0.3	
Delay (s)	56.0	50.0		58.2	57.4		16.1	15.0		10.0	11.2	
Level of Service	E	D		E	E		B	B		A	B	
Approach Delay (s)		55.5			57.7			15.0			11.1	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

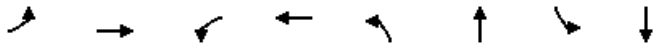
c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	79	15	26
Maximum Split (%)	65.8%	12.5%	21.7%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	79	94
End Time (s)	79	94	0
Yield/Force Off (s)	73	88	114
Yield/Force Off 170(s)	57	69	95
Local Start Time (s)	0	79	94
Local Yield (s)	73	88	114
Local Yield 170(s)	57	69	95

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: 6: Scottsdale Road & Highland Avenue

30-DR-2019
5/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	457	41	6	9	33	1123	20	957
v/c Ratio	0.81	0.11	0.06	0.09	0.10	0.34	0.08	0.29
Control Delay	60.2	22.6	53.8	35.0	16.2	13.2	10.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	22.6	53.8	35.0	16.2	13.2	10.1	9.8
Queue Length 50th (ft)	160	4	5	2	7	88	5	103
Queue Length 95th (ft)	#277	35	18	18	m35	228	17	140
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	563	364	139	129	321	3277	259	3264
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	0.81	0.11	0.04	0.07	0.10	0.34	0.08	0.29

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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	503	145	62	529	126	138	480	29	130	503	81
Future Volume (veh/h)	118	503	145	62	529	126	138	480	29	130	503	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	126	535	154	66	563	134	147	511	31	138	535	86
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	683	306	167	663	157	732	1553	94	732	1121	501
Arrive On Green	0.02	0.06	0.06	0.09	0.23	0.23	0.21	0.32	0.32	0.07	0.10	0.10
Sat Flow, veh/h	3442	3539	1583	1774	2840	674	3442	4906	295	3442	3539	1583
Grp Volume(v), veh/h	126	535	154	66	350	347	147	352	190	138	535	86
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1744	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.4	17.9	11.3	4.2	22.7	22.8	4.2	9.5	9.6	4.5	17.1	5.9
Cycle Q Clear(g_c), s	4.4	17.9	11.3	4.2	22.7	22.8	4.2	9.5	9.6	4.5	17.1	5.9
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	185	683	306	167	413	407	732	1074	573	732	1121	501
V/C Ratio(X)	0.68	0.78	0.50	0.40	0.85	0.85	0.20	0.33	0.33	0.19	0.48	0.17
Avail Cap(c_a), veh/h	287	944	422	192	516	509	732	1074	573	732	1121	501
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	57.9	53.7	50.6	51.1	44.0	44.0	38.8	31.3	31.3	46.0	44.4	39.4
Incr Delay (d2), s/veh	4.0	2.7	1.2	1.5	10.4	11.0	0.1	0.8	1.5	0.1	1.4	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	2.2	9.0	5.1	2.1	12.3	12.2	2.0	4.6	5.1	2.2	8.6	2.7
LnGrp Delay(d),s/veh	61.9	56.4	51.8	52.6	54.4	55.0	39.0	32.1	32.9	46.1	45.8	40.1
LnGrp LOS	E	E	D	D	D	D	D	C	C	D	D	D
Approach Vol, veh/h		815			763			689			759	
Approach Delay, s/veh		56.4			54.5			33.8			45.2	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.5	45.0	15.3	30.2	29.5	45.0	10.5	35.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 15	38.0	13.0	32.0	* 15	38.0	10.0	35.0
Max Q Clear Time (g_c+I1), s	6.5	11.6	6.2	19.9	6.2	19.1	6.4	24.8
Green Ext Time (p_c), s	0.6	3.6	0.3	3.3	0.6	3.8	0.2	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.0
HCM 2010 LOS	D

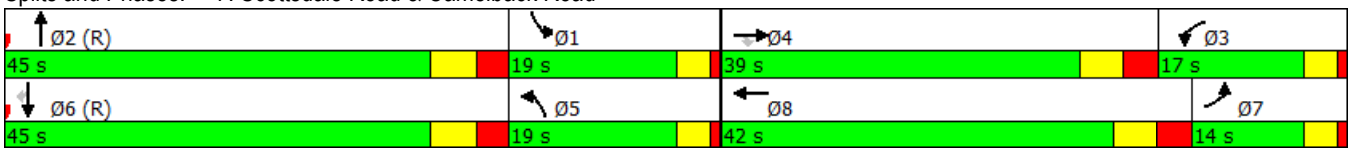
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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	45	17	39	19	45	14	42
Maximum Split (%)	15.8%	37.5%	14.2%	32.5%	15.8%	37.5%	11.7%	35.0%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	50	33	114	95	50	36	114
End Time (s)	114	95	50	33	114	95	50	36
Yield/Force Off (s)	110	88	46	26	110	88	46	29
Yield/Force Off 170(s)	110	77	46	15	110	77	46	18
Local Start Time (s)	45	0	103	64	45	0	106	64
Local Yield (s)	60	38	116	96	60	38	116	99
Local Yield 170(s)	60	27	116	85	60	27	116	88

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green		

Splits and Phases: 7: Scottsdale Road & Camelback Road



30-DR-2019
5/24/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	126	535	154	66	697	147	542	138	535	86
v/c Ratio	0.48	0.64	0.31	0.34	0.79	0.49	0.27	0.46	0.38	0.12
Control Delay	71.6	37.9	22.8	53.4	47.4	57.4	25.6	49.7	18.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	37.9	22.8	53.4	47.4	57.4	25.6	49.7	18.9	4.5
Queue Length 50th (ft)	54	234	87	47	257	56	101	54	153	10
Queue Length 95th (ft)	87	292	154	93	305	88	149	88	231	52
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	290	958	541	213	1028	429	2027	429	1420	700
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	0.43	0.56	0.28	0.31	0.68	0.34	0.27	0.32	0.38	0.12

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	781	130	39	612	31	119	149	33	15	366	423
Future Volume (veh/h)	171	781	130	39	612	31	119	149	33	15	366	423
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	797	133	40	624	32	121	152	34	15	373	432
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	454	1653	515	413	1611	82	177	1150	515	177	1653	515
Arrive On Green	0.13	0.32	0.32	0.04	0.11	0.11	0.05	0.32	0.32	0.03	0.22	0.22
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	174	797	133	40	426	230	121	152	34	15	373	432
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	0.0	15.1	7.4	0.0	14.0	14.1	4.1	3.6	1.8	0.5	7.2	31.3
Cycle Q Clear(g_c), s	0.0	15.1	7.4	0.0	14.0	14.1	4.1	3.6	1.8	0.5	7.2	31.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	1653	515	413	1102	591	177	1150	515	177	1653	515
V/C Ratio(X)	0.38	0.48	0.26	0.10	0.39	0.39	0.68	0.13	0.07	0.08	0.23	0.84
Avail Cap(c_a), veh/h	454	1653	515	413	1102	591	315	1150	515	315	1653	515
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	0.84	0.84	0.84	0.67	0.67	0.67	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	33.8	32.4	29.8	31.9	42.4	42.5	55.9	28.6	27.9	55.2	34.5	43.9
Incr Delay (d2), s/veh	0.4	0.9	1.0	0.1	0.7	1.3	4.5	0.2	0.2	0.2	0.3	14.9
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	5.0	7.1	3.4	1.1	6.7	7.4	2.1	1.8	0.8	0.2	3.5	15.9
LnGrp Delay(d),s/veh	34.3	33.3	30.9	32.0	43.1	43.8	60.5	28.8	28.2	55.4	34.8	58.9
LnGrp LOS	C	C	C	C	D	D	E	C	C	E	C	E
Approach Vol, veh/h		1104			696			307			820	
Approach Delay, s/veh		33.1			42.7			41.2			47.9	
Approach LOS		C			D			D			D	

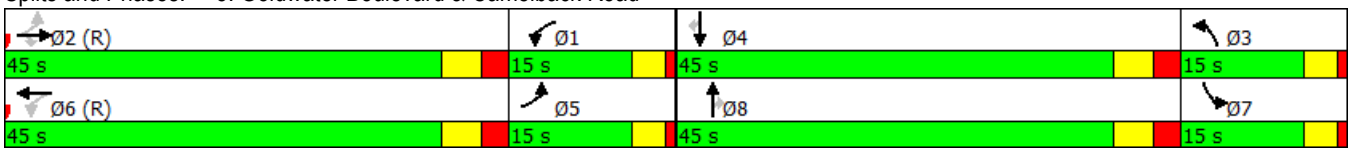
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	45.0	10.2	45.0	19.8	45.0	10.2	45.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.0	39.0	11.0	39.0	11.0	39.0	11.0	39.0
Max Q Clear Time (g_c+I1), s	2.0	17.1	6.1	33.3	2.0	16.1	2.5	5.6
Green Ext Time (p_c), s	0.4	6.3	0.2	2.0	0.4	4.4	0.2	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	45	15	45	15	45	15	45
Maximum Split (%)	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89	44	29	104	89	44	29	104
End Time (s)	104	89	44	29	104	89	44	29
Yield/Force Off (s)	100	83	40	23	100	83	40	23
Yield/Force Off 170(s)	100	72	40	12	100	72	40	12
Local Start Time (s)	45	0	105	60	45	0	105	60
Local Yield (s)	56	39	116	99	56	39	116	99
Local Yield 170(s)	56	28	116	88	56	28	116	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 44 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
5/24/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	797	133	40	656	121	152	34	15	373	432
v/c Ratio	0.55	0.44	0.21	0.15	0.38	0.45	0.10	0.05	0.07	0.20	0.57
Control Delay	28.7	15.9	4.3	21.0	23.2	58.1	22.7	0.1	50.7	26.8	13.0
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	28.7	15.9	4.3	21.0	23.2	58.1	22.7	0.1	50.7	26.8	13.0
Queue Length 50th (ft)	79	190	28	24	185	46	32	0	5	71	81
Queue Length 95th (ft)	136	240	52	m34	228	77	67	0	17	100	154
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	380	1803	629	328	1714	314	1502	729	314	1844	756
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	0.46	0.44	0.21	0.12	0.38	0.39	0.10	0.05	0.05	0.20	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1028	176	218	1224	65	175	299	177	77	215	63
Future Volume (veh/h)	89	1028	176	218	1224	65	175	299	177	77	215	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	96	1105	189	234	1316	70	188	322	190	83	231	68
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	1859	318	367	2225	118	312	466	396	117	268	228
Arrive On Green	0.09	0.43	0.43	0.04	0.15	0.15	0.14	0.25	0.25	0.03	0.14	0.14
Sat Flow, veh/h	1774	4374	748	1774	4944	263	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	96	856	438	234	902	484	188	322	190	83	231	68
Grp Sat Flow(s),veh/h/ln	1774	1695	1731	1774	1695	1816	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	23.3	23.3	4.7	29.8	29.8	7.2	18.8	12.3	1.4	14.5	4.6
Cycle Q Clear(g_c), s	0.0	23.3	23.3	4.7	29.8	29.8	7.2	18.8	12.3	1.4	14.5	4.6
Prop In Lane	1.00		0.43	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	293	1441	736	367	1526	817	312	466	396	117	268	228
V/C Ratio(X)	0.33	0.59	0.59	0.64	0.59	0.59	0.60	0.69	0.48	0.71	0.86	0.30
Avail Cap(c_a), veh/h	293	1441	736	367	1526	817	312	466	396	149	466	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	26.5	26.6	45.8	40.8	40.8	46.4	40.8	38.4	56.4	50.2	45.9
Incr Delay (d2), s/veh	0.2	1.8	3.5	1.9	1.1	2.1	3.2	8.2	4.1	6.6	3.2	0.3
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	2.9	11.2	11.9	7.8	14.2	15.5	6.0	10.7	5.8	2.9	7.7	2.0
LnGrp Delay(d),s/veh	42.1	28.4	30.1	47.7	41.9	42.9	49.6	49.0	42.5	63.0	53.3	46.2
LnGrp LOS	D	C	C	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1390			1620			700			382	
Approach Delay, s/veh		29.8			43.1			47.4			54.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	37.0	18.1	57.0	20.6	24.3	15.1	60.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 6	30.0	* 12	51.0	* 6	30.0	* 9	54.0
Max Q Clear Time (g_c+I1), s	3.4	20.8	6.7	25.3	9.2	16.5	2.0	31.8
Green Ext Time (p_c), s	0.1	0.6	0.1	3.1	0.0	0.7	0.1	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

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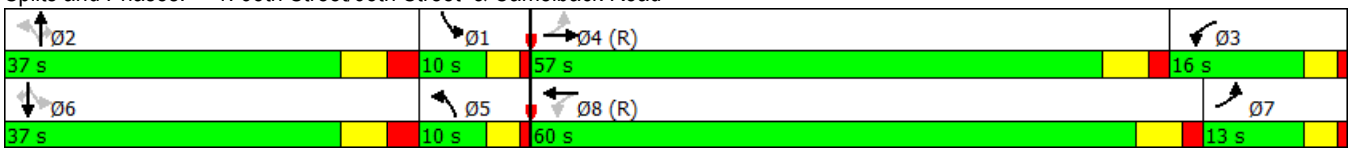
Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	10	37	16	57	10	37	13	60
Maximum Split (%)	8.3%	30.8%	13.3%	47.5%	8.3%	30.8%	10.8%	50.0%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	49	33	96	86	49	36	96
End Time (s)	96	86	49	33	96	86	49	36
Yield/Force Off (s)	92	79	45	27	92	79	45	30
Yield/Force Off 170(s)	92	56	45	10	92	56	45	13
Local Start Time (s)	110	73	57	0	110	73	60	0
Local Yield (s)	116	103	69	51	116	103	69	54
Local Yield 170(s)	116	80	69	34	116	80	69	37

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 96 (80%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	96	1294	234	1386	188	322	190	83	231	68
v/c Ratio	0.46	0.58	0.84	0.58	0.46	0.66	0.36	0.56	0.77	0.20
Control Delay	31.5	25.7	35.1	24.7	38.0	47.4	11.0	50.7	65.0	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	31.5	25.7	35.1	24.7	38.0	47.4	11.0	50.7	65.0	4.2
Queue Length 50th (ft)	31	268	36	226	105	227	20	43	174	0
Queue Length 95th (ft)	56	317	m#179	297	166	332	82	81	246	17
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	232	2239	301	2383	408	490	531	160	465	470
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	0.41	0.58	0.78	0.58	0.46	0.66	0.36	0.52	0.50	0.14

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.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	32	430	23	14	214
Future Vol, veh/h	23	32	430	23	14	214
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	35	473	25	15	235

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	751	485	0	0	498	0
Stage 1	485	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	327	582	-	-	1066	-
Stage 1	563	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	323	582	-	-	1066	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	729	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1066	-
HCM Lane V/C Ratio	-	-	0.139	0.014	-
HCM Control Delay (s)	-	-	14.6	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	8	64	66	11	22	35	544	69	28	936	27
Future Volume (veh/h)	65	8	64	66	11	22	35	544	69	28	936	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	71	9	70	72	12	24	38	591	75	30	1017	29
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	21	85	194	71	142	444	2734	1223	652	3928	1223
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	0.77	0.77	0.77
Sat Flow, veh/h	597	165	667	1314	556	1111	537	3539	1583	767	5085	1583
Grp Volume(v), veh/h	150	0	0	72	0	36	38	591	75	30	1017	29
Grp Sat Flow(s),veh/h/ln	1428	0	0	1314	0	1667	537	1770	1583	767	1695	1583
Q Serve(g_s), s	10.1	0.0	0.0	0.0	0.0	2.3	0.7	0.0	0.0	1.1	6.8	0.5
Cycle Q Clear(g_c), s	12.4	0.0	0.0	8.2	0.0	2.3	7.5	0.0	0.0	1.1	6.8	0.5
Prop In Lane	0.47		0.47	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	0	0	194	0	213	444	2734	1223	652	3928	1223
V/C Ratio(X)	0.66	0.00	0.00	0.37	0.00	0.17	0.09	0.22	0.06	0.05	0.26	0.02
Avail Cap(c_a), veh/h	582	0	0	508	0	611	444	2734	1223	652	3928	1223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	0.0	49.3	0.0	46.7	0.3	0.0	0.0	3.2	3.9	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.4	0.0	0.1	0.3	0.1	0.1	0.1	0.2	0.0
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	5.0	0.0	0.0	2.3	0.0	1.1	0.1	0.0	0.0	0.3	3.2	0.2
LnGrp Delay(d),s/veh	52.5	0.0	0.0	49.7	0.0	46.8	0.5	0.1	0.1	3.4	4.0	3.2
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		150			108			704			1076	
Approach Delay, s/veh		52.5			48.7			0.1			4.0	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		98.7		21.3		98.7		21.3
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 64		44.0		* 64		44.0
Max Q Clear Time (g_c+I1), s		9.5		14.4		8.8		10.2
Green Ext Time (p_c), s		2.6		0.9		2.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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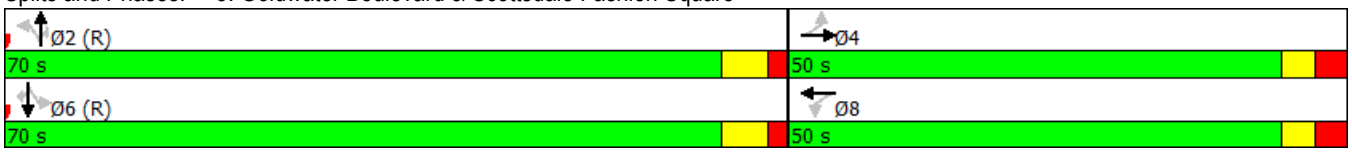
Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	70	50	70	50
Maximum Split (%)	58.3%	41.7%	58.3%	41.7%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	70	0	70
End Time (s)	70	0	70	0
Yield/Force Off (s)	64	114	64	114
Yield/Force Off 170(s)	51	95	51	95
Local Start Time (s)	0	70	0	70
Local Yield (s)	64	114	64	114
Local Yield 170(s)	51	95	51	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



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Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	72	36	38	591	75	30	1017	29
v/c Ratio	0.75	0.61	0.17	0.10	0.21	0.06	0.05	0.25	0.02
Control Delay	58.6	70.7	24.1	12.9	11.6	7.2	4.1	4.0	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	70.7	24.1	12.9	11.6	7.2	4.1	4.0	1.5
Queue Length 50th (ft)	83	54	8	20	165	13	4	63	0
Queue Length 95th (ft)	147	99	38	m35	m196	m36	15	105	8
Internal Link Dist (ft)	275		60		1011			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	557	381	629	392	2783	1260	628	3999	1251
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	0.27	0.19	0.06	0.10	0.21	0.06	0.05	0.25	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	144	0	0	631	0	858
Future Vol, veh/h	144	0	0	631	0	858
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	162	0	0	709	0	964

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	386	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	621	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	601	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	621	-	-	-	-	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	621	-
HCM Lane V/C Ratio	-	0.261	-
HCM Control Delay (s)	-	12.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1	-

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5/24/2019

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	588	0	29	114	27	6	3	40	17	3	24
Future Vol, veh/h	43	588	0	29	114	27	6	3	40	17	3	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	676	0	33	131	31	7	3	46	20	3	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	162	0	0	676	0	0	909	1004	338	652	988	81
Stage 1	-	-	-	-	-	-	775	775	-	213	213	-
Stage 2	-	-	-	-	-	-	134	229	-	439	775	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1414	-	-	911	-	-	230	240	658	353	246	963
Stage 1	-	-	-	-	-	-	357	406	-	769	725	-
Stage 2	-	-	-	-	-	-	855	713	-	567	406	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1414	-	-	911	-	-	209	223	658	307	229	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	223	-	307	229	-
Stage 1	-	-	-	-	-	-	345	392	-	742	699	-
Stage 2	-	-	-	-	-	-	796	687	-	505	392	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.1	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	209	579	1414	-	-	911	-	-	307	710
HCM Lane V/C Ratio	0.033	0.085	0.035	-	-	0.037	-	-	0.064	0.044
HCM Control Delay (s)	22.8	11.8	7.6	-	-	9.1	-	-	17.5	10.3
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.2	0.1

30-DR-2019
5/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	621	4	33	12	13	22	46	1126	11	8	969	111
Future Volume (vph)	621	4	33	12	13	22	46	1126	11	8	969	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1611		1770	1688		1770	5078		1770	5007	
Flt Permitted	0.73	1.00		0.65	1.00		0.19	1.00		0.17	1.00	
Satd. Flow (perm)	2642	1611		1202	1688		353	5078		324	5007	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	698	4	37	13	15	25	52	1265	12	9	1089	125
RTOR Reduction (vph)	0	30	0	0	24	0	0	1	0	0	12	0
Lane Group Flow (vph)	698	11	0	13	16	0	52	1276	0	9	1202	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	24.0	24.0		6.2	6.2		71.8	71.8		71.8	71.8	
Effective Green, g (s)	24.0	24.0		6.2	6.2		71.8	71.8		71.8	71.8	
Actuated g/C Ratio	0.20	0.20		0.05	0.05		0.60	0.60		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	528	322		62	87		211	3038		193	2995	
v/s Ratio Prot		0.01			0.01			c0.25			0.24	
v/s Ratio Perm	c0.26			c0.01			0.15			0.03		
v/c Ratio	1.32	0.04		0.21	0.19		0.25	0.42		0.05	0.40	
Uniform Delay, d1	48.0	38.7		54.6	54.5		11.4	12.9		10.0	12.7	
Progression Factor	1.25	1.85		1.00	1.00		0.97	1.20		1.00	1.00	
Incremental Delay, d2	157.6	0.0		1.7	1.0		2.5	0.4		0.5	0.4	
Delay (s)	217.7	71.5		56.2	55.5		13.5	15.9		10.4	13.1	
Level of Service	F	E		E	E		B	B		B	B	
Approach Delay (s)		209.6			55.7			15.8			13.1	
Approach LOS		F			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	79	15	26
Maximum Split (%)	65.8%	12.5%	21.7%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	79	94
End Time (s)	79	94	0
Yield/Force Off (s)	73	88	114
Yield/Force Off 170(s)	57	69	95
Local Start Time (s)	0	79	94
Local Yield (s)	73	88	114
Local Yield 170(s)	57	69	95

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: 6: Scottsdale Road & Highland Avenue

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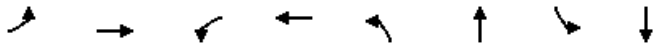


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	698	41	13	40	52	1277	9	1214
v/c Ratio	1.32	0.12	0.18	0.31	0.24	0.41	0.05	0.40
Control Delay	202.4	28.9	58.2	34.2	13.8	15.2	10.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	202.4	28.9	58.2	34.2	13.8	15.2	10.4	12.3
Queue Length 50th (ft)	~387	8	10	11	23	310	3	162
Queue Length 95th (ft)	#519	39	30	46	m59	324	10	190
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	528	351	90	149	214	3091	197	3058
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	1.32	0.12	0.14	0.27	0.24	0.41	0.05	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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	526	228	81	500	146	294	700	90	268	574	221
Future Volume (veh/h)	249	526	228	81	500	146	294	700	90	268	574	221
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	262	554	240	85	526	154	309	737	95	282	604	233
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	680	304	225	610	178	795	1259	161	764	944	422
Arrive On Green	0.19	0.38	0.38	0.13	0.23	0.23	0.23	0.28	0.28	0.07	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2705	788	3442	4566	584	3442	3539	1583
Grp Volume(v), veh/h	262	554	240	85	343	337	309	546	286	282	604	233
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1724	1721	1695	1760	1721	1770	1583
Q Serve(g_s), s	8.8	16.8	16.1	5.3	22.4	22.6	9.1	16.7	16.9	9.4	19.8	16.9
Cycle Q Clear(g_c), s	8.8	16.8	16.1	5.3	22.4	22.6	9.1	16.7	16.9	9.4	19.8	16.9
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	321	680	304	225	399	389	795	935	485	764	944	422
V/C Ratio(X)	0.82	0.81	0.79	0.38	0.86	0.87	0.39	0.58	0.59	0.37	0.64	0.55
Avail Cap(c_a), veh/h	459	1038	464	225	472	460	795	935	485	764	944	422
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	47.8	35.0	34.8	48.1	44.6	44.7	39.0	37.5	37.6	47.6	49.2	47.8
Incr Delay (d2), s/veh	6.5	2.6	4.4	1.0	13.1	14.0	0.3	2.7	5.2	0.3	3.0	4.6
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	4.4	8.4	7.3	2.7	12.4	12.3	4.4	8.2	8.9	4.5	10.1	8.0
LnGrp Delay(d),s/veh	54.3	37.6	39.2	49.1	57.7	58.7	39.3	40.2	42.8	47.9	52.2	52.5
LnGrp LOS	D	D	D	D	E	E	D	D	D	D	D	D
Approach Vol, veh/h		1056			765			1141			1119	
Approach Delay, s/veh		42.1			57.2			40.6			51.2	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.6	40.1	19.2	30.1	31.7	39.0	15.2	34.1
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 17	33.1	12.8	35.2	* 18	32.0	16.0	32.0
Max Q Clear Time (g_c+I1), s	11.4	18.9	7.3	18.8	11.1	21.8	10.8	24.6
Green Ext Time (p_c), s	1.2	4.7	0.6	4.2	1.3	3.6	0.4	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	47.0
HCM 2010 LOS	D

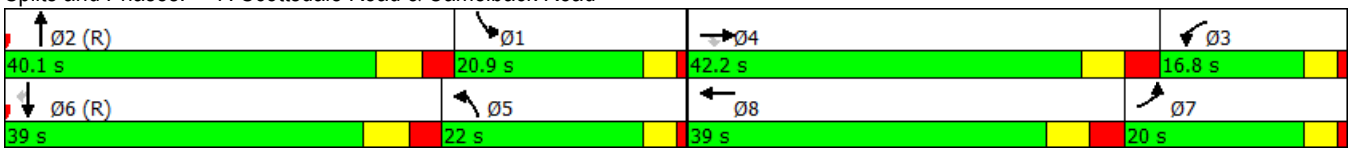
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	20.9	40.1	16.8	42.2	22	39	20	39
Maximum Split (%)	17.4%	33.4%	14.0%	35.2%	18.3%	32.5%	16.7%	32.5%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	2	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.1	98	81.2	39	17	98	78	39
End Time (s)	39	18.1	98	81.2	39	17	98	78
Yield/Force Off (s)	35	11.1	94	74.2	35	10	94	71
Yield/Force Off 170(s)	35	0.1	94	63.2	35	119	94	60
Local Start Time (s)	40.1	0	103.2	61	39	0	100	61
Local Yield (s)	57	33.1	116	96.2	57	32	116	93
Local Yield 170(s)	57	22.1	116	85.2	57	21	116	82

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 98 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	262	554	240	85	680	309	832	282	604	233
v/c Ratio	0.66	0.63	0.42	0.40	0.81	0.69	0.49	0.67	0.51	0.34
Control Delay	46.2	15.6	4.0	53.4	49.4	57.9	33.1	75.8	52.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	15.6	4.0	53.4	49.4	57.9	33.1	75.8	52.2	27.7
Queue Length 50th (ft)	111	137	18	60	248	119	186	95	261	88
Queue Length 95th (ft)	152	181	23	114	312	164	246	149	318	174
Internal Link Dist (ft)		1329			616		511		1288	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	457	1050	638	232	934	514	1715	483	1173	680
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	0.53	0.38	0.37	0.73	0.60	0.49	0.58	0.51	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	899	158	48	876	70	257	276	90	61	428	460
Future Volume (veh/h)	242	899	158	48	876	70	257	276	90	61	428	460
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	257	956	168	51	932	74	273	294	96	65	455	489
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	1483	462	358	1402	111	328	387	173	1071	1653	515
Arrive On Green	0.24	0.58	0.58	0.04	0.10	0.10	0.10	0.11	0.11	0.10	0.11	0.11
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	257	956	168	51	657	349	273	294	96	65	455	489
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	7.3	15.1	6.7	0.0	22.4	22.5	9.4	9.7	6.9	2.0	9.9	36.8
Cycle Q Clear(g_c), s	7.3	15.1	6.7	0.0	22.4	22.5	9.4	9.7	6.9	2.0	9.9	36.8
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	333	1483	462	358	989	524	328	387	173	1071	1653	515
V/C Ratio(X)	0.77	0.64	0.36	0.14	0.66	0.67	0.83	0.76	0.55	0.06	0.28	0.95
Avail Cap(c_a), veh/h	333	1483	462	358	989	524	430	1150	515	1071	1653	515
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	0.66	0.66	0.66	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	39.6	20.8	19.1	37.5	48.6	48.6	53.3	51.9	50.7	38.0	40.6	52.6
Incr Delay (d2), s/veh	8.0	1.8	1.8	0.0	2.3	4.4	8.0	1.2	1.0	0.0	0.4	28.5
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	8.2	7.1	3.1	1.5	10.9	11.9	4.8	4.8	3.1	1.0	4.7	20.2
LnGrp Delay(d),s/veh	47.6	22.6	20.9	37.5	50.9	53.0	61.4	53.1	51.7	38.0	41.0	81.1
LnGrp LOS	D	C	C	D	D	D	E	D	D	D	D	F
Approach Vol, veh/h		1381			1057			663			1009	
Approach Delay, s/veh		27.1			50.9			56.3			60.2	
Approach LOS		C			D			E			E	

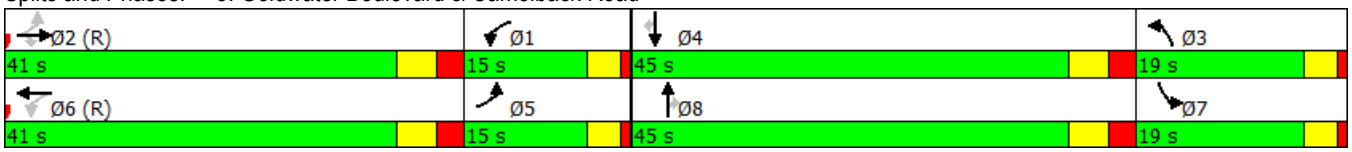
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	41.0	15.4	45.0	18.6	41.0	41.3	19.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.0	35.0	15.0	39.0	11.0	35.0	15.0	39.0
Max Q Clear Time (g_c+I1), s	2.0	17.1	11.4	38.8	9.3	24.5	4.0	11.7
Green Ext Time (p_c), s	0.1	2.8	0.1	0.1	0.0	2.2	0.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	None
Maximum Split (s)	15	41	19	45	15	41	19	45
Maximum Split (%)	12.5%	34.2%	15.8%	37.5%	12.5%	34.2%	15.8%	37.5%
Minimum Split (s)	8	36	8	36	8	36	8	36
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	10
Vehicle Extension (s)	1	1	1	3	1	1	1	2
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)								
Flash Dont Walk (s)								
Dual Entry	Yes	No	Yes	No	No	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	41	0	101	56	41	0	101	56
End Time (s)	56	41	0	101	56	41	0	101
Yield/Force Off (s)	52	35	116	95	52	35	116	95
Yield/Force Off 170(s)	52	35	116	95	52	35	116	95
Local Start Time (s)	41	0	101	56	41	0	101	56
Local Yield (s)	52	35	116	95	52	35	116	95
Local Yield 170(s)	52	35	116	95	52	35	116	95

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	257	956	168	51	1006	273	294	96	65	455	489
v/c Ratio	0.98	0.56	0.28	0.20	0.64	0.76	0.43	0.25	0.08	0.28	0.74
Control Delay	73.8	17.2	2.8	45.2	52.3	66.2	48.1	9.8	40.2	35.3	33.1
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	73.8	17.2	2.8	45.2	52.3	66.2	48.1	9.8	40.2	35.3	33.1
Queue Length 50th (ft)	119	91	5	34	303	107	116	0	19	104	219
Queue Length 95th (ft)	#305	110	13	m54	335	151	156	45	44	140	373
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	263	1714	603	271	1577	429	1226	613	925	1652	662
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	0.98	0.56	0.28	0.19	0.64	0.64	0.24	0.16	0.07	0.28	0.74

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.

ATTACHMENT E – 5/9/17 SFS TI&MA YEAR 2020 NO BUILD CAPACITY ANALYSIS

The Synchro outputs under Attachment E are taken directly from the Scottsdale Fashion Square Traffic Impact & Mitigation Analysis, dated May 9, 2017. For organizational purposes, the intersections for the Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis have been changed to:

Intersection	May 9, 2017 TI&MA Intersection Number	Caesars Republic TI&MA Intersection Number
Goldwater Boulevard and Camelback Road	8	1
Goldwater Boulevard and Fashion Square	3	2
Goldwater Boulevard and Highland Avenue	4	3
Highland Avenue and Site Driveway	N/A	4
Highland Avenue and Fashion Square/Optima Driveway	5	5
Scottsdale Road and Highland Avenue	6	6

HCM 2010 Signalized Intersection Summary
1: 68th Street/68th Street & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	1095	136	145	1025	60	224	321	184	52	200	42
Future Volume (veh/h)	81	1095	136	145	1025	60	224	321	184	52	200	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	90	1217	151	161	1139	67	249	357	204	58	222	47
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
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	1948	242	328	2211	130	347	497	422	114	259	220
Arrive On Green	0.08	0.43	0.43	0.21	0.90	0.90	0.16	0.27	0.27	0.03	0.14	0.14
Sat Flow, veh/h	1774	4584	569	1774	4913	289	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	90	900	468	161	786	420	249	357	204	58	222	47
Grp Sat Flow(s),veh/h/ln	1774	1695	1762	1774	1695	1812	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	24.9	24.9	0.0	5.2	5.2	11.3	20.9	13.0	0.0	14.0	3.2
Cycle Q Clear(g_c), s	0.0	24.9	24.9	0.0	5.2	5.2	11.3	20.9	13.0	0.0	14.0	3.2
Prop In Lane	1.00		0.32	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	1441	749	328	1526	815	347	497	422	114	259	220
V/C Ratio(X)	0.24	0.62	0.62	0.49	0.52	0.52	0.72	0.72	0.48	0.51	0.86	0.21
Avail Cap(c_a), veh/h	374	1441	749	328	1526	815	347	497	422	178	466	396
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	27.0	27.0	35.8	3.6	3.6	45.8	39.9	37.0	56.4	50.5	45.8
Incr Delay (d2), s/veh	0.1	2.1	3.9	0.3	1.0	1.8	7.0	8.7	3.9	1.3	3.2	0.2
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	2.0	12.0	12.9	4.3	2.4	2.7	8.4	11.9	6.1	1.9	7.4	1.4
LnGrp Delay(d),s/veh	21.9	29.1	30.9	36.1	4.5	5.3	52.7	48.6	41.0	57.7	53.7	46.0
LnGrp LOS	C	C	C	D	A	A	D	D	D	E	D	D
Approach Vol, veh/h		1458			1367			810			327	
Approach Delay, s/veh		29.2			8.5			47.9			53.3	
Approach LOS		C			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	39.0	16.3	57.0	23.0	23.7	13.3	60.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 8	32.0	* 8	51.0	* 10	30.0	* 5	54.0
Max Q Clear Time (g_c+I1), s	2.0	22.9	2.0	26.9	13.3	16.0	2.0	7.2
Green Ext Time (p_c), s	0.1	0.6	0.1	3.3	0.0	0.7	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

Notes

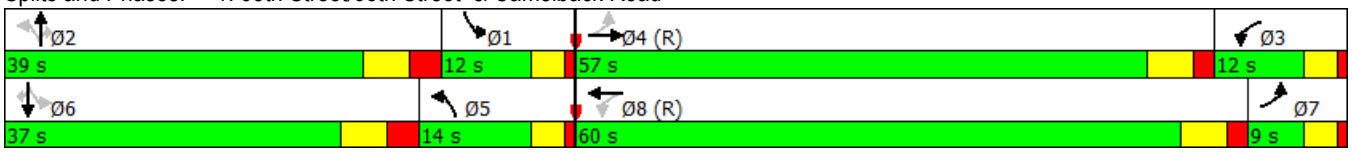
User approved pedestrian interval to be less than phase max green.

30-DR-2019
5/24/2019

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	12	39	12	57	14	37	9	60
Maximum Split (%)	10.0%	32.5%	10.0%	47.5%	11.7%	30.8%	7.5%	50.0%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	108	69	57	0	106	69	60	0
End Time (s)	0	108	69	57	0	106	69	60
Yield/Force Off (s)	116	101	65	51	116	99	65	54
Yield/Force Off 170(s)	116	78	65	34	116	76	65	37
Local Start Time (s)	108	69	57	0	106	69	60	0
Local Yield (s)	116	101	65	51	116	99	65	54
Local Yield 170(s)	116	78	65	34	116	76	65	37

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	1368	161	1206	249	357	204	58	222	47
v/c Ratio	0.42	0.59	0.70	0.49	0.58	0.71	0.38	0.40	0.77	0.14
Control Delay	25.0	24.9	37.3	9.0	41.5	48.5	12.3	39.2	65.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	24.9	37.3	9.0	41.5	48.5	12.3	39.2	65.2	0.9
Queue Length 50th (ft)	31	282	33	98	140	250	29	29	167	0
Queue Length 95th (ft)	56	332	#130	134	213	362	95	59	238	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	220	2333	236	2473	428	504	540	190	465	470
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	0.41	0.59	0.68	0.49	0.58	0.71	0.38	0.31	0.48	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	356	10	10	294
Future Vol, veh/h	2	2	356	10	10	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	396	11	11	327

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	750	401	0	0	407	0
Stage 1	401	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	328	649	-	-	1152	-
Stage 1	626	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	649	-	-	1152	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	626	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	434	1152	-
HCM Lane V/C Ratio	-	-	0.01	0.01	-
HCM Control Delay (s)	-	-	13.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

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HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/27/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Future Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	139	593	171	73	623	149	162	566	34	153	593	96
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	201	767	343	177	733	175	689	1513	90	660	1062	475
Arrive On Green	0.02	0.07	0.07	0.10	0.26	0.26	0.20	0.31	0.31	0.06	0.10	0.10
Sat Flow, veh/h	3442	3539	1583	1774	2836	677	3442	4908	293	3442	3539	1583
Grp Volume(v), veh/h	139	593	171	73	388	384	162	390	210	153	593	96
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1743	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.8	19.8	12.5	4.6	25.0	25.1	4.7	10.8	10.9	5.1	19.2	6.7
Cycle Q Clear(g_c), s	4.8	19.8	12.5	4.6	25.0	25.1	4.7	10.8	10.9	5.1	19.2	6.7
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	201	767	343	177	457	450	689	1045	558	660	1062	475
V/C Ratio(X)	0.69	0.77	0.50	0.41	0.85	0.85	0.24	0.37	0.38	0.23	0.56	0.20
Avail Cap(c_a), veh/h	315	1121	501	177	575	567	689	1045	558	660	1062	475
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.8	52.8	49.4	50.7	42.3	42.3	40.3	32.4	32.5	47.8	46.5	40.9
Incr Delay (d2), s/veh	3.7	1.8	1.0	1.5	9.6	9.9	0.2	1.0	1.9	0.2	2.0	0.9
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	2.4	9.9	5.6	2.3	13.4	13.3	2.3	5.2	5.7	2.4	9.7	3.1
LnGrp Delay(d),s/veh	61.5	54.6	50.4	52.2	51.8	52.2	40.5	33.5	34.4	48.0	48.5	41.8
LnGrp LOS	E	D	D	D	D	D	D	C	C	D	D	D
Approach Vol, veh/h		903			845			762			842	
Approach Delay, s/veh		54.9			52.0			35.2			47.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	44.0	16.0	33.0	28.0	43.0	11.0	38.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 11	37.0	12.0	38.0	* 12	36.0	11.0	39.0
Max Q Clear Time (g_c+I1), s	7.1	12.9	6.6	21.8	6.7	21.2	6.8	27.1
Green Ext Time (p_c), s	0.4	4.0	0.3	4.2	0.5	3.8	0.2	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	47.9
HCM 2010 LOS	D

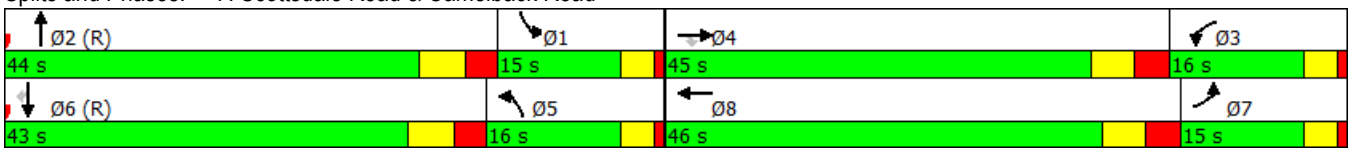
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	15	44	16	45	16	43	15	46
Maximum Split (%)	12.5%	36.7%	13.3%	37.5%	13.3%	35.8%	12.5%	38.3%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	50	34	109	93	50	35	109
End Time (s)	109	94	50	34	109	93	50	35
Yield/Force Off (s)	105	87	46	27	105	86	46	28
Yield/Force Off 170(s)	105	76	46	16	105	75	46	17
Local Start Time (s)	44	0	104	59	43	0	105	59
Local Yield (s)	55	37	116	97	55	36	116	98
Local Yield 170(s)	55	26	116	86	55	25	116	87

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



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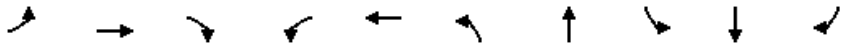

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	139	593	171	73	772	162	600	153	593	96
v/c Ratio	0.50	0.65	0.32	0.36	0.80	0.52	0.31	0.54	0.45	0.15
Control Delay	63.3	71.7	35.9	52.9	45.7	57.9	27.9	72.2	26.8	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	71.7	35.9	52.9	45.7	57.9	27.9	72.2	26.8	11.5
Queue Length 50th (ft)	41	259	88	52	283	62	119	65	210	12
Queue Length 95th (ft)	52	312	159	100	333	97	167	101	298	87
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	316	1120	618	221	1134	343	1908	314	1307	653
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	0.44	0.53	0.28	0.33	0.68	0.47	0.31	0.49	0.45	0.15

Intersection Summary

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Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	0	0	467	0	961
Future Vol, veh/h	75	0	0	467	0	961
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	0	0	519	0	1068

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	427	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	593	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	573	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	593	-	-	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	593	-
HCM Lane V/C Ratio	-	0.141	-
HCM Control Delay (s)	-	12.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.5	-

30-DR-2019
5/24/2019

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	441	2	30	34	17	0	1	13	22	0	41
Future Vol, veh/h	24	441	2	30	34	17	0	1	13	22	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	490	2	33	38	19	0	1	14	24	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	492	0	0	630	667	246	413	660	28
Stage 1	-	-	-	-	-	-	544	544	-	114	114	-
Stage 2	-	-	-	-	-	-	86	123	-	299	546	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1546	-	-	1068	-	-	366	378	754	523	382	1041
Stage 1	-	-	-	-	-	-	491	517	-	879	800	-
Stage 2	-	-	-	-	-	-	912	793	-	685	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1546	-	-	1068	-	-	337	360	754	493	364	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	360	-	493	364	-
Stage 1	-	-	-	-	-	-	482	508	-	864	775	-
Stage 2	-	-	-	-	-	-	845	768	-	659	507	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	3.1	10.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	699	1546	-	-	1068	-	-	493	1041
HCM Lane V/C Ratio	-	0.022	0.017	-	-	0.031	-	-	0.05	0.044
HCM Control Delay (s)	0	10.3	7.4	-	-	8.5	-	-	12.7	8.6
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1

30-DR-2019
5/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Future Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1633		1770	1639		1770	5070		1770	5046	
Flt Permitted	0.75	1.00		0.74	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	2714	1633		1380	1639		447	5070		353	5046	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	8	37	7	2	8	36	1174	24	21	970	52
RTOR Reduction (vph)	0	29	0	0	8	0	0	1	0	0	3	0
Lane Group Flow (vph)	488	16	0	7	2	0	36	1197	0	21	1019	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	27.3	27.3		5.4	5.4		69.3	69.3		69.3	69.3	
Effective Green, g (s)	27.3	27.3		5.4	5.4		69.3	69.3		69.3	69.3	
Actuated g/C Ratio	0.23	0.23		0.05	0.05		0.58	0.58		0.58	0.58	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	617	371		62	73		258	2927		203	2914	
v/s Ratio Prot		0.01			0.00			c0.24			0.20	
v/s Ratio Perm	c0.18			c0.01			0.08			0.06		
v/c Ratio	0.79	0.04		0.11	0.03		0.14	0.41		0.10	0.35	
Uniform Delay, d1	43.7	36.2		55.0	54.8		11.6	14.0		11.4	13.4	
Progression Factor	1.04	1.05		1.00	1.00		1.46	1.56		1.00	1.00	
Incremental Delay, d2	6.8	0.0		0.8	0.2		1.1	0.4		1.0	0.3	
Delay (s)	52.3	38.0		55.8	55.0		18.1	22.4		12.4	13.8	
Level of Service	D	D		E	D		B	C		B	B	
Approach Delay (s)		51.1			55.3			22.2			13.7	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.7	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)	18.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

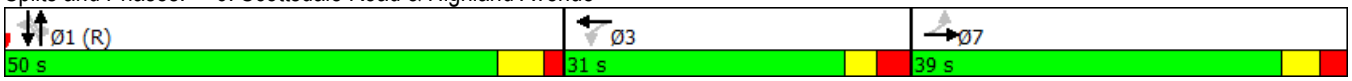
c Critical Lane Group

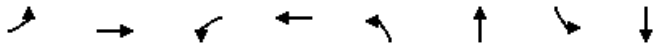
30-DR-2019
5/24/2019

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	50	31	39
Maximum Split (%)	41.7%	25.8%	32.5%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	50	81
End Time (s)	50	81	0
Yield/Force Off (s)	44	75	114
Yield/Force Off 170(s)	28	56	95
Local Start Time (s)	0	50	81
Local Yield (s)	44	75	114
Local Yield 170(s)	28	56	95

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: 6: Scottsdale Road & Highland Avenue





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	488	45	7	10	36	1198	21	1022
v/c Ratio	0.79	0.11	0.06	0.07	0.13	0.39	0.10	0.33
Control Delay	54.7	14.1	49.3	29.3	25.2	23.2	17.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	14.1	49.3	29.3	25.2	23.2	17.8	14.2
Queue Length 50th (ft)	182	3	5	1	17	242	5	108
Queue Length 95th (ft)	202	22	20	18	m51	336	29	242
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	753	480	287	347	271	3079	215	3066
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	0.65	0.09	0.02	0.03	0.13	0.39	0.10	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Future Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.94	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	4990	1633		1770	1639		1770	5070		1770	5046	
Flt Permitted	0.75	1.00		0.73	1.00		0.25	1.00		0.20	1.00	
Satd. Flow (perm)	3945	1633		1355	1639		463	5070		370	5046	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	8	37	7	2	8	36	1174	24	21	970	52
RTOR Reduction (vph)	0	31	0	0	8	0	0	1	0	0	3	0
Lane Group Flow (vph)	488	14	0	7	2	0	36	1197	0	21	1019	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	20.7	20.7		5.5	5.5		75.8	75.8		75.8	75.8	
Effective Green, g (s)	20.7	20.7		5.5	5.5		75.8	75.8		75.8	75.8	
Actuated g/C Ratio	0.17	0.17		0.05	0.05		0.63	0.63		0.63	0.63	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	680	281		62	75		292	3202		233	3187	
v/s Ratio Prot		0.01			0.00			c0.24			0.20	
v/s Ratio Perm	c0.12			c0.01			0.08			0.06		
v/c Ratio	0.72	0.05		0.11	0.03		0.12	0.37		0.09	0.32	
Uniform Delay, d1	46.9	41.5		54.9	54.7		8.8	10.7		8.6	10.2	
Progression Factor	0.92	0.76		1.00	1.00		1.58	1.73		1.00	1.00	
Incremental Delay, d2	3.6	0.1		0.8	0.2		0.8	0.3		0.8	0.3	
Delay (s)	46.7	31.5		55.7	54.9		14.8	18.8		9.4	10.5	
Level of Service	D	C		E	D		B	B		A	B	
Approach Delay (s)		45.4			55.2			18.7			10.4	
Approach LOS		D			E			B			B	

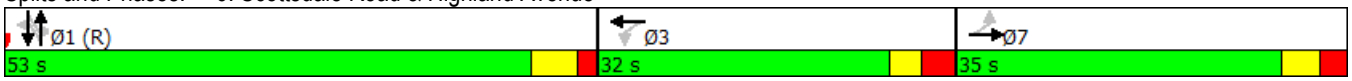
Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

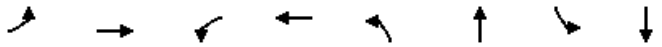
c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	53	32	35
Maximum Split (%)	44.2%	26.7%	29.2%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	53	85
End Time (s)	53	85	0
Yield/Force Off (s)	47	79	114
Yield/Force Off 170(s)	31	60	95
Local Start Time (s)	0	53	85
Local Yield (s)	47	79	114
Local Yield 170(s)	31	60	95

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: 6: Scottsdale Road & Highland Avenue





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	488	45	7	10	36	1198	21	1022
v/c Ratio	0.72	0.14	0.06	0.07	0.12	0.36	0.09	0.31
Control Delay	48.9	12.6	49.2	29.1	20.8	19.5	13.6	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	12.6	49.2	29.1	20.8	19.5	13.6	10.8
Queue Length 50th (ft)	125	3	5	1	16	228	4	87
Queue Length 95th (ft)	133	22	19	18	m49	322	25	211
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	953	422	293	361	305	3352	245	3337
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	0.51	0.11	0.02	0.03	0.12	0.36	0.09	0.31

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Future Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	139	593	171	73	623	149	162	566	34	153	593	96
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	772	346	178	739	176	739	1391	83	739	1003	449
Arrive On Green	0.02	0.07	0.07	0.10	0.26	0.26	0.21	0.28	0.28	0.07	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2836	677	3442	4908	293	3442	3539	1583
Grp Volume(v), veh/h	139	593	171	73	388	384	162	390	210	153	593	96
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1743	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.8	19.8	12.5	4.6	24.9	25.0	4.7	11.2	11.3	5.0	19.3	6.7
Cycle Q Clear(g_c), s	4.8	19.8	12.5	4.6	24.9	25.0	4.7	11.2	11.3	5.0	19.3	6.7
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	200	772	346	178	461	454	739	961	513	739	1003	449
V/C Ratio(X)	0.70	0.77	0.49	0.41	0.84	0.84	0.22	0.41	0.41	0.21	0.59	0.21
Avail Cap(c_a), veh/h	315	1180	528	178	605	596	739	961	513	739	1003	449
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.8	52.7	49.3	50.6	42.0	42.1	38.8	34.8	34.9	46.1	47.7	42.0
Incr Delay (d2), s/veh	3.7	1.4	0.9	1.5	8.2	8.5	0.1	1.3	2.4	0.1	2.4	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	2.4	9.9	5.6	2.3	13.2	13.1	2.2	5.4	6.0	2.4	9.8	3.1
LnGrp Delay(d),s/veh	61.5	54.1	50.3	52.1	50.2	50.5	39.0	36.1	37.3	46.2	50.2	43.1
LnGrp LOS	E	D	D	D	D	D	D	D	D	D	D	D
Approach Vol, veh/h		903			845			762			842	
Approach Delay, s/veh		54.5			50.5			37.0			48.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.8	41.0	16.0	33.2	29.8	41.0	11.0	38.3
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 12	34.0	12.0	40.0	* 12	34.0	11.0	41.0
Max Q Clear Time (g_c+I1), s	7.0	13.3	6.6	21.8	6.7	21.3	6.8	27.0
Green Ext Time (p_c), s	0.5	3.8	0.3	4.4	0.5	3.5	0.2	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.1
HCM 2010 LOS	D

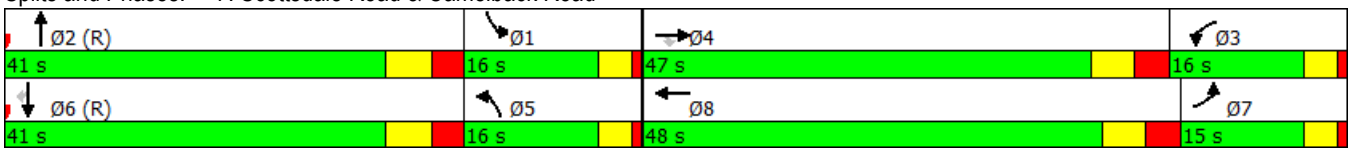
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	16	41	16	47	16	41	15	48
Maximum Split (%)	13.3%	34.2%	13.3%	39.2%	13.3%	34.2%	12.5%	40.0%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	91	50	34	107	91	50	35	107
End Time (s)	107	91	50	34	107	91	50	35
Yield/Force Off (s)	103	84	46	27	103	84	46	28
Yield/Force Off 170(s)	103	73	46	16	103	73	46	17
Local Start Time (s)	41	0	104	57	41	0	105	57
Local Yield (s)	53	34	116	97	53	34	116	98
Local Yield 170(s)	53	23	116	86	53	23	116	87

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	139	593	171	73	772	162	600	153	593	96
v/c Ratio	0.49	0.65	0.32	0.35	0.79	0.54	0.32	0.51	0.45	0.15
Control Delay	68.6	69.9	35.1	51.8	44.7	59.0	28.9	68.6	25.4	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	69.9	35.1	51.8	44.7	59.0	28.9	68.6	25.4	11.1
Queue Length 50th (ft)	47	259	88	52	283	62	120	65	204	12
Queue Length 95th (ft)	50	318	159	98	326	97	174	102	298	87
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	318	1179	641	228	1191	343	1863	343	1304	652
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	0.44	0.50	0.27	0.32	0.65	0.47	0.32	0.45	0.45	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Future Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	921	153	46	721	37	140	176	39	18	431	499
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
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	448	1737	541	278	1239	63	199	1398	625	73	1822	567
Arrive On Green	0.33	0.68	0.68	0.15	0.50	0.50	0.06	0.40	0.40	0.01	0.12	0.12
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	201	921	153	46	492	266	140	176	39	18	431	499
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	3.8	1.8	0.6	9.2	37.2
Cycle Q Clear(g_c), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	3.8	1.8	0.6	9.2	37.2
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	448	1737	541	278	848	455	199	1398	625	73	1822	567
V/C Ratio(X)	0.45	0.53	0.28	0.17	0.58	0.58	0.70	0.13	0.06	0.25	0.24	0.88
Avail Cap(c_a), veh/h	448	1737	541	278	848	455	287	1398	625	161	1822	567
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.81	0.81	0.81	0.66	0.66	0.66	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	29.7	14.2	13.2	35.0	25.6	25.6	55.5	23.1	22.5	58.6	38.0	50.4
Incr Delay (d2), s/veh	0.6	0.9	1.1	0.2	1.9	3.6	4.5	0.2	0.2	1.7	0.3	17.2
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	4.5	5.1	2.1	1.2	5.8	6.5	2.4	1.9	0.8	0.3	4.4	19.1
LnGrp Delay(d),s/veh	30.3	15.2	14.3	35.2	27.5	29.2	60.0	23.3	22.7	60.4	38.3	67.6
LnGrp LOS	C	B	B	D	C	C	E	C	C	E	D	E
Approach Vol, veh/h		1275			804			355			948	
Approach Delay, s/veh		17.4			28.5			37.7			54.1	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	47.0	10.9	49.0	24.1	36.0	6.5	53.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	41.0	10.0	43.0	17.0	30.0	5.6	47.4
Max Q Clear Time (g_c+I1), s	2.0	12.8	6.8	39.2	2.0	14.4	2.6	5.8
Green Ext Time (p_c), s	0.3	8.1	0.1	1.7	0.6	4.5	0.1	1.3

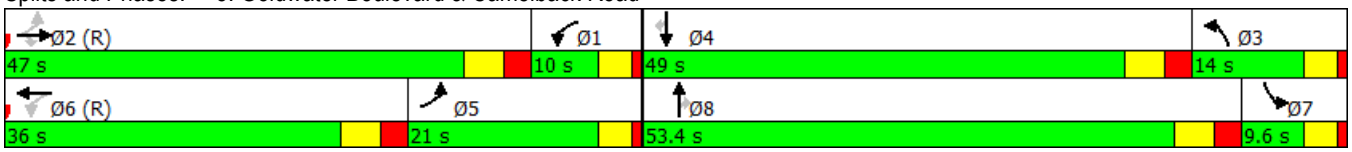
Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

30-DR-2019
5/24/2019

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10	47	14	49	21	36	9.6	53.4
Maximum Split (%)	8.3%	39.2%	11.7%	40.8%	17.5%	30.0%	8.0%	44.5%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	Yes	No	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	47	0	106	57	36	0	110.4	57
End Time (s)	57	47	0	106	57	36	0	110.4
Yield/Force Off (s)	53	41	116	100	53	30	116	104.4
Yield/Force Off 170(s)	53	30	116	89	53	19	116	93.4
Local Start Time (s)	47	0	106	57	36	0	110.4	57
Local Yield (s)	53	41	116	100	53	30	116	104.4
Local Yield 170(s)	53	30	116	89	53	19	116	93.4

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	70	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
5/24/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	921	153	46	758	140	176	39	18	431	499
v/c Ratio	0.56	0.52	0.25	0.28	0.58	0.53	0.11	0.05	0.11	0.23	0.65
Control Delay	24.4	35.1	16.8	12.0	38.3	60.5	20.5	0.1	67.4	25.5	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	35.1	16.8	12.0	38.3	60.5	20.5	0.1	67.4	25.5	19.6
Queue Length 50th (ft)	51	160	29	10	111	54	38	0	7	84	136
Queue Length 95th (ft)	92	213	73	m14	195	88	70	0	21	112	324
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	386	1767	620	169	1296	286	1608	804	160	1910	773
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	0.52	0.52	0.25	0.27	0.58	0.49	0.11	0.05	0.11	0.23	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

30-DR-2019
5/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Future Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	921	153	46	721	37	140	176	39	18	431	499
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	2	2
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	578	1737	541	408	1239	63	205	944	422	262	1003	790
Arrive On Green	0.48	0.68	0.68	0.30	0.50	0.50	0.06	0.27	0.27	0.03	0.09	0.09
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	3539	2787
Grp Volume(v), veh/h	201	921	153	46	492	266	140	176	39	18	431	499
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1770	1393
Q Serve(g_s), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	4.6	2.2	0.6	13.8	20.7
Cycle Q Clear(g_c), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	4.6	2.2	0.6	13.8	20.7
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	578	1737	541	408	848	455	205	944	422	262	1003	790
V/C Ratio(X)	0.35	0.53	0.28	0.11	0.58	0.58	0.68	0.19	0.09	0.07	0.43	0.63
Avail Cap(c_a), veh/h	578	1737	541	408	848	455	545	944	422	602	1003	790
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.76	0.76	0.76	0.66	0.66	0.66	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	20.1	14.2	13.2	25.5	25.6	25.6	55.3	34.0	33.1	54.3	45.2	48.4
Incr Delay (d2), s/veh	0.3	0.9	1.0	0.1	1.9	3.6	4.0	0.4	0.4	0.1	1.3	3.8
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	3.5	5.1	2.1	0.9	5.8	6.5	2.4	2.3	1.0	0.3	7.0	8.4
LnGrp Delay(d),s/veh	20.4	15.1	14.2	25.6	27.5	29.2	59.3	34.4	33.5	54.4	46.6	52.1
LnGrp LOS	C	B	B	C	C	C	E	C	C	D	D	D
Approach Vol, veh/h		1275			804			355			948	
Approach Delay, s/veh		15.8			28.0			44.1			49.6	
Approach LOS		B			C			D			D	

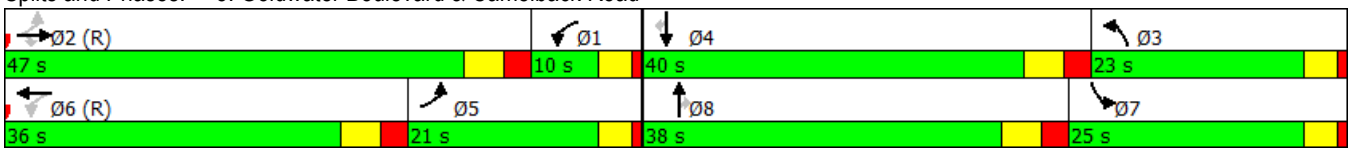
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	47.0	11.1	40.0	32.9	36.0	13.1	38.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	41.0	19.0	34.0	17.0	30.0	21.0	32.0
Max Q Clear Time (g_c+I1), s	2.0	12.8	6.8	22.7	2.0	14.4	2.6	6.6
Green Ext Time (p_c), s	0.3	8.1	0.4	3.8	0.6	4.5	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10	47	23	40	21	36	25	38
Maximum Split (%)	8.3%	39.2%	19.2%	33.3%	17.5%	30.0%	20.8%	31.7%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	Yes	No	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	47	0	97	57	36	0	95	57
End Time (s)	57	47	0	97	57	36	0	95
Yield/Force Off (s)	53	41	116	91	53	30	116	89
Yield/Force Off 170(s)	53	30	116	80	53	19	116	78
Local Start Time (s)	47	0	97	57	36	0	95	57
Local Yield (s)	53	41	116	91	53	30	116	89
Local Yield 170(s)	53	30	116	80	53	19	116	78

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	921	153	46	758	140	176	39	18	431	499
v/c Ratio	0.49	0.44	0.21	0.21	0.46	0.48	0.14	0.06	0.07	0.41	0.42
Control Delay	20.9	33.4	18.0	8.8	32.0	57.4	29.0	0.2	54.7	34.5	7.0
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	20.9	33.4	18.0	8.8	32.0	57.4	29.0	0.2	54.7	34.5	7.0
Queue Length 50th (ft)	54	182	35	10	107	54	44	0	7	143	0
Queue Length 95th (ft)	108	233	81	m14	154	85	86	0	19	193	81
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	440	2108	719	219	1635	543	1268	666	600	1063	1186
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	0.46	0.44	0.21	0.21	0.46	0.26	0.14	0.06	0.03	0.41	0.42

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	1135	194	241	1351	72	193	330	195	85	237	70
Future Volume (veh/h)	98	1135	194	241	1351	72	193	330	195	85	237	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	109	1261	216	268	1501	80	214	367	217	94	263	78
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
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	247	1639	281	360	2142	114	316	497	422	123	301	256
Arrive On Green	0.09	0.38	0.38	0.05	0.14	0.14	0.14	0.27	0.27	0.04	0.16	0.16
Sat Flow, veh/h	1774	4372	749	1774	4943	263	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	109	978	499	268	1029	552	214	367	217	94	263	78
Grp Sat Flow(s),veh/h/ln	1774	1695	1731	1774	1695	1816	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.8	30.4	30.4	11.2	34.7	34.7	9.0	21.6	14.0	2.2	16.5	5.2
Cycle Q Clear(g_c), s	0.8	30.4	30.4	11.2	34.7	34.7	9.0	21.6	14.0	2.2	16.5	5.2
Prop In Lane	1.00		0.43	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	247	1271	649	360	1469	787	316	497	422	123	301	256
V/C Ratio(X)	0.44	0.77	0.77	0.74	0.70	0.70	0.68	0.74	0.51	0.77	0.87	0.30
Avail Cap(c_a), veh/h	247	1271	649	360	1469	787	316	497	422	149	497	422
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.49	0.49	0.49	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	32.9	32.9	51.0	44.0	44.0	46.8	40.2	37.4	56.2	49.1	44.3
Incr Delay (d2), s/veh	0.5	4.5	8.5	3.6	1.4	2.6	5.7	9.5	4.4	13.8	5.1	0.2
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	3.4	14.9	16.0	9.1	16.6	18.0	7.2	12.4	6.6	3.5	8.9	2.3
LnGrp Delay(d),s/veh	48.9	37.5	41.5	54.7	45.4	46.6	52.4	49.7	41.8	70.0	54.1	44.6
LnGrp LOS	D	D	D	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1586			1849			798			435	
Approach Delay, s/veh		39.5			47.1			48.3			55.8	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	39.0	21.8	51.0	20.8	26.4	14.8	58.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 6	32.0	* 16	45.0	* 6	32.0	* 9	52.0
Max Q Clear Time (g_c+I1), s	4.2	23.6	13.2	32.4	11.0	18.5	2.8	36.7
Green Ext Time (p_c), s	0.0	0.6	0.1	3.2	0.0	0.9	0.1	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

Notes

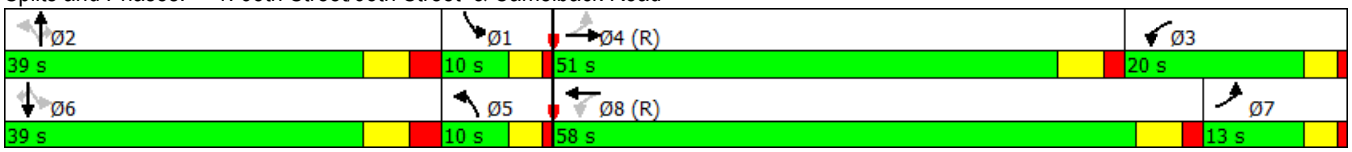
User approved pedestrian interval to be less than phase max green.

30-DR-2019
5/24/2019

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	10	39	20	51	10	39	13	58
Maximum Split (%)	8.3%	32.5%	16.7%	42.5%	8.3%	32.5%	10.8%	48.3%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	47	27	96	86	47	34	96
End Time (s)	96	86	47	27	96	86	47	34
Yield/Force Off (s)	92	79	43	21	92	79	43	28
Yield/Force Off 170(s)	92	56	43	4	92	56	43	11
Local Start Time (s)	110	71	51	0	110	71	58	0
Local Yield (s)	116	103	67	45	116	103	67	52
Local Yield 170(s)	116	80	67	28	116	80	67	35

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 96 (80%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



30-DR-2019
5/24/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	109	1477	268	1581	214	367	217	94	263	78
v/c Ratio	0.59	0.77	0.93	0.71	0.51	0.72	0.39	0.63	0.79	0.19
Control Delay	46.9	35.3	52.4	34.7	39.2	49.0	12.9	55.5	64.1	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	35.3	52.4	34.7	39.2	49.0	12.9	55.5	64.1	1.0
Queue Length 50th (ft)	37	357	100	311	118	260	34	48	197	0
Queue Length 95th (ft)	89	421	m#170	366	181	374	102	86	272	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	197	1910	302	2216	420	510	550	159	496	535
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	0.55	0.77	0.89	0.71	0.51	0.72	0.39	0.59	0.53	0.15

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.

30-DR-2019
5/24/2019

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	35	475	25	15	236
Future Vol, veh/h	25	35	475	25	15	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	39	528	28	17	262

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	838	542	0	0	556	0
Stage 1	542	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	336	540	-	-	1015	-
Stage 1	583	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	540	-	-	1015	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1015	-
HCM Lane V/C Ratio	-	-	0.156	0.016	-
HCM Control Delay (s)	-	-	15	8.6	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

30-DR-2019
5/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	9	71	73	12	24	39	601	76	31	1033	30
Future Volume (veh/h)	72	9	71	73	12	24	39	601	76	31	1033	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	10	79	81	13	27	43	668	84	34	1148	33
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
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	130	22	94	206	77	161	384	2679	1199	596	3850	1199
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	1.00	1.00	1.00	0.76	0.76	0.76
Sat Flow, veh/h	598	154	660	1303	541	1124	473	3539	1583	708	5085	1583
Grp Volume(v), veh/h	169	0	0	81	0	40	43	668	84	34	1148	33
Grp Sat Flow(s),veh/h/ln	1412	0	0	1303	0	1664	473	1770	1583	708	1695	1583
Q Serve(g_s), s	11.6	0.0	0.0	0.0	0.0	2.5	1.2	0.0	0.0	1.5	8.5	0.6
Cycle Q Clear(g_c), s	14.1	0.0	0.0	9.5	0.0	2.5	9.7	0.0	0.0	1.5	8.5	0.6
Prop In Lane	0.47		0.47	1.00		0.68	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	0	0	206	0	238	384	2679	1199	596	3850	1199
V/C Ratio(X)	0.69	0.00	0.00	0.39	0.00	0.17	0.11	0.25	0.07	0.06	0.30	0.03
Avail Cap(c_a), veh/h	565	0	0	486	0	596	384	2679	1199	596	3850	1199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	48.1	0.0	45.2	0.5	0.0	0.0	3.7	4.6	3.6
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.5	0.0	0.1	0.5	0.2	0.1	0.2	0.2	0.0
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	5.5	0.0	0.0	2.5	0.0	1.2	0.2	0.1	0.0	0.3	4.0	0.3
LnGrp Delay(d),s/veh	51.7	0.0	0.0	48.6	0.0	45.3	0.9	0.2	0.1	3.9	4.8	3.7
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		169			121			795			1215	
Approach Delay, s/veh		51.7			47.5			0.2			4.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		96.8		23.2		96.8		23.2
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 65		43.0		* 65		43.0
Max Q Clear Time (g_c+I1), s		11.7		16.1		10.5		11.5
Green Ext Time (p_c), s		3.2		1.0		3.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

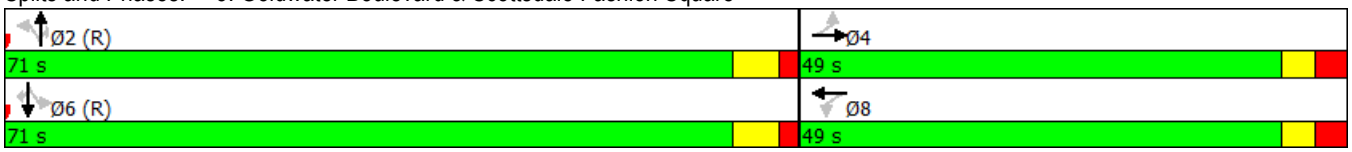
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	71	49	71	49
Maximum Split (%)	59.2%	40.8%	59.2%	40.8%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
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)	65	114	65	114
Yield/Force Off 170(s)	52	95	52	95
Local Start Time (s)	0	71	0	71
Local Yield (s)	65	114	65	114
Local Yield 170(s)	52	95	52	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



30-DR-2019
5/24/2019

Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	169	81	40	43	668	84	34	1148	33
v/c Ratio	0.77	0.62	0.17	0.13	0.24	0.07	0.06	0.29	0.03
Control Delay	59.3	68.5	22.4	11.7	10.1	5.5	4.7	4.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	68.5	22.4	11.7	10.1	5.5	4.7	4.7	1.9
Queue Length 50th (ft)	97	60	9	18	154	7	5	80	1
Queue Length 95th (ft)	163	107	39	m38	221	m33	18	131	10
Internal Link Dist (ft)	275		60		1011			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	544	365	617	329	2732	1238	568	3926	1229
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	0.31	0.22	0.06	0.13	0.24	0.07	0.06	0.29	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	0	0	697	0	947
Future Vol, veh/h	159	0	0	697	0	947
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	0	0	774	0	1052

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	421	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	421	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	597	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	577	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	597	-	-	-	-	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	577	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	597	-
HCM Lane V/C Ratio	-	0.296	-
HCM Control Delay (s)	-	13.5	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1.2	-

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Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	650	0	32	126	30	7	3	44	19	3	26
Future Vol, veh/h	47	650	0	32	126	30	7	3	44	19	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	722	0	36	140	33	8	3	49	21	3	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	722	0	0	970	1071	361	695	1055	87
Stage 1	-	-	-	-	-	-	827	827	-	228	228	-
Stage 2	-	-	-	-	-	-	143	244	-	467	827	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1401	-	-	876	-	-	208	219	636	329	224	954
Stage 1	-	-	-	-	-	-	332	384	-	754	714	-
Stage 2	-	-	-	-	-	-	845	703	-	545	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1401	-	-	876	-	-	188	202	636	282	207	954
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	202	-	282	207	-
Stage 1	-	-	-	-	-	-	320	370	-	726	685	-
Stage 2	-	-	-	-	-	-	782	674	-	480	370	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.8	13.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	188	559	1401	-	-	876	-	-	282	695
HCM Lane V/C Ratio	0.041	0.093	0.037	-	-	0.041	-	-	0.075	0.046
HCM Control Delay (s)	25	12.1	7.7	-	-	9.3	-	-	18.8	10.4
HCM Lane LOS	D	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Future Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1609		1770	1687		1770	5078		1770	5006	
Flt Permitted	0.73	1.00		0.37	1.00		0.11	1.00		0.10	1.00	
Satd. Flow (perm)	2634	1609		690	1687		211	5078		184	5006	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	762	4	40	14	16	27	57	1381	13	10	1189	137
RTOR Reduction (vph)	0	26	0	0	15	0	0	1	0	0	11	0
Lane Group Flow (vph)	762	18	0	14	28	0	57	1393	0	10	1315	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	42.5	42.5		10.8	10.8		48.7	48.7		48.7	48.7	
Effective Green, g (s)	42.5	42.5		10.8	10.8		48.7	48.7		48.7	48.7	
Actuated g/C Ratio	0.35	0.35		0.09	0.09		0.41	0.41		0.41	0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	932	569		62	151		85	2060		74	2031	
v/s Ratio Prot		0.01			0.02			c0.27			0.26	
v/s Ratio Perm	c0.29			c0.02			0.27			0.05		
v/c Ratio	0.82	0.03		0.23	0.19		0.67	0.68		0.14	0.65	
Uniform Delay, d1	35.2	25.3		50.7	50.5		29.1	29.2		22.4	28.7	
Progression Factor	1.27	2.03		1.00	1.00		0.58	0.56		1.00	1.00	
Incremental Delay, d2	5.6	0.0		1.9	0.6		30.1	1.5		3.8	1.6	
Delay (s)	50.4	51.4		52.6	51.2		47.1	17.9		26.2	30.3	
Level of Service	D	D		D	D		D	B		C	C	
Approach Delay (s)		50.4			51.5			19.1			30.3	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

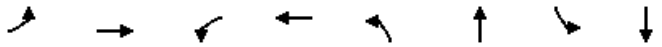
30-DR-2019
5/24/2019

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	49	31	40
Maximum Split (%)	40.8%	25.8%	33.3%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	49	80
End Time (s)	49	80	0
Yield/Force Off (s)	43	74	114
Yield/Force Off 170(s)	27	55	95
Local Start Time (s)	0	49	80
Local Yield (s)	43	74	114
Local Yield 170(s)	27	55	95

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: 6: Scottsdale Road & Highland Avenue

30-DR-2019
5/24/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	762	44	14	43	57	1394	10	1326
v/c Ratio	0.82	0.07	0.21	0.23	0.66	0.66	0.13	0.63
Control Delay	53.2	19.8	52.7	35.3	53.3	18.1	31.7	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	19.8	52.7	35.3	53.3	18.1	31.7	30.5
Queue Length 50th (ft)	270	7	10	20	43	389	5	306
Queue Length 95th (ft)	#417	37	30	51	m#93	457	21	377
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	931	595	143	364	87	2113	76	2094
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	0.82	0.07	0.10	0.12	0.66	0.66	0.13	0.63

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Future Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1609		1770	1687		1770	5078		1770	5006	
Flt Permitted	0.73	1.00		0.43	1.00		0.14	1.00		0.12	1.00	
Satd. Flow (perm)	2634	1609		810	1687		256	5078		229	5006	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	762	4	40	14	16	27	57	1381	13	10	1189	137
RTOR Reduction (vph)	0	28	0	0	18	0	0	1	0	0	12	0
Lane Group Flow (vph)	762	16	0	14	25	0	57	1393	0	10	1314	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	35.0	35.0		9.2	9.2		57.8	57.8		57.8	57.8	
Effective Green, g (s)	35.0	35.0		9.2	9.2		57.8	57.8		57.8	57.8	
Actuated g/C Ratio	0.29	0.29		0.08	0.08		0.48	0.48		0.48	0.48	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	768	469		62	129		123	2445		110	2411	
v/s Ratio Prot		0.01			0.02			c0.27			0.26	
v/s Ratio Perm	c0.29			c0.02			0.22			0.04		
v/c Ratio	0.99	0.03		0.23	0.20		0.46	0.57		0.09	0.55	
Uniform Delay, d1	42.4	30.4		52.1	51.9		20.8	22.2		16.9	21.9	
Progression Factor	1.22	1.86		1.00	1.00		0.88	0.94		1.00	1.00	
Incremental Delay, d2	30.2	0.0		1.9	0.8		10.2	0.8		1.6	0.9	
Delay (s)	81.9	56.6		53.9	52.7		28.4	21.7		18.5	22.7	
Level of Service	F	E		D	D		C	C		B	C	
Approach Delay (s)		80.5			53.0			21.9			22.7	
Approach LOS		F			D			C			C	

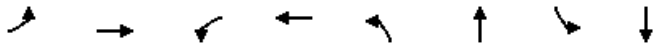
Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	65	25	30
Maximum Split (%)	54.2%	20.8%	25.0%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	65	90
End Time (s)	65	90	0
Yield/Force Off (s)	59	84	114
Yield/Force Off 170(s)	43	65	95
Local Start Time (s)	0	65	90
Local Yield (s)	59	84	114
Local Yield 170(s)	43	65	95

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: 6: Scottsdale Road & Highland Avenue



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	762	44	14	43	57	1394	10	1326
v/c Ratio	0.99	0.09	0.20	0.26	0.45	0.56	0.09	0.54
Control Delay	81.9	24.3	54.6	35.1	29.8	20.9	18.9	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.9	24.3	54.6	35.1	29.8	20.9	18.9	21.6
Queue Length 50th (ft)	~329	7	10	18	36	389	4	247
Queue Length 95th (ft)	#532	37	31	51	m76	447	15	291
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	767	496	128	283	126	2498	112	2474
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	0.99	0.09	0.11	0.15	0.45	0.56	0.09	0.54

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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	558	242	86	531	155	312	743	96	284	609	235
Future Volume (veh/h)	264	558	242	86	531	155	312	743	96	284	609	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	293	620	269	96	590	172	347	826	107	316	677	261
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	352	745	333	237	655	190	708	1258	162	676	944	422
Arrive On Green	0.20	0.42	0.42	0.13	0.24	0.24	0.21	0.28	0.28	0.06	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2706	787	3442	4562	588	3442	3539	1583
Grp Volume(v), veh/h	293	620	269	96	385	377	347	613	320	316	677	261
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1724	1721	1695	1759	1721	1770	1583
Q Serve(g_s), s	9.8	18.7	17.9	5.9	25.3	25.4	10.7	19.2	19.3	10.6	22.3	19.1
Cycle Q Clear(g_c), s	9.8	18.7	17.9	5.9	25.3	25.4	10.7	19.2	19.3	10.6	22.3	19.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	352	745	333	237	428	417	708	935	485	676	944	422
V/C Ratio(X)	0.83	0.83	0.81	0.40	0.90	0.90	0.49	0.66	0.66	0.47	0.72	0.62
Avail Cap(c_a), veh/h	488	1038	464	237	457	445	708	935	485	676	944	422
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	46.7	32.8	32.6	47.6	44.1	44.1	42.1	38.4	38.5	50.1	50.3	48.8
Incr Delay (d2), s/veh	7.4	3.6	6.2	1.1	19.8	20.7	0.5	3.6	6.9	0.4	3.5	4.9
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	5.0	9.5	8.3	3.0	14.8	14.5	5.1	9.4	10.4	5.1	11.4	9.0
LnGrp Delay(d),s/veh	54.1	36.5	38.8	48.7	63.8	64.8	42.6	42.0	45.4	50.4	53.8	53.8
LnGrp LOS	D	D	D	D	E	E	D	D	D	D	D	D
Approach Vol, veh/h		1182			858			1280			1254	
Approach Delay, s/veh		41.4			62.6			43.0			52.9	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.6	40.1	20.1	32.3	28.7	39.0	16.3	36.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 17	33.1	12.8	35.2	* 18	32.0	17.0	31.0
Max Q Clear Time (g_c+I1), s	12.6	21.3	7.9	20.7	12.7	24.3	11.8	27.4
Green Ext Time (p_c), s	1.1	4.8	0.6	4.5	1.3	3.3	0.5	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	49.0
HCM 2010 LOS	D

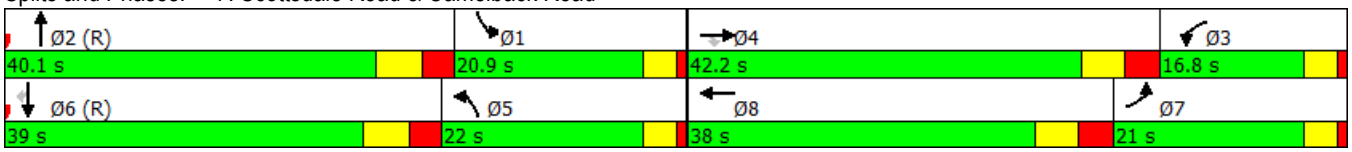
Notes

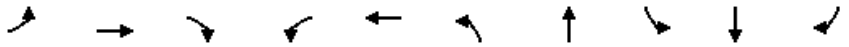
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	20.9	40.1	16.8	42.2	22	39	21	38
Maximum Split (%)	17.4%	33.4%	14.0%	35.2%	18.3%	32.5%	17.5%	31.7%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	2	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.1	98	81.2	39	17	98	77	39
End Time (s)	39	18.1	98	81.2	39	17	98	77
Yield/Force Off (s)	35	11.1	94	74.2	35	10	94	70
Yield/Force Off 170(s)	35	0.1	94	63.2	35	119	94	59
Local Start Time (s)	40.1	0	103.2	61	39	0	99	61
Local Yield (s)	57	33.1	116	96.2	57	32	116	92
Local Yield 170(s)	57	22.1	116	85.2	57	21	116	81

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 98 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	293	620	269	96	762	347	933	316	677	261
v/c Ratio	0.69	0.73	0.46	0.40	0.87	0.74	0.59	0.72	0.62	0.39
Control Delay	42.7	19.6	3.8	53.8	53.3	59.8	36.5	78.7	61.6	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	19.6	3.8	53.8	53.3	59.8	36.5	78.7	61.6	31.9
Queue Length 50th (ft)	124	150	4	67	282	133	226	110	295	136
Queue Length 95th (ft)	171	179	23	129	#365	184	280	165	357	216
Internal Link Dist (ft)		1329			616		511		1288	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	486	1038	654	238	909	514	1591	483	1085	666
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	0.60	0.60	0.41	0.40	0.84	0.68	0.59	0.65	0.62	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Future Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	286	1060	187	57	1033	82	303	326	107	72	504	542
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
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	396	1937	603	254	1281	102	362	1242	555	129	1441	449
Arrive On Green	0.36	0.76	0.76	0.02	0.09	0.09	0.11	0.35	0.35	0.01	0.09	0.09
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	286	1060	187	57	728	387	303	326	107	72	504	542
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	10.4	10.2	4.4	0.0	25.3	25.4	10.4	7.9	5.6	2.5	11.1	34.0
Cycle Q Clear(g_c), s	10.4	10.2	4.4	0.0	25.3	25.4	10.4	7.9	5.6	2.5	11.1	34.0
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	1937	603	254	904	479	362	1242	555	129	1441	449
V/C Ratio(X)	0.72	0.55	0.31	0.22	0.81	0.81	0.84	0.26	0.19	0.56	0.35	1.21
Avail Cap(c_a), veh/h	396	1937	603	254	904	479	402	1242	555	169	1441	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.70	0.70	0.70	0.58	0.58	0.58	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	33.5	10.1	9.4	41.3	51.7	51.7	52.7	27.9	27.1	58.3	44.0	54.4
Incr Delay (d2), s/veh	4.5	0.8	0.9	0.3	4.6	8.4	13.4	0.5	0.8	3.6	0.6	112.3
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	8.1	4.7	2.1	1.7	12.5	13.8	5.6	3.9	2.6	1.3	5.3	28.9
LnGrp Delay(d),s/veh	38.0	10.9	10.3	41.5	56.2	60.1	66.0	28.4	27.9	61.8	44.7	166.7
LnGrp LOS	D	B	B	D	E	E	E	C	C	E	D	F
Approach Vol, veh/h		1533			1172			736			1118	
Approach Delay, s/veh		15.9			56.8			43.8			104.9	
Approach LOS		B			E			D			F	

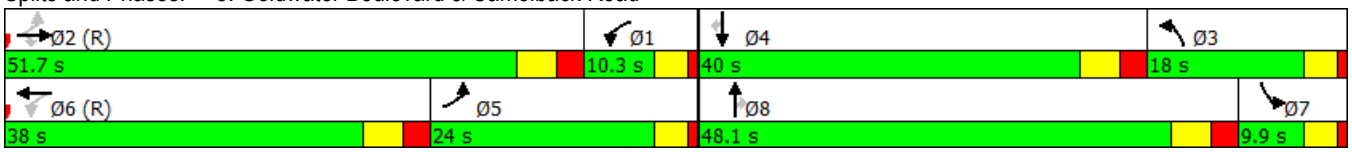
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	51.7	16.6	40.0	25.4	38.0	8.5	48.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.3	45.7	14.0	34.0	20.0	32.0	5.9	42.1
Max Q Clear Time (g_c+I1), s	2.0	12.2	12.4	36.0	12.4	27.4	4.5	9.9
Green Ext Time (p_c), s	0.4	10.2	0.2	0.0	0.6	2.8	0.2	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	52.7
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10.3	51.7	18	40	24	38	9.9	48.1
Maximum Split (%)	8.6%	43.1%	15.0%	33.3%	20.0%	31.7%	8.3%	40.1%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)								
Flash Dont Walk (s)								
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	51.7	0	102	62	38	0	110.1	62
End Time (s)	62	51.7	0	102	62	38	0	110.1
Yield/Force Off (s)	58	45.7	116	96	58	32	116	104.1
Yield/Force Off 170(s)	58	45.7	116	96	58	32	116	104.1
Local Start Time (s)	51.7	0	102	62	38	0	110.1	62
Local Yield (s)	58	45.7	116	96	58	32	116	104.1
Local Yield 170(s)	58	45.7	116	96	58	32	116	104.1

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
5/24/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	1060	187	57	1115	303	326	107	72	504	542
v/c Ratio	0.85	0.54	0.26	0.35	0.82	0.78	0.24	0.15	0.43	0.33	0.80
Control Delay	43.7	11.1	0.9	42.2	56.7	66.5	27.3	1.7	74.8	39.0	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	11.1	0.9	42.2	56.7	66.5	27.3	1.7	74.8	39.0	34.7
Queue Length 50th (ft)	166	75	1	31	337	119	94	0	28	123	233
Queue Length 95th (ft)	#299	91	m3	m47	376	#177	132	13	56	163	#394
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	360	1979	710	165	1366	400	1333	692	168	1507	674
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	0.79	0.54	0.26	0.35	0.82	0.76	0.24	0.15	0.43	0.33	0.80

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.

30-DR-2019
5/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Future Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	286	1060	187	57	1033	82	303	326	107	72	504	542
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	2	2
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	355	1483	462	392	1441	114	368	1003	449	368	1003	790
Arrive On Green	0.29	0.58	0.58	0.05	0.10	0.10	0.11	0.28	0.28	0.04	0.09	0.09
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	3539	2787
Grp Volume(v), veh/h	286	1060	187	57	728	387	303	326	107	72	504	542
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1770	1393
Q Serve(g_s), s	10.2	17.9	7.7	0.0	25.0	25.1	10.3	8.7	6.2	2.4	16.3	22.6
Cycle Q Clear(g_c), s	10.2	17.9	7.7	0.0	25.0	25.1	10.3	8.7	6.2	2.4	16.3	22.6
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	1483	462	392	1017	539	368	1003	449	368	1003	790
V/C Ratio(X)	0.80	0.71	0.40	0.15	0.72	0.72	0.82	0.33	0.24	0.20	0.50	0.69
Avail Cap(c_a), veh/h	355	1483	462	392	1017	539	459	1003	449	459	1003	790
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.67	0.67	0.67	0.59	0.59	0.59	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	37.8	21.4	19.3	39.1	49.1	49.1	52.5	33.9	33.1	52.9	46.3	49.2
Incr Delay (d2), s/veh	8.9	2.0	1.8	0.1	2.6	4.9	9.5	0.9	1.3	0.2	1.7	4.6
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	9.1	8.5	3.6	1.7	12.1	13.2	5.4	4.4	2.9	1.2	8.2	9.2
LnGrp Delay(d),s/veh	46.7	23.4	21.1	39.2	51.7	54.0	62.0	34.8	34.3	53.1	48.1	53.9
LnGrp LOS	D	C	C	D	D	D	E	C	C	D	D	D
Approach Vol, veh/h		1533			1172			736			1118	
Approach Delay, s/veh		27.5			51.8			45.9			51.2	
Approach LOS		C			D			D			D	

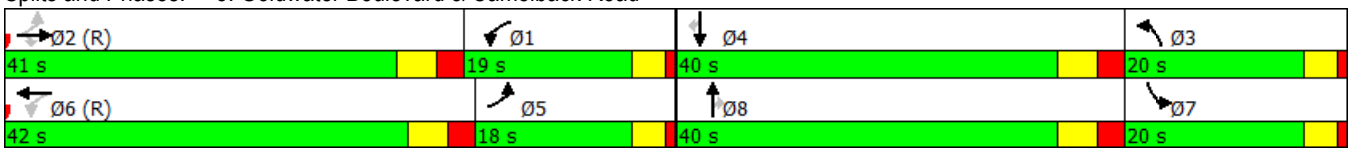
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	41.0	16.8	40.0	21.2	42.0	16.8	40.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	15.0	35.0	16.0	34.0	14.0	36.0	16.0	34.0
Max Q Clear Time (g_c+I1), s	2.0	19.9	12.3	24.6	12.2	27.1	4.4	10.7
Green Ext Time (p_c), s	0.8	7.2	0.5	3.9	0.2	4.7	1.0	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	19	41	20	40	18	42	20	40
Maximum Split (%)	15.8%	34.2%	16.7%	33.3%	15.0%	35.0%	16.7%	33.3%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)								
Flash Dont Walk (s)								
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	41	0	100	60	42	0	100	60
End Time (s)	60	41	0	100	60	42	0	100
Yield/Force Off (s)	56	35	116	94	56	36	116	94
Yield/Force Off 170(s)	56	35	116	94	56	36	116	94
Local Start Time (s)	41	0	100	60	42	0	100	60
Local Yield (s)	56	35	116	94	56	36	116	94
Local Yield 170(s)	56	35	116	94	56	36	116	94

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	1060	187	57	1115	303	326	107	72	504	542
v/c Ratio	1.01	0.62	0.31	0.21	0.73	0.72	0.30	0.19	0.19	0.50	0.49
Control Delay	79.5	19.8	5.8	41.1	53.6	60.9	33.6	6.9	59.8	43.1	16.4
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	79.5	19.8	5.8	41.1	53.6	60.9	33.6	6.9	59.8	43.1	16.4
Queue Length 50th (ft)	~178	109	8	34	335	117	105	0	25	186	61
Queue Length 95th (ft)	#358	177	m32	m51	381	164	146	43	53	248	134
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	282	1699	599	306	1519	457	1094	563	457	1002	1108
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	1.01	0.62	0.31	0.19	0.73	0.66	0.30	0.19	0.16	0.50	0.49

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.

ATTACHMENT F – YEAR 2020 BUILD CAPACITY ANALYSIS

j2 design

F

30-DR-2019
5/24/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	292	954	168	51	930	84	273	334	96	77	528	568
Future Volume (veh/h)	292	954	168	51	930	84	273	334	96	77	528	568
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	324	1060	187	57	1033	93	303	371	107	86	587	631
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	2	2
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	370	1483	462	408	1425	128	366	973	435	366	973	766
Arrive On Green	0.30	0.58	0.58	0.05	0.10	0.10	0.11	0.28	0.28	0.18	0.46	0.46
Sat Flow, veh/h	1774	5085	1583	1774	4751	427	3442	3539	1583	3442	3539	2787
Grp Volume(v), veh/h	324	1060	187	57	737	389	303	371	107	86	587	631
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1787	1721	1770	1583	1721	1770	1393
Q Serve(g_s), s	13.4	17.9	7.7	0.0	25.3	25.4	10.4	10.2	6.3	2.6	14.9	23.6
Cycle Q Clear(g_c), s	13.4	17.9	7.7	0.0	25.3	25.4	10.4	10.2	6.3	2.6	14.9	23.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	1483	462	408	1017	536	366	973	435	366	973	766
V/C Ratio(X)	0.88	0.71	0.40	0.14	0.72	0.73	0.83	0.38	0.25	0.24	0.60	0.82
Avail Cap(c_a), veh/h	370	1483	462	408	1017	536	430	973	435	430	973	766
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.60	0.60	0.60	0.56	0.56	0.56	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	37.4	21.4	19.3	38.4	49.2	49.3	52.6	35.2	33.8	45.2	27.5	29.9
Incr Delay (d2), s/veh	13.3	1.8	1.6	0.1	2.5	4.8	11.2	1.1	1.3	0.3	2.5	9.0
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	11.1	8.5	3.5	1.7	12.3	13.3	5.5	5.2	2.9	1.2	7.5	10.0
LnGrp Delay(d),s/veh	50.7	23.2	20.9	38.5	51.8	54.0	63.7	36.4	35.2	45.5	30.1	38.9
LnGrp LOS	D	C	C	D	D	D	E	D	D	D	C	D
Approach Vol, veh/h		1571			1183			781			1304	
Approach Delay, s/veh		28.6			51.9			46.8			35.4	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	41.0	16.7	39.0	22.3	42.0	16.7	39.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	17.0	35.0	15.0	33.0	16.0	36.0	15.0	33.0
Max Q Clear Time (g_c+I1), s	2.0	19.9	12.4	25.6	15.4	27.4	4.6	12.2
Green Ext Time (p_c), s	1.0	7.2	0.4	3.8	0.1	4.7	1.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	39.1
HCM 2010 LOS	D

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	3	29	29	1	6	133	458	59	28	1033	235
Future Volume (veh/h)	60	3	29	29	1	6	133	458	59	28	1033	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	67	3	32	32	1	7	148	509	66	31	1148	261
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	3	1
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	241	12	133	216	18	128	358	2511	1123	712	3607	1123
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.71	0.71	0.71
Sat Flow, veh/h	1402	137	1466	1368	202	1412	380	3539	1583	835	5085	1583
Grp Volume(v), veh/h	67	0	35	32	0	8	148	509	66	31	1148	261
Grp Sat Flow(s),veh/h/ln	1402	0	1604	1368	0	1614	380	1770	1583	835	1695	1583
Q Serve(g_s), s	2.8	0.0	1.2	1.3	0.0	0.3	6.2	0.0	0.0	0.7	5.1	3.4
Cycle Q Clear(g_c), s	3.0	0.0	1.2	2.6	0.0	0.3	11.3	0.0	0.0	0.7	5.1	3.4
Prop In Lane	1.00		0.91	1.00		0.88	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	0	145	216	0	146	358	2511	1123	712	3607	1123
V/C Ratio(X)	0.28	0.00	0.24	0.15	0.00	0.05	0.41	0.20	0.06	0.04	0.32	0.23
Avail Cap(c_a), veh/h	543	0	492	512	0	495	358	2511	1123	712	3607	1123
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	25.4	26.5	0.0	24.9	0.7	0.0	0.0	2.6	3.3	3.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.1	0.0	0.1	3.1	0.2	0.1	0.1	0.2	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	1.1	0.0	0.5	0.5	0.0	0.1	0.9	0.1	0.0	0.2	2.4	1.6
LnGrp Delay(d),s/veh	26.5	0.0	25.7	26.7	0.0	25.0	3.8	0.2	0.1	2.7	3.5	3.5
LnGrp LOS	C		C	C		C	A	A	A	A	A	A
Approach Vol, veh/h		102			40			723			1440	
Approach Delay, s/veh		26.2			26.3			0.9			3.5	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		48.6		11.4		48.6		11.4
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 30		18.4		* 30		18.4
Max Q Clear Time (g_c+I1), s		13.3		5.0		7.1		4.6
Green Ext Time (p_c), s		3.7		0.2		3.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.1
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	0	0	524	0	1154
Future Vol, veh/h	90	0	0	524	0	1154
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	0	0	582	0	1282

Major/Minor	Minor1			Major1		Major2
Conflicting Flow All	513	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	539	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	517	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	539	-	-	-	-	-
Mov Cap-2 Maneuver	539	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	517	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	539	-
HCM Lane V/C Ratio	-	0.186	-
HCM Control Delay (s)	-	13.2	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.7	-

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Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	522	2	0	90	0	15
Future Vol, veh/h	522	2	0	90	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	580	2	0	100	0	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	291
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	706
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	706
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	706	-	-	-
HCM Lane V/C Ratio	0.024	-	-	-
HCM Control Delay (s)	10.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	496	4	54	49	17	0	1	38	22	0	41
Future Vol, veh/h	24	496	4	54	49	17	0	1	38	22	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	551	4	60	54	19	0	1	42	24	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	556	0	0	754	800	278	513	793	37
Stage 1	-	-	-	-	-	-	607	607	-	184	184	-
Stage 2	-	-	-	-	-	-	147	193	-	329	609	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1525	-	-	1011	-	-	298	317	719	444	320	1027
Stage 1	-	-	-	-	-	-	450	485	-	800	746	-
Stage 2	-	-	-	-	-	-	841	740	-	658	484	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1525	-	-	1011	-	-	268	293	719	393	296	1027
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	293	-	393	296	-
Stage 1	-	-	-	-	-	-	442	476	-	786	702	-
Stage 2	-	-	-	-	-	-	756	696	-	607	475	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	4	10.5	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	693	1525	-	-	1011	-	-	393	1027
HCM Lane V/C Ratio	-	0.063	0.017	-	-	0.059	-	-	0.062	0.044
HCM Control Delay (s)	0	10.5	7.4	-	-	8.8	-	-	14.8	8.7
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.2	0.1	-	-	0.2	-	-	0.2	0.1

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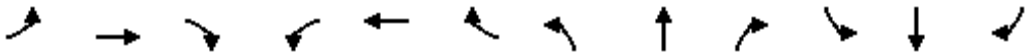

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	513	7	39	6	3	7	48	1057	22	19	873	70
Future Volume (vph)	513	7	39	6	3	7	48	1057	22	19	873	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.94	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.87		1.00	0.89		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	4990	1627		1770	1660		1770	5070		1770	5029	
Flt Permitted	0.75	1.00		0.70	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	3942	1627		1307	1660		440	5070		362	5029	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	570	8	43	7	3	8	53	1174	24	21	970	78
RTOR Reduction (vph)	0	35	0	0	8	0	0	1	0	0	5	0
Lane Group Flow (vph)	570	16	0	7	3	0	53	1197	0	21	1043	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	23.7	23.7		5.7	5.7		72.6	72.6		72.6	72.6	
Effective Green, g (s)	23.7	23.7		5.7	5.7		72.6	72.6		72.6	72.6	
Actuated g/C Ratio	0.20	0.20		0.05	0.05		0.60	0.60		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	778	321		62	78		266	3067		219	3042	
v/s Ratio Prot		0.01			0.00			c0.24			0.21	
v/s Ratio Perm	c0.14			c0.01			0.12			0.06		
v/c Ratio	0.73	0.05		0.11	0.04		0.20	0.39		0.10	0.34	
Uniform Delay, d1	45.2	39.0		54.7	54.5		10.6	12.3		9.9	11.8	
Progression Factor	1.06	1.29		1.00	1.00		1.42	1.52		1.00	1.00	
Incremental Delay, d2	3.6	0.1		0.8	0.2		1.6	0.4		0.9	0.3	
Delay (s)	51.5	50.4		55.5	54.8		16.7	19.0		10.8	12.1	
Level of Service	D	D		E	D		B	B		B	B	
Approach Delay (s)		51.4			55.1			18.9			12.1	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.5	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)	18.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
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)	292	954	168	51	930	84	273	334	96	77	528	568
Future Volume (veh/h)	292	954	168	51	930	84	273	334	96	77	528	568
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	324	1060	187	57	1033	93	303	371	107	86	587	631
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	2	2
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	355	1483	462	393	1425	128	366	1003	449	366	1003	790
Arrive On Green	0.29	0.58	0.58	0.05	0.10	0.10	0.11	0.28	0.28	0.18	0.47	0.47
Sat Flow, veh/h	1774	5085	1583	1774	4751	427	3442	3539	1583	3442	3539	2787
Grp Volume(v), veh/h	324	1060	187	57	737	389	303	371	107	86	587	631
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1787	1721	1770	1583	1721	1770	1393
Q Serve(g_s), s	13.9	17.9	7.7	0.0	25.3	25.4	10.4	10.1	6.2	2.6	14.5	23.0
Cycle Q Clear(g_c), s	13.9	17.9	7.7	0.0	25.3	25.4	10.4	10.1	6.2	2.6	14.5	23.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	1483	462	393	1017	536	366	1003	449	366	1003	790
V/C Ratio(X)	0.91	0.71	0.40	0.14	0.72	0.73	0.83	0.37	0.24	0.24	0.59	0.80
Avail Cap(c_a), veh/h	355	1483	462	393	1017	536	430	1003	449	430	1003	790
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.60	0.60	0.60	0.56	0.56	0.56	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	38.8	21.4	19.3	39.0	49.2	49.3	52.6	34.4	33.1	45.2	26.5	28.7
Incr Delay (d2), s/veh	18.5	1.8	1.6	0.1	2.5	4.8	11.2	1.1	1.3	0.3	2.3	7.7
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	11.9	8.5	3.5	1.7	12.3	13.3	5.5	5.0	2.9	1.2	7.4	9.6
LnGrp Delay(d),s/veh	57.3	23.2	20.9	39.1	51.8	54.0	63.7	35.5	34.3	45.5	28.8	36.4
LnGrp LOS	E	C	C	D	D	D	E	D	C	D	C	D
Approach Vol, veh/h		1571			1183			781			1304	
Approach Delay, s/veh		30.0			51.9			46.3			33.6	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	41.0	16.7	40.0	21.3	42.0	16.7	40.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	16.0	35.0	15.0	34.0	15.0	36.0	15.0	34.0
Max Q Clear Time (g_c+I1), s	2.0	19.9	12.4	25.0	15.9	27.4	4.6	12.1
Green Ext Time (p_c), s	1.0	7.2	0.4	4.3	0.0	4.7	1.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	38.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	9	213	95	12	32	97	601	104	42	1035	75
Future Volume (veh/h)	216	9	213	95	12	32	97	601	104	42	1035	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	240	10	237	106	13	36	108	668	116	47	1150	83
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	1	3	1
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	453	17	411	272	118	326	297	1880	841	485	2701	841
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	1.00	1.00	1.00	0.53	0.53	0.53
Sat Flow, veh/h	1351	64	1529	1128	437	1211	450	3539	1583	687	5085	1583
Grp Volume(v), veh/h	240	0	247	106	0	49	108	668	116	47	1150	83
Grp Sat Flow(s),veh/h/ln	1351	0	1593	1128	0	1649	450	1770	1583	687	1695	1583
Q Serve(g_s), s	9.8	0.0	8.0	5.4	0.0	1.3	6.8	0.0	0.0	2.1	8.2	1.6
Cycle Q Clear(g_c), s	11.1	0.0	8.0	13.4	0.0	1.3	15.0	0.0	0.0	2.1	8.2	1.6
Prop In Lane	1.00		0.96	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	453	0	428	272	0	443	297	1880	841	485	2701	841
V/C Ratio(X)	0.53	0.00	0.58	0.39	0.00	0.11	0.36	0.36	0.14	0.10	0.43	0.10
Avail Cap(c_a), veh/h	504	0	489	315	0	506	297	1880	841	485	2701	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	0.0	19.0	24.8	0.0	16.5	1.9	0.0	0.0	7.1	8.5	7.0
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.3	0.0	0.0	2.2	0.3	0.2	0.4	0.5	0.2
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	3.6	0.0	3.6	1.7	0.0	0.6	1.0	0.1	0.1	0.4	4.0	0.7
LnGrp Delay(d),s/veh	21.1	0.0	19.5	25.1	0.0	16.6	4.2	0.3	0.2	7.5	9.0	7.2
LnGrp LOS	C		B	C		B	A	A	A	A	A	A
Approach Vol, veh/h		487			155			892			1280	
Approach Delay, s/veh		20.3			22.4			0.8			8.8	
Approach LOS		C			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		37.9		22.1		37.9		22.1
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 30		18.4		* 30		18.4
Max Q Clear Time (g_c+I1), s		17.0		13.1		10.2		15.4
Green Ext Time (p_c), s		3.3		1.1		3.6		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	169	0	0	849	0	995
Future Vol, veh/h	169	0	0	849	0	995
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	0	0	943	0	1106

Major/Minor	Minor1			Major1		Major2
Conflicting Flow All	442	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	584	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	562	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	584	-	-	-	-	-
Mov Cap-2 Maneuver	584	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	562	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	584	-
HCM Lane V/C Ratio	-	0.322	-
HCM Control Delay (s)	-	14.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1.4	-

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Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	849	0	0	169	0	8
Future Vol, veh/h	849	0	0	169	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	943	0	0	188	0	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	472
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	538
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	538
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	538	-	-	-
HCM Lane V/C Ratio	0.017	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	802	0	43	134	30	9	3	57	19	3	26
Future Vol, veh/h	47	802	0	43	134	30	9	3	57	19	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	891	0	48	149	33	10	3	63	21	3	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	891	0	0	1168	1274	446	813	1257	91
Stage 1	-	-	-	-	-	-	996	996	-	261	261	-
Stage 2	-	-	-	-	-	-	172	278	-	552	996	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1391	-	-	757	-	-	149	166	560	270	170	949
Stage 1	-	-	-	-	-	-	262	320	-	721	691	-
Stage 2	-	-	-	-	-	-	813	679	-	486	320	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1391	-	-	757	-	-	131	150	560	218	153	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	131	150	-	218	153	-
Stage 1	-	-	-	-	-	-	252	308	-	694	647	-
Stage 2	-	-	-	-	-	-	734	636	-	410	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	16.2	16
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	131	493	1391	-	-	757	-	-	218	617
HCM Lane V/C Ratio	0.076	0.135	0.038	-	-	0.063	-	-	0.097	0.052
HCM Control Delay (s)	34.7	13.4	7.7	-	-	10.1	-	-	23.3	11.2
HCM Lane LOS	D	B	A	-	-	B	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0.5	0.1	-	-	0.2	-	-	0.3	0.2

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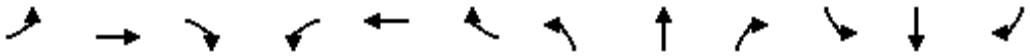


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	843	4	44	13	14	24	57	1243	12	9	1070	136
Future Volume (vph)	843	4	44	13	14	24	57	1243	12	9	1070	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.94	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	4990	1604		1770	1687		1770	5078		1770	4999	
Flt Permitted	0.73	1.00		0.44	1.00		0.14	1.00		0.13	1.00	
Satd. Flow (perm)	3829	1604		828	1687		255	5078		233	4999	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	937	4	49	14	16	27	63	1381	13	10	1189	151
RTOR Reduction (vph)	0	35	0	0	18	0	0	1	0	0	14	0
Lane Group Flow (vph)	937	18	0	14	25	0	63	1393	0	10	1326	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	34.2	34.2		9.0	9.0		58.8	58.8		58.8	58.8	
Effective Green, g (s)	34.2	34.2		9.0	9.0		58.8	58.8		58.8	58.8	
Actuated g/C Ratio	0.29	0.29		0.08	0.08		0.49	0.49		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	1091	457		62	126		124	2488		114	2449	
v/s Ratio Prot		0.01			0.02			c0.27			0.27	
v/s Ratio Perm	c0.24			c0.02			0.25			0.04		
v/c Ratio	0.86	0.04		0.23	0.20		0.51	0.56		0.09	0.54	
Uniform Delay, d1	40.6	31.0		52.2	52.1		20.8	21.5		16.3	21.2	
Progression Factor	1.00	1.02		1.00	1.00		0.92	0.94		1.00	1.00	
Incremental Delay, d2	6.6	0.0		1.9	0.8		11.9	0.8		1.5	0.9	
Delay (s)	47.1	31.7		54.1	52.9		30.9	21.0		17.8	22.1	
Level of Service	D	C		D	D		C	C		B	C	
Approach Delay (s)		46.3			53.2			21.4			22.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.5	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)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

ATTACHMENT G – SCOTTSDALE STIPULATIONS ORDINANCE 4299

j2 design

G

ORDINANCE NO. 4299

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, AMENDING ORDINANCE NO. 455, THE ZONING ORDINANCE OF THE CITY OF SCOTTSDALE, BY AND FOR THE PURPOSE OF CHANGING THE ZONING ON THE "DISTRICT MAP" TO ZONING APPROVED IN CASE NO 25-ZN-2015 AND CASE NO 1-II-2016 FROM DOWNTOWN/REGIONAL COMMERCIAL OFFICE - TYPE 2, PLANNED BLOCK DEVELOPMENT, DOWNTOWN OVERLAY (D/RCO-2 PBD DO) TO DOWNTOWN/DOWNTOWN REGIONAL USE - TYPE 2, PLANNED BLOCK DEVELOPMENT, DOWNTOWN OVERLAY (D/DRU-2 PBD DO), AND APPROVING A DEVELOPMENT PLAN ON A +/- 56-ACRE SITE, AND APPROVING AN APPLICATION FOR A DOWNTOWN INFILL INCENTIVE DISTRICT PURSUANT TO THE DOWNTOWN INFILL INCENTIVE PLAN, LOCATED ON +/- 1.8 ACRES OF THE TOTAL +/- 56-ACRE SITE ON THE NORTHWEST CORNER OF CAMELBACK ROAD AND SCOTTSDALE ROAD (6900, 7000, 7003, 7014, 7032, 7102, 7150, 7055 E. CAMELBACK ROAD, 4649 N. GOLDWATER BLVD., 7000 E. VIA SOLERI DRIVE, 4710, 4500, 4510, 4610, 4626, 4700, 4720 N. SCOTTSDALE ROAD, AND 7001 E HIGHLAND AVENUE).

WHEREAS, the Planning Commission held a hearing on June, 28, 2017;

WHEREAS, the City Council held a hearing on August, 29, 2017;

WHEREAS, the City Council finds that the proposed development is in substantial harmony with the General Plan of the City of Scottsdale and will be coordinated with existing and planned development;

WHEREAS, the City Council finds that the proposed development is located in the Downtown Infill Incentive District and consistent with the Downtown Infill Incentive Plan; and

WHEREAS, it is now necessary that the comprehensive zoning map of the City of Scottsdale ("District Map") be amended to conform with the decision of the Scottsdale City Council in Case No. 25-ZN-2015 and 1-II-2016.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Scottsdale, as follows:

Section 1. That the "District Map" adopted as a part of the Zoning Ordinance of the City of Scottsdale, showing the zoning district boundaries, is amended by rezoning a +/- 56-acre site located on the northwest corner of Camelback Road and Scottsdale Road (6900, 7000, 7003, 7014, 7032, 7102, 7150, 7055 E. Camelback Road, 4649 N. Goldwater Blvd., 7000 E. Via Soleri Drive, 4710, 4500, 4510, 4610, 4626, 4700, 4720 N. Scottsdale Road, and 7001 E Highland Avenue) and marked as "Site" (the Property) on the map attached as Exhibit 2 page 1 of 2, incorporated herein by reference, from Downtown/Regional Commercial Office - Type 2, Planned Block Development, Downtown Overlay (D/RCO-2 PBD DO) to Downtown/Downtown Regional Use - Type 2, Planned Block Development, Downtown Overlay (D/DRU-2 PBD DO) zoning, and approving a Downtown Infill Incentive District application over +/- 1.8 acres of the +/- 56 acre site with Downtown/Downtown Regional Use - Type 2, Planned Block Development, Downtown Overlay (D/DRU-2 PBD DO) zoning by approving a Development Plan and amendments to Property Development Standards of the

Zoning Ordinance regarding the inclined stepback plane adjacent to the Downtown Boundary, specifically at the northeast corner of the Development Plan area (4710, 4626, 4500, 4700 and 4720 N. Scottsdale Road) and marked as "Site" on the map attached as Exhibit 2, page 2 of 2, and by adopting that certain document entitled "Development Plan Scottsdale Fashion Square" declared as a public record by Resolution No. 10717 which is incorporated into this ordinance by reference as if fully set forth herein.

Section 2. That the above rezoning approval is conditioned upon compliance with all stipulations attached hereto as Exhibit 1 and incorporated herein by reference.

PASSED AND ADOPTED by the Council of the City of Scottsdale this 29 of August, 2017.

ATTEST:

By: _____
Carolyn Jagger
City Clerk

CITY OF SCOTTSDALE, an Arizona Municipal Corporation

By: _____
W.J. "Jim" Lane
Mayor

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

By: _____
Bruce Washburn, City Attorney
By: Joe Padilla, Deputy City Attorney

Stipulations for the Zoning Application:
Scottsdale Fashion Square Mall
Case Number: 25-ZN-2015 & 1-II-2016

These stipulations are in order to protect the public health, safety, welfare, and the City of Scottsdale.

GOVERNANCE

1. APPLICABILITY. All stipulations of cases 25-ZN-2015 and 1-II-2016 shall supersede all of the stipulations of prior zoning approvals, with the exception of existing Conditional Use Permit cases 4-UP-2000 and 6-UP-2012. These stipulations shall not apply to the Dillard's parcel, which is not included as part of the subject Development Plan.

SITE DESIGN

2. CONFORMANCE TO DEVELOPMENT PLAN. Development shall conform with the Development Plan, entitled "Development Plan Scottsdale Fashion Square," which is on file with the City Clerk and made a public record by Resolution No. 10717 and incorporated into these stipulations and ordinance by reference as if fully set forth herein. Any proposed significant change to the Development Plan, as determined by the Zoning Administrator, shall be subject to additional public hearings and action before the Planning Commission and City Council. Where there is a conflict between the Development Plan and these stipulations, these stipulations shall prevail.

3. CONFORMANCE TO AMENDED DEVELOPMENT STANDARDS. Development shall conform with the amended development standards that are included as part of the Development Plan. Any change to the Property Development Standards shall be subject to additional public zoning hearings before the Planning Commission and City Council.

4. CONFORMANCE TO DEVELOPMENT AGREEMENT. The property owner of the property identified in the Development Plan shall enter into a development agreement, Contract No. 2017-097-COS, including any subsequent amendments approved by the City Council, which sets forth the manner in which the building height bonus shall be achieved, and specifies the development standard allocations among the parcels within the boundary of the Development Plan.

5. BUILDING HEIGHT LOCATIONS. Locations of building height shall be in conformance with the approved Development Plan. No building on the site shall exceed 150 feet in height (inclusive of the bonus building height, mechanical equipment and other appurtenances), measured as provided in the applicable section of the Zoning Ordinance.

6. CULTURAL IMPROVEMENTS PROGRAM. Prior to permit issuance for any new or expanded building, the property owner shall provide artwork, or pay an in-lieu fee, equal to at least one percent of the building valuation of the added floor area. This requirement shall be exclusive of the in-lieu payment outlined in Contract No. 2017-097-COS, regarding PBD bonus provisions.

7. OUTDOOR LIGHTING. The maximum height of any outdoor lighting source, except any light sources for signs, patios and/or balconies or accent lighting approved by the Development Review Board or staff in accordance with the provisions of Zoning Ordinance Section 1.900, shall be 20 feet above the adjacent finished grade.

8. OUTDOOR LIGHTING FOR PATIOS AND BALCONIES. Light sources that are utilized to illuminate patios and/or balconies that are above 20 feet shall be subject to the approval of the Development Review Board or staff in accordance with the provisions of Zoning Ordinance Section 1.900.

9. SIGNAGE. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, there shall be no new internally illuminated signage facing toward Highland Avenue.

10. AMPLIFIED MUSIC. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, there shall be no exterior amplified music after 10:00pm, and 11:00pm on weekends and holidays, at levels greater than 68 decibels as measured from the right-of-way line on the north side of Highland Avenue.

11. OPEN SPACE. Open space shall conform with the following requirements:

    a. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, an open space area or areas shall be provided which align with the main entry/open space plaza on the north side Highland Avenue at Optima Camelview, subject to Development Review Board approval.

    b. Open space areas within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, shall be planted with mature shade trees and/or palm trees in conformance with the Downtown Urban Design & Architectural Design Guidelines, subject to Development Review Board approval.

    c. Building setback areas along Highland Avenue shall be planted with mature shade trees and/or palm trees, and/or other shading devices, in conformance with the Downtown Urban Design & Architectural Design Guidelines, subject to Development Review Board approval.

INFRASTRUCTURE AND DEDICATIONS

12. TRAFFIC IMPACT STUDY. As determined by the Transportation Director, or designee, with a Development Review Board application for a new or expanded building, the property owner shall submit an updated traffic impact study to address the new development. The owner shall obtain approval of the study from the Transportation Director, or designee, prior to the Development Review Board hearing for the related new building, or building expansion. The owner shall be responsible for any infrastructure improvements identified by the updated traffic impact study(ies) that are the result of the traffic generated by new or expanded buildings on the site.

13. CIRCULATION IMPROVEMENTS. The owner shall make the required dedications and provide the following improvements in conformance with the Design Standards and Policies Manual and all other applicable city codes and policies.

    a. STREETS. Dedicate the following right-of-way and construct the following street improvements:

Street Name	Street Type	Dedications	Improvements	Notes and

				Requirements
Goldwater Boulevard	Couplet Street	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.1, a.2., a.6., a.7., a.8., a.9., a.10, a.11.
Highland Avenue	Local Commercial Street	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.3. , a.6., a.7., a.8., a.9., a.10, a.11.
Scottsdale Road	Major Collector	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.4., a.6., a.7., a.8., a.9., a.10, a.11 .
Camelback Road	Minor Arterial	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.5, a.6., a.7., a.8., a.9., a.10, a.11 .

a.1. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the east side of North Goldwater Boulevard, from the intersection of East Via Soleri Drive and North Goldwater Boulevard to the intersection of East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or B on Exhibit A to Exhibit 1.

a.2. The property owner shall construct a continuous eight (8) foot wide sidewalk where feasible and the sidewalk shall be separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the west side of North Goldwater Boulevard, from the intersection of East Camelback Road and North Goldwater Boulevard to the intersection East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or D on Exhibit A to Exhibit 1.

a.3. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the south side of East Highland Avenue, from the intersection of East Highland Avenue and North Goldwater Boulevard to the intersection of East Highland Avenue and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel B on Exhibit A to Exhibit 1.

a.4. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the west side of North Scottsdale Road, from the intersection of East Highland Avenue and North Scottsdale Road to the intersection of East Fashion Square Drive and North Scottsdale Road,

prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A or B on Exhibit A to Exhibit 1.

a.5. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the north side of East Camelback Road, from the intersection of East Camelback Road and North Goldwater Boulevard to the western boundary of the zoning application, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A on Exhibit A to Exhibit 1.

a.6. Prior to permit issuance for construction of driveways at any new vehicular entrances to the property, the property owner shall dedicate additional North Goldwater Boulevard, East Highland Avenue, North Scottsdale Road, and East Camelback Road right-of-way, as determined by Transportation Director or designee, to accommodate new right-turn deceleration lanes at any new vehicle entrances to the property.

a.7. If any new vehicular entrances to the property are approved along North Goldwater Boulevard, East Highland Avenue, North Scottsdale Road, and East Camelback Road as part of a development proposal, as determined by Transportation Director or designee, the owner shall construct new right-turn deceleration lanes to accommodate the new vehicle entrances to the property.

a.8. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently construct all street and pedestrian improvements supported by the updated traffic impact study that corresponds with the new or expanded building, and approved by the Transportation Director, or designee.

a.9. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently modify any existing traffic signals and equipment supported by the updated traffic impact study approved by the Transportation Director, or designee that to address the new development associated with the requested building permit.

a.10. All street improvements (curb, gutter, sidewalk, curb ramps, driveways, pavement, concrete, etc.) shall be constructed in accordance with the applicable City of Scottsdale's Supplements to the Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, and Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, as determined by the Transportation Director, or designee.

a.11. The sidewalk improvements noted in a.1, a.2, and a.5 above shall be required only in locations that are determined to be feasible, with the intent of feasibility to be interpreted to mean where adequate width or space is available to widen the sidewalk to the prescribed widths or provide the required separation from curb reasonably without affecting existing structures, significant mature landscaping, existing parking areas, or significant grades. The determination of feasibility shall be made by the Zoning Administrator or designee.

14. INTERSECTION IMPROVEMENTS. The owner shall make the required dedications and provide the following improvements in conformance with the Design Standards and Policies Manual and all other applicable city codes and policies:

    a. The property owner shall design and construct a third eastbound lane on Highland Avenue, beginning just east of Goldwater Boulevard and terminating as a third eastbound left-turn lane at Scottsdale Road, prior to any certificate of occupancy for a combined total building area exceeding 75,000 square feet in new or expanded buildings south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard within the area identified as Parcel B on Exhibit A to Exhibit 1.

    b. The property owner shall design and construct intersection modifications to provide a separate eastbound left-turn lane and shared through-right-turn lane at the East Scottsdale Fashion Square and North Goldwater Boulevard intersection, prior to any certificate of occupancy for any new buildings south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard, within the area identified as Parcel B on Exhibit A to Exhibit 1.

    c. The property owner shall contract with a traffic engineering consultant to conduct a study of the East Highland Avenue and North Goldwater Boulevard intersection prior to any certificate of occupancy for any new or expanded buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The study shall recommend intersection improvements to improve the safety and convenience for the westbound left-turn movement, improve intersection sight distance, and reduce speeding on North Goldwater Boulevard. The study shall not include any options that consider a connection to the existing East Highland Avenue west of North Goldwater Boulevard. The property owner shall not be obligated for any costs and/or improvements associated with the study that exceed $50,000, and the final study shall be submitted to the City of Scottsdale for review and approval.

    d. If directed by the Transportation Director based upon future traffic analysis, the property owner shall design and construct an additional eastbound left-turn lane on East Camelback Road at the North Goldwater Boulevard signalized intersection. The timing of the improvement shall be based upon the need as determined by the traffic analysis tied to proposed new building or building expansion on the site. The property owner shall be responsible for all necessary street reconstruction, pavement marking modification, and signal equipment modification to accomplish the addition of the eastbound left-turn lane.

15. ACCESS RESTRICTIONS/REQUIREMENTS. Access to the site shall conform to the following restrictions and requirements:

    a. There shall no new site driveways onto the adjacent public streets without approval of the site plan and site access as part of a Development Review Board application and approval by the Transportation Director.

    b. There shall be no new median openings along the adjacent public streets associated with any proposed development of the site without approval of the site plan and site access as part of a Development Review Board application and approval by the Transportation Director.

    c. There shall be no new traffic signals constructed on the adjacent public streets without

an approved traffic signal warrant analysis based upon existing traffic volumes and approval by the Transportation Director.

d. Minimum driveway spacing shall be 250 feet between existing and proposed driveways and street intersections unless otherwise approved by the Transportation Director.

e. There shall be an east/west driveway maintained through the site from North Goldwater Boulevard to North Scottsdale Road in or near the area identified as Parcel B on Exhibit A to Exhibit 1. The alignment of such driveway shall be determined at the time of the applicable Development Review Board application.

16. PEDESTRIAN FACILITIES.

a) With the first and each subsequent Development Review Board submittal for new development on the site, the owner shall submit a pedestrian circulation plan for the site, which shall be subject to approval by City staff. The plan shall include all existing and proposed sidewalks along the adjacent streets and all existing proposed connections from the streets to the site buildings.

b) The developer shall design and construct a pedestrian hybrid beacon on Highland Avenue between Scottsdale Road and Goldwater Boulevard prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. Adequate stopping sight distance for drivers on Goldwater Boulevard/Highland Avenue must be provided with the design. This requirement shall not be in effect if a traffic signal is determined to be warranted and approved prior to the construction of the pedestrian hybrid beacon. If a traffic signal is determined to be warranted by the Transportation Director at this intersection in the future, the pedestrian hybrid beacon shall be replaced by the full traffic signal.

c) Prior to the certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall explore a grade separated pedestrian crossing between the building or parking structure and the existing Optima residential development on the north side of East Highland Avenue.

d) Prior to the issuance a building permit for a new or expanded building within the area identified as Parcel A on Exhibit A to Exhibit 1, the owner shall dedicate a non-motorized public access easement over the existing sidewalk along North Marshall Way and East Via Soleri Drive that extends outside of the existing public right-of-way. Prior to the issuance a building permit for a new building or building expansion within the area identified as Parcel A, B, C, or D on Exhibit A To Exhibit 1, the owner shall dedicate a non-motorized public access easement over any new sidewalk or any widened sidewalk constructed along the public streets adjacent to the site that extends outside of the public right-of-way.

17. TRANSIT STOP IMPROVEMENTS.

a) The property owner shall design and construct transit stop improvements on East Camelback Road west of North Goldwater Boulevard, prior to any certificate of occupancy for any new building within the area identified as Parcel A on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

b) The property owner shall design and construct transit stop improvements on North Scottsdale Road south of East Highland Avenue, prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

18. PEDESTRIAN STREET LIGHTS.

a) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Highland Avenue street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

b) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel E on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Camelback Road street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

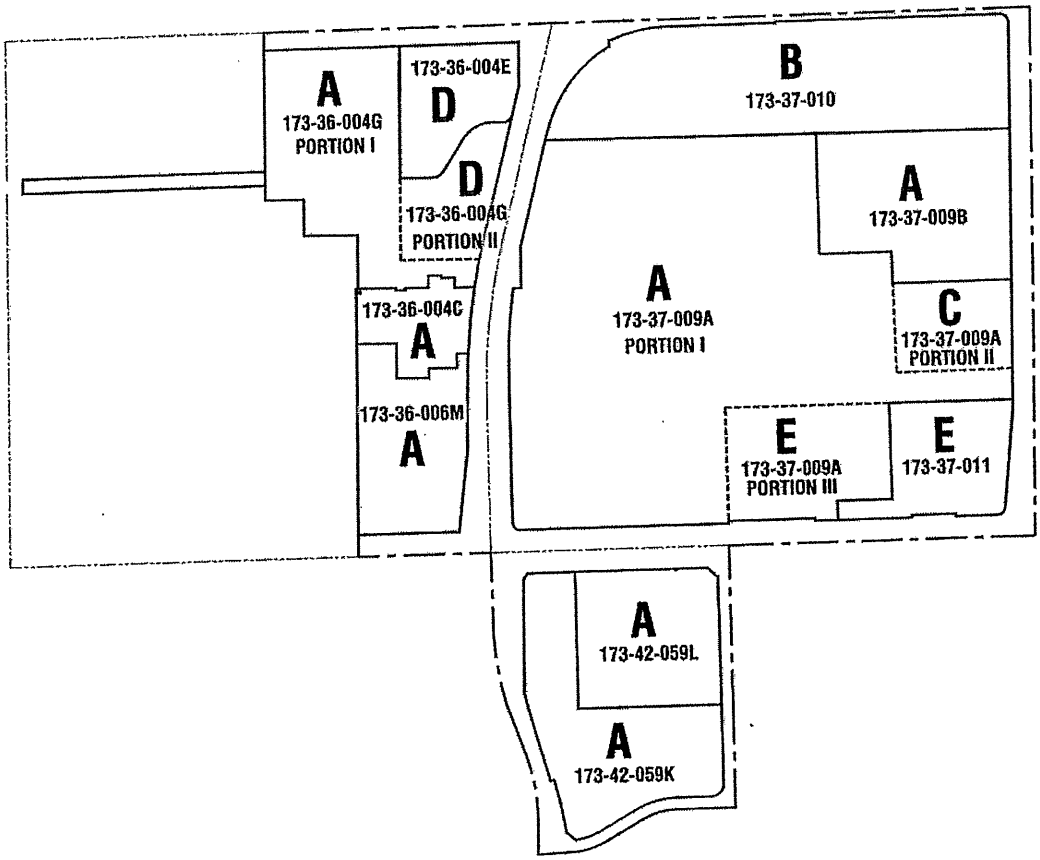
c) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel A on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the east and west sides of the North Goldwater Boulevard street frontage, between East Highland Avenue and East Via Soleri Drive, as approved by the Development Review Board.

19. OVERHEAD POWERLINES. Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall pay for and cause the existing overhead powerlines on the west side of North Scottsdale Road from East Highland Avenue to East Fashion Square Drive to be removed or relocated underground.

20. VEHICLE NON-ACCESS EASEMENT. The property owner shall dedicate a one (1) foot wide vehicular non-access easement along the North Scottsdale Road, East Camelback Road, North Goldwater Boulevard, East Highland Avenue, North Marshall Way, and East Via Soleri Drive site frontages, except at the existing and approved driveway entrances.

21. PARCELS/PLATTING. Prior to permit issuance for any new construction involving parcels 173-37-009B, 173-37-009A, or 173-36-004C as shown on the Property Parcel and Development Area Depiction (Exhibit C page 2 of 2 of Contract No. 2016-097-COS), the owner shall submit an application for approval and recordation of a land assemblage/subdivision to remedy the non-conforming aspects of these parcels. All future land assemblage/subdivisions shall comply with the requirements of the Land Division Ordinance and the Design Standards & Policies Manual.

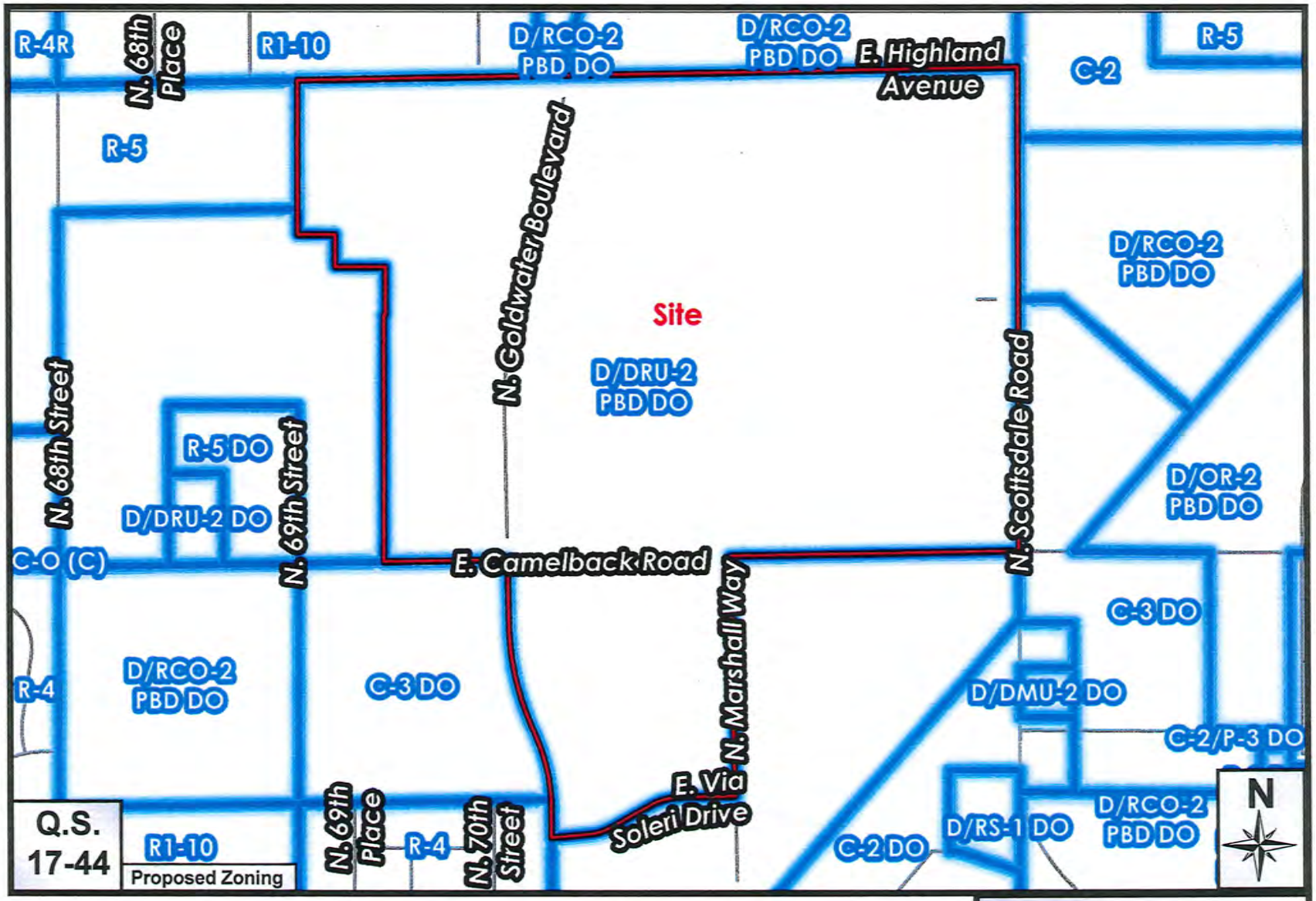
Property Parcel and Development Area Depiction



AREA BOUNDARY

PARCEL BOUNDARY

DECEMBER 21, 2016



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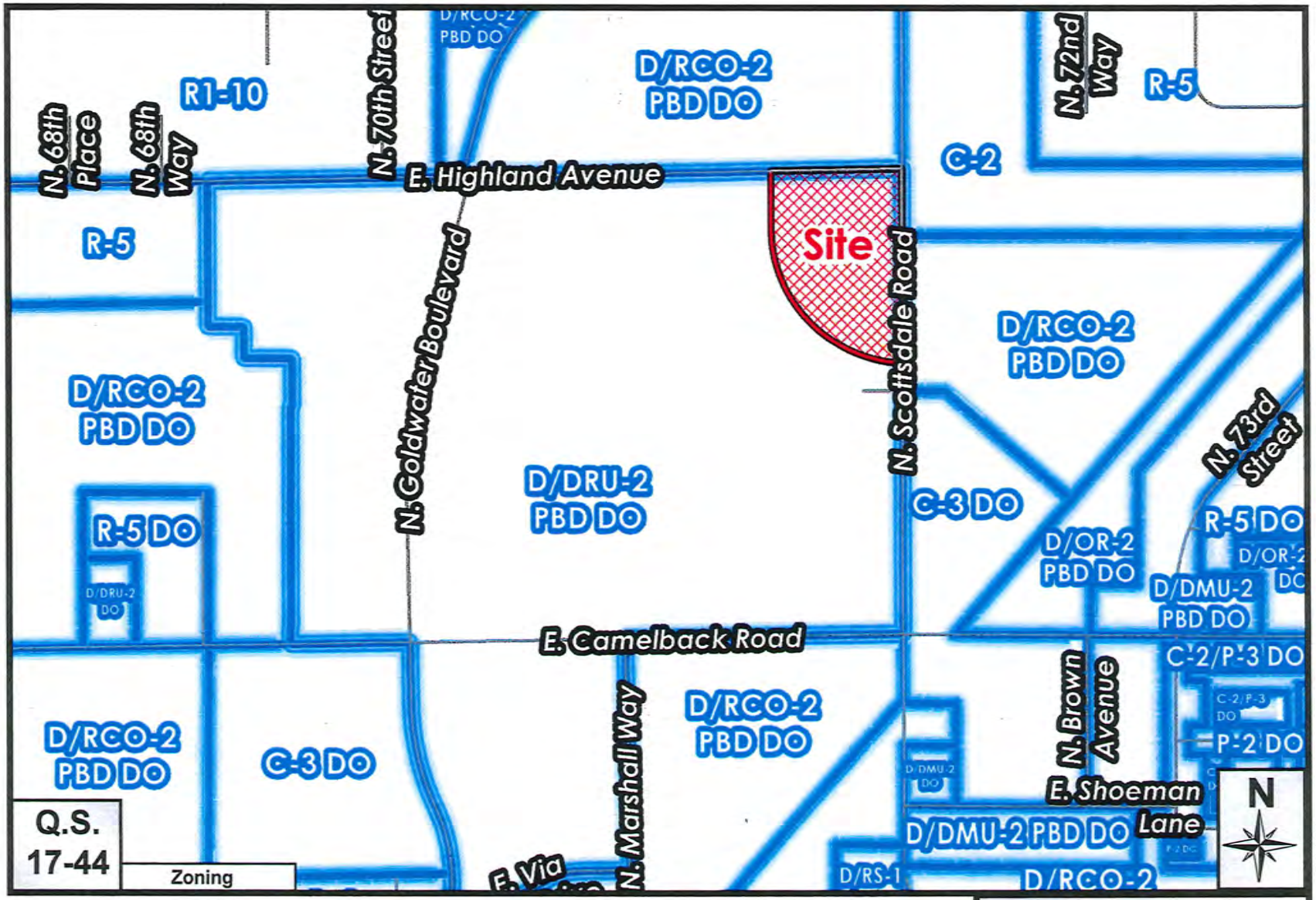
5/24/2019



Scottsdale Fashion Square

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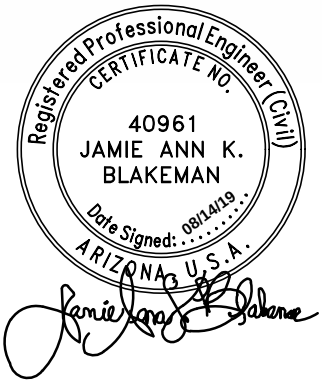
1-II-2016

30-DR-2019
5/24/2019

To:	Thomas B. Nelson HCW, LLC	**Date:**	August 14, 2019
From:	Jamie Blakeman, PE, PTOE		
Job Number:	19.5002		
RE:	Caesars Republic Traffic Impact & Mitigation Analysis		



INTRODUCTION

Lōkahi, LLC (Lōkahi) has prepared this document as an update to the original Traffic Impact and Mitigation Analysis (TI&MA) for Scottsdale Fashion Square dated May 9, 2017. This document includes the analysis for the proposed Caesars Republic development at the Scottsdale Fashion Square Mall located in Scottsdale, Arizona. The proposed Caesars Republic development is located on the southeast corner of Goldwater Boulevard and Highland Avenue. The objective of this Traffic Impact and Mitigation Analysis is to analyze the traffic related impacts of this proposed development to the adjacent roadway network.

The proposed Caesars Republic will include a 265 room, 11-story hotel, with a 3,200 square foot restaurant. Additional amenities will be provided on site that are anticipated to be primarily utilized by the hotel guests, which include a 200 square foot coffee shop, 6,800 square foot ballroom, 2,000 square foot meeting space, and 5,000 square foot bar/lounge on the 7th floor. See **Attachment A** for the proposed site plan.

The following are the six (6) intersections studied throughout this analysis:

- Goldwater Boulevard and Camelback Road (1)
- Goldwater Boulevard and Scottsdale Fashion (2)
- Goldwater Boulevard and Highland Avenue (3)
- Highland Avenue and Driveway (4)
- Highland Avenue and Scottsdale Fashion/Optima Driveway (5)
- Scottsdale Road and Highland Avenue (6)

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TRIP GENERATION

TRIP GENERATION - SCOTTSDALE FASHION SQUARE TI&MA, DATED MAY 9, 2017

In the Scottsdale Fashion Square TI&MA, dated May 9, 2017, the southeast corner of Goldwater Boulevard and Highland Avenue was assumed to be a 400 unit condominium. The trip generation was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 9th Edition*. The trip generation calculations also included internal trip capture due to the anticipated interaction between the proposed and existing uses. The total trips generated for the 400 unit condominium, including internal trip capture, is shown in **Table 1.**

Table 1 –Trip Generation – Previously Assumed for Parcel South of Highland Avenue

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Condominium/Townhouse/Apartment	230	400	Dwelling Units	2,149	156	27	129	126	84	41
TOTAL				**2,149**	**156**	27	129	**126**	84	41

TRIP GENERATION - CAESARS REPUBLIC

Since the May 9, 2017 TI&MA, the ITE *Trip Generation, 10th Edition* was released. Therefore, the trip generation for the proposed Caesars Republic development was calculated utilizing this 10th Edition.

The ITE rates and equations are based on studies that measured the trip generation characteristics for various types of land uses. The rates and equations are expressed in terms of trips per unit of land use type. This publication is considered to be the standard for the transportation engineering profession.

The proposed Caesars Republic development includes the following uses:

265 room Hotel	Land Use 310 - Hotel
2,000 square foot Restaurant	Land Use 931 - Quality Restaurant

As previously mentioned, additional amenities will be provided on site that are anticipated to be primarily utilized by the hotel guests. These uses include a 200 square foot coffee shop, a 6,800 square foot ballroom, 2,000 square foot meeting space, and a 5,000 square foot bar/lounge on the 7th floor.

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The total trip generation, including internal trip capture, for the proposed Caesars Republic development is shown in **Table 2** below. Detailed trip generation calculations are provided in **Attachment B.**

Table 2 –Trip Generation – Proposed Caesars Republic

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Hotel	310	265	Rooms	2,565	127	75	52	97	50	48
Quality Restaurant	931	3.2	1000 SF GLA	268	0	0	0	13	9	4
TOTAL				**2,833**	**127**	75	52	**110**	59	52

TRIP GENERATION COMPARISON

A comparison between the trips generated by the 400 unit condominium, per the May 9, 2017 SFS TI&MA, versus the proposed Caesars Republic development is shown in **Table 3**.

Table 3 – Trip Generation Comparison (SFS TI&MA 5/9/2017 vs. Caesars Republic)

	Weekday	AM Peak Hour			PM Peak Hour		
	Total	Total	In	Out	Total	In	Out
SFS TI&MA Dated May 9, 2017	2,149	156	27	129	126	84	41
Caesars Republic	2,833	127	75	52	110	59	52
Difference	**684**	**-29**	48	-77	**-15**	-26	11

Although the prior and proposed land uses are different, the weekday daily, and AM and PM peak hour trip generation are relatively similar.

TRIP DISTRIBUTION AND TRIP ASSIGNMENT

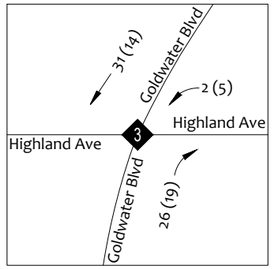
The trip distribution procedure determines the general pattern of travel for vehicles entering and leaving the proposed development. The trip distribution for the proposed Caesars Republic development was based on the existing traffic. See **Figure 1** for the proposed trip distribution. See **Figure 2** for proposed site traffic volumes for Caesars Republic. To keep consistent with the May 9, 2017 SFS TI&MA, the site volumes were also included for the buildout of the parcels to the west to Goldwater Boulevard, a 200 room hotel and a 240,000 square foot office. See **Figure 3** for the site traffic volumes for these additional developments.

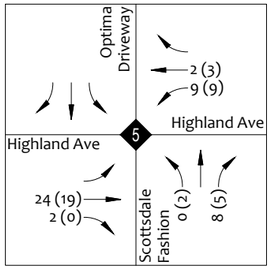
Legend

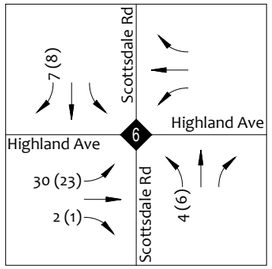
AM (PM)	Inbound Trip Distribution Percentages
AM (PM)	Outbound Trip Distribution Percentages
X	Intersection

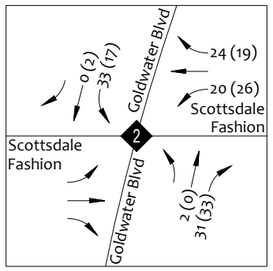
FIGURE 1 | TRIP DISTRIBUTION

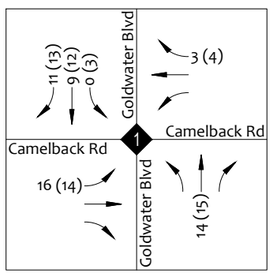
30-DR-2019
8/22/2019







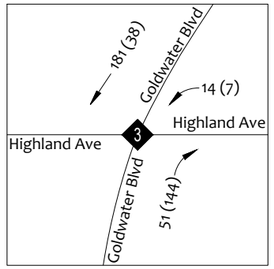


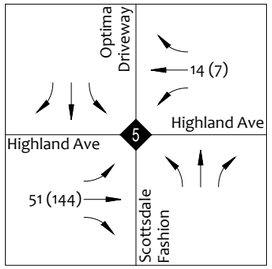


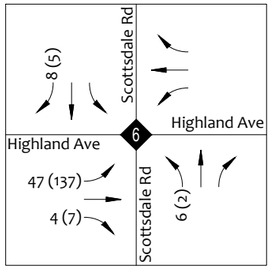
Legend

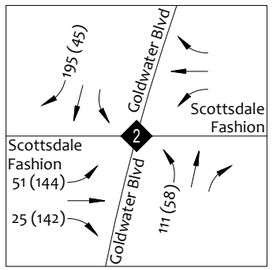
AM (PM)	Caesars Republic Site Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

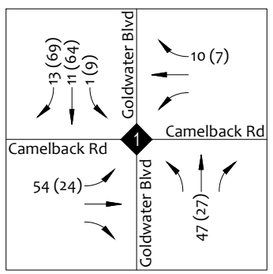
FIGURE 2 | SITE TRAFFIC VOLUMES











Legend

AM (PM)	Proposed Hotel/Office Site Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

FIGURE 3 | PROPOSED HOTEL/OFFICE SITE TRAFFIC VOLUMES

EXISTING CONDITIONS

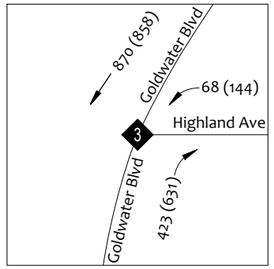
EXISTING TRAFFIC VOLUMES

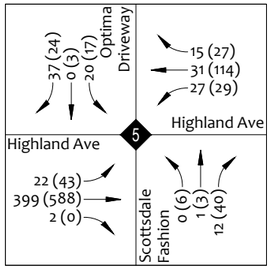
The existing traffic volumes collected on Tuesday, October 6, 2015, and Wednesday, February 15, 2017 as part of the May 9, 2017 SFS TI&MA is shown in **Figure 4**.

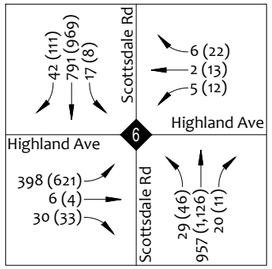
EXISTING CAPACITY ANALYSIS

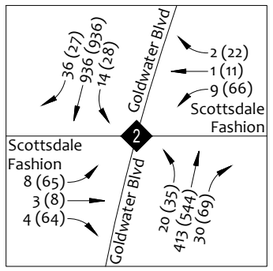
As reported in the May 9, 2017 SFS TI&MA, the existing capacity analysis was completed using the methodology presented in the *2010 Highway Capacity Manual*. The analysis was completed using the traffic software, Synchro Version 9.0. The signal timing was provided by the City of Scottsdale. See **Attachment C** for the existing signal timing as provided in the May 9, 2017 SFS TI&MA.

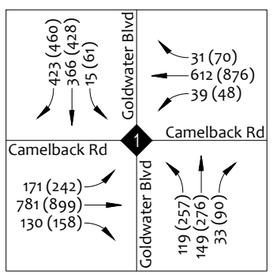
The existing capacity analysis as reported in the May 9, 2017 SFS TI&MA is shown in **Figure 5**. The detailed capacity analysis sheets as provided in the May 9, 2017 SFS TI&MA can be found in **Attachment D**.









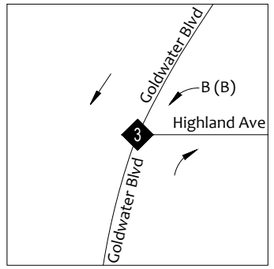


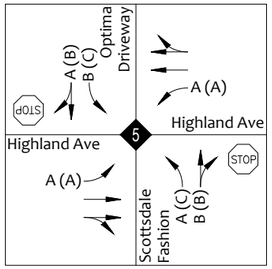
Legend

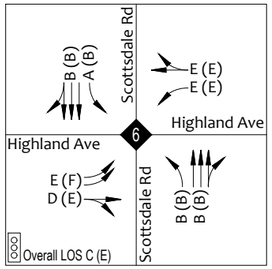
AM (PM)	Existing Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

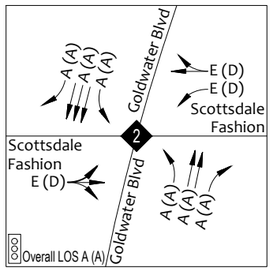
*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

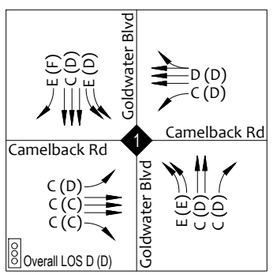
FIGURE 4 | EXISTING TRAFFIC VOLUMES











Legend

AM (PM)	Existing Peak Hour Level of Service
X	Intersection
	Lane Configuration

FIGURE 5 | EXISTING CAPACITY ANALYSIS

YEAR 2020 CONDITIONS

YEAR 2020 BACKGROUND TRAFFIC VOLUMES

The proposed Caesars Republic development is scheduled to be completed by the end of 2020, which corresponds to the 5 year analysis included in the May 9, 2017 SFS TI&MA. Therefore, shown in **Figure 6** are the 5 year background traffic volumes as shown in the May 9, 2017 SFS TI&MA, which corresponds to the year 2020 background traffic volumes for the proposed Caesars Republic.

YEAR 2020 NO BUILD CAPACITY ANALYSIS

The results of the 5 year background capacity analysis as shown in the May 9, 2017 SFS TI&MA, which corresponds to the year 2020 no build capacity analysis is shown in **Figure 7**. The detailed capacity analysis sheets as provided in the May 9, 2017 SFS TI&MA can be found in **Attachment E**.

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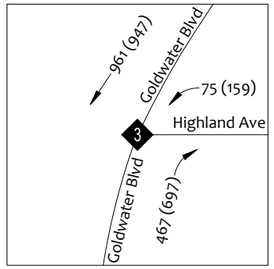
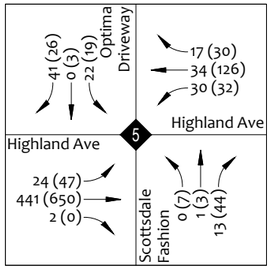
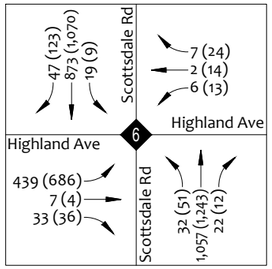
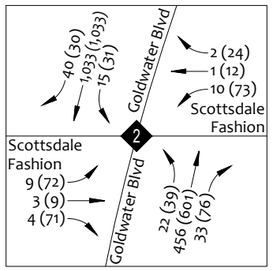
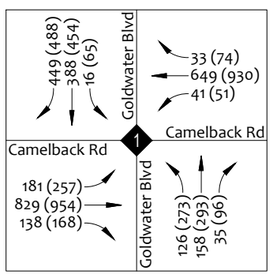








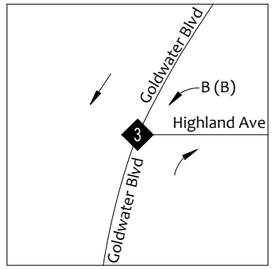


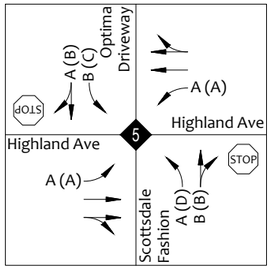
Legend

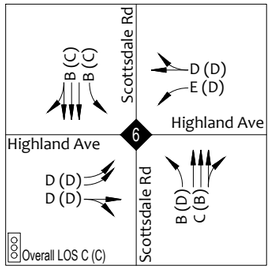
AM (PM)	Year 2020 No Build Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

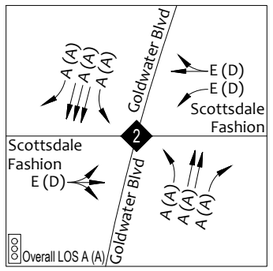
*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

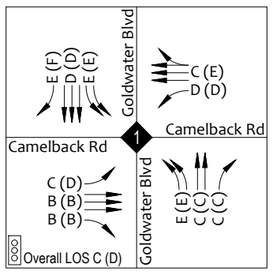
FIGURE 6 | YEAR 2020 NO BUILD TRAFFIC VOLUMES











Legend

AM (PM)	Year 2020 No Build Peak Hour Level of Service
X	Intersection
	Lane Configuration

FIGURE 7 | YEAR 2020 NO BUILD CAPACITY ANALYSIS

YEAR 2020 BUILD TRAFFIC VOLUMES

The year 2020 build traffic volumes include the proposed Caesars Republic site traffic volumes, shown in **Figure 2** and the additional development site traffic volumes shown in **Figure 3** are added to the year 2020 background traffic volumes shown in **Figure 6**. See **Figure 8** for the year 2020 build traffic volumes.

YEAR 2020 BUILD CAPACITY ANALYSIS

The year 2020 build capacity analysis was completed using the methodology presented in the *2010 Highway Capacity Manual*. The analysis was completed using the traffic software, Synchro Version 10.3. The signal timing splits were optimized to match future traffic volumes. The recently revised City of Scottsdale Design Standards and Policies Manual recommends using a PHF of 0.92, but in order to stay consistent with the previously completed report a PHF of 0.9 was assumed.

The following improvements and mitigation measures were included in the year 2020 build analysis:

Goldwater Boulevard and Camelback Road (1) – Signalized
An overlap phase was included for the southbound right turn movement.

Goldwater Boulevard and Fashion Square (2) – Signalized
The lane configuration for the eastbound approach at the intersection of Goldwater Boulevard and Fashion Square was modified to provide a dedicated left turn lane and a shared through-right turn lane. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications. Additionally, the signal cycle length was reduced to 60 seconds.

Scottsdale Road and Highland Avenue (6) – Signalized
Although the stipulation requires the build out of a third eastbound left turn lane, alternative geometrics and lane configurations were considered to determine whether an interim condition could provide adequate levels of service. For this intersection, modifying the eastbound approach to provide two dedicated left turn lanes, a shared left-through lane and a dedicated right turn lane.

The results of the year 2020 build capacity analysis are shown in **Figure 9**. The detailed capacity analysis sheets can be found in **Attachment F**.

With the build out of the proposed Caesars Republic, all movements operate at a LOS D or better, or are maintained at the year 2020 no build level of service, with the exception of the following locations:

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Highland Avenue and Scottsdale Fashion/Optima Driveway (5) – Stop Controlled

- NB left turn movement during the PM peak hour operates at LOS E. It is not uncommon for stop controlled driveways to experience greater delays during peak hours. Often drivers will opt to turn right or find alternative routes and accesses to avoid the left turn movements at stop controlled intersections during peak hours.

Scottsdale Road and Highland Avenue (6) – Signalized

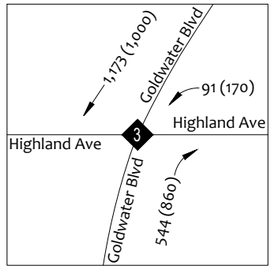
- WB shared through-right turn movement during the AM peak hour operates at LOS E (2 through and 7 right turning vehicles)

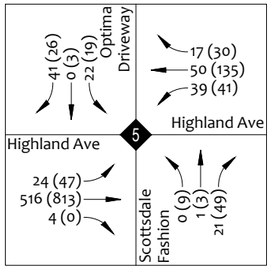
  With a 120 second cycle length, the delay experienced by these movements can be partially due to the cycle length. For a LOS E, the delay is between 55 and 80 seconds per vehicle. Should vehicles arrive just missing the green time for that movement, drivers would wait the remainder of the cycle before receiving the green light.

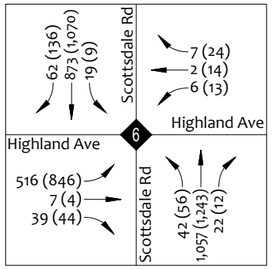
  With the anticipated traffic volumes for these movements, a maximum of 7 vehicles reported in the peak hour, it is anticipated that all vehicles will clear the intersection during a single cycle

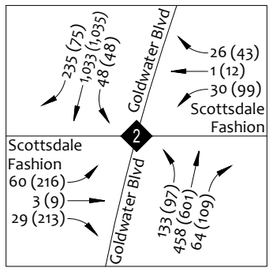
- EB shared left-through movement during the AM peak hour operates at LOS E (7 through vehicles)

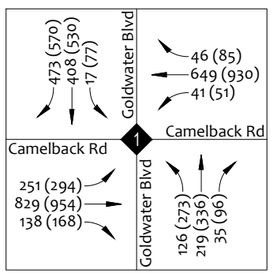
  The delay for this movement is also similar to the WB shared through-right turn detailed above.







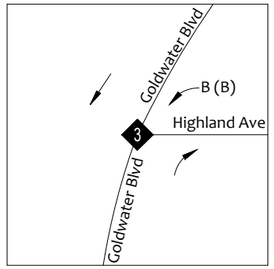


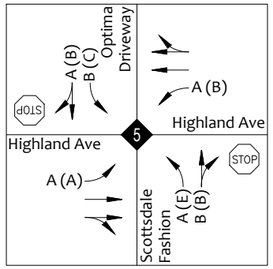


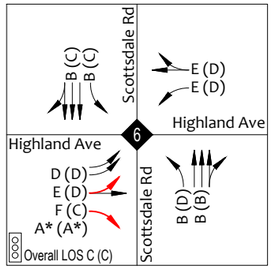
Legend

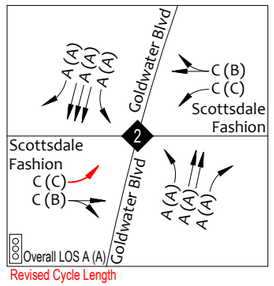
AM (PM)	Year 2020 Build Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

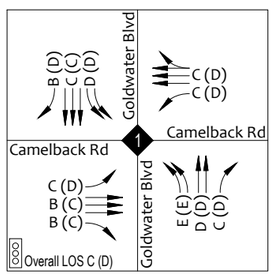
FIGURE 8 | YEAR 2020 BUILD TRAFFIC VOLUMES











Legend

AM (PM)	Year 2020 Build Peak Hour Level of Service (HCM Methodology)
AM* (PM*)	Year 2020 Build Peak Hour Level of Service (Synchro Methodology)
X	Intersection
	Lane Configuration

FIGURE 9 | YEAR 2020 BUILD CAPACITY ANALYSIS

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STIPULATIONS

As part of the Scottsdale Fashion Square Mall Zoning Application Case Number 25-ZN-2015 & 1-II-2016, stipulations were established including transportation related stipulations. See **Attachment G** for City of Scottsdale Ordinance No. 4299.

The proposed Caesars Republic development is located within "Parcel B" shown on Exhibit A to Exhibit 1 in the recorded stipulations. The following are the transportation stipulations related to the proposed Caesars Republic development:

- 12. TRAFFIC IMPACT STUDY. As determined by the Transportation Director, or designee, with a Development Review Board application for a new or expanded building, the property owner shall submit an updated traffic impact study to address the new development. The owner shall obtain approval of the study from the Transportation Director, or designee, prior to the Development Review Board hearing for the related new building, or building expansion. The owner shall be responsible for any infrastructure improvements identified by the updated traffic impact study(ies) that are the result of the traffic generated by new or expanded buildings on the site.

  This report fulfills this stipulation for the proposed Caesars Republic development.

- 13.a.1. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the east side of North Goldwater Boulevard, from the intersection of East Via Soleri Drive and North Goldwater Boulevard to the intersection of East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.3. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the south side of East Highland Avenue, from the intersection of East Highland Avenue and North Goldwater Boulevard to the intersection of East Highland Avenue and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.4. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the west side of North Scottsdale Road, from the intersection of East Highland Avenue and North Scottsdale Road to the intersection of East Fashion Square Drive and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A or B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.8. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently construct all street and pedestrian improvements supported by the updated traffic impact study that corresponds with the new or expanded building, and approved by the Transportation Director, or designee.

  This report provides street improvement recommendations.

- 13.a.9. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently modify any existing traffic signals and equipment supported by the updated traffic impact study approved by the Transportation Director, or designee that to address the new development associated with the requested building permit.

  This report provides traffic signal improvement recommendations.

- 14.a. The property owner shall design and construct a third eastbound lane on Highland Avenue, beginning just east of Goldwater Boulevard and terminating as a third eastbound left-turn lane at Scottsdale Road, prior to any certification of occupancy for a combined total building area exceeding 75,000 square feet in new or expanded building south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard within the area identifies as Parcel B on Exhibit A to Exhibit 1.

  The proposed Caesars Republic development will be 246,913 square feet in new building and therefore appears to trigger the third eastbound lane on Highland Avenue.

  However, based on the year 2020 build analysis with the build out of the proposed Caesars Republic, acceptable levels of service can be provided with modifying the west

leg to accommodate dual left turn lanes, a shared left-through lane, and a dedicated right turn lane. This will improvement will require pavement marking, signing, and traffic signal modifications.

- 14.b. The property owner shall design and construct intersection modifications to provide separate eastbound left-turn lane and shared through-right-turn lane at the East Scottsdale Fashion Square and North Goldwater Boulevard intersection, prior to any certificate of occupancy for any new building south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard, within the area identified as Parcel B on Exhibit A to Exhibit 1.

  This lane configuration appears to be triggered with the proposed Caesars Republic development and is shown as part of the year 2020 build analysis. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications.

- 14.c. The property owner shall contract with a traffic engineering consultant to conduct a study of the East Highland Avenue and North Goldwater Boulevard intersection prior to any certificate of occupancy for any new or expanded building within the area identified as Parcel B on Exhibit A to Exhibit 1. The study shall recommend intersection improvements to improve the safety and convenience for the westbound left-turn movement, improve intersection sight distance, and reduce speeding on North Goldwater Boulevard. The study shall not include any options that consider a connection to the existing East Highland Avenue west of North Goldwater Boulevard. The property owner shall not be obligated for any costs and/or improvement associated with the study that exceed $50,000, and the final study shall be submitted to the City of Scottsdale for review and approval.

  A traffic study of the East Highland Avenue and North Goldwater Boulevard intersection appears to be triggered with the proposed Caesars Republic development.

- 14.d. If directed by the Transportation Director based upon future traffic analysis, the property owner shall design and construct an additional left-turn lane on East Camelback Road at the North Goldwater Boulevard signalized intersection. The timing of the improvements shall be based upon the need as determined by the traffic analysis tied to proposed new building or building expansion on the site. The property owner shall be responsible for all necessary street reconstruction, pavement marking modifications, and signal equipment modification to accomplish the addition of the eastbound left-turn lane.

The construction of an additional dedicated left turn lane does not appear to be necessary at this time. Based on the year 2020 build analysis with the build out of the proposed Caesars Republic, acceptable levels of service can be provided with modifying the west leg to accommodate dual left turn lanes, a shared left-through lane, and a dedicated right turn lane. This will improvement will require pavement marking, signing, and traffic signal modifications.

- 15.e. There shall be an east/west driveway maintained through the site from North Goldwater Boulevard to North Scottsdale Road in or near the area identified as Parcel B on Exhibit A to Exhibit 1. The alignment of such driveway shall be determined at the time of the applicable Development Review Board application.

  The proposed Caesars Republic development maintains the existing east/west driveway.

- 16.b. The developer shall design and construct a pedestrian hybrid beacon on Highland Avenue between Scottsdale Road and Goldwater Boulevard prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. Adequate stopping sight distance for drivers on Goldwater Boulevard/Highland Avenue must be provided with the design. This requirement shall not be in effect if a traffic signal is determined to be warranted and approved prior to the construction of the pedestrian hybrid beacon. If a traffic signal is determined to be warranted by the Transportation Director at this intersection in the future, the pedestrian hybrid beacon shall be replaced by the full traffic signal.

  This pedestrian hybrid beacon installation appears to be triggered with the proposed Caesars Republic development.

- 16.c. Prior to the certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall explore a grade separated pedestrian crossing between the building or parking structure and the existing Optima residential development on the north side of East Highland Avenue.

  The exploration of a grade separated pedestrian crossing appears to be triggered with the proposed Caesars Republic development.

- 17.b. The property owner shall design and construct transit stop improvements on North Scottsdale Road south of East Highland Avenue, prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The

design and location of the transit stop shall be approved by the Transportation Department Director or designee.

Transit stop improvements on North Scottsdale Road south of East Highland Avenue appears to be triggered with the proposed Caesars Republic development.

- 18.a. Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Highland Avenue street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

  Pedestrian lighting installation along East Highland Avenue appears to be triggered with the proposed Caesars Republic development.

SUMMARY

This report is an update to the originally recorded Traffic Impact and Mitigation Analysis for Scottsdale Fashion Square, dated May 9, 2017, which assumed a 400 unit condominium development on the southeast corner of Goldwater Boulevard and Highland Avenue. This report replaces the residential development with the proposed Caesars Republic development, which is a 265 room, 11 story hotel, with a 3,200 square foot restaurant. Additional amenities will be provided on site that are anticipated to be primarily utilized by the hotel guests, which include a 200 square foot coffee shop, 6,800 square foot ballroom, 2,000 square foot meeting space, and 5,000 square foot bar/lounge on the 7th floor.

	Weekday	AM Peak Hour			PM Peak Hour		
	Total	Total	In	Out	Total	In	Out
SFS TI&MA Dated May 9, 2017	2,149	156	27	129	126	84	41
Caesars Republic	2,833	127	75	52	110	59	52
Difference	**684**	**-29**	48	-77	**-15**	-26	11

Although the prior and proposed land uses are different, the weekday daily, and AM and PM peak hour trip generation is relatively similar.

The following improvements and mitigation measures were included in the year 2020 build analysis:

Goldwater Boulevard and Camelback Road (1) – Signalized
An overlap phase was included for the southbound right turn movement.

Goldwater Boulevard and Fashion Square (2) – Signalized
The lane configuration for the eastbound approach at the intersection of Goldwater Boulevard and Fashion Square was modified to provide a dedicated left turn lane and a shared through-right turn lane. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications. Additionally, the signal cycle length was reduced to 60 seconds.

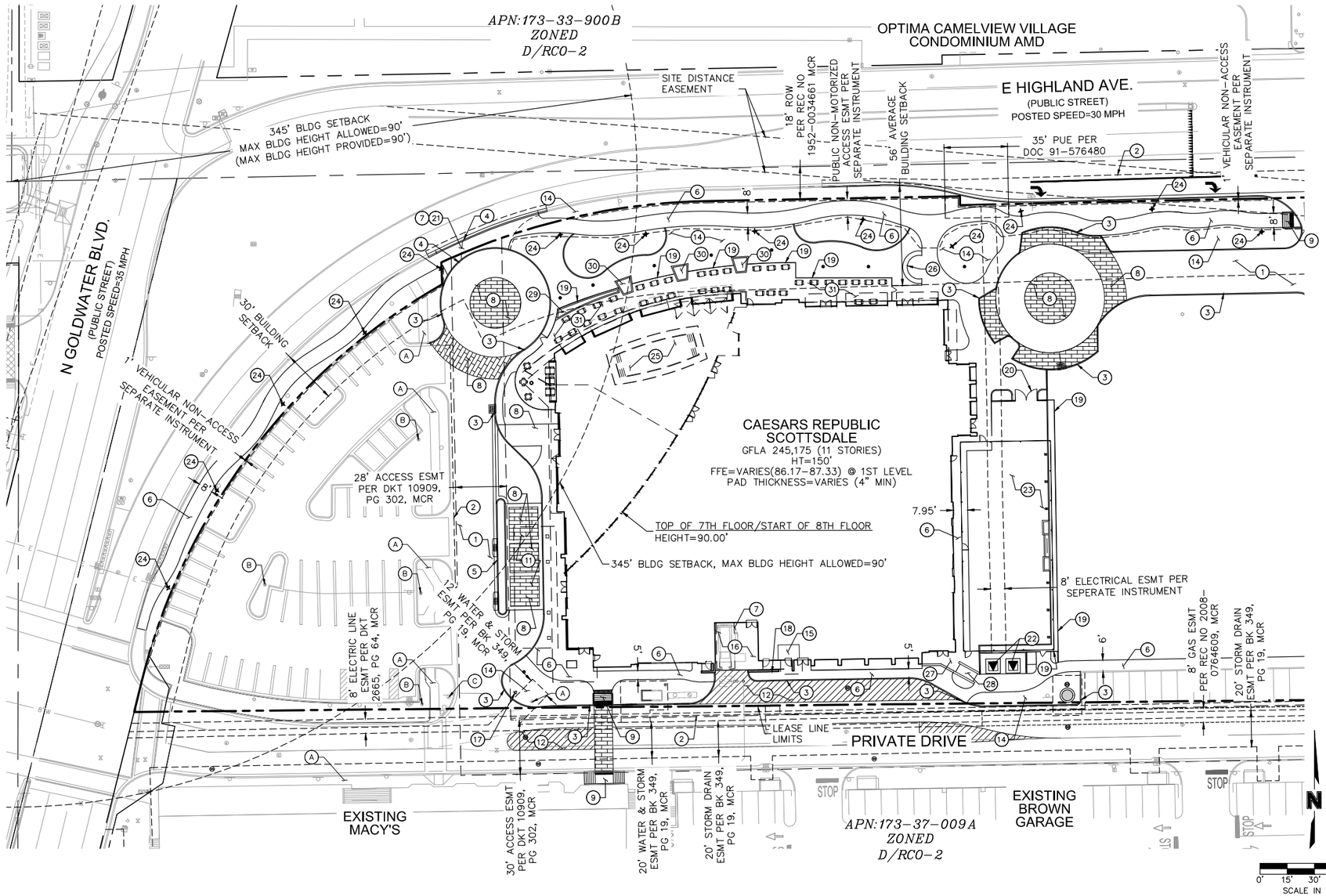
Scottsdale Road and Highland Avenue (6) – Signalized
Although the stipulation requires the build out of a third eastbound left turn lane, alternative geometrics and lane configurations were considered to determine whether an interim condition could provide adequate levels of service. For this intersection, modifying the eastbound approach to provide two dedicated left turn lanes, a shared left-through lane and a dedicated right turn lane.

These improvements are recommended with the build out of the proposed Caesars Republic development.

As part of the Scottsdale Fashion Square Mall Zoning Application Case Number 25-ZN-2015 & 1-II-2016, stipulations were established including transportation related stipulations. A number of these stipulations appear to be triggered with the proposed Caesars Republic developments, including but not limited to, sidewalk improvements, street improvements, pedestrian improvements, required traffic studies, installation of a pedestrian hybrid beacon, transit stop improvements, and pedestrian lighting installation.

ATTACHMENT A – CAESARS REPUBLIC SITE PLAN

PRELIMINARY SITE PLAN



SITE PLAN KEYNOTES

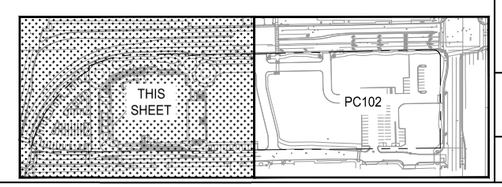
1. HEAVY DUTY ASPHALT PAVEMENT. SEE DETAIL A, SHEET C103
2. 2' MINIMUM SAWCUT. NEW ASPHALT PAVEMENT PER MAG STD DETAIL 200-1, TYPE "A"
3. 6" VERTICAL SINGLE CURB PER MAG STD DETAIL 222, TYPE "A"
4. 6" ROLL CURB AND GUTTER PER MAG STD DETAIL 220-1, TYPE "C"
5. 6" VERTICAL CURB AND GUTTER PER MAG STD DETAIL 220-1, TYPE "A"
6. 4" THICK CONCRETE SIDEWALK, WIDTH PER PLAN SEE DETAIL E, SHEET PC103
7. 6" THICK CONCRETE (REINFORCED). SEE DETAIL C, SHEET PC103
8. DECORATIVE PAVING. PER LANDSCAPE ARCHITECT PLANS
9. ACCESSIBLE ACCESS RAMP. SEE DETAIL D, SHEET PC103
10. DIRECTIONAL RAMP. PER MAG STD DETAIL 237-1.
11. 20' DROP OFF LANE
12. 4" WHITE STRIPING
13. BIKE RACK
14. LANDSCAPE AREA PER LANDSCAPE ARCHITECTS PLANS
15. FIRE RISER ROOM PER MECHANICAL PLANS
16. TRASH COMPACTOR AND STORAGE. PER ARCHITECTURAL PLANS
17. REMOTE FIRE DEPARTMENT CONNECTION (FDC)
18. GAS METER
19. 36" STAINLESS STEEL DECORATIVE RAILING. PER LANDSCAPE ARCHITECT PLANS
20. GATE PER ARCHITECTURAL PLANS
21. EMERGENCY ACCESS DRIVE
22. TRANSFORMER PAD
23. EVENT LAWN. PER LANDSCAPE ARCHITECT PLANS
24. SITE LIGHTING PER ELECTRICAL PLANS
25. 7TH FLOOR POOL
26. 30" TALL SEAT WALL. SEE DETAIL F, SHEET PC103
27. ADA ACCESS RAMP
28. SINGLE STAIR ACCESS
29. WATER FEATURE. PER LANDSCAPE ARCHITECT PLANS
30. RAISED PLANTER BOX PER LANDSCAPE ARCHITECT PLANS
31. OUTDOOR PATIO SEATING AREA

EXISTING KEYNOTES

- (A) *EXISTING SIDEWALK*
- (B) *EXISTING LIGHTING TO REMAIN*
- (C) *EXISTING SIGN TO REMAIN*
- (D) *EXISTING FIRE HYDRANT TO REMAIN*
- (E) *EXISTING TRANSFORMER TO BE RELOCATED*
- (D) *EXISTING GREASE TRAP*
- (D) *EXISTING CLEANOUT*

SITE PLAN NOTES:

1. SITE PLAN IS INTENDED TO BE USED FOR PLANNING PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION PURPOSES
2. REFERENCE SITE PLANS SHEET PC100 FOR OVERALL PROJECT SITE PLAN



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FAX 602.748.1001
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Dial 8-1-1 or 1-800-STAKE4T (782-5348)
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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

DESIGN REVIEW BOARD
PRELIMINARY SITE PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by:	SS/THW
designed by:	SJV
checked by:	CAII
project no.:	018-3159
date:	05.09.2019

30-DR-2019
8/22/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV2-PC101 SITE PLAN_83159.dwg USER: thutchinswoss
DATE: May 09, 2019 9:33am XREFS: C_PTBLK_0183159 C_PRE_PBASE_0183159 C_XBASE_0183159 C_XBASE_OVERALL IMPROVEMENTS AMY_SCHWENNER_LA_AZ E_PLTG_0183159

ATTACHMENT B – TRIP GENERATION

Scottsdale Fashion Square
HCW, LLC

Completed: SS 8/13/219
Checked: GT 8/13/219

Trip Generation Calculations - Ceasars Republic

310 Hotel

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Hotel	310	265	Rooms	8.36	50%	50%	0.47	59%	41%	0.6	51%	49%	2,215	1108	1107	125	74	51	159	81	78	Average
Hotel	310	265	Rooms	5.31	50%	50%	0.20	59%	41%	0.26	51%	49%	1,407	704	703	53	31	22	69	35	34	Minimum
Hotel	310	265	Rooms	9.53	50%	50%	0.84	59%	41%	1.06	51%	49%	2,525	1263	1262	223	132	91	281	143	138	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Hotel	**310**	**265**	**Rooms**	**T=11.29(X)-426.97**	**50%**	**50%**	**T=0.50(X)-5.34**	**59%**	**41%**	**T=0.75(X)-26.02**	**51%**	**49%**	**2,565**	**1,283**	**1,282**	**127**	**75**	**52**	**173**	**88**	**85**	**Equation**

Hotel	Standard Deviation	1.86		0.14		0.22			
	Number of Studies	6		25		28			
	Average Size	146		178		183			
	R^2	0.92		0.85		0.80			

931 Quality Restaurant

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Quality Restaurant	**931**	**3.2**	**1000 SF GLA**	**83.84**	**50%**	**50%**	**0.73**	**N/A**	**N/A**	**7.80**	**67%**	**33%**	**268**	**134**	**134**	**0**	**0**	**0**	**25**	**17**	**8**	**Average**
Quality Restaurant	931	3.2	1000 SF GLA	33.45	50%	50%	0.25	N/A	N/A	2.62	67%	33%	107	54	53	0	0	0	8	5	3	Minimum
Quality Restaurant	931	3.2	1000 SF GLA	139.93	50%	50%	1.60	N/A	N/A	18.68	67%	33%	448	224	224	0	0	0	60	40	20	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Quality Restaurant	931	3.2	1000 SF GLA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Equation

Quality Restaurant	Standard Deviation	40.01		0.42		4.49			
	Number of Studies	10		7		19			
	Average Size	9		10		9			
	R^2	N/A		N/A		N/A			

New Trip Gen	**2833**	**1417**	**1416**	**127**	**75**	**52**	**198**	**105**	**93**

30-DR-2019
8/22/2019

Scottsdale Fashion Square
HCW, LLC

Completed: SAS 8/13/219
Checked: GT 8/13/219

Trip Generation Calculations - Ceasars Republic

										After Internal Capture									After Internal Capture				After Pass-By		
			BEFORE REDUCTION AM PEAK HR ADJ STREET			Internal Capture Calcs				AM REDUCED			BEFORE REDUCTION PM PEAK HR ADJ STREET			Internal Capture Calcs				PM REDUCED			PASS-BY	PM REDUCED		
LAND USE	SF	DU	ENTER	EXIT	TOTAL	Origin FROM	Destin TO	TOTAL	Rate %	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	Origin FROM	Destin TO	TOTAL	Rate %	ENTER	EXIT	TOTAL	Rate %	ENTER	EXIT	TOTAL
Hotel		200	63	43	106	62	-	0	0%	63	43	106	61	59	120	52	448	52	44%	34	33	68	0%	34	33	68
General Office Building	240,000		262	36	298	241	19	19	6%	245	34	279	49	241	290	13	809	13	4%	47	230	278	0%	47	230	278
CAESARS REPUBLIC (HOTEL)		265	75	52	127	74	0	0	0%	75	52	127	88	85	173	76	448	76	44%	50	48	97	0%	50	48	97
CAESARS REPUBLIC (RESTUARANT)	3,200		-	-	-	0	240	0	0%	-	-	-	17	8	25	12	779	12	47%	9	4	14	0%	9	4	14
General Office Building	600,000		655	90	745	603	19	19	3%	638	87	726	123	603	726	32	858	32	4%	118	576	694	0%	118	576	694
Shopping Center	30,000		5	3	9				0%	5	3	9	21	23	43				0%	21	23	43	34%	14	15	29
Shopping Center	60,000		11	6	17				0%	11	6	17	41	45	86				0%	41	45	86	34%	27	30	57
Shopping Center	200,000		35	22	57				0%	35	22	57	138	150	288				0%	138	150	288	34%	91	99	190
General Office Building	30,000		33	4	37	30	19	19	52%	16	2	18	6	30	36	2	858	2	4%	6	29	35	0%	6	29	35
Existing Shopping Center	2,086,445		617	378	995				0%				2,202	2,385	4,587				0%				34%	1,453	1,574	3,027
TOTAL			1,139	256	1,395					1,088	249	1,338	545	1,244	1,789					464	1,138	1,603		396	1,064	1,461
										96%												90%			82%

For Trip Origins, Table 6.1 ITE Trip Generation Handbook, 3rd Edition			
Land Use Pairs		AM	PM
From Office	To Restaurant	63%	4%
	To Retail	28%	20%
	To Residential	1%	2%
	To Hotel	0%	0%
From Residential	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Hotel	0%	3%
From Hotel	To Office	75%	0%
	To Retail	14%	16%
	To Residential	0%	2%
	To Restaurant	9%	68%
From Restaurant	To Office	31%	3%
	To Retail	14%	41%
	To Residential	4%	18%
	To Hotel	3%	7%

For Trip Origins, Table 6.2 ITE Trip Generation Handbook, 3rd Edition			
Land Use Pairs		AM	PM
To Office	From Restaurant	14%	30%
	From Retail	4%	31%
	From Residential	3%	57%
	From Hotel	3%	0%
To Residential	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Hotel	0%	0%
To Hotel	From Office	0%	0%
	From Retail	0%	17%
	From Residential	0%	12%
	From Restaurant	4%	71%
To Restaurant	From Office	23%	2%
	From Retail	50%	29%
	From Residential	20%	14%
	From Hotel	6%	5%

Scottsdale Fashion Square
Macerich

Completed: SAS 8/13/219
Checked: GT 8/13/219

Trip Generation Calculations - Ceasars Republic

South of Highland - From FINAL Scottsdale Fashion Report May 9, 2017 (ITE Trip Generation, 9th Edition)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	**Total**	In	Out	**Total**	In	Out	**Total**	In	Out
Condominium/Townhouse/Apartment	230	400	Dwelling Units	Ln(T)=0.87Ln(X)+2.46	50%	50%	Ln(T)=0.80Ln(X)+0.26	17%	83%	Ln(T)=0.82Ln(X)+0.32	67%	33%	2,149	1,075	1,074	156	27	129	126	84	41
												Trip Gen	**2,149**	1,075	1,074	**156**	27	129	**126**	84	41

South of Highland - HCW Proposal November 5, 2018 (ITE Trip Generation, 10th Edition)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	**Total**	In	Out	**Total**	In	Out	**Total**	In	Out
Hotel	310	265	Rooms	T=11.29(X)-426.97	50%	50%	T=0.50(X)-5.34	59%	41%	T=0.75(X)-26.02	51%	49%	2,565	1,283	1,282	127	75	52	97	50	48
Quality Restaurant	931	3.2	1000 SF GLA	83.84	50%	50%	0.73	N/A	N/A	7.80	67%	33%	268	134	134	0	0	0	13	9	4
												New Trip Gen	**2,833**	1,417	1,416	**127**	75	52	**110**	59	52

ATTACHMENT C – 5/9/17 SFS TI&MA EXISTING SIGNAL TIMING

68th ST. & CAMELBACK

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN STANDARD
F.D.W.	23	17	
YELLOW	4.2	4.2	3.0
ALL-RED	2.8	1.8	1.0

DATE DESIGNED: 3/10/2010

SYSTEM #: 56

SECTION #: 101

COMMUNICATIONS MM-1-5-1

I.P. ADDRESS: 172.17. 10.56

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

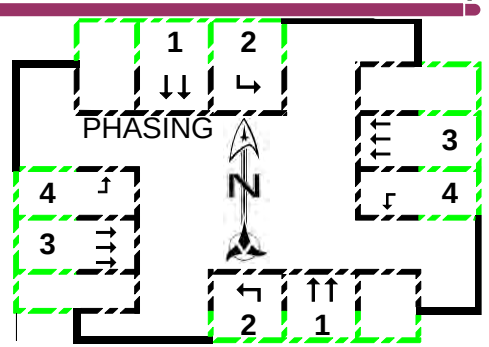
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4
MOVEMENT	NST	NSL	EWT	EWL
NOTES				
MIN GRN	8	4	10	4
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		33	
WALK2				
WLK MAX				
PED CLR/FDW	23		17	
PD CLR2				
PC MAX				
PED CO				
VEH EXT	2	1	1	1
VH EXT2				
MAX 1	30	25	70	25
MAX 2	60	50	90	50
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.2	3	4.2	3
RED CLR	2.8	1	1.8	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
-7	-4	-6	-4	0	0	0	0
-7	-4	-6	-4	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
8/22/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

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

MOVEMENTS: NST NSL EWT EWL

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 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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

0

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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

0

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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

0

30-DR-2019

8/22/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MID-DAY SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

	R1	1 ↕	2 ↰↳	3 ↔	4 ↴↱
	R2				

MOVEMENTS NST NSL EWT EWL

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 MID-DAY TIME-SPACE DIAGRAMS

PLAN # 4

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0900-1530 1830-2100

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

TARGET; ACTUAL CYCLE; RING 1; RING 2

PLAN # 5

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES as needed

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

TARGET; ACTUAL CYCLE; RING 1; RING 2

PLAN # 6

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES as needed

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

TARGET; ACTUAL CYCLE; RING 1; RING 2

30-DR-2019

8/22/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

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 EWL

	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 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								
COORD RECALLS (V, P, Mx) GREEN	-7	-4	-6	-4	0	0	0	0

TARGET

ACTUAL CYCLE 0

RING 1

RING 2

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

TARGET

ACTUAL CYCLE 0

RING 1

RING 2

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

TARGET 120

ACTUAL CYCLE 0

RING 1

RING 2

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

30-DR-2019

8/22/2019

GOLDWATER & CAMELBACK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	22	23	STANDARD	11/27/2012
YELLOW	3.6	3.6	3.0	SYSTEM # 57 / SECTION # 101
ALL-RED	2.4	2.4	1.0	

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.57

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

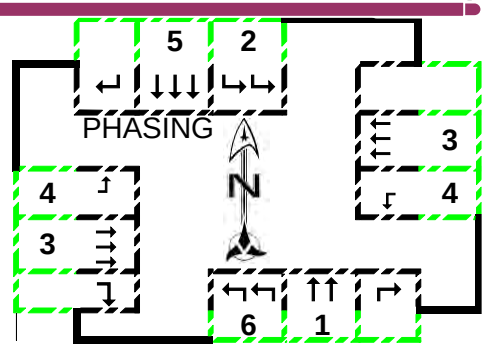
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	2	3	4	5	6
MOVEMENT	NBT	SBL	EWT	EWL	SBT	NBL
NOTES		PROT		perm/PROT		PROT
MIN GRN	10	4	10	4	10	4
BK MGRN						
CS MGRN						
DLY GRN						
WALK	8		7		8	
WALK2						
WLK MAX						
PED CLR/FDW	22		23		22	
PD CLR2						
PC MAX						
PED CO						
VEH EXT	2	1		1	3	1
VH EXT2						
MAX 1	50	15	45	15	50	15
MAX 2	60	50	60	45	60	50
MAX 3						
DYM MAX						
DYM STP						
YELLOW	3.6	3	3.6	3	3.6	3
RED CLR	2.4	1	2.4	1	2.4	1
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			
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
46	15	43	15	46	15	49	19
56	45	57	42	56	45	63	46

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

GOLDWATER & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	22	0	23	0	22	0	0	0
YELLOW	3.6	3.0	3.6	3.0	3.6	3.0	0.0	0.0
ALL RED	2.4	1.0	2.4	1.0	2.4	1.0	0.0	0.0

SYSTEM # 57

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 ↰			

MOVEMENTS: NBT SBL EWT EWL SBT NBL

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

N/S

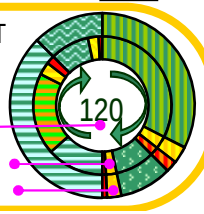
MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PLAN # 1

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	15	45	15	45	15	45	15	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	39	11	39	11	39	11	45	15	RING 1
									RING 2



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

PLAN # 2

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	52	18	38	12	52	18	38	12	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	46	14	32	8	46	14	38	12	RING 1
									RING 2

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

PLAN # 3

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	41	14	46	19	41	14	46	19	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	35	10	40	15	35	10	46	19	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	10	1
2	SB	10	2
3	NS	10	3
4	EB	104	4
5	WB	104	5
6	EW	104	6

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

30-DR-2019
8/22/2019

GOLDWATER & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	22	0	23	0	22	0	0	0
YELLOW	3.6	3.0	3.6	3.0	3.6	3.0	0.0	0.0
ALL RED	2.4	1.0	2.4	1.0	2.4	1.0	0.0	0.0

SYSTEM # 57

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

R1	1 ↑	2 ↪	3 ↔	4 ↴↓		
R2	5 ↓	6 ↩				
MOVEMENTS	NBT	SBL	EWT	EWL	SBT	NBL

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	107	1
2	SB	107	2
3	NS	107	3
4	EB	107	4
5	WB	107	5
6	EW	107	6

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 1530-1830

RING 1 / RING 2

PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	19	41	15	45	19	41	15	120
COORD			x				x		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	39	15	35	11	39	15	41	15	RING 1 / RING 2

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

PLAN # 8

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

RING 1 / RING 2

PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	52	16	40	12	52	16	40	12	120
COORD			x				x		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	46	12	34	8	46	12	40	12	RING 1 / RING 2

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

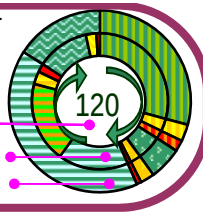
PLAN # 9

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

RING 1 / RING 2

PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	41	11	49	19	41	11	49	19	120
COORD			x				x		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	35	7	43	15	35	7	49	19	RING 1 / RING 2



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

30-DR-2019

8/22/2019

GOLDWATER & FASHION SQUARE ACCESS

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	13	19	STANDARD	
YELLOW	4.1	2.9	3.0	SYSTEM # 137
ALL-RED	1.9	3.1	1.0	SECTION # 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 11.37

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

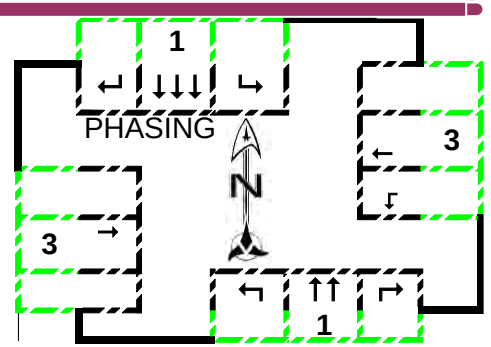
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	17	6
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	105	35
MAX 2	110	55
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.1	3
RED CLR	1.9	3
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
101	0		35	0	0	0	0	0
102	0		55	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
8/22/2019

GOLDWATER & FASHION SQUARE ACCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 137

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 11/27/2006

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	88	0	32	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 1 1; 1 2; 1 3

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

PLAN # 2

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	107	0	13	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	101	0	7	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 2 1; 2 2; 2 3

PLAN # 3

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	94	0	26	0	0	0	0	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

AVAILABLE COORDINATOR PATTERN #s: 3 1; 3 2; 3 3

GOLDWATER & FASHION SQUARE ACCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 137

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

R1 1 ↕ 3 ↔

R2

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	94	0	26	0	0	0	0	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

7 1

DIR CODE 1 | COORD DIR NB | B.O.G. OFFSET 110

PLAN # 8

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

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

120

8 1

SB | NS | EB | WB | EW

PLAN # 9

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84	0	36	0	0	0	0	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

GOLDWATER & SOLARI

BASIC TIMING PLANS

RECOMMENDED CLEARANCES	N/S	E/W	LEFT TURN
F.D.W.	13	18	STANDARD
YELLOW	4.1	3	3.0
ALL-RED	1.9	3	1.0

DATE DESIGNED: 11/28/2012

SYSTEM #: 219 SECTION #: 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.19

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

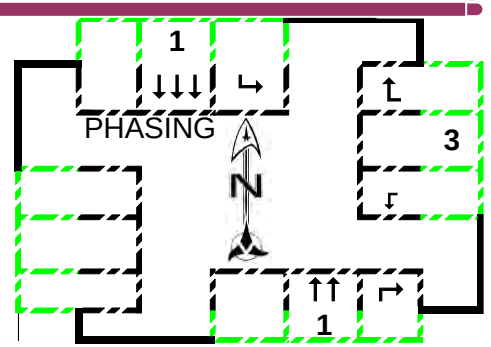
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	5
BK MGRN		
CS MGRN		
DLY GRN		
WALK	17	7
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	105	30
MAX 2	110	50
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.1	3
RED CLR	1.9	3
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
101	0		26	0	0	0	0	0
103	0		49	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

GOLDWATER & SOLARI

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 219

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

1 1
1 2
1 3
2 1
2 2
2 3
3 1
3 2
3 3

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88	0	32	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	107	0	13	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	101	0	7	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	100	0	20	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	94	0	14	0	0	0	0	0	RING 1
									RING 2

120

30-DR-2019

8/22/2019

GOLDWATER & SOLARI

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 219

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

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 5/14/2008

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	47	0	13	0	0	0	0	0	60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	41	0	7	0	0	0	0	0	RING 1
									RING 2

60

7 1

PLAN # 8

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	105	0	15	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	99	0	9	0	0	0	0	0	RING 1
									RING 2

120

8 1

PLAN # 9

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	95	0	25	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	89	0	19	0	0	0	0	0	RING 1
									RING 2

120

9 1

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	55	1
	SB		2
	NS		3
	EB		4
	WB		5
	EW		6

30-DR-2019

8/22/2019

SCOTTSDALE RD. & CAMELBACK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN STANDARD	DATE DESIGNED	
F.D.W.	17	25		3/31/2010	
YELLOW	4.4	4.1	3.0	SYSTEM #	SECTION #
ALL-RED	2.6	2.9	1.0	59	517

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 10.59

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

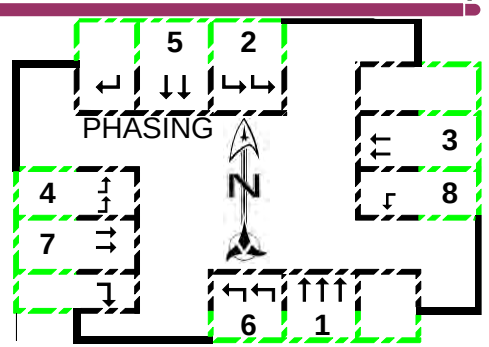
VOL DENSITY

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	5	10	5	15	5	20	5
BK MGRN								
CS MGRN								
DLY GRN								
WALK	8		7		8		7	
WALK2								
WLK MAX								
PED CLR/FDW	17		25		17		25	
PD CLR2								
PC MAX								
PED CO								
VEH EXT	0	2	3	2	0	2	3	2
VH EXT2								
MAX 1	50	20	45	20	50	20	40	20
MAX 2	55	35	50	40	55	35	45	40
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.2	3	3.8	3	4.2	3	3.8	3
RED CLR	2.8	1	3.2	1	2.8	1	3.2	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								
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
47	18	41	20	47	18	39	20
51	35	46	40	51	35	41	40

SPLIT PLAN MAXIMUMS

NOTES

1/19/11 - Sensys installed, veh ext increased.

ONLY VALID WHEN STAMPED

SCOTTSDALE RD. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	25	0	17	0	25	0
YELLOW	4.2	3.0	3.8	3.0	4.2	3.0	3.8	3.0
ALL RED	2.8	1.0	3.2	1.0	2.8	1.0	3.2	1.0

SYSTEM # 59

SECTION # 517

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

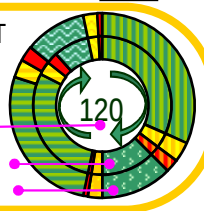
MOVEMENTS: NBT | SBL | WBT | EBL | SBT | NBL | EBT | WBL

PLAN # 1

DATE EFFECTIVE 3/26/2007

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	19	42	14	45	19	39	17	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	38	15	35	10	38	15	32	13	RING 1
									RING 2



PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

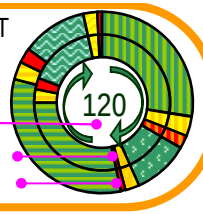
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	50	21	35	14	50	21	31	18	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	43	17	28	10	43	17	24	14	RING 1
									RING 2

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	16	41	23	40	16	46	18	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	33	12	34	19	33	12	39	14	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	50	1
2	SB	50	2
3	NS	50	3
4	EB	49	4
5	WB	49	5
6	EW	49	6

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

30-DR-2019

8/22/2019

SCOTTSDALE RD. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	25	0	17	0	25	0
YELLOW	4.2	3.0	3.8	3.0	4.2	3.0	3.8	3.0
ALL RED	2.8	1.0	3.2	1.0	2.8	1.0	3.2	1.0

SYSTEM # 59

SECTION # 517

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	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

MOVEMENTS	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

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	49
2	SB	49
3	NS	49
4	EB	49
5	WB	49
6	EW	49

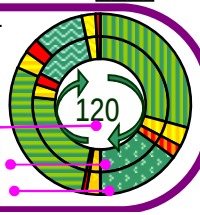
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 3/26/2007

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	42	22	35	21	42	22	41	15	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	35	18	28	17	35	18	34	11	RING 1 / RING 2



PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

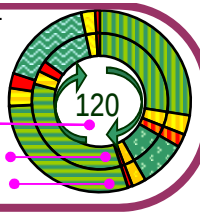
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	54	19	33	14	54	19	33	14	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	47	15	26	10	47	15	26	10	RING 1 / RING 2

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	14	48	18	40	14	42	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	33	10	41	14	33	10	35	20	RING 1 / RING 2



30-DR-2019

8/22/2019

SCOTTSDALE & DRINKWATER

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	20	19	STANDARD	5/10/2013
YELLOW	3.7	3.8	3.0	SYSTEM # 142 / SECTION # 101
ALL-RED	2.3	3.2	1.0	

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 11.42

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

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

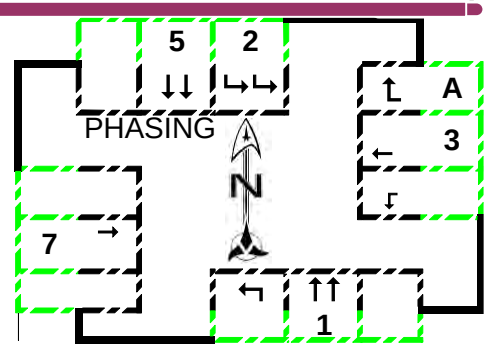
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	2	3	5	7
MOVEMENT	NBT	SBL	WBT	SBT	EBT
NOTES		Ld Prm			
MIN GRN	20	d Prm	12	20	8
BK MGRN					
CS MGRN					
DLY GRN					
WALK	7		6	7	6
WALK2					
WLK MAX					
PED CLR/FDW	19		19	19	19
PD CLR2					
PC MAX					
PED CO					
VEH EXT	1	3	3	1	1
VH EXT2					
MAX 1	45	30	50	80	50
MAX 2	50	40	55	85	55
MAX 3					
DYM MAX					
DYM STP					
YELLOW	3.6	3	4.7	3.6	4.7
RED CLR	2.4	1	2.3	2.4	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		
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
43	30	47	0	77	0	47	0
48	40	40	0	77	0	44	0

SPLIT PLAN MAXIMUMS

NOTES

OL-A active during phs 2 + 3 unless ph 3 ped active.

ONLY VALID WHEN STAMPED

SCOTTSDALE & DRINKWATER

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	19	0	19	0	19	0
YELLOW	3.6	3.0	4.7	0.0	3.6	0.0	4.7	0.0
ALL RED	2.4	1.0	2.3	0.0	2.4	0.0	2.3	0.0

SYSTEM # 142

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 # 2
ACTION PLAN #

SEQUENCE

R1: 2 ↳ | 1 ↑ | 3 ←
R2: 5 ↓ | | 7 →

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

N/S

MOVEMENTS: NBT SBL WBT SBT EBT

PLAN # 1

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	39	34	47	0	73		47	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P	M			P				
GREEN	33	30	40	0	67	0	40	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	49	34	37	0	83		37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	43	30	30	0	77	0	30	0	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	34	46	0	74		46	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	34	30	39	0	68	0	39	0	RING 1
									RING 2

120

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

1 1
1 2
1 3
2 1
2 2
2 3
3 1
3 2
3 3

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	45
2	SB	45
3	NS	45
4	EB	
5	WB	
6	EW	

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

30-DR-2019
8/22/2019

SCOTTSDALE & DRINKWATER

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	19	0	19	0	19	0
YELLOW	3.6	3.0	4.7	0.0	3.6	0.0	4.7	0.0
ALL RED	2.4	1.0	2.3	0.0	2.4	0.0	2.3	0.0

SYSTEM # 142

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 ↓		7 →	

MOVEMENTS NBT SBL WBT SBT EBT

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

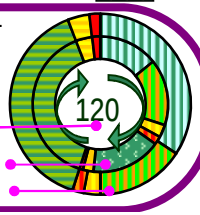
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	42	24	54	0	66		54	0	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	36	20	47	0	60	0	47	0	RING 1 / RING 2



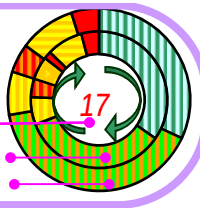
7 1 | 7 2 | 7 3

PLAN # 8

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES

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



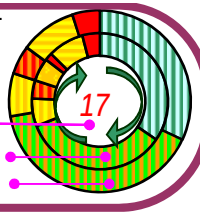
8 1 | 8 2 | 8 3

PLAN # 9

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES

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



9 1 | 9 2 | 9 3

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	98	1
2	SB	98	2
3	NS	98	3
	EB		4
	WB		5
	EW		6

30-DR-2019

8/22/2019

SCOTTSDALE & FASHION SQUARE

BASIC TIMING PLANS

RECOMMENDED CLEARANCES	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	9	20	STANDARD	8/18/2010
YELLOW	4.6	2.9	3.0	SYSTEM # 63 / SECTION # 101
ALL-RED	1.4	3.1	1.0	

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 10.63

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

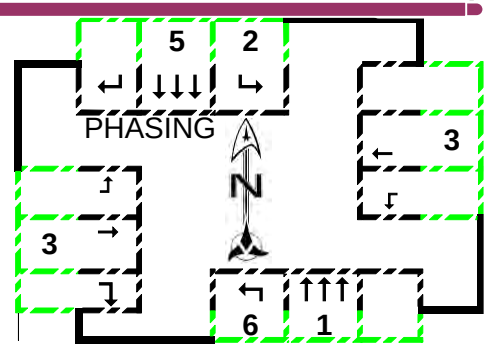
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3		5	6
MOVEMENT	NBT	SBL	EWT		SBT	NBL
NOTES		LD PRM				LD PRM
MIN GRN	10	4	6		10	4
BK MGRN						
CS MGRN						
DLY GRN						
WALK	20		6		20	
WALK2						
WLK MAX						
PED CLR/FDW	10		20		10	
PD CLR2						
PC MAX						
PED CO						
VEH EXT		1	1.5			1
VH EXT2						
MAX 1	65	15	15		65	15
MAX 2	75	30	30		75	30
MAX 3						
DYM MAX						
DYM STP						
YELLOW	4.5	3	3.1		4.5	3
RED CLR	1.5	1	3.9		1.5	1
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
64	16	26	26	64	16	33	26
75	30	30	34	75	30	37	34

SPLIT PLAN MAXIMUMS

NOTES

USE
SEQUENCE 16
AT ALL TIMES

ONLY VALID WHEN STAMPED

30-DR-2019
8/22/2019

SCOTTSDALE & FASHION SQUARE

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	20	0	10	0	0	0
YELLOW	4.5	3.0	3.1	0.0	4.5	3.0	0.0	0.0
ALL RED	1.5	1.0	3.9	0.0	1.5	1.0	0.0	0.0

SYSTEM # 63

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 # 16

ACTION PLAN #

SEQUENCE

R1: 2 → 1 ↑ 3 ↔

R2: 6 ← 5 ↓

MOVEMENTS: NBT SBL EWT SBT NBL

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	38
2	SB	38
3	NS	38
4	EB	35
5	WB	35
6	EW	35

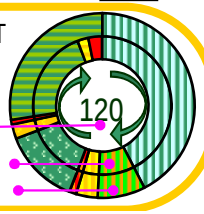
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	67	20	33		67	20	33		120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	61	16	26	0	61	16	33	0	RING 1
									RING 2

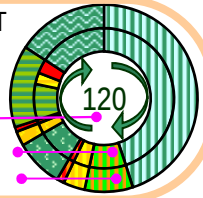


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	70	14	17	19	70	14	17	19	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	64	10	10	19	64	10	17	19	RING 1
									RING 2

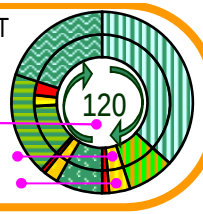


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	60	14	22	24	60	14	22	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	54	10	15	24	54	10	22	24	RING 1
									RING 2



30-DR-2019

8/22/2019

SCOTTSDALE & FASHION SQUARE

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	20	0	10	0	0	0
YELLOW	4.5	3.0	3.1	0.0	4.5	3.0	0.0	0.0
ALL RED	1.5	1.0	3.9	0.0	1.5	1.0	0.0	0.0

SYSTEM # 63

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 16

ACTION PLAN

SEQUENCE

R1: 2 → 1 ↑ 3 ↔

R2: 6 ← 5 ↓

MOVEMENTS NBT SBL EWT SBT NBL

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	35
2	SB	35
3	NS	35
4	EB	35
5	WB	35
6	EW	35

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	64	14	20	22	64	14	20	22
COORD	x				x			
RECALLS (V, P, Mx)	P				P			
GREEN	58	10	13	22	58	10	20	22

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

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	70	14	17	19	70	14	17	19
COORD	x				x			
RECALLS (V, P, Mx)	P				P			
GREEN	64	10	10	19	64	10	17	19

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

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	60	14	22	24	60	14	22	24
COORD	x				x			
RECALLS (V, P, Mx)	P				P			
GREEN	54	10	15	24	54	10	22	24

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

30-DR-2019

8/22/2019

SCOTTSDALE & HIGHLAND

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	16	19	STANDARD	11/4/2010
YELLOW	4.2	3.6	3.0	SYSTEM # / SECTION #
ALL-RED	1.8	3.4	1.0	64 / 721

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.64

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

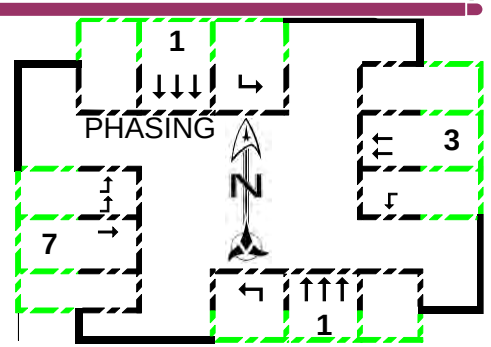
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3	7
MOVEMENT	NST	WBT	EBT
NOTES			
MIN GRN	10	6	8
BK MGRN			
CS MGRN			
DLY GRN			
WALK	14	6	6
WALK2			
WLK MAX			
PED CLR/FDW	16	19	19
PD CLR2			
PC MAX			
PED CO			
VEH EXT		2	3
VH EXT2			
MAX 1	80	15	35
MAX 2	85	30	40
MAX 3			
DYM MAX			
DYM STP			
YELLOW	4.2	2.9	3.4
RED CLR	1.8	3.1	2.6
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		
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
78	0	11	35	84	0	29	17
72	0	28	46	78	0	40	34

SPLIT PLAN MAXIMUMS

NOTES

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

30-DR-2019
8/22/2019

SCOTTSDALE & HIGHLAND

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	19	0	0	0	19	0
YELLOW	4.2	0.0	2.9	0.0	0.0	0.0	3.4	0.0
ALL RED	1.8	0.0	3.1	0.0	0.0	0.0	2.6	0.0

SYSTEM # 64

SECTION # 721

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 ↕		3 ←	
R2				7 →

MOVEMENTS NST WBT EBT

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	39
2	SB	39
3	NS	39
4	EB	15
5	WB	15
6	EW	15

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	79		15	26	79		26	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	9	26	79	0	20	15	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	84		15	21	84		21	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	9	21	84	0	15	15	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	72		17	31	72		31	17	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	66	0	11	31	72	0	25	17	RING 1
									RING 2

120

30-DR-2019
8/22/2019

SCOTTSDALE & HIGHLAND

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	19	0	0	0	19	0
YELLOW	4.2	0.0	2.9	0.0	0.0	0.0	3.4	0.0
ALL RED	1.8	0.0	3.1	0.0	0.0	0.0	2.6	0.0

SYSTEM # 64

SECTION # 721

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 ↕ | 3 ←
R2: 7 →

MOVEMENTS NST WBT EBT

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

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

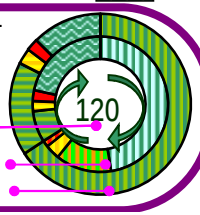
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	79		15	26	79		26	15	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	9	26	79	0	20	15	RING 1 / RING 2

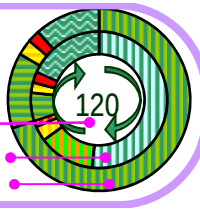


PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84		14	22	84		22	14	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	8	22	84	0	16	14	RING 1 / RING 2

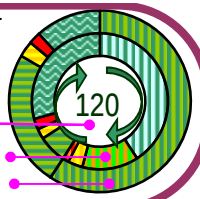


PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	71		14	35	71		35	14	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	65	0	8	35	71	0	29	14	RING 1 / RING 2



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

30-DR-2019
8/22/2019

SCOTTSDALE & RANCHO VISTA

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	13	22	STANDARD	5/5/2015
YELLOW	4.3	3.2	3.0	SYSTEM # 230 / SECTION # 721
ALL-RED	1.7	3.8	1.0	

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.30

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

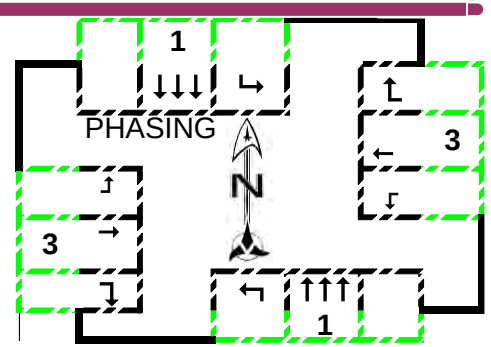
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	15	5
BK MGRN		
CS MGRN		
DLY GRN		
WALK	12	6
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	100	30
MAX 2	105	45
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.3	2.8
RED CLR	1.7	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		

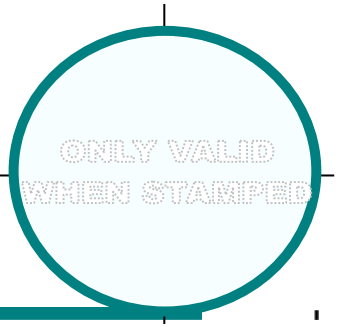
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
98	0	26	0	0	0	0	0
102	0	41	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES



30-DR-2019
8/22/2019

SCOTTSDALE & RANCHO VISTA

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.3	0.0	2.8	0.0	0.0	0.0	0.0	0.0
ALL RED	1.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 230

SECTION # 721

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

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	30
2	SB	30
3	NS	30
4	EB	50
5	WB	50
6	EW	50

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88		32						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES 0600-0900

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

120

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	41		19						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	35	0	13	0	0	0	0	0	RING 1
									RING 2

60

30-DR-2019

8/22/2019

SCOTTSDALE & RANCHO VISTA

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.3	0.0	2.8	0.0	0.0	0.0	0.0	0.0
ALL RED	1.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 230

SECTION # 721

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

R1: 1 ↕ | 3 ↔

R2

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

N/S

PLAN # 7

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	48		12						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	42	0	6	0	0	0	0	0	RING 1
									RING 2

60

PLAN # 8

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	100		20						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	94	0	14	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	41		19						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	35	0	13	0	0	0	0	0	RING 1
									RING 2

60

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	30
2	SB	30
3	NS	30
4	EB	30
5	WB	30
6	EW	30

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

ATTACHMENT D – 5/9/17 SFS TI&MA EXISTING CAPACITY ANALYSIS

The Synchro outputs under Attachment D are taken directly from the Scottsdale Fashion Square Traffic Impact & Mitigation Analysis, dated May 9, 2017. For organizational purposes, the intersections for the Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis have been changed to:

Intersection	May 9, 2017 TI&MA Intersection Number	Caesars Republic TI&MA Intersection Number
Goldwater Boulevard and Camelback Road	8	1
Goldwater Boulevard and Fashion Square	3	2
Goldwater Boulevard and Highland Avenue	4	3
Highland Avenue and Site Driveway	N/A	4
Highland Avenue and Fashion Square/Optima Driveway	5	5
Scottsdale Road and Highland Avenue	6	6

HCM 2010 Signalized Intersection Summary
1: 68th Street/68th Street & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	992	126	131	928	54	203	291	167	47	181	38
Future Volume (veh/h)	73	992	126	131	928	54	203	291	167	47	181	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	78	1067	135	141	998	58	218	313	180	51	195	41
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	1905	241	306	2172	126	435	559	475	117	231	197
Arrive On Green	0.05	0.42	0.42	0.03	0.15	0.15	0.21	0.30	0.30	0.03	0.12	0.12
Sat Flow, veh/h	1774	4573	578	1774	4917	285	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	78	791	411	141	688	368	218	313	180	51	195	41
Grp Sat Flow(s),veh/h/ln	1774	1695	1761	1774	1695	1812	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	21.3	21.3	0.0	22.3	22.3	8.2	17.0	10.8	0.0	12.3	2.8
Cycle Q Clear(g_c), s	0.0	21.3	21.3	0.0	22.3	22.3	8.2	17.0	10.8	0.0	12.3	2.8
Prop In Lane	1.00		0.33	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	273	1413	734	306	1497	800	435	559	475	117	231	197
V/C Ratio(X)	0.29	0.56	0.56	0.46	0.46	0.46	0.50	0.56	0.38	0.43	0.84	0.21
Avail Cap(c_a), veh/h	273	1413	734	306	1497	800	435	559	475	119	466	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	26.6	26.6	42.8	38.1	38.2	39.6	35.3	33.2	56.2	51.4	47.2
Incr Delay (d2), s/veh	0.2	1.6	3.1	0.4	0.9	1.7	0.9	4.0	2.3	0.9	3.2	0.2
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	2.2	10.2	11.0	4.6	10.7	11.6	6.3	9.3	5.0	1.7	6.5	1.2
LnGrp Delay(d),s/veh	36.5	28.2	29.7	43.2	39.0	39.8	40.5	39.4	35.5	57.1	54.6	47.4
LnGrp LOS	D	C	C	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1280			1197			711			287	
Approach Delay, s/veh		29.2			39.8			38.7			54.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	43.0	13.1	56.0	29.0	21.9	10.1	59.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 4	36.0	* 9	50.0	* 10	30.0	* 6	53.0
Max Q Clear Time (g_c+I1), s	2.0	19.0	2.0	23.3	10.2	14.3	2.0	24.3
Green Ext Time (p_c), s	0.0	0.6	0.1	2.8	0.0	0.6	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

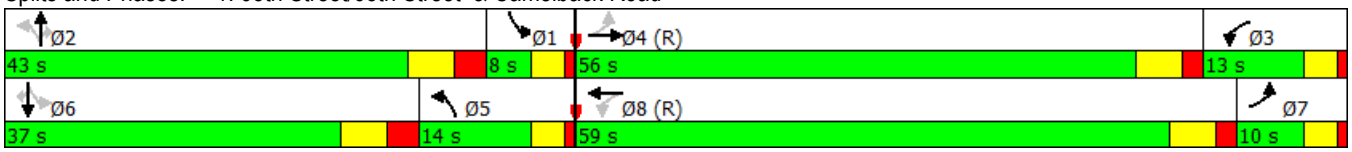
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	8	43	13	56	14	37	10	59
Maximum Split (%)	6.7%	35.8%	10.8%	46.7%	11.7%	30.8%	8.3%	49.2%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	112	69	56	0	106	69	59	0
End Time (s)	0	112	69	56	0	106	69	59
Yield/Force Off (s)	116	105	65	50	116	99	65	53
Yield/Force Off 170(s)	116	82	65	33	116	76	65	36
Local Start Time (s)	112	69	56	0	106	69	59	0
Local Yield (s)	116	105	65	50	116	99	65	53
Local Yield 170(s)	116	82	65	33	116	76	65	36

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



30-DR-2019
8/22/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	1202	141	1056	218	313	180	51	195	41
v/c Ratio	0.34	0.56	0.60	0.45	0.41	0.53	0.29	0.39	0.74	0.13
Control Delay	22.6	26.6	57.8	38.5	32.0	37.9	7.5	36.4	65.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	26.6	57.8	38.5	32.0	37.9	7.5	36.4	65.6	0.9
Queue Length 50th (ft)	29	252	75	262	112	199	9	24	147	0
Queue Length 95th (ft)	53	299	114	299	179	299	63	51	215	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	251	2162	268	2342	530	592	615	132	465	470
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	0.31	0.56	0.53	0.45	0.41	0.53	0.29	0.39	0.42	0.09

Intersection Summary

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	322	9	9	266
Future Vol, veh/h	2	2	322	9	9	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	398	11	11	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	754	403	0	0	409	0
Stage 1	403	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	326	647	-	-	1150	-
Stage 1	624	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	324	647	-	-	1150	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	432	1150	-
HCM Lane V/C Ratio	-	-	0.011	0.01	-
HCM Control Delay (s)	-	-	13.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

30-DR-2019
8/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	4	9	1	2	20	413	30	14	936	36
Future Volume (veh/h)	8	3	4	9	1	2	20	413	30	14	936	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	9	3	5	10	1	2	23	469	34	16	1064	41
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	13	14	108	18	35	484	3073	1375	817	4416	1375
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.87	0.87	0.87	0.87	0.87	0.87
Sat Flow, veh/h	693	407	458	1402	556	1111	508	3539	1583	892	5085	1583
Grp Volume(v), veh/h	17	0	0	10	0	3	23	469	34	16	1064	41
Grp Sat Flow(s),veh/h/ln	1558	0	0	1402	0	1667	508	1770	1583	892	1695	1583
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.2	0.9	2.4	0.3	0.3	4.2	0.4
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.7	0.0	0.2	5.1	2.4	0.3	2.7	4.2	0.4
Prop In Lane	0.53		0.29	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	0	0	108	0	53	484	3073	1375	817	4416	1375
V/C Ratio(X)	0.18	0.00	0.00	0.09	0.00	0.06	0.05	0.15	0.02	0.02	0.24	0.03
Avail Cap(c_a), veh/h	377	0	0	367	0	361	484	3073	1375	817	4416	1375
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	0.00	0.00	1.00	0.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	0.0	0.0	56.6	0.0	56.4	1.7	1.2	1.1	1.4	1.3	1.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0
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	0.6	0.0	0.0	0.3	0.0	0.1	0.2	1.2	0.2	0.1	1.9	0.2
LnGrp Delay(d),s/veh	57.2	0.0	0.0	56.7	0.0	56.5	1.9	1.3	1.1	1.5	1.4	1.1
LnGrp LOS	E			E		E	A	A	A	A	A	A
Approach Vol, veh/h		17			13			526			1121	
Approach Delay, s/veh		57.2			56.7			1.3			1.4	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		110.2		9.8		110.2		9.8
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 82		26.0		* 82		26.0
Max Q Clear Time (g_c+I1), s		7.1		3.2		6.2		2.7
Green Ext Time (p_c), s		2.4		0.0		2.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	2.4
HCM 2010 LOS	A

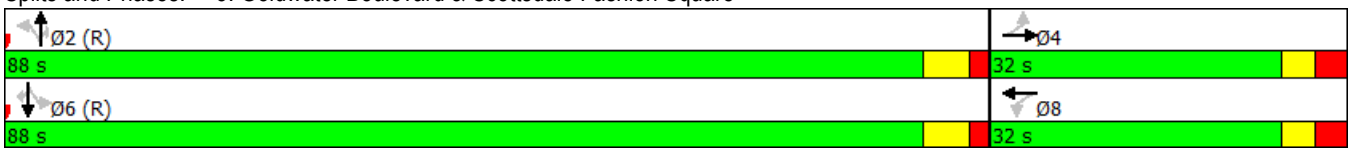
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	88	32	88	32
Maximum Split (%)	73.3%	26.7%	73.3%	26.7%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	88	0	88
End Time (s)	88	0	88	0
Yield/Force Off (s)	82	114	82	114
Yield/Force Off 170(s)	69	95	69	95
Local Start Time (s)	0	88	0	88
Local Yield (s)	82	114	82	114
Local Yield 170(s)	69	95	69	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



30-DR-2019
8/22/2019

Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	10	3	23	469	34	16	1064	41
v/c Ratio	0.17	0.10	0.03	0.05	0.14	0.02	0.02	0.22	0.03
Control Delay	46.8	56.1	41.7	1.8	1.2	0.8	1.3	1.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	56.1	41.7	1.8	1.2	0.8	1.3	1.0	0.5
Queue Length 50th (ft)	9	8	1	0	0	0	0	0	0
Queue Length 95th (ft)	33	25	11	m7	40	m5	5	53	4
Internal Link Dist (ft)	275		60		1010			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	391	403	364	449	3316	1486	843	4765	1486
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	0.04	0.02	0.01	0.05	0.14	0.02	0.02	0.22	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	0	0	423	0	870
Future Vol, veh/h	68	0	0	423	0	870
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	0	0	486	0	1000

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	400	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	611	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	591	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	611	-	-	-	-	-
Mov Cap-2 Maneuver	611	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	611	-
HCM Lane V/C Ratio	-	0.128	-
HCM Control Delay (s)	-	11.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.4	-

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	399	2	27	31	15	0	1	12	20	0	37
Future Vol, veh/h	22	399	2	27	31	15	0	1	12	20	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	481	2	33	37	18	0	1	14	24	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	483	0	0	619	655	242	405	647	28
Stage 1	-	-	-	-	-	-	535	535	-	111	111	-
Stage 2	-	-	-	-	-	-	84	120	-	294	536	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1548	-	-	1076	-	-	373	384	759	530	388	1041
Stage 1	-	-	-	-	-	-	497	522	-	882	803	-
Stage 2	-	-	-	-	-	-	915	796	-	690	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1548	-	-	1076	-	-	344	366	759	500	370	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	366	-	500	370	-
Stage 1	-	-	-	-	-	-	488	513	-	867	778	-
Stage 2	-	-	-	-	-	-	849	772	-	663	513	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	3.1	10.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	701	1548	-	-	1076	-	-	500	1041
HCM Lane V/C Ratio	-	0.022	0.017	-	-	0.03	-	-	0.048	0.043
HCM Control Delay (s)	0	10.3	7.4	-	-	8.4	-	-	12.6	8.6
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	398	6	30	5	2	6	29	957	20	17	791	42
Future Volume (vph)	398	6	30	5	2	6	29	957	20	17	791	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1631		1770	1645		1770	5070		1770	5047	
Flt Permitted	0.75	1.00		1.00	1.00		0.27	1.00		0.22	1.00	
Satd. Flow (perm)	2717	1631		1863	1645		497	5070		403	5047	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	457	7	34	6	2	7	33	1100	23	20	909	48
RTOR Reduction (vph)	0	27	0	0	7	0	0	2	0	0	5	0
Lane Group Flow (vph)	457	14	0	6	2	0	33	1121	0	20	952	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	24.9	24.9		3.2	3.2		73.9	73.9		73.9	73.9	
Effective Green, g (s)	24.9	24.9		3.2	3.2		73.9	73.9		73.9	73.9	
Actuated g/C Ratio	0.21	0.21		0.03	0.03		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	563	338		49	43		306	3122		248	3108	
v/s Ratio Prot		0.01			0.00			c0.22			0.19	
v/s Ratio Perm	c0.17			c0.00			0.07			0.05		
v/c Ratio	0.81	0.04		0.12	0.05		0.11	0.36		0.08	0.31	
Uniform Delay, d1	45.3	38.0		57.0	56.9		9.5	11.4		9.3	10.9	
Progression Factor	1.04	1.31		1.00	1.00		1.63	1.29		1.00	1.00	
Incremental Delay, d2	8.7	0.1		1.1	0.5		0.7	0.3		0.6	0.3	
Delay (s)	56.0	50.0		58.2	57.4		16.1	15.0		10.0	11.2	
Level of Service	E	D		E	E		B	B		A	B	
Approach Delay (s)		55.5			57.7			15.0			11.1	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	79	15	26
Maximum Split (%)	65.8%	12.5%	21.7%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	79	94
End Time (s)	79	94	0
Yield/Force Off (s)	73	88	114
Yield/Force Off 170(s)	57	69	95
Local Start Time (s)	0	79	94
Local Yield (s)	73	88	114
Local Yield 170(s)	57	69	95

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: 6: Scottsdale Road & Highland Avenue

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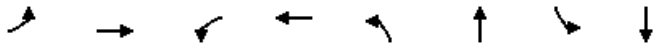


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	457	41	6	9	33	1123	20	957
v/c Ratio	0.81	0.11	0.06	0.09	0.10	0.34	0.08	0.29
Control Delay	60.2	22.6	53.8	35.0	16.2	13.2	10.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	22.6	53.8	35.0	16.2	13.2	10.1	9.8
Queue Length 50th (ft)	160	4	5	2	7	88	5	103
Queue Length 95th (ft)	#277	35	18	18	m35	228	17	140
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	563	364	139	129	321	3277	259	3264
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	0.81	0.11	0.04	0.07	0.10	0.34	0.08	0.29

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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	503	145	62	529	126	138	480	29	130	503	81
Future Volume (veh/h)	118	503	145	62	529	126	138	480	29	130	503	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	126	535	154	66	563	134	147	511	31	138	535	86
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	683	306	167	663	157	732	1553	94	732	1121	501
Arrive On Green	0.02	0.06	0.06	0.09	0.23	0.23	0.21	0.32	0.32	0.07	0.10	0.10
Sat Flow, veh/h	3442	3539	1583	1774	2840	674	3442	4906	295	3442	3539	1583
Grp Volume(v), veh/h	126	535	154	66	350	347	147	352	190	138	535	86
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1744	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.4	17.9	11.3	4.2	22.7	22.8	4.2	9.5	9.6	4.5	17.1	5.9
Cycle Q Clear(g_c), s	4.4	17.9	11.3	4.2	22.7	22.8	4.2	9.5	9.6	4.5	17.1	5.9
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	185	683	306	167	413	407	732	1074	573	732	1121	501
V/C Ratio(X)	0.68	0.78	0.50	0.40	0.85	0.85	0.20	0.33	0.33	0.19	0.48	0.17
Avail Cap(c_a), veh/h	287	944	422	192	516	509	732	1074	573	732	1121	501
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	57.9	53.7	50.6	51.1	44.0	44.0	38.8	31.3	31.3	46.0	44.4	39.4
Incr Delay (d2), s/veh	4.0	2.7	1.2	1.5	10.4	11.0	0.1	0.8	1.5	0.1	1.4	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	2.2	9.0	5.1	2.1	12.3	12.2	2.0	4.6	5.1	2.2	8.6	2.7
LnGrp Delay(d),s/veh	61.9	56.4	51.8	52.6	54.4	55.0	39.0	32.1	32.9	46.1	45.8	40.1
LnGrp LOS	E	E	D	D	D	D	D	C	C	D	D	D
Approach Vol, veh/h		815			763			689			759	
Approach Delay, s/veh		56.4			54.5			33.8			45.2	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.5	45.0	15.3	30.2	29.5	45.0	10.5	35.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 15	38.0	13.0	32.0	* 15	38.0	10.0	35.0
Max Q Clear Time (g_c+I1), s	6.5	11.6	6.2	19.9	6.2	19.1	6.4	24.8
Green Ext Time (p_c), s	0.6	3.6	0.3	3.3	0.6	3.8	0.2	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.0
HCM 2010 LOS	D

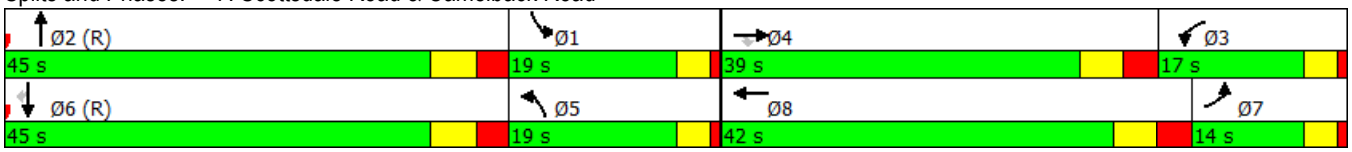
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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	45	17	39	19	45	14	42
Maximum Split (%)	15.8%	37.5%	14.2%	32.5%	15.8%	37.5%	11.7%	35.0%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	50	33	114	95	50	36	114
End Time (s)	114	95	50	33	114	95	50	36
Yield/Force Off (s)	110	88	46	26	110	88	46	29
Yield/Force Off 170(s)	110	77	46	15	110	77	46	18
Local Start Time (s)	45	0	103	64	45	0	106	64
Local Yield (s)	60	38	116	96	60	38	116	99
Local Yield 170(s)	60	27	116	85	60	27	116	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



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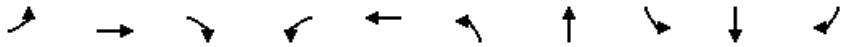


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	126	535	154	66	697	147	542	138	535	86
v/c Ratio	0.48	0.64	0.31	0.34	0.79	0.49	0.27	0.46	0.38	0.12
Control Delay	71.6	37.9	22.8	53.4	47.4	57.4	25.6	49.7	18.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	37.9	22.8	53.4	47.4	57.4	25.6	49.7	18.9	4.5
Queue Length 50th (ft)	54	234	87	47	257	56	101	54	153	10
Queue Length 95th (ft)	87	292	154	93	305	88	149	88	231	52
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	290	958	541	213	1028	429	2027	429	1420	700
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	0.43	0.56	0.28	0.31	0.68	0.34	0.27	0.32	0.38	0.12

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	781	130	39	612	31	119	149	33	15	366	423
Future Volume (veh/h)	171	781	130	39	612	31	119	149	33	15	366	423
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	797	133	40	624	32	121	152	34	15	373	432
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	454	1653	515	413	1611	82	177	1150	515	177	1653	515
Arrive On Green	0.13	0.32	0.32	0.04	0.11	0.11	0.05	0.32	0.32	0.03	0.22	0.22
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	174	797	133	40	426	230	121	152	34	15	373	432
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	0.0	15.1	7.4	0.0	14.0	14.1	4.1	3.6	1.8	0.5	7.2	31.3
Cycle Q Clear(g_c), s	0.0	15.1	7.4	0.0	14.0	14.1	4.1	3.6	1.8	0.5	7.2	31.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	1653	515	413	1102	591	177	1150	515	177	1653	515
V/C Ratio(X)	0.38	0.48	0.26	0.10	0.39	0.39	0.68	0.13	0.07	0.08	0.23	0.84
Avail Cap(c_a), veh/h	454	1653	515	413	1102	591	315	1150	515	315	1653	515
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	0.84	0.84	0.84	0.67	0.67	0.67	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	33.8	32.4	29.8	31.9	42.4	42.5	55.9	28.6	27.9	55.2	34.5	43.9
Incr Delay (d2), s/veh	0.4	0.9	1.0	0.1	0.7	1.3	4.5	0.2	0.2	0.2	0.3	14.9
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	5.0	7.1	3.4	1.1	6.7	7.4	2.1	1.8	0.8	0.2	3.5	15.9
LnGrp Delay(d),s/veh	34.3	33.3	30.9	32.0	43.1	43.8	60.5	28.8	28.2	55.4	34.8	58.9
LnGrp LOS	C	C	C	C	D	D	E	C	C	E	C	E
Approach Vol, veh/h		1104			696			307			820	
Approach Delay, s/veh		33.1			42.7			41.2			47.9	
Approach LOS		C			D			D			D	

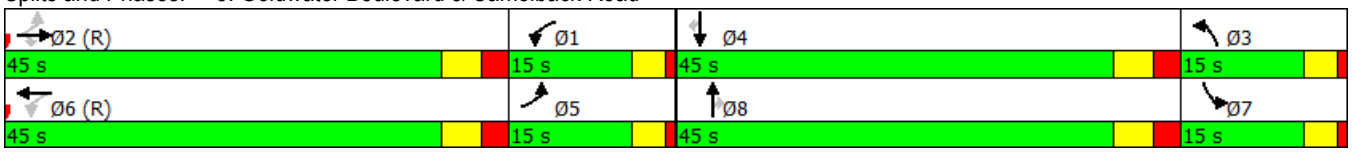
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	45.0	10.2	45.0	19.8	45.0	10.2	45.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.0	39.0	11.0	39.0	11.0	39.0	11.0	39.0
Max Q Clear Time (g_c+I1), s	2.0	17.1	6.1	33.3	2.0	16.1	2.5	5.6
Green Ext Time (p_c), s	0.4	6.3	0.2	2.0	0.4	4.4	0.2	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	45	15	45	15	45	15	45
Maximum Split (%)	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89	44	29	104	89	44	29	104
End Time (s)	104	89	44	29	104	89	44	29
Yield/Force Off (s)	100	83	40	23	100	83	40	23
Yield/Force Off 170(s)	100	72	40	12	100	72	40	12
Local Start Time (s)	45	0	105	60	45	0	105	60
Local Yield (s)	56	39	116	99	56	39	116	99
Local Yield 170(s)	56	28	116	88	56	28	116	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 44 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
8/22/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	797	133	40	656	121	152	34	15	373	432
v/c Ratio	0.55	0.44	0.21	0.15	0.38	0.45	0.10	0.05	0.07	0.20	0.57
Control Delay	28.7	15.9	4.3	21.0	23.2	58.1	22.7	0.1	50.7	26.8	13.0
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	28.7	15.9	4.3	21.0	23.2	58.1	22.7	0.1	50.7	26.8	13.0
Queue Length 50th (ft)	79	190	28	24	185	46	32	0	5	71	81
Queue Length 95th (ft)	136	240	52	m34	228	77	67	0	17	100	154
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	380	1803	629	328	1714	314	1502	729	314	1844	756
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	0.46	0.44	0.21	0.12	0.38	0.39	0.10	0.05	0.05	0.20	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1: 68th Street/68th Street & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1028	176	218	1224	65	175	299	177	77	215	63
Future Volume (veh/h)	89	1028	176	218	1224	65	175	299	177	77	215	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	96	1105	189	234	1316	70	188	322	190	83	231	68
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	1859	318	367	2225	118	312	466	396	117	268	228
Arrive On Green	0.09	0.43	0.43	0.04	0.15	0.15	0.14	0.25	0.25	0.03	0.14	0.14
Sat Flow, veh/h	1774	4374	748	1774	4944	263	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	96	856	438	234	902	484	188	322	190	83	231	68
Grp Sat Flow(s),veh/h/ln	1774	1695	1731	1774	1695	1816	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	23.3	23.3	4.7	29.8	29.8	7.2	18.8	12.3	1.4	14.5	4.6
Cycle Q Clear(g_c), s	0.0	23.3	23.3	4.7	29.8	29.8	7.2	18.8	12.3	1.4	14.5	4.6
Prop In Lane	1.00		0.43	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	293	1441	736	367	1526	817	312	466	396	117	268	228
V/C Ratio(X)	0.33	0.59	0.59	0.64	0.59	0.59	0.60	0.69	0.48	0.71	0.86	0.30
Avail Cap(c_a), veh/h	293	1441	736	367	1526	817	312	466	396	149	466	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	26.5	26.6	45.8	40.8	40.8	46.4	40.8	38.4	56.4	50.2	45.9
Incr Delay (d2), s/veh	0.2	1.8	3.5	1.9	1.1	2.1	3.2	8.2	4.1	6.6	3.2	0.3
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	2.9	11.2	11.9	7.8	14.2	15.5	6.0	10.7	5.8	2.9	7.7	2.0
LnGrp Delay(d),s/veh	42.1	28.4	30.1	47.7	41.9	42.9	49.6	49.0	42.5	63.0	53.3	46.2
LnGrp LOS	D	C	C	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1390			1620			700			382	
Approach Delay, s/veh		29.8			43.1			47.4			54.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	37.0	18.1	57.0	20.6	24.3	15.1	60.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 6	30.0	* 12	51.0	* 6	30.0	* 9	54.0
Max Q Clear Time (g_c+I1), s	3.4	20.8	6.7	25.3	9.2	16.5	2.0	31.8
Green Ext Time (p_c), s	0.1	0.6	0.1	3.1	0.0	0.7	0.1	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

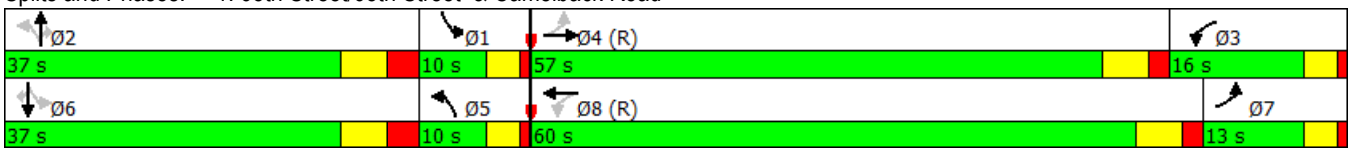
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	10	37	16	57	10	37	13	60
Maximum Split (%)	8.3%	30.8%	13.3%	47.5%	8.3%	30.8%	10.8%	50.0%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	49	33	96	86	49	36	96
End Time (s)	96	86	49	33	96	86	49	36
Yield/Force Off (s)	92	79	45	27	92	79	45	30
Yield/Force Off 170(s)	92	56	45	10	92	56	45	13
Local Start Time (s)	110	73	57	0	110	73	60	0
Local Yield (s)	116	103	69	51	116	103	69	54
Local Yield 170(s)	116	80	69	34	116	80	69	37

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 96 (80%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



30-DR-2019
8/22/2019

1: 68th Street/68th Street & Camelback Road

04/11/2017

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	96	1294	234	1386	188	322	190	83	231	68
v/c Ratio	0.46	0.58	0.84	0.58	0.46	0.66	0.36	0.56	0.77	0.20
Control Delay	31.5	25.7	35.1	24.7	38.0	47.4	11.0	50.7	65.0	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	31.5	25.7	35.1	24.7	38.0	47.4	11.0	50.7	65.0	4.2
Queue Length 50th (ft)	31	268	36	226	105	227	20	43	174	0
Queue Length 95th (ft)	56	317	m#179	297	166	332	82	81	246	17
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	232	2239	301	2383	408	490	531	160	465	470
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	0.41	0.58	0.78	0.58	0.46	0.66	0.36	0.52	0.50	0.14

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.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	32	430	23	14	214
Future Vol, veh/h	23	32	430	23	14	214
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	35	473	25	15	235

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	751	485	0	0	498	0
Stage 1	485	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	327	582	-	-	1066	-
Stage 1	563	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	323	582	-	-	1066	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	729	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1066	-
HCM Lane V/C Ratio	-	-	0.139	0.014	-
HCM Control Delay (s)	-	-	14.6	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

30-DR-2019
8/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	8	64	66	11	22	35	544	69	28	936	27
Future Volume (veh/h)	65	8	64	66	11	22	35	544	69	28	936	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	71	9	70	72	12	24	38	591	75	30	1017	29
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	21	85	194	71	142	444	2734	1223	652	3928	1223
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	0.77	0.77	0.77
Sat Flow, veh/h	597	165	667	1314	556	1111	537	3539	1583	767	5085	1583
Grp Volume(v), veh/h	150	0	0	72	0	36	38	591	75	30	1017	29
Grp Sat Flow(s),veh/h/ln	1428	0	0	1314	0	1667	537	1770	1583	767	1695	1583
Q Serve(g_s), s	10.1	0.0	0.0	0.0	0.0	2.3	0.7	0.0	0.0	1.1	6.8	0.5
Cycle Q Clear(g_c), s	12.4	0.0	0.0	8.2	0.0	2.3	7.5	0.0	0.0	1.1	6.8	0.5
Prop In Lane	0.47		0.47	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	0	0	194	0	213	444	2734	1223	652	3928	1223
V/C Ratio(X)	0.66	0.00	0.00	0.37	0.00	0.17	0.09	0.22	0.06	0.05	0.26	0.02
Avail Cap(c_a), veh/h	582	0	0	508	0	611	444	2734	1223	652	3928	1223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	0.0	49.3	0.0	46.7	0.3	0.0	0.0	3.2	3.9	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.4	0.0	0.1	0.3	0.1	0.1	0.1	0.2	0.0
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	5.0	0.0	0.0	2.3	0.0	1.1	0.1	0.0	0.0	0.3	3.2	0.2
LnGrp Delay(d),s/veh	52.5	0.0	0.0	49.7	0.0	46.8	0.5	0.1	0.1	3.4	4.0	3.2
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		150			108			704			1076	
Approach Delay, s/veh		52.5			48.7			0.1			4.0	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		98.7		21.3		98.7		21.3
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 64		44.0		* 64		44.0
Max Q Clear Time (g_c+I1), s		9.5		14.4		8.8		10.2
Green Ext Time (p_c), s		2.6		0.9		2.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

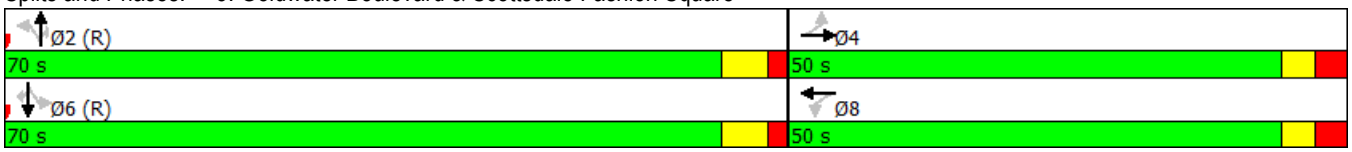
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	70	50	70	50
Maximum Split (%)	58.3%	41.7%	58.3%	41.7%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	70	0	70
End Time (s)	70	0	70	0
Yield/Force Off (s)	64	114	64	114
Yield/Force Off 170(s)	51	95	51	95
Local Start Time (s)	0	70	0	70
Local Yield (s)	64	114	64	114
Local Yield 170(s)	51	95	51	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	72	36	38	591	75	30	1017	29
v/c Ratio	0.75	0.61	0.17	0.10	0.21	0.06	0.05	0.25	0.02
Control Delay	58.6	70.7	24.1	12.9	11.6	7.2	4.1	4.0	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	70.7	24.1	12.9	11.6	7.2	4.1	4.0	1.5
Queue Length 50th (ft)	83	54	8	20	165	13	4	63	0
Queue Length 95th (ft)	147	99	38	m35	m196	m36	15	105	8
Internal Link Dist (ft)	275		60		1011			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	557	381	629	392	2783	1260	628	3999	1251
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	0.27	0.19	0.06	0.10	0.21	0.06	0.05	0.25	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	144	0	0	631	0	858
Future Vol, veh/h	144	0	0	631	0	858
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	162	0	0	709	0	964

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	386	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	621	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	601	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	621	-	-	-	-	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	621	-
HCM Lane V/C Ratio	-	0.261	-
HCM Control Delay (s)	-	12.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1	-

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Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	588	0	29	114	27	6	3	40	17	3	24
Future Vol, veh/h	43	588	0	29	114	27	6	3	40	17	3	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	676	0	33	131	31	7	3	46	20	3	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	162	0	0	676	0	0	909	1004	338	652	988	81
Stage 1	-	-	-	-	-	-	775	775	-	213	213	-
Stage 2	-	-	-	-	-	-	134	229	-	439	775	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1414	-	-	911	-	-	230	240	658	353	246	963
Stage 1	-	-	-	-	-	-	357	406	-	769	725	-
Stage 2	-	-	-	-	-	-	855	713	-	567	406	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1414	-	-	911	-	-	209	223	658	307	229	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	223	-	307	229	-
Stage 1	-	-	-	-	-	-	345	392	-	742	699	-
Stage 2	-	-	-	-	-	-	796	687	-	505	392	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.1	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	209	579	1414	-	-	911	-	-	307	710
HCM Lane V/C Ratio	0.033	0.085	0.035	-	-	0.037	-	-	0.064	0.044
HCM Control Delay (s)	22.8	11.8	7.6	-	-	9.1	-	-	17.5	10.3
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.2	0.1

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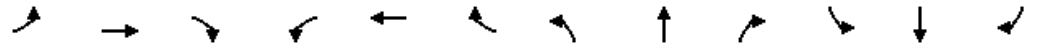

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	621	4	33	12	13	22	46	1126	11	8	969	111
Future Volume (vph)	621	4	33	12	13	22	46	1126	11	8	969	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1611		1770	1688		1770	5078		1770	5007	
Flt Permitted	0.73	1.00		0.65	1.00		0.19	1.00		0.17	1.00	
Satd. Flow (perm)	2642	1611		1202	1688		353	5078		324	5007	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	698	4	37	13	15	25	52	1265	12	9	1089	125
RTOR Reduction (vph)	0	30	0	0	24	0	0	1	0	0	12	0
Lane Group Flow (vph)	698	11	0	13	16	0	52	1276	0	9	1202	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	24.0	24.0		6.2	6.2		71.8	71.8		71.8	71.8	
Effective Green, g (s)	24.0	24.0		6.2	6.2		71.8	71.8		71.8	71.8	
Actuated g/C Ratio	0.20	0.20		0.05	0.05		0.60	0.60		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	528	322		62	87		211	3038		193	2995	
v/s Ratio Prot		0.01			0.01			c0.25			0.24	
v/s Ratio Perm	c0.26			c0.01			0.15			0.03		
v/c Ratio	1.32	0.04		0.21	0.19		0.25	0.42		0.05	0.40	
Uniform Delay, d1	48.0	38.7		54.6	54.5		11.4	12.9		10.0	12.7	
Progression Factor	1.25	1.85		1.00	1.00		0.97	1.20		1.00	1.00	
Incremental Delay, d2	157.6	0.0		1.7	1.0		2.5	0.4		0.5	0.4	
Delay (s)	217.7	71.5		56.2	55.5		13.5	15.9		10.4	13.1	
Level of Service	F	E		E	E		B	B		B	B	
Approach Delay (s)		209.6			55.7			15.8			13.1	
Approach LOS		F			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	79	15	26
Maximum Split (%)	65.8%	12.5%	21.7%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	79	94
End Time (s)	79	94	0
Yield/Force Off (s)	73	88	114
Yield/Force Off 170(s)	57	69	95
Local Start Time (s)	0	79	94
Local Yield (s)	73	88	114
Local Yield 170(s)	57	69	95

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: 6: Scottsdale Road & Highland Avenue

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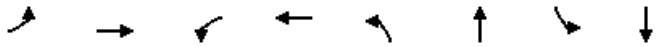


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	698	41	13	40	52	1277	9	1214
v/c Ratio	1.32	0.12	0.18	0.31	0.24	0.41	0.05	0.40
Control Delay	202.4	28.9	58.2	34.2	13.8	15.2	10.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	202.4	28.9	58.2	34.2	13.8	15.2	10.4	12.3
Queue Length 50th (ft)	~387	8	10	11	23	310	3	162
Queue Length 95th (ft)	#519	39	30	46	m59	324	10	190
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	528	351	90	149	214	3091	197	3058
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	1.32	0.12	0.14	0.27	0.24	0.41	0.05	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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	526	228	81	500	146	294	700	90	268	574	221
Future Volume (veh/h)	249	526	228	81	500	146	294	700	90	268	574	221
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	262	554	240	85	526	154	309	737	95	282	604	233
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	680	304	225	610	178	795	1259	161	764	944	422
Arrive On Green	0.19	0.38	0.38	0.13	0.23	0.23	0.23	0.28	0.28	0.07	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2705	788	3442	4566	584	3442	3539	1583
Grp Volume(v), veh/h	262	554	240	85	343	337	309	546	286	282	604	233
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1724	1721	1695	1760	1721	1770	1583
Q Serve(g_s), s	8.8	16.8	16.1	5.3	22.4	22.6	9.1	16.7	16.9	9.4	19.8	16.9
Cycle Q Clear(g_c), s	8.8	16.8	16.1	5.3	22.4	22.6	9.1	16.7	16.9	9.4	19.8	16.9
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	321	680	304	225	399	389	795	935	485	764	944	422
V/C Ratio(X)	0.82	0.81	0.79	0.38	0.86	0.87	0.39	0.58	0.59	0.37	0.64	0.55
Avail Cap(c_a), veh/h	459	1038	464	225	472	460	795	935	485	764	944	422
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	47.8	35.0	34.8	48.1	44.6	44.7	39.0	37.5	37.6	47.6	49.2	47.8
Incr Delay (d2), s/veh	6.5	2.6	4.4	1.0	13.1	14.0	0.3	2.7	5.2	0.3	3.0	4.6
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	4.4	8.4	7.3	2.7	12.4	12.3	4.4	8.2	8.9	4.5	10.1	8.0
LnGrp Delay(d),s/veh	54.3	37.6	39.2	49.1	57.7	58.7	39.3	40.2	42.8	47.9	52.2	52.5
LnGrp LOS	D	D	D	D	E	E	D	D	D	D	D	D
Approach Vol, veh/h		1056			765			1141			1119	
Approach Delay, s/veh		42.1			57.2			40.6			51.2	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.6	40.1	19.2	30.1	31.7	39.0	15.2	34.1
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 17	33.1	12.8	35.2	* 18	32.0	16.0	32.0
Max Q Clear Time (g_c+I1), s	11.4	18.9	7.3	18.8	11.1	21.8	10.8	24.6
Green Ext Time (p_c), s	1.2	4.7	0.6	4.2	1.3	3.6	0.4	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	47.0
HCM 2010 LOS	D

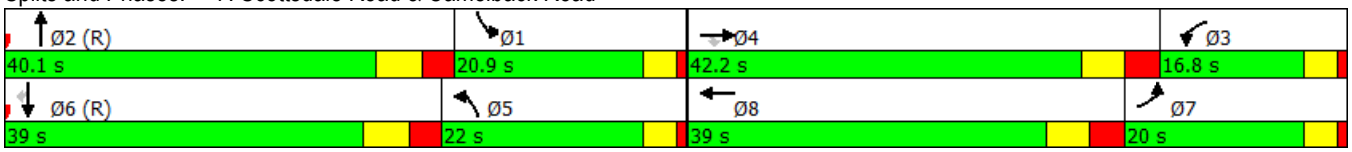
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	20.9	40.1	16.8	42.2	22	39	20	39
Maximum Split (%)	17.4%	33.4%	14.0%	35.2%	18.3%	32.5%	16.7%	32.5%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	2	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.1	98	81.2	39	17	98	78	39
End Time (s)	39	18.1	98	81.2	39	17	98	78
Yield/Force Off (s)	35	11.1	94	74.2	35	10	94	71
Yield/Force Off 170(s)	35	0.1	94	63.2	35	119	94	60
Local Start Time (s)	40.1	0	103.2	61	39	0	100	61
Local Yield (s)	57	33.1	116	96.2	57	32	116	93
Local Yield 170(s)	57	22.1	116	85.2	57	21	116	82

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 98 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	262	554	240	85	680	309	832	282	604	233
v/c Ratio	0.66	0.63	0.42	0.40	0.81	0.69	0.49	0.67	0.51	0.34
Control Delay	46.2	15.6	4.0	53.4	49.4	57.9	33.1	75.8	52.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	15.6	4.0	53.4	49.4	57.9	33.1	75.8	52.2	27.7
Queue Length 50th (ft)	111	137	18	60	248	119	186	95	261	88
Queue Length 95th (ft)	152	181	23	114	312	164	246	149	318	174
Internal Link Dist (ft)		1329			616		511		1288	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	457	1050	638	232	934	514	1715	483	1173	680
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	0.53	0.38	0.37	0.73	0.60	0.49	0.58	0.51	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	899	158	48	876	70	257	276	90	61	428	460
Future Volume (veh/h)	242	899	158	48	876	70	257	276	90	61	428	460
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	257	956	168	51	932	74	273	294	96	65	455	489
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	1483	462	358	1402	111	328	387	173	1071	1653	515
Arrive On Green	0.24	0.58	0.58	0.04	0.10	0.10	0.10	0.11	0.11	0.10	0.11	0.11
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	257	956	168	51	657	349	273	294	96	65	455	489
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	7.3	15.1	6.7	0.0	22.4	22.5	9.4	9.7	6.9	2.0	9.9	36.8
Cycle Q Clear(g_c), s	7.3	15.1	6.7	0.0	22.4	22.5	9.4	9.7	6.9	2.0	9.9	36.8
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	333	1483	462	358	989	524	328	387	173	1071	1653	515
V/C Ratio(X)	0.77	0.64	0.36	0.14	0.66	0.67	0.83	0.76	0.55	0.06	0.28	0.95
Avail Cap(c_a), veh/h	333	1483	462	358	989	524	430	1150	515	1071	1653	515
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	0.66	0.66	0.66	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	39.6	20.8	19.1	37.5	48.6	48.6	53.3	51.9	50.7	38.0	40.6	52.6
Incr Delay (d2), s/veh	8.0	1.8	1.8	0.0	2.3	4.4	8.0	1.2	1.0	0.0	0.4	28.5
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	8.2	7.1	3.1	1.5	10.9	11.9	4.8	4.8	3.1	1.0	4.7	20.2
LnGrp Delay(d),s/veh	47.6	22.6	20.9	37.5	50.9	53.0	61.4	53.1	51.7	38.0	41.0	81.1
LnGrp LOS	D	C	C	D	D	D	E	D	D	D	D	F
Approach Vol, veh/h		1381			1057			663			1009	
Approach Delay, s/veh		27.1			50.9			56.3			60.2	
Approach LOS		C			D			E			E	

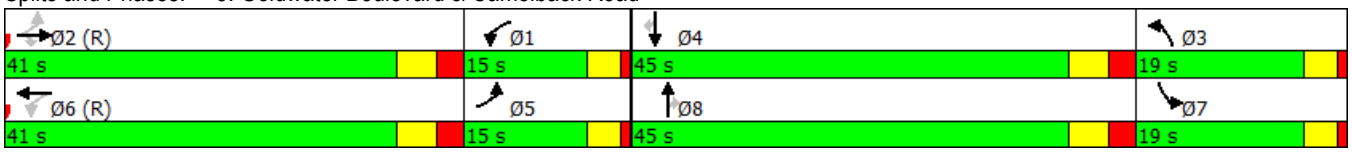
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	41.0	15.4	45.0	18.6	41.0	41.3	19.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.0	35.0	15.0	39.0	11.0	35.0	15.0	39.0
Max Q Clear Time (g_c+I1), s	2.0	17.1	11.4	38.8	9.3	24.5	4.0	11.7
Green Ext Time (p_c), s	0.1	2.8	0.1	0.1	0.0	2.2	0.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	None
Maximum Split (s)	15	41	19	45	15	41	19	45
Maximum Split (%)	12.5%	34.2%	15.8%	37.5%	12.5%	34.2%	15.8%	37.5%
Minimum Split (s)	8	36	8	36	8	36	8	36
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	10
Vehicle Extension (s)	1	1	1	3	1	1	1	2
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)								
Flash Dont Walk (s)								
Dual Entry	Yes	No	Yes	No	No	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	41	0	101	56	41	0	101	56
End Time (s)	56	41	0	101	56	41	0	101
Yield/Force Off (s)	52	35	116	95	52	35	116	95
Yield/Force Off 170(s)	52	35	116	95	52	35	116	95
Local Start Time (s)	41	0	101	56	41	0	101	56
Local Yield (s)	52	35	116	95	52	35	116	95
Local Yield 170(s)	52	35	116	95	52	35	116	95

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
8/22/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	257	956	168	51	1006	273	294	96	65	455	489
v/c Ratio	0.98	0.56	0.28	0.20	0.64	0.76	0.43	0.25	0.08	0.28	0.74
Control Delay	73.8	17.2	2.8	45.2	52.3	66.2	48.1	9.8	40.2	35.3	33.1
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	73.8	17.2	2.8	45.2	52.3	66.2	48.1	9.8	40.2	35.3	33.1
Queue Length 50th (ft)	119	91	5	34	303	107	116	0	19	104	219
Queue Length 95th (ft)	#305	110	13	m54	335	151	156	45	44	140	373
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	263	1714	603	271	1577	429	1226	613	925	1652	662
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	0.98	0.56	0.28	0.19	0.64	0.64	0.24	0.16	0.07	0.28	0.74

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.

ATTACHMENT E – 5/9/17 SFS TI&MA YEAR 2020 NO BUILD CAPACITY ANALYSIS

The Synchro outputs under Attachment E are taken directly from the Scottsdale Fashion Square Traffic Impact & Mitigation Analysis, dated May 9, 2017. For organizational purposes, the intersections for the Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis have been changed to:

Intersection	May 9, 2017 TI&MA Intersection Number	Caesars Republic TI&MA Intersection Number
Goldwater Boulevard and Camelback Road	8	1
Goldwater Boulevard and Fashion Square	3	2
Goldwater Boulevard and Highland Avenue	4	3
Highland Avenue and Site Driveway	N/A	4
Highland Avenue and Fashion Square/Optima Driveway	5	5
Scottsdale Road and Highland Avenue	6	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	1095	136	145	1025	60	224	321	184	52	200	42
Future Volume (veh/h)	81	1095	136	145	1025	60	224	321	184	52	200	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	90	1217	151	161	1139	67	249	357	204	58	222	47
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
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	1948	242	328	2211	130	347	497	422	114	259	220
Arrive On Green	0.08	0.43	0.43	0.21	0.90	0.90	0.16	0.27	0.27	0.03	0.14	0.14
Sat Flow, veh/h	1774	4584	569	1774	4913	289	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	90	900	468	161	786	420	249	357	204	58	222	47
Grp Sat Flow(s),veh/h/ln	1774	1695	1762	1774	1695	1812	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	24.9	24.9	0.0	5.2	5.2	11.3	20.9	13.0	0.0	14.0	3.2
Cycle Q Clear(g_c), s	0.0	24.9	24.9	0.0	5.2	5.2	11.3	20.9	13.0	0.0	14.0	3.2
Prop In Lane	1.00		0.32	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	1441	749	328	1526	815	347	497	422	114	259	220
V/C Ratio(X)	0.24	0.62	0.62	0.49	0.52	0.52	0.72	0.72	0.48	0.51	0.86	0.21
Avail Cap(c_a), veh/h	374	1441	749	328	1526	815	347	497	422	178	466	396
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	27.0	27.0	35.8	3.6	3.6	45.8	39.9	37.0	56.4	50.5	45.8
Incr Delay (d2), s/veh	0.1	2.1	3.9	0.3	1.0	1.8	7.0	8.7	3.9	1.3	3.2	0.2
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	2.0	12.0	12.9	4.3	2.4	2.7	8.4	11.9	6.1	1.9	7.4	1.4
LnGrp Delay(d),s/veh	21.9	29.1	30.9	36.1	4.5	5.3	52.7	48.6	41.0	57.7	53.7	46.0
LnGrp LOS	C	C	C	D	A	A	D	D	D	E	D	D
Approach Vol, veh/h		1458			1367			810			327	
Approach Delay, s/veh		29.2			8.5			47.9			53.3	
Approach LOS		C			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	39.0	16.3	57.0	23.0	23.7	13.3	60.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 8	32.0	* 8	51.0	* 10	30.0	* 5	54.0
Max Q Clear Time (g_c+I1), s	2.0	22.9	2.0	26.9	13.3	16.0	2.0	7.2
Green Ext Time (p_c), s	0.1	0.6	0.1	3.3	0.0	0.7	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

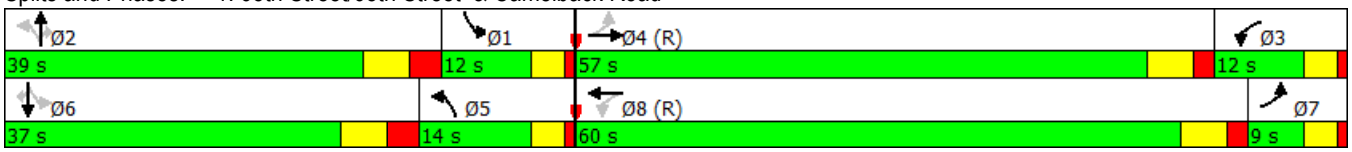
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	12	39	12	57	14	37	9	60
Maximum Split (%)	10.0%	32.5%	10.0%	47.5%	11.7%	30.8%	7.5%	50.0%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	108	69	57	0	106	69	60	0
End Time (s)	0	108	69	57	0	106	69	60
Yield/Force Off (s)	116	101	65	51	116	99	65	54
Yield/Force Off 170(s)	116	78	65	34	116	76	65	37
Local Start Time (s)	108	69	57	0	106	69	60	0
Local Yield (s)	116	101	65	51	116	99	65	54
Local Yield 170(s)	116	78	65	34	116	76	65	37

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	1368	161	1206	249	357	204	58	222	47
v/c Ratio	0.42	0.59	0.70	0.49	0.58	0.71	0.38	0.40	0.77	0.14
Control Delay	25.0	24.9	37.3	9.0	41.5	48.5	12.3	39.2	65.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	24.9	37.3	9.0	41.5	48.5	12.3	39.2	65.2	0.9
Queue Length 50th (ft)	31	282	33	98	140	250	29	29	167	0
Queue Length 95th (ft)	56	332	#130	134	213	362	95	59	238	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	220	2333	236	2473	428	504	540	190	465	470
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	0.41	0.59	0.68	0.49	0.58	0.71	0.38	0.31	0.48	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	356	10	10	294
Future Vol, veh/h	2	2	356	10	10	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	396	11	11	327

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	750	401	0	0	407	0
Stage 1	401	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	328	649	-	-	1152	-
Stage 1	626	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	649	-	-	1152	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	626	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	434	1152	-
HCM Lane V/C Ratio	-	-	0.01	0.01	-
HCM Control Delay (s)	-	-	13.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	4	10	1	2	22	456	33	15	1033	40
Future Volume (veh/h)	9	3	4	10	1	2	22	456	33	15	1033	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	10	3	4	11	1	2	24	507	37	17	1148	44
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
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	73	13	12	109	18	36	448	3071	1374	805	4413	1374
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	1.00	1.00	1.00	0.87	0.87	0.87
Sat Flow, veh/h	772	413	364	1403	556	1111	468	3539	1583	859	5085	1583
Grp Volume(v), veh/h	17	0	0	11	0	3	24	507	37	17	1148	44
Grp Sat Flow(s),veh/h/ln	1549	0	0	1403	0	1667	468	1770	1583	859	1695	1583
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.3	4.6	0.5
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.7	0.0	0.2	4.9	0.0	0.0	0.3	4.6	0.5
Prop In Lane	0.59		0.24	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	0	0	109	0	54	448	3071	1374	805	4413	1374
V/C Ratio(X)	0.17	0.00	0.00	0.10	0.00	0.06	0.05	0.17	0.03	0.02	0.26	0.03
Avail Cap(c_a), veh/h	414	0	0	403	0	403	448	3071	1374	805	4413	1374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	0.0	0.0	56.5	0.0	56.3	0.1	0.0	0.0	1.1	1.4	1.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0
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	0.6	0.0	0.0	0.4	0.0	0.1	0.1	0.0	0.0	0.1	2.2	0.2
LnGrp Delay(d),s/veh	57.1	0.0	0.0	56.7	0.0	56.5	0.3	0.1	0.0	1.1	1.5	1.1
LnGrp LOS	E			E		E	A	A	A	A	A	A
Approach Vol, veh/h		17			14			568			1209	
Approach Delay, s/veh		57.1			56.6			0.1			1.5	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		110.1		9.9		110.1		9.9
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 79		29.0		* 79		29.0
Max Q Clear Time (g_c+I1), s		6.9		3.2		6.6		2.7
Green Ext Time (p_c), s		2.7		0.1		2.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	2.0
HCM 2010 LOS	A

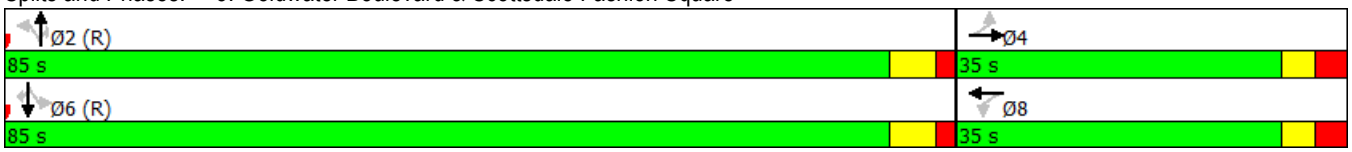
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	85	35	85	35
Maximum Split (%)	70.8%	29.2%	70.8%	29.2%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	85	0	85
End Time (s)	85	0	85	0
Yield/Force Off (s)	79	114	79	114
Yield/Force Off 170(s)	66	95	66	95
Local Start Time (s)	0	85	0	85
Local Yield (s)	79	114	79	114
Local Yield 170(s)	66	95	66	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	11	3	24	507	37	17	1148	44
v/c Ratio	0.17	0.11	0.03	0.06	0.15	0.02	0.02	0.24	0.03
Control Delay	49.1	56.3	41.7	3.2	2.2	2.0	1.3	1.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	56.3	41.7	3.2	2.2	2.0	1.3	1.0	0.5
Queue Length 50th (ft)	10	8	1	0	0	0	0	0	0
Queue Length 95th (ft)	34	28	11	m11	71	m11	5	60	5
Internal Link Dist (ft)	275		60		1010			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	438	450	406	410	3316	1485	811	4764	1486
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	0.04	0.02	0.01	0.06	0.15	0.02	0.02	0.24	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	0	0	467	0	961
Future Vol, veh/h	75	0	0	467	0	961
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	0	0	519	0	1068

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	427	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	593	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	573	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	593	-	-	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	593	-
HCM Lane V/C Ratio	-	0.141	-
HCM Control Delay (s)	-	12.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.5	-

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	441	2	30	34	17	0	1	13	22	0	41
Future Vol, veh/h	24	441	2	30	34	17	0	1	13	22	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	490	2	33	38	19	0	1	14	24	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	492	0	0	630	667	246	413	660	28
Stage 1	-	-	-	-	-	-	544	544	-	114	114	-
Stage 2	-	-	-	-	-	-	86	123	-	299	546	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1546	-	-	1068	-	-	366	378	754	523	382	1041
Stage 1	-	-	-	-	-	-	491	517	-	879	800	-
Stage 2	-	-	-	-	-	-	912	793	-	685	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1546	-	-	1068	-	-	337	360	754	493	364	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	360	-	493	364	-
Stage 1	-	-	-	-	-	-	482	508	-	864	775	-
Stage 2	-	-	-	-	-	-	845	768	-	659	507	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	3.1	10.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	699	1546	-	-	1068	-	-	493	1041
HCM Lane V/C Ratio	-	0.022	0.017	-	-	0.031	-	-	0.05	0.044
HCM Control Delay (s)	0	10.3	7.4	-	-	8.5	-	-	12.7	8.6
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Future Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1633		1770	1639		1770	5070		1770	5046	
Flt Permitted	0.75	1.00		0.74	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	2714	1633		1380	1639		447	5070		353	5046	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	8	37	7	2	8	36	1174	24	21	970	52
RTOR Reduction (vph)	0	29	0	0	8	0	0	1	0	0	3	0
Lane Group Flow (vph)	488	16	0	7	2	0	36	1197	0	21	1019	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	27.3	27.3		5.4	5.4		69.3	69.3		69.3	69.3	
Effective Green, g (s)	27.3	27.3		5.4	5.4		69.3	69.3		69.3	69.3	
Actuated g/C Ratio	0.23	0.23		0.05	0.05		0.58	0.58		0.58	0.58	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	617	371		62	73		258	2927		203	2914	
v/s Ratio Prot		0.01			0.00			c0.24			0.20	
v/s Ratio Perm	c0.18			c0.01			0.08			0.06		
v/c Ratio	0.79	0.04		0.11	0.03		0.14	0.41		0.10	0.35	
Uniform Delay, d1	43.7	36.2		55.0	54.8		11.6	14.0		11.4	13.4	
Progression Factor	1.04	1.05		1.00	1.00		1.46	1.56		1.00	1.00	
Incremental Delay, d2	6.8	0.0		0.8	0.2		1.1	0.4		1.0	0.3	
Delay (s)	52.3	38.0		55.8	55.0		18.1	22.4		12.4	13.8	
Level of Service	D	D		E	D		B	C		B	B	
Approach Delay (s)		51.1			55.3			22.2			13.7	
Approach LOS		D			E			C			B	

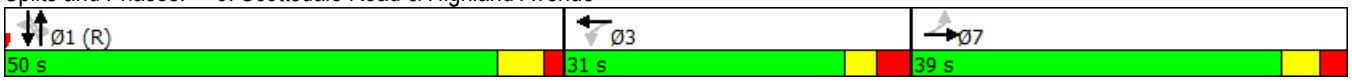
Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	50	31	39
Maximum Split (%)	41.7%	25.8%	32.5%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	50	81
End Time (s)	50	81	0
Yield/Force Off (s)	44	75	114
Yield/Force Off 170(s)	28	56	95
Local Start Time (s)	0	50	81
Local Yield (s)	44	75	114
Local Yield 170(s)	28	56	95

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: 6: Scottsdale Road & Highland Avenue



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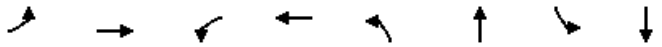


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	488	45	7	10	36	1198	21	1022
v/c Ratio	0.79	0.11	0.06	0.07	0.13	0.39	0.10	0.33
Control Delay	54.7	14.1	49.3	29.3	25.2	23.2	17.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	14.1	49.3	29.3	25.2	23.2	17.8	14.2
Queue Length 50th (ft)	182	3	5	1	17	242	5	108
Queue Length 95th (ft)	202	22	20	18	m51	336	29	242
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	753	480	287	347	271	3079	215	3066
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	0.65	0.09	0.02	0.03	0.13	0.39	0.10	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Future Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	139	593	171	73	623	149	162	566	34	153	593	96
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	772	346	178	739	176	739	1391	83	739	1003	449
Arrive On Green	0.02	0.07	0.07	0.10	0.26	0.26	0.21	0.28	0.28	0.07	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2836	677	3442	4908	293	3442	3539	1583
Grp Volume(v), veh/h	139	593	171	73	388	384	162	390	210	153	593	96
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1743	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.8	19.8	12.5	4.6	24.9	25.0	4.7	11.2	11.3	5.0	19.3	6.7
Cycle Q Clear(g_c), s	4.8	19.8	12.5	4.6	24.9	25.0	4.7	11.2	11.3	5.0	19.3	6.7
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	200	772	346	178	461	454	739	961	513	739	1003	449
V/C Ratio(X)	0.70	0.77	0.49	0.41	0.84	0.84	0.22	0.41	0.41	0.21	0.59	0.21
Avail Cap(c_a), veh/h	315	1180	528	178	605	596	739	961	513	739	1003	449
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.8	52.7	49.3	50.6	42.0	42.1	38.8	34.8	34.9	46.1	47.7	42.0
Incr Delay (d2), s/veh	3.7	1.4	0.9	1.5	8.2	8.5	0.1	1.3	2.4	0.1	2.4	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	2.4	9.9	5.6	2.3	13.2	13.1	2.2	5.4	6.0	2.4	9.8	3.1
LnGrp Delay(d),s/veh	61.5	54.1	50.3	52.1	50.2	50.5	39.0	36.1	37.3	46.2	50.2	43.1
LnGrp LOS	E	D	D	D	D	D	D	D	D	D	D	D
Approach Vol, veh/h		903			845			762			842	
Approach Delay, s/veh		54.5			50.5			37.0			48.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.8	41.0	16.0	33.2	29.8	41.0	11.0	38.3
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 12	34.0	12.0	40.0	* 12	34.0	11.0	41.0
Max Q Clear Time (g_c+I1), s	7.0	13.3	6.6	21.8	6.7	21.3	6.8	27.0
Green Ext Time (p_c), s	0.5	3.8	0.3	4.4	0.5	3.5	0.2	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.1
HCM 2010 LOS	D

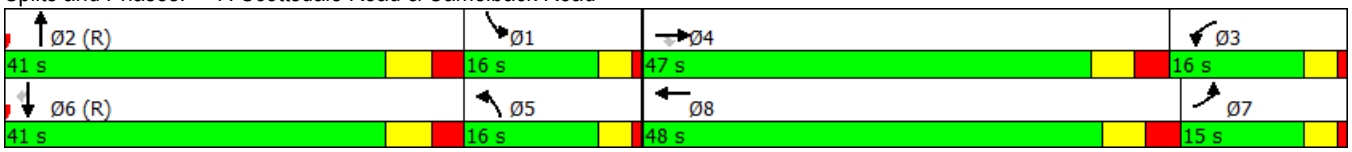
Notes

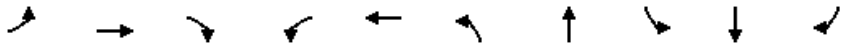
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	16	41	16	47	16	41	15	48
Maximum Split (%)	13.3%	34.2%	13.3%	39.2%	13.3%	34.2%	12.5%	40.0%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	91	50	34	107	91	50	35	107
End Time (s)	107	91	50	34	107	91	50	35
Yield/Force Off (s)	103	84	46	27	103	84	46	28
Yield/Force Off 170(s)	103	73	46	16	103	73	46	17
Local Start Time (s)	41	0	104	57	41	0	105	57
Local Yield (s)	53	34	116	97	53	34	116	98
Local Yield 170(s)	53	23	116	86	53	23	116	87

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	139	593	171	73	772	162	600	153	593	96
v/c Ratio	0.49	0.65	0.32	0.35	0.79	0.54	0.32	0.51	0.45	0.15
Control Delay	68.6	69.9	35.1	51.8	44.7	59.0	28.9	68.6	25.4	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	69.9	35.1	51.8	44.7	59.0	28.9	68.6	25.4	11.1
Queue Length 50th (ft)	47	259	88	52	283	62	120	65	204	12
Queue Length 95th (ft)	50	318	159	98	326	97	174	102	298	87
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	318	1179	641	228	1191	343	1863	343	1304	652
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	0.44	0.50	0.27	0.32	0.65	0.47	0.32	0.45	0.45	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Future Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	921	153	46	721	37	140	176	39	18	431	499
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
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	448	1737	541	278	1239	63	199	1398	625	73	1822	567
Arrive On Green	0.33	0.68	0.68	0.15	0.50	0.50	0.06	0.40	0.40	0.01	0.12	0.12
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	201	921	153	46	492	266	140	176	39	18	431	499
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	3.8	1.8	0.6	9.2	37.2
Cycle Q Clear(g_c), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	3.8	1.8	0.6	9.2	37.2
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	448	1737	541	278	848	455	199	1398	625	73	1822	567
V/C Ratio(X)	0.45	0.53	0.28	0.17	0.58	0.58	0.70	0.13	0.06	0.25	0.24	0.88
Avail Cap(c_a), veh/h	448	1737	541	278	848	455	287	1398	625	161	1822	567
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.81	0.81	0.81	0.66	0.66	0.66	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	29.7	14.2	13.2	35.0	25.6	25.6	55.5	23.1	22.5	58.6	38.0	50.4
Incr Delay (d2), s/veh	0.6	0.9	1.1	0.2	1.9	3.6	4.5	0.2	0.2	1.7	0.3	17.2
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	4.5	5.1	2.1	1.2	5.8	6.5	2.4	1.9	0.8	0.3	4.4	19.1
LnGrp Delay(d),s/veh	30.3	15.2	14.3	35.2	27.5	29.2	60.0	23.3	22.7	60.4	38.3	67.6
LnGrp LOS	C	B	B	D	C	C	E	C	C	E	D	E
Approach Vol, veh/h		1275			804			355			948	
Approach Delay, s/veh		17.4			28.5			37.7			54.1	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	47.0	10.9	49.0	24.1	36.0	6.5	53.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	41.0	10.0	43.0	17.0	30.0	5.6	47.4
Max Q Clear Time (g_c+I1), s	2.0	12.8	6.8	39.2	2.0	14.4	2.6	5.8
Green Ext Time (p_c), s	0.3	8.1	0.1	1.7	0.6	4.5	0.1	1.3

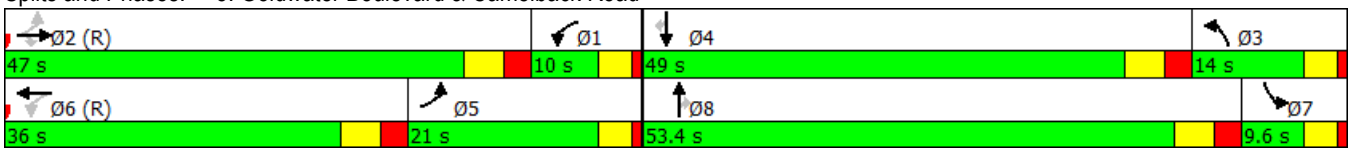
Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

30-DR-2019
8/22/2019

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10	47	14	49	21	36	9.6	53.4
Maximum Split (%)	8.3%	39.2%	11.7%	40.8%	17.5%	30.0%	8.0%	44.5%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	Yes	No	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	47	0	106	57	36	0	110.4	57
End Time (s)	57	47	0	106	57	36	0	110.4
Yield/Force Off (s)	53	41	116	100	53	30	116	104.4
Yield/Force Off 170(s)	53	30	116	89	53	19	116	93.4
Local Start Time (s)	47	0	106	57	36	0	110.4	57
Local Yield (s)	53	41	116	100	53	30	116	104.4
Local Yield 170(s)	53	30	116	89	53	19	116	93.4

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	70	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
8/22/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	921	153	46	758	140	176	39	18	431	499
v/c Ratio	0.56	0.52	0.25	0.28	0.58	0.53	0.11	0.05	0.11	0.23	0.65
Control Delay	24.4	35.1	16.8	12.0	38.3	60.5	20.5	0.1	67.4	25.5	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	35.1	16.8	12.0	38.3	60.5	20.5	0.1	67.4	25.5	19.6
Queue Length 50th (ft)	51	160	29	10	111	54	38	0	7	84	136
Queue Length 95th (ft)	92	213	73	m14	195	88	70	0	21	112	324
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	386	1767	620	169	1296	286	1608	804	160	1910	773
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	0.52	0.52	0.25	0.27	0.58	0.49	0.11	0.05	0.11	0.23	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

30-DR-2019
8/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	1135	194	241	1351	72	193	330	195	85	237	70
Future Volume (veh/h)	98	1135	194	241	1351	72	193	330	195	85	237	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	109	1261	216	268	1501	80	214	367	217	94	263	78
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
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	247	1639	281	360	2142	114	316	497	422	123	301	256
Arrive On Green	0.09	0.38	0.38	0.05	0.14	0.14	0.14	0.27	0.27	0.04	0.16	0.16
Sat Flow, veh/h	1774	4372	749	1774	4943	263	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	109	978	499	268	1029	552	214	367	217	94	263	78
Grp Sat Flow(s),veh/h/ln	1774	1695	1731	1774	1695	1816	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.8	30.4	30.4	11.2	34.7	34.7	9.0	21.6	14.0	2.2	16.5	5.2
Cycle Q Clear(g_c), s	0.8	30.4	30.4	11.2	34.7	34.7	9.0	21.6	14.0	2.2	16.5	5.2
Prop In Lane	1.00		0.43	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	247	1271	649	360	1469	787	316	497	422	123	301	256
V/C Ratio(X)	0.44	0.77	0.77	0.74	0.70	0.70	0.68	0.74	0.51	0.77	0.87	0.30
Avail Cap(c_a), veh/h	247	1271	649	360	1469	787	316	497	422	149	497	422
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.49	0.49	0.49	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	32.9	32.9	51.0	44.0	44.0	46.8	40.2	37.4	56.2	49.1	44.3
Incr Delay (d2), s/veh	0.5	4.5	8.5	3.6	1.4	2.6	5.7	9.5	4.4	13.8	5.1	0.2
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	3.4	14.9	16.0	9.1	16.6	18.0	7.2	12.4	6.6	3.5	8.9	2.3
LnGrp Delay(d),s/veh	48.9	37.5	41.5	54.7	45.4	46.6	52.4	49.7	41.8	70.0	54.1	44.6
LnGrp LOS	D	D	D	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1586			1849			798			435	
Approach Delay, s/veh		39.5			47.1			48.3			55.8	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	39.0	21.8	51.0	20.8	26.4	14.8	58.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 6	32.0	* 16	45.0	* 6	32.0	* 9	52.0
Max Q Clear Time (g_c+I1), s	4.2	23.6	13.2	32.4	11.0	18.5	2.8	36.7
Green Ext Time (p_c), s	0.0	0.6	0.1	3.2	0.0	0.9	0.1	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

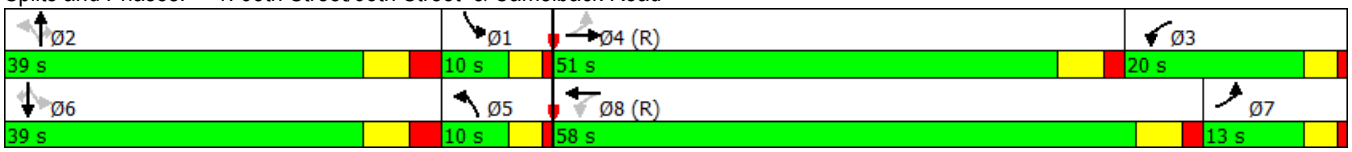
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	10	39	20	51	10	39	13	58
Maximum Split (%)	8.3%	32.5%	16.7%	42.5%	8.3%	32.5%	10.8%	48.3%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	47	27	96	86	47	34	96
End Time (s)	96	86	47	27	96	86	47	34
Yield/Force Off (s)	92	79	43	21	92	79	43	28
Yield/Force Off 170(s)	92	56	43	4	92	56	43	11
Local Start Time (s)	110	71	51	0	110	71	58	0
Local Yield (s)	116	103	67	45	116	103	67	52
Local Yield 170(s)	116	80	67	28	116	80	67	35

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 96 (80%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	109	1477	268	1581	214	367	217	94	263	78
v/c Ratio	0.59	0.77	0.93	0.71	0.51	0.72	0.39	0.63	0.79	0.19
Control Delay	46.9	35.3	52.4	34.7	39.2	49.0	12.9	55.5	64.1	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	35.3	52.4	34.7	39.2	49.0	12.9	55.5	64.1	1.0
Queue Length 50th (ft)	37	357	100	311	118	260	34	48	197	0
Queue Length 95th (ft)	89	421	m#170	366	181	374	102	86	272	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	197	1910	302	2216	420	510	550	159	496	535
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	0.55	0.77	0.89	0.71	0.51	0.72	0.39	0.59	0.53	0.15

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.

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Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	35	475	25	15	236
Future Vol, veh/h	25	35	475	25	15	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	39	528	28	17	262

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	838	542	0	0	556	0
Stage 1	542	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	336	540	-	-	1015	-
Stage 1	583	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	540	-	-	1015	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1015	-
HCM Lane V/C Ratio	-	-	0.156	0.016	-
HCM Control Delay (s)	-	-	15	8.6	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	9	71	73	12	24	39	601	76	31	1033	30
Future Volume (veh/h)	72	9	71	73	12	24	39	601	76	31	1033	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	10	79	81	13	27	43	668	84	34	1148	33
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
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	130	22	94	206	77	161	384	2679	1199	596	3850	1199
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	1.00	1.00	1.00	0.76	0.76	0.76
Sat Flow, veh/h	598	154	660	1303	541	1124	473	3539	1583	708	5085	1583
Grp Volume(v), veh/h	169	0	0	81	0	40	43	668	84	34	1148	33
Grp Sat Flow(s),veh/h/ln	1412	0	0	1303	0	1664	473	1770	1583	708	1695	1583
Q Serve(g_s), s	11.6	0.0	0.0	0.0	0.0	2.5	1.2	0.0	0.0	1.5	8.5	0.6
Cycle Q Clear(g_c), s	14.1	0.0	0.0	9.5	0.0	2.5	9.7	0.0	0.0	1.5	8.5	0.6
Prop In Lane	0.47		0.47	1.00		0.68	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	0	0	206	0	238	384	2679	1199	596	3850	1199
V/C Ratio(X)	0.69	0.00	0.00	0.39	0.00	0.17	0.11	0.25	0.07	0.06	0.30	0.03
Avail Cap(c_a), veh/h	565	0	0	486	0	596	384	2679	1199	596	3850	1199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	48.1	0.0	45.2	0.5	0.0	0.0	3.7	4.6	3.6
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.5	0.0	0.1	0.5	0.2	0.1	0.2	0.2	0.0
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	5.5	0.0	0.0	2.5	0.0	1.2	0.2	0.1	0.0	0.3	4.0	0.3
LnGrp Delay(d),s/veh	51.7	0.0	0.0	48.6	0.0	45.3	0.9	0.2	0.1	3.9	4.8	3.7
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		169			121			795			1215	
Approach Delay, s/veh		51.7			47.5			0.2			4.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		96.8		23.2		96.8		23.2
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 65		43.0		* 65		43.0
Max Q Clear Time (g_c+I1), s		11.7		16.1		10.5		11.5
Green Ext Time (p_c), s		3.2		1.0		3.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

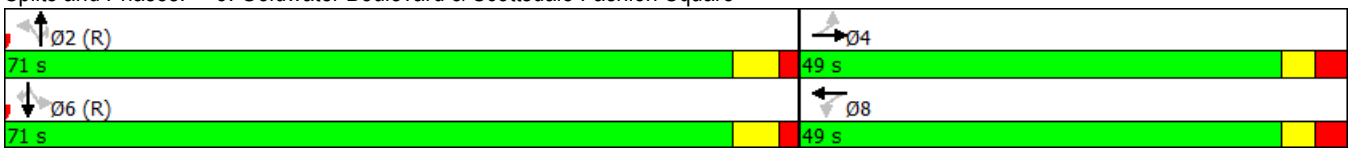
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	71	49	71	49
Maximum Split (%)	59.2%	40.8%	59.2%	40.8%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
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)	65	114	65	114
Yield/Force Off 170(s)	52	95	52	95
Local Start Time (s)	0	71	0	71
Local Yield (s)	65	114	65	114
Local Yield 170(s)	52	95	52	95

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	169	81	40	43	668	84	34	1148	33
v/c Ratio	0.77	0.62	0.17	0.13	0.24	0.07	0.06	0.29	0.03
Control Delay	59.3	68.5	22.4	11.7	10.1	5.5	4.7	4.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	68.5	22.4	11.7	10.1	5.5	4.7	4.7	1.9
Queue Length 50th (ft)	97	60	9	18	154	7	5	80	1
Queue Length 95th (ft)	163	107	39	m38	221	m33	18	131	10
Internal Link Dist (ft)	275		60		1011			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	544	365	617	329	2732	1238	568	3926	1229
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	0.31	0.22	0.06	0.13	0.24	0.07	0.06	0.29	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	0	0	697	0	947
Future Vol, veh/h	159	0	0	697	0	947
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	0	0	774	0	1052

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	421	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	421	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	597	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	577	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	597	-	-	-	-	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	577	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	597	-
HCM Lane V/C Ratio	-	0.296	-
HCM Control Delay (s)	-	13.5	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1.2	-

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Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	650	0	32	126	30	7	3	44	19	3	26
Future Vol, veh/h	47	650	0	32	126	30	7	3	44	19	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	722	0	36	140	33	8	3	49	21	3	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	722	0	0	970	1071	361	695	1055	87
Stage 1	-	-	-	-	-	-	827	827	-	228	228	-
Stage 2	-	-	-	-	-	-	143	244	-	467	827	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1401	-	-	876	-	-	208	219	636	329	224	954
Stage 1	-	-	-	-	-	-	332	384	-	754	714	-
Stage 2	-	-	-	-	-	-	845	703	-	545	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1401	-	-	876	-	-	188	202	636	282	207	954
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	202	-	282	207	-
Stage 1	-	-	-	-	-	-	320	370	-	726	685	-
Stage 2	-	-	-	-	-	-	782	674	-	480	370	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.8	13.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	188	559	1401	-	-	876	-	-	282	695
HCM Lane V/C Ratio	0.041	0.093	0.037	-	-	0.041	-	-	0.075	0.046
HCM Control Delay (s)	25	12.1	7.7	-	-	9.3	-	-	18.8	10.4
HCM Lane LOS	D	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Future Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1609		1770	1687		1770	5078		1770	5006	
Flt Permitted	0.73	1.00		0.37	1.00		0.11	1.00		0.10	1.00	
Satd. Flow (perm)	2634	1609		690	1687		211	5078		184	5006	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	762	4	40	14	16	27	57	1381	13	10	1189	137
RTOR Reduction (vph)	0	26	0	0	15	0	0	1	0	0	11	0
Lane Group Flow (vph)	762	18	0	14	28	0	57	1393	0	10	1315	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	42.5	42.5		10.8	10.8		48.7	48.7		48.7	48.7	
Effective Green, g (s)	42.5	42.5		10.8	10.8		48.7	48.7		48.7	48.7	
Actuated g/C Ratio	0.35	0.35		0.09	0.09		0.41	0.41		0.41	0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	932	569		62	151		85	2060		74	2031	
v/s Ratio Prot		0.01			0.02			c0.27			0.26	
v/s Ratio Perm	c0.29			c0.02			0.27			0.05		
v/c Ratio	0.82	0.03		0.23	0.19		0.67	0.68		0.14	0.65	
Uniform Delay, d1	35.2	25.3		50.7	50.5		29.1	29.2		22.4	28.7	
Progression Factor	1.27	2.03		1.00	1.00		0.58	0.56		1.00	1.00	
Incremental Delay, d2	5.6	0.0		1.9	0.6		30.1	1.5		3.8	1.6	
Delay (s)	50.4	51.4		52.6	51.2		47.1	17.9		26.2	30.3	
Level of Service	D	D		D	D		D	B		C	C	
Approach Delay (s)		50.4			51.5			19.1			30.3	
Approach LOS		D			D			B			C	

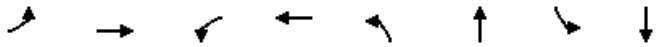
Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	49	31	40
Maximum Split (%)	40.8%	25.8%	33.3%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	49	80
End Time (s)	49	80	0
Yield/Force Off (s)	43	74	114
Yield/Force Off 170(s)	27	55	95
Local Start Time (s)	0	49	80
Local Yield (s)	43	74	114
Local Yield 170(s)	27	55	95

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: 6: Scottsdale Road & Highland Avenue



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	762	44	14	43	57	1394	10	1326
v/c Ratio	0.82	0.07	0.21	0.23	0.66	0.66	0.13	0.63
Control Delay	53.2	19.8	52.7	35.3	53.3	18.1	31.7	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	19.8	52.7	35.3	53.3	18.1	31.7	30.5
Queue Length 50th (ft)	270	7	10	20	43	389	5	306
Queue Length 95th (ft)	#417	37	30	51	m#93	457	21	377
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	931	595	143	364	87	2113	76	2094
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	0.82	0.07	0.10	0.12	0.66	0.66	0.13	0.63

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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	558	242	86	531	155	312	743	96	284	609	235
Future Volume (veh/h)	264	558	242	86	531	155	312	743	96	284	609	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	293	620	269	96	590	172	347	826	107	316	677	261
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	352	745	333	237	655	190	708	1258	162	676	944	422
Arrive On Green	0.20	0.42	0.42	0.13	0.24	0.24	0.21	0.28	0.28	0.06	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2706	787	3442	4562	588	3442	3539	1583
Grp Volume(v), veh/h	293	620	269	96	385	377	347	613	320	316	677	261
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1724	1721	1695	1759	1721	1770	1583
Q Serve(g_s), s	9.8	18.7	17.9	5.9	25.3	25.4	10.7	19.2	19.3	10.6	22.3	19.1
Cycle Q Clear(g_c), s	9.8	18.7	17.9	5.9	25.3	25.4	10.7	19.2	19.3	10.6	22.3	19.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	352	745	333	237	428	417	708	935	485	676	944	422
V/C Ratio(X)	0.83	0.83	0.81	0.40	0.90	0.90	0.49	0.66	0.66	0.47	0.72	0.62
Avail Cap(c_a), veh/h	488	1038	464	237	457	445	708	935	485	676	944	422
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	46.7	32.8	32.6	47.6	44.1	44.1	42.1	38.4	38.5	50.1	50.3	48.8
Incr Delay (d2), s/veh	7.4	3.6	6.2	1.1	19.8	20.7	0.5	3.6	6.9	0.4	3.5	4.9
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	5.0	9.5	8.3	3.0	14.8	14.5	5.1	9.4	10.4	5.1	11.4	9.0
LnGrp Delay(d),s/veh	54.1	36.5	38.8	48.7	63.8	64.8	42.6	42.0	45.4	50.4	53.8	53.8
LnGrp LOS	D	D	D	D	E	E	D	D	D	D	D	D
Approach Vol, veh/h		1182			858			1280			1254	
Approach Delay, s/veh		41.4			62.6			43.0			52.9	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.6	40.1	20.1	32.3	28.7	39.0	16.3	36.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 17	33.1	12.8	35.2	* 18	32.0	17.0	31.0
Max Q Clear Time (g_c+I1), s	12.6	21.3	7.9	20.7	12.7	24.3	11.8	27.4
Green Ext Time (p_c), s	1.1	4.8	0.6	4.5	1.3	3.3	0.5	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	49.0
HCM 2010 LOS	D

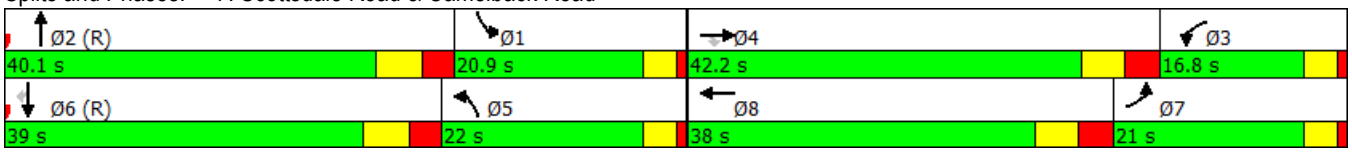
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	20.9	40.1	16.8	42.2	22	39	21	38
Maximum Split (%)	17.4%	33.4%	14.0%	35.2%	18.3%	32.5%	17.5%	31.7%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	2	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.1	98	81.2	39	17	98	77	39
End Time (s)	39	18.1	98	81.2	39	17	98	77
Yield/Force Off (s)	35	11.1	94	74.2	35	10	94	70
Yield/Force Off 170(s)	35	0.1	94	63.2	35	119	94	59
Local Start Time (s)	40.1	0	103.2	61	39	0	99	61
Local Yield (s)	57	33.1	116	96.2	57	32	116	92
Local Yield 170(s)	57	22.1	116	85.2	57	21	116	81

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 98 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



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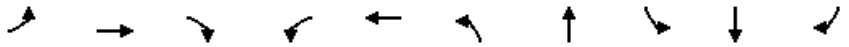


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	293	620	269	96	762	347	933	316	677	261
v/c Ratio	0.69	0.73	0.46	0.40	0.87	0.74	0.59	0.72	0.62	0.39
Control Delay	42.7	19.6	3.8	53.8	53.3	59.8	36.5	78.7	61.6	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	19.6	3.8	53.8	53.3	59.8	36.5	78.7	61.6	31.9
Queue Length 50th (ft)	124	150	4	67	282	133	226	110	295	136
Queue Length 95th (ft)	171	179	23	129	#365	184	280	165	357	216
Internal Link Dist (ft)		1329			616		511		1288	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	486	1038	654	238	909	514	1591	483	1085	666
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	0.60	0.60	0.41	0.40	0.84	0.68	0.59	0.65	0.62	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Future Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	286	1060	187	57	1033	82	303	326	107	72	504	542
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
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	396	1937	603	254	1281	102	362	1242	555	129	1441	449
Arrive On Green	0.36	0.76	0.76	0.02	0.09	0.09	0.11	0.35	0.35	0.01	0.09	0.09
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	286	1060	187	57	728	387	303	326	107	72	504	542
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	10.4	10.2	4.4	0.0	25.3	25.4	10.4	7.9	5.6	2.5	11.1	34.0
Cycle Q Clear(g_c), s	10.4	10.2	4.4	0.0	25.3	25.4	10.4	7.9	5.6	2.5	11.1	34.0
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	1937	603	254	904	479	362	1242	555	129	1441	449
V/C Ratio(X)	0.72	0.55	0.31	0.22	0.81	0.81	0.84	0.26	0.19	0.56	0.35	1.21
Avail Cap(c_a), veh/h	396	1937	603	254	904	479	402	1242	555	169	1441	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.70	0.70	0.70	0.58	0.58	0.58	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	33.5	10.1	9.4	41.3	51.7	51.7	52.7	27.9	27.1	58.3	44.0	54.4
Incr Delay (d2), s/veh	4.5	0.8	0.9	0.3	4.6	8.4	13.4	0.5	0.8	3.6	0.6	112.3
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	8.1	4.7	2.1	1.7	12.5	13.8	5.6	3.9	2.6	1.3	5.3	28.9
LnGrp Delay(d),s/veh	38.0	10.9	10.3	41.5	56.2	60.1	66.0	28.4	27.9	61.8	44.7	166.7
LnGrp LOS	D	B	B	D	E	E	E	C	C	E	D	F
Approach Vol, veh/h		1533			1172			736			1118	
Approach Delay, s/veh		15.9			56.8			43.8			104.9	
Approach LOS		B			E			D			F	

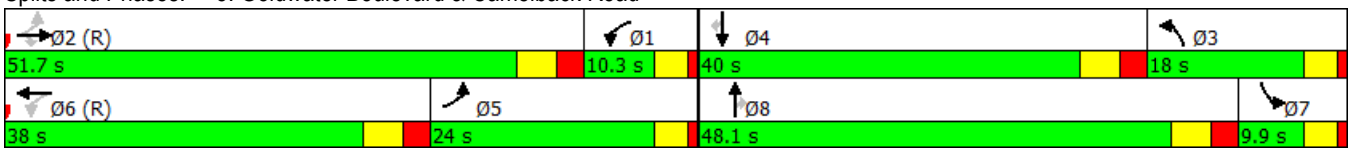
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	51.7	16.6	40.0	25.4	38.0	8.5	48.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.3	45.7	14.0	34.0	20.0	32.0	5.9	42.1
Max Q Clear Time (g_c+I1), s	2.0	12.2	12.4	36.0	12.4	27.4	4.5	9.9
Green Ext Time (p_c), s	0.4	10.2	0.2	0.0	0.6	2.8	0.2	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	52.7
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10.3	51.7	18	40	24	38	9.9	48.1
Maximum Split (%)	8.6%	43.1%	15.0%	33.3%	20.0%	31.7%	8.3%	40.1%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)								
Flash Dont Walk (s)								
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	51.7	0	102	62	38	0	110.1	62
End Time (s)	62	51.7	0	102	62	38	0	110.1
Yield/Force Off (s)	58	45.7	116	96	58	32	116	104.1
Yield/Force Off 170(s)	58	45.7	116	96	58	32	116	104.1
Local Start Time (s)	51.7	0	102	62	38	0	110.1	62
Local Yield (s)	58	45.7	116	96	58	32	116	104.1
Local Yield 170(s)	58	45.7	116	96	58	32	116	104.1

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	1060	187	57	1115	303	326	107	72	504	542
v/c Ratio	0.85	0.54	0.26	0.35	0.82	0.78	0.24	0.15	0.43	0.33	0.80
Control Delay	43.7	11.1	0.9	42.2	56.7	66.5	27.3	1.7	74.8	39.0	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	11.1	0.9	42.2	56.7	66.5	27.3	1.7	74.8	39.0	34.7
Queue Length 50th (ft)	166	75	1	31	337	119	94	0	28	123	233
Queue Length 95th (ft)	#299	91	m3	m47	376	#177	132	13	56	163	#394
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	360	1979	710	165	1366	400	1333	692	168	1507	674
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	0.79	0.54	0.26	0.35	0.82	0.76	0.24	0.15	0.43	0.33	0.80

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.

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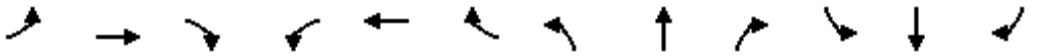
ATTACHMENT F – YEAR 2020 BUILD CAPACITY ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	829	138	41	649	46	126	219	35	17	408	473
Future Volume (veh/h)	251	829	138	41	649	46	126	219	35	17	408	473
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	279	921	153	46	721	51	140	243	39	19	453	526
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	579	1745	542	411	1218	86	202	948	423	260	1447	832
Arrive On Green	0.48	0.68	0.68	0.30	0.50	0.50	0.06	0.27	0.27	0.13	0.47	0.47
Sat Flow, veh/h	1781	5106	1585	1781	4870	343	3456	3554	1585	3456	5106	1585
Grp Volume(v), veh/h	279	921	153	46	503	269	140	243	39	19	453	526
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1809	1728	1777	1585	1728	1702	1585
Q Serve(g_s), s	0.0	10.7	4.5	0.0	12.6	12.7	4.8	6.5	2.2	0.6	6.6	0.0
Cycle Q Clear(g_c), s	0.0	10.7	4.5	0.0	12.6	12.7	4.8	6.5	2.2	0.6	6.6	0.0
Prop In Lane	1.00		1.00	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	579	1745	542	411	851	452	202	948	423	260	1447	832
V/C Ratio(X)	0.48	0.53	0.28	0.11	0.59	0.60	0.69	0.26	0.09	0.07	0.31	0.63
Avail Cap(c_a), veh/h	579	1745	542	411	851	452	547	948	423	605	1447	832
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.76	0.76	0.76	0.64	0.64	0.64	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	21.1	14.2	13.2	25.3	25.6	25.7	55.4	34.6	33.1	48.8	24.4	13.2
Incr Delay (d2), s/veh	0.5	0.9	1.0	0.1	1.9	3.7	4.2	0.7	0.4	0.1	0.5	3.5
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	4.3	3.2	1.6	0.8	4.3	4.9	2.2	2.9	0.9	0.3	2.5	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	15.1	14.2	25.4	27.6	29.4	59.7	35.3	33.5	48.9	24.9	16.7
LnGrp LOS	C	B	B	C	C	C	E	D	C	D	C	B
Approach Vol, veh/h		1353			818			422			998	
Approach Delay, s/veh		16.3			28.0			43.2			21.0	
Approach LOS		B			C			D			C	

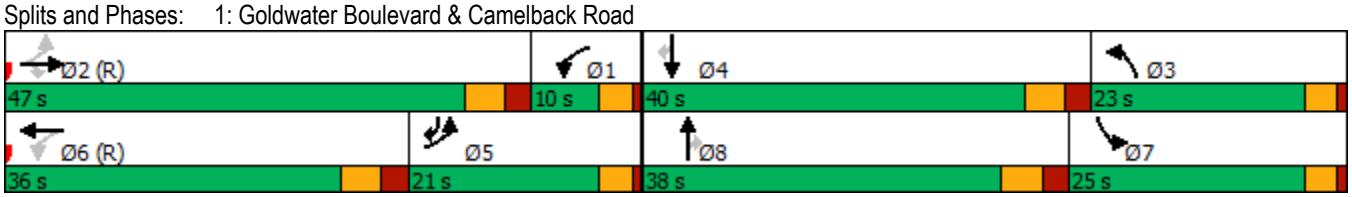
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	47.0	11.0	40.0	33.0	36.0	13.0	38.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	41.0	19.0	34.0	17.0	30.0	21.0	32.0
Max Q Clear Time (g_c+I1), s	2.0	12.7	6.8	8.6	2.0	14.7	2.6	8.5
Green Ext Time (p_c), s	0.0	8.1	0.3	5.3	0.7	4.5	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	251	829	138	41	649	126	219	35	17	408	473
Future Volume (vph)	251	829	138	41	649	126	219	35	17	408	473
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8		7	4	5
Permitted Phases	2		2	6				8			4
Detector Phase	5	2	2	1	6	3	8	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	10.0	10.0	4.0	10.0	4.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0	9.5	24.0	24.0	9.5	24.0	9.5
Total Split (s)	21.0	47.0	47.0	10.0	36.0	23.0	38.0	38.0	25.0	40.0	21.0
Total Split (%)	17.5%	39.2%	39.2%	8.3%	30.0%	19.2%	31.7%	31.7%	20.8%	33.3%	17.5%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.0	3.6	3.6	3.0	3.6	3.0
All-Red Time (s)	1.0	2.4	2.4	1.0	2.4	1.0	2.4	2.4	1.0	2.4	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	Max	None
Act Effct Green (s)	61.7	51.7	51.7	46.7	38.8	10.2	41.0	41.0	9.2	34.1	57.0
Actuated g/C Ratio	0.51	0.43	0.43	0.39	0.32	0.08	0.34	0.34	0.08	0.28	0.48
v/c Ratio	0.64	0.42	0.21	0.21	0.47	0.48	0.20	0.06	0.07	0.31	0.63
Control Delay	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
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	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
LOS	C	C	B	A	D	E	C	A	D	C	B
Approach Delay		31.4			36.3		36.4			25.0	
Approach LOS		C			D		D			C	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 70		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.64		
Intersection Signal Delay: 31.3	Intersection LOS: C	
Intersection Capacity Utilization 58.1%	ICU Level of Service B	
Analysis Period (min) 15		

Splits and Phases: 1: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	279	921	153	46	772	140	243	39	19	453	526
v/c Ratio	0.64	0.42	0.21	0.21	0.47	0.48	0.20	0.06	0.07	0.31	0.63
Control Delay	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
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	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
Queue Length 50th (ft)	79	182	41	10	127	54	62	0	7	93	213
Queue Length 95th (ft)	145	234	m87	m13	171	85	114	0	18	120	289
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	435	2190	743	221	1632	543	1209	642	600	1443	820
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	0.64	0.42	0.21	0.21	0.47	0.26	0.20	0.06	0.03	0.31	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	3	29	30	1	26	133	458	64	48	1033	235
Future Volume (veh/h)	60	3	29	30	1	26	133	458	64	48	1033	235
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	67	3	32	33	1	29	148	509	71	53	1148	261
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	225	13	138	221	5	145	357	2509	1119	709	3606	1119
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.71	0.71	0.71
Sat Flow, veh/h	1380	138	1468	1373	53	1540	382	3554	1585	834	5106	1585
Grp Volume(v), veh/h	67	0	35	33	0	30	148	509	71	53	1148	261
Grp Sat Flow(s),veh/h/ln	1380	0	1606	1373	0	1593	382	1777	1585	834	1702	1585
Q Serve(g_s), s	2.8	0.0	1.2	1.4	0.0	1.0	6.2	0.0	0.0	1.2	5.1	3.5
Cycle Q Clear(g_c), s	3.9	0.0	1.2	2.6	0.0	1.0	11.3	0.0	0.0	1.2	5.1	3.5
Prop In Lane	1.00		0.91	1.00		0.97	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	151	221	0	149	357	2509	1119	709	3606	1119
V/C Ratio(X)	0.30	0.00	0.23	0.15	0.00	0.20	0.41	0.20	0.06	0.07	0.32	0.23
Avail Cap(c_a), veh/h	519	0	493	513	0	489	357	2509	1119	709	3606	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	0.0	25.2	26.4	0.0	25.1	0.7	0.0	0.0	2.8	3.3	3.1
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.1	0.0	0.2	3.2	0.2	0.1	0.2	0.2	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	0.9	0.0	0.5	0.4	0.0	0.4	0.3	0.1	0.0	0.1	1.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	0.0	25.5	26.5	0.0	25.3	3.9	0.2	0.1	3.0	3.6	3.6
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		102			63			728			1462	
Approach Delay, s/veh		26.6			25.9			0.9			3.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		48.4		11.6		48.4		11.6				
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0				
Max Green Setting (Gmax), s		* 30		18.4		* 30		18.4				
Max Q Clear Time (g_c+I1), s		13.3		5.9		7.1		4.6				
Green Ext Time (p_c), s		1.8		0.1		1.7		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			4.3									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

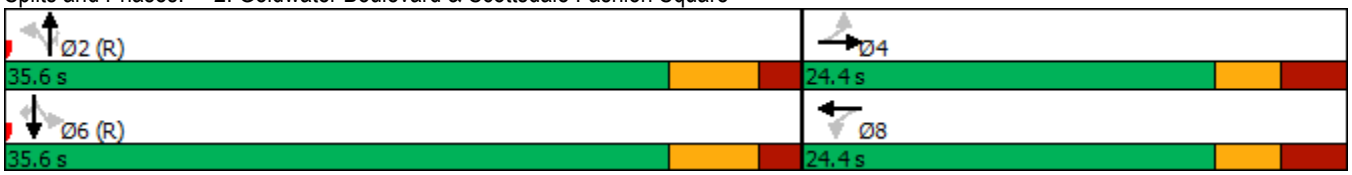
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	60	3	30	1	133	458	64	48	1033	235
Future Volume (vph)	60	3	30	1	133	458	64	48	1033	235
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.1	31.1	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	24.4	24.4	24.4	24.4	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.0	3.0	3.0	3.0	1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	35	33	30	148	509	71	53	1148	261
v/c Ratio	0.38	0.15	0.19	0.13	0.46	0.20	0.06	0.08	0.31	0.21
Control Delay	29.5	11.2	24.8	10.8	11.1	2.4	0.4	4.5	4.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	11.2	24.8	10.8	11.1	2.4	0.4	4.5	4.3	1.2
Queue Length 50th (ft)	23	1	11	0	12	18	0	5	50	0
Queue Length 95th (ft)	52	21	31	19	m146	38	m4	18	84	21
Internal Link Dist (ft)		275		60		1010			212	
Turn Bay Length (ft)			50		160		90	120		120
Base Capacity (vph)	421	515	419	508	320	2586	1175	632	3715	1226
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	0.16	0.07	0.08	0.06	0.46	0.20	0.06	0.08	0.31	0.21

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	0	0	544	0	1173
Future Vol, veh/h	91	0	0	544	0	1173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	0	0	604	0	1303

Major/Minor	Minor1			Major2	
Conflicting Flow All	521	-		-	-
Stage 1	0	-		-	-
Stage 2	521	-		-	-
Critical Hdwy	5.74	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	6.04	-		-	-
Follow-up Hdwy	3.82	-		-	-
Pot Cap-1 Maneuver	535	0		0	-
Stage 1	-	0		0	-
Stage 2	512	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	535	-		-	-
Mov Cap-2 Maneuver	535	-		-	-
Stage 1	-	-		-	-
Stage 2	512	-		-	-

Approach	WB	SB
HCM Control Delay, s	13.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	535	-
HCM Lane V/C Ratio	0.189	-
HCM Control Delay (s)	13.3	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.7	-

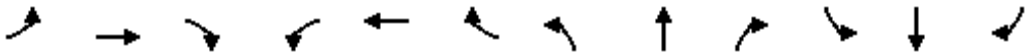
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	516	4	39	50	17	0	1	21	22	0	41
Future Vol, veh/h	24	516	4	39	50	17	0	1	21	22	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	573	4	43	56	19	0	1	23	24	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	75	0	0	577	0	0	743	790	289	493	783	38
Stage 1	-	-	-	-	-	-	629	629	-	152	152	-
Stage 2	-	-	-	-	-	-	114	161	-	341	631	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1522	-	-	993	-	-	304	321	708	459	324	1026
Stage 1	-	-	-	-	-	-	437	474	-	835	771	-
Stage 2	-	-	-	-	-	-	879	764	-	647	473	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	993	-	-	277	302	708	422	305	1026
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	302	-	422	305	-
Stage 1	-	-	-	-	-	-	429	465	-	820	738	-
Stage 2	-	-	-	-	-	-	804	731	-	613	464	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	3.2	10.6	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	667	1522	-	-	993	-	-	422	1026
HCM Lane V/C Ratio	-	0.037	0.018	-	-	0.044	-	-	0.058	0.044
HCM Control Delay (s)	0	10.6	7.4	-	-	8.8	-	-	14.1	8.7
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Future Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3221	1618	1583	1770	1639		1770	5070		1770	5035	
Flt Permitted	0.75	0.73	1.00	0.75	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	2546	1234	1583	1406	1639		441	5070		357	5035	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	573	8	43	7	2	8	47	1174	24	21	970	69
RTOR Reduction (vph)	0	0	34	0	8	0	0	1	0	0	4	0
Lane Group Flow (vph)	390	191	9	7	2	0	47	1197	0	21	1035	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Actuated Green, G (s)	26.0	26.0	26.0	5.3	5.3		70.7	70.7		70.7	70.7	
Effective Green, g (s)	26.0	26.0	26.0	5.3	5.3		70.7	70.7		70.7	70.7	
Actuated g/C Ratio	0.22	0.22	0.22	0.04	0.04		0.59	0.59		0.59	0.59	
Clearance Time (s)	6.0	6.0	6.0	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		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	551	267	342	62	72		259	2987		210	2966	
v/s Ratio Prot					0.00			c0.24			0.21	
v/s Ratio Perm	0.15	c0.15	0.01	c0.00			0.11			0.06		
v/c Ratio	0.71	0.72	0.03	0.11	0.03		0.18	0.40		0.10	0.35	
Uniform Delay, d1	43.5	43.6	37.0	55.1	54.9		11.3	13.3		10.8	12.7	
Progression Factor	1.09	1.09	3.31	1.00	1.00		1.26	1.35		1.00	1.00	
Incremental Delay, d2	4.1	8.7	0.0	0.8	0.2		1.5	0.4		1.0	0.3	
Delay (s)	51.7	56.2	122.5	55.9	55.1		15.7	18.3		11.7	13.1	
Level of Service	D	E	F	E	E		B	B		B	B	
Approach Delay (s)		57.9			55.4			18.2			13.0	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Future Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Satd. Flow (prot)	3221	1617	1583	1770	1639	0	1770	5070	0	1770	5034	0
Flt Permitted	0.751	0.728		0.755			0.237			0.192		
Satd. Flow (perm)	2546	1234	1583	1406	1639	0	441	5070	0	358	5034	0
Satd. Flow (RTOR)			82		8			3			10	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	32%											
Lane Group Flow (vph)	390	191	43	7	10	0	47	1198	0	21	1039	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Total Split (s)	46.0	46.0	46.0	30.0	30.0		44.0	44.0		44.0	44.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Act Effct Green (s)	26.0	26.0	26.0	9.3	9.3		74.3	74.3		74.3	74.3	
Actuated g/C Ratio	0.22	0.22	0.22	0.08	0.08		0.62	0.62		0.62	0.62	
v/c Ratio	0.71	0.72	0.11	0.06	0.07		0.17	0.38		0.10	0.33	
Control Delay	53.9	61.3	3.6	49.5	29.6		22.7	19.6		17.7	13.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.9	61.3	3.6	49.5	29.6		22.7	19.6		17.7	13.9	
LOS	D	E	A	D	C		C	B		B	B	
Approach Delay		52.7			37.8			19.7			14.0	
Approach LOS		D			D			B			B	

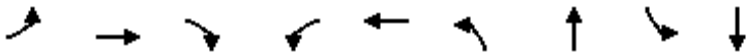
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Scottsdale Road & Highland Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	516	7	39	6	2	42	1057	19	873
Future Volume (vph)	516	7	39	6	2	42	1057	19	873
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		7			3		1		1
Permitted Phases	7		7	3		1		1	
Detector Phase	7	7	7	3	3	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	6.0	6.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	38.0	38.0	38.0	38.0
Total Split (s)	46.0	46.0	46.0	30.0	30.0	44.0	44.0	44.0	44.0
Total Split (%)	38.3%	38.3%	38.3%	25.0%	25.0%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.4	3.4	3.4	2.9	2.9	4.2	4.2	4.2	4.2
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	26.0	26.0	26.0	9.3	9.3	74.3	74.3	74.3	74.3
Actuated g/C Ratio	0.22	0.22	0.22	0.08	0.08	0.62	0.62	0.62	0.62
v/c Ratio	0.71	0.72	0.11	0.06	0.07	0.17	0.38	0.10	0.33
Control Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
LOS	D	E	A	D	C	C	B	B	B
Approach Delay		52.7			37.8		19.7		14.0
Approach LOS		D			D		B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

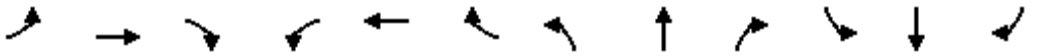
Splits and Phases: 6: Scottsdale Road & Highland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	390	191	43	7	10	47	1198	21	1039
v/c Ratio	0.71	0.72	0.11	0.06	0.07	0.17	0.38	0.10	0.33
Control Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
Queue Length 50th (ft)	166	163	1	5	1	17	223	5	101
Queue Length 95th (ft)	165	183	5	20	18	m64	345	29	251
Internal Link Dist (ft)		504			150		1290		654
Turn Bay Length (ft)	255			50		185		85	
Base Capacity (vph)	848	411	582	281	334	273	3141	221	3121
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	0.46	0.46	0.07	0.02	0.03	0.17	0.38	0.10	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	954	168	51	930	85	273	336	96	77	530	570
Future Volume (veh/h)	294	954	168	51	930	85	273	336	96	77	530	570
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	327	1060	187	57	1033	94	303	373	107	86	589	633
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	373	1489	462	412	1429	130	363	977	436	363	1404	679
Arrive On Green	0.31	0.58	0.58	0.05	0.10	0.10	0.11	0.28	0.28	0.18	0.46	0.46
Sat Flow, veh/h	1781	5106	1585	1781	4764	433	3456	3554	1585	3456	5106	1585
Grp Volume(v), veh/h	327	1060	187	57	738	389	303	373	107	86	589	633
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1792	1728	1777	1585	1728	1702	1585
Q Serve(g_s), s	13.5	17.7	7.7	0.0	25.2	25.3	10.3	10.2	6.3	2.6	9.3	22.6
Cycle Q Clear(g_c), s	13.5	17.7	7.7	0.0	25.2	25.3	10.3	10.2	6.3	2.6	9.3	22.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	373	1489	462	412	1021	538	363	977	436	363	1404	679
V/C Ratio(X)	0.88	0.71	0.40	0.14	0.72	0.72	0.83	0.38	0.25	0.24	0.42	0.93
Avail Cap(c_a), veh/h	373	1489	462	412	1021	538	432	977	436	432	1404	679
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.60	0.60	0.60	0.55	0.55	0.55	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	37.2	21.4	19.3	38.2	49.2	49.2	52.7	35.2	33.8	45.3	26.0	21.8
Incr Delay (d2), s/veh	13.3	1.8	1.6	0.1	2.5	4.7	11.5	1.1	1.3	0.3	0.8	20.2
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	8.8	5.1	2.7	1.5	11.9	12.9	5.1	4.6	2.6	1.1	3.5	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5	23.2	20.9	38.3	51.7	53.9	64.2	36.4	35.2	45.6	26.9	42.0
LnGrp LOS	D	C	C	D	D	D	E	D	D	D	C	D
Approach Vol, veh/h		1574			1184			783			1308	
Approach Delay, s/veh		28.6			51.8			47.0			35.4	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.4	41.0	16.6	39.0	22.4	42.0	16.6	39.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	17.0	35.0	15.0	33.0	16.0	36.0	15.0	33.0
Max Q Clear Time (g_c+I1), s	2.0	19.7	12.3	24.6	15.5	27.3	4.6	12.2
Green Ext Time (p_c), s	0.1	7.2	0.3	4.1	0.1	4.7	0.1	2.7

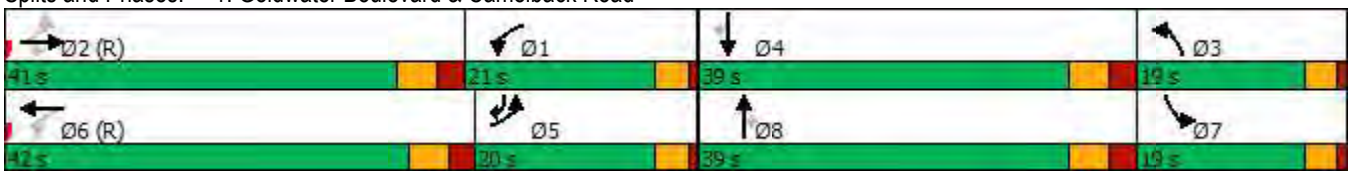
Intersection Summary	
HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	294	954	168	51	930	273	336	96	77	530	570
Future Volume (vph)	294	954	168	51	930	273	336	96	77	530	570
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8		7	4	5
Permitted Phases	2		2	6				8			4
Detector Phase	5	2	2	1	6	3	8	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	10.0	10.0	4.0	10.0	4.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0	9.5	24.0	24.0	9.5	24.0	9.5
Total Split (s)	20.0	41.0	41.0	21.0	42.0	19.0	39.0	39.0	19.0	39.0	20.0
Total Split (%)	16.7%	34.2%	34.2%	17.5%	35.0%	15.8%	32.5%	32.5%	15.8%	32.5%	16.7%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.0	3.6	3.6	3.0	3.6	3.0
All-Red Time (s)	1.0	2.4	2.4	1.0	2.4	1.0	2.4	2.4	1.0	2.4	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	Max	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	327	1060	187	57	1127	303	373	107	86	589	633
v/c Ratio	1.06	0.62	0.31	0.19	0.73	0.75	0.35	0.19	0.23	0.42	0.83
Control Delay	90.3	17.3	4.7	39.5	53.9	63.3	35.0	7.1	50.4	32.3	32.4
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	90.3	17.3	4.7	39.5	53.9	63.3	35.0	7.1	50.4	32.3	32.4
Queue Length 50th (ft)	~232	83	3	32	340	117	123	0	33	126	335
Queue Length 95th (ft)	m#383	175	m29	m47	380	167	168	43	60	154	#328
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	308	1697	598	334	1550	429	1065	550	429	1398	760
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	1.06	0.62	0.31	0.17	0.73	0.71	0.35	0.19	0.20	0.42	0.83

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	9	213	99	12	43	97	601	109	48	1035	75
Future Volume (veh/h)	216	9	213	99	12	43	97	601	109	48	1035	75
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	240	10	237	110	13	48	108	668	121	53	1150	83
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	436	17	404	266	92	340	301	1905	850	488	2738	850
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	1.00	1.00	1.00	0.54	0.54	0.54
Sat Flow, veh/h	1341	65	1530	1133	349	1289	452	3554	1585	687	5106	1585
Grp Volume(v), veh/h	240	0	247	110	0	61	108	668	121	53	1150	83
Grp Sat Flow(s),veh/h/ln	1341	0	1595	1133	0	1638	452	1777	1585	687	1702	1585
Q Serve(g_s), s	10.0	0.0	8.1	5.6	0.0	1.7	6.5	0.0	0.0	2.3	8.1	1.5
Cycle Q Clear(g_c), s	11.7	0.0	8.1	13.7	0.0	1.7	14.6	0.0	0.0	2.3	8.1	1.5
Prop In Lane	1.00		0.96	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	436	0	421	266	0	432	301	1905	850	488	2738	850
V/C Ratio(X)	0.55	0.00	0.59	0.41	0.00	0.14	0.36	0.35	0.14	0.11	0.42	0.10
Avail Cap(c_a), veh/h	493	0	489	315	0	502	301	1905	850	488	2738	850
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	19.2	25.2	0.0	16.9	1.8	0.0	0.0	7.0	8.3	6.8
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.4	0.0	0.1	2.2	0.3	0.2	0.4	0.5	0.2
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	3.0	0.0	2.9	1.5	0.0	0.6	0.2	0.1	0.1	0.3	2.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	19.8	25.6	0.0	16.9	4.1	0.3	0.2	7.4	8.8	7.0
LnGrp LOS	C	A	B	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h		487			171			897			1286	
Approach Delay, s/veh		20.8			22.5			0.8			8.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.2		21.8		38.2		21.8				
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0				
Max Green Setting (Gmax), s		* 30		18.4		* 30		18.4				
Max Q Clear Time (g_c+I1), s		16.6		13.7		10.1		15.7				
Green Ext Time (p_c), s		1.4		0.7		1.8		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

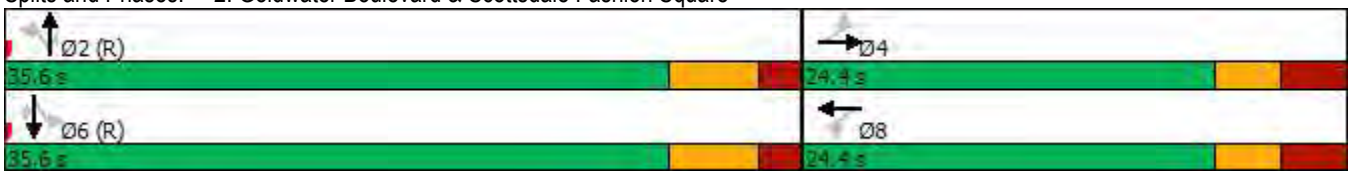
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	216	9	99	12	97	601	109	48	1035	75
Future Volume (vph)	216	9	99	12	97	601	109	48	1035	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.1	31.1	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	24.4	24.4	24.4	24.4	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.0	3.0	3.0	3.0	1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	240	247	110	61	108	668	121	53	1150	83
v/c Ratio	0.75	0.59	0.44	0.14	0.47	0.34	0.13	0.13	0.40	0.09
Control Delay	35.1	21.2	23.9	7.8	17.8	8.5	2.9	8.9	8.8	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	21.2	23.9	7.8	17.8	8.5	2.9	8.9	8.8	2.6
Queue Length 50th (ft)	79	62	33	4	22	67	0	8	79	0
Queue Length 95th (ft)	138	114	69	26	m39	m96	m8	27	123	17
Internal Link Dist (ft)		275		60		1011			212	
Turn Bay Length (ft)			50		160		90	120		120
Base Capacity (vph)	409	522	316	537	229	1978	938	409	2842	921
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	0.59	0.47	0.35	0.11	0.47	0.34	0.13	0.13	0.40	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	170	0	0	860	0	1000
Future Vol, veh/h	170	0	0	860	0	1000
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	189	0	0	956	0	1111

Major/Minor	Minor1			Major2	
Conflicting Flow All	444	-		-	-
Stage 1	0	-		-	-
Stage 2	444	-		-	-
Critical Hdwy	5.74	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	6.04	-		-	-
Follow-up Hdwy	3.82	-		-	-
Pot Cap-1 Maneuver	582	0		0	-
Stage 1	-	0		0	-
Stage 2	561	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	582	-		-	-
Mov Cap-2 Maneuver	582	-		-	-
Stage 1	-	-		-	-
Stage 2	561	-		-	-

Approach	WB	SB
HCM Control Delay, s	14.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	582	-
HCM Lane V/C Ratio	0.325	-
HCM Control Delay (s)	14.1	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	1.4	-

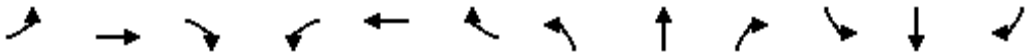
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	813	0	41	135	30	9	3	49	19	3	26
Future Vol, veh/h	47	813	0	41	135	30	9	3	49	19	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	903	0	46	150	33	10	3	54	21	3	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	903	0	0	1176	1282	452	816	1266	92
Stage 1	-	-	-	-	-	-	1007	1007	-	259	259	-
Stage 2	-	-	-	-	-	-	169	275	-	557	1007	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1389	-	-	749	-	-	147	164	555	269	168	947
Stage 1	-	-	-	-	-	-	258	317	-	723	692	-
Stage 2	-	-	-	-	-	-	816	681	-	482	317	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1389	-	-	749	-	-	130	148	555	221	152	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	148	-	221	152	-
Stage 1	-	-	-	-	-	-	248	305	-	696	650	-
Stage 2	-	-	-	-	-	-	739	639	-	414	305	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2	16.7	15.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	130	479	1389	-	-	749	-	-	221	615
HCM Lane V/C Ratio	0.077	0.121	0.038	-	-	0.061	-	-	0.096	0.052
HCM Control Delay (s)	35	13.5	7.7	-	-	10.1	-	-	23	11.2
HCM Lane LOS	E	B	A	-	-	B	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0.4	0.1	-	-	0.2	-	-	0.3	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Future Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3221	1615	1583	1770	1687		1770	5078		1770	4999	
Flt Permitted	0.73	0.70	1.00	0.37	1.00		0.12	1.00		0.10	1.00	
Satd. Flow (perm)	2471	1182	1583	690	1687		217	5078		195	4999	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	940	4	49	14	16	27	62	1381	13	10	1189	151
RTOR Reduction (vph)	0	0	32	0	6	0	0	1	0	0	12	0
Lane Group Flow (vph)	630	314	17	14	37	0	62	1393	0	10	1328	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Actuated Green, G (s)	40.5	40.5	40.5	10.8	10.8		50.7	50.7		50.7	50.7	
Effective Green, g (s)	40.5	40.5	40.5	10.8	10.8		50.7	50.7		50.7	50.7	
Actuated g/C Ratio	0.34	0.34	0.34	0.09	0.09		0.42	0.42		0.42	0.42	
Clearance Time (s)	6.0	6.0	6.0	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		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	833	398	534	62	151		91	2145		82	2112	
v/s Ratio Prot					c0.02			0.27			0.27	
v/s Ratio Perm	0.25	c0.27	0.01	0.02			c0.29			0.05		
v/c Ratio	0.76	0.79	0.03	0.23	0.24		0.68	0.65		0.12	0.63	
Uniform Delay, d1	35.4	35.9	26.6	50.7	50.8		28.1	27.6		21.1	27.2	
Progression Factor	0.98	0.97	1.28	1.00	1.00		0.62	0.57		1.00	1.00	
Incremental Delay, d2	3.8	9.5	0.0	1.9	0.8		29.1	1.3		3.0	1.4	
Delay (s)	38.4	44.5	34.0	52.6	51.6		46.5	17.0		24.1	28.7	
Level of Service	D	D	C	D	D		D	B		C	C	
Approach Delay (s)		40.1			51.9			18.2			28.6	
Approach LOS		D			D			B			C	

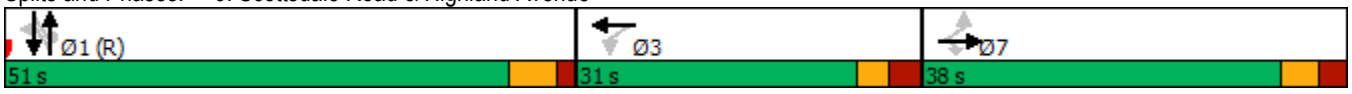
Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Future Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Satd. Flow (prot)	3221	1615	1583	1770	1688	0	1770	5080	0	1770	4999	0
Flt Permitted	0.729	0.697		0.370			0.116			0.105		
Satd. Flow (perm)	2471	1181	1583	689	1688	0	216	5080	0	196	4999	0
Satd. Flow (RTOR)			82		7			1			21	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	33%											
Lane Group Flow (vph)	630	314	49	14	43	0	62	1394	0	10	1340	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Total Split (s)	38.0	38.0	38.0	31.0	31.0		51.0	51.0		51.0	51.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Act Effct Green (s)	40.5	40.5	40.5	12.0	12.0		51.8	51.8		51.8	51.8	
Actuated g/C Ratio	0.34	0.34	0.34	0.10	0.10		0.43	0.43		0.43	0.43	
v/c Ratio	0.76	0.79	0.08	0.21	0.25		0.67	0.64		0.12	0.62	
Control Delay	41.4	50.3	2.8	52.7	43.9		52.6	17.4		29.4	29.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.4	50.3	2.8	52.7	43.9		52.6	17.4		29.4	29.0	
LOS	D	D	A	D	D		D	B		C	C	
Approach Delay		42.3			46.0			18.9			29.0	
Approach LOS		D			D			B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 28.8	Intersection LOS: C
Intersection Capacity Utilization 70.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Scottsdale Road & Highland Avenue

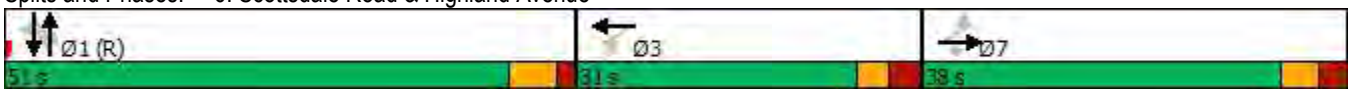


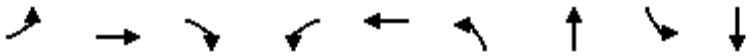
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	846	4	44	13	14	56	1243	9	1070
Future Volume (vph)	846	4	44	13	14	56	1243	9	1070
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		7			3		1		1
Permitted Phases	7		7	3		1		1	
Detector Phase	7	7	7	3	3	1	1	1	1
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	38.0	38.0	38.0	38.0
Total Split (s)	38.0	38.0	38.0	31.0	31.0	51.0	51.0	51.0	51.0
Total Split (%)	31.7%	31.7%	31.7%	25.8%	25.8%	42.5%	42.5%	42.5%	42.5%
Yellow Time (s)	3.4	3.4	3.4	2.9	2.9	4.2	4.2	4.2	4.2
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 6: Scottsdale Road & Highland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	630	314	49	14	43	62	1394	10	1340
v/c Ratio	0.76	0.79	0.08	0.21	0.25	0.67	0.64	0.12	0.62
Control Delay	41.4	50.3	2.8	52.7	43.9	52.6	17.4	29.4	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	50.3	2.8	52.7	43.9	52.6	17.4	29.4	29.0
Queue Length 50th (ft)	193	193	0	10	26	49	393	5	311
Queue Length 95th (ft)	#353	#445	m5	30	58	m#100	455	20	371
Internal Link Dist (ft)		504			150		1288		654
Turn Bay Length (ft)	255			50		185		85	
Base Capacity (vph)	834	398	589	143	357	93	2195	84	2171
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	0.76	0.79	0.08	0.10	0.12	0.67	0.64	0.12	0.62

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.

ATTACHMENT G – SCOTTSDALE STIPULATIONS ORDINANCE 4299

ORDINANCE NO. 4299

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, AMENDING ORDINANCE NO. 455, THE ZONING ORDINANCE OF THE CITY OF SCOTTSDALE, BY AND FOR THE PURPOSE OF CHANGING THE ZONING ON THE "DISTRICT MAP" TO ZONING APPROVED IN CASE NO 25-ZN-2015 AND CASE NO 1-II-2016 FROM DOWNTOWN/REGIONAL COMMERCIAL OFFICE - TYPE 2, PLANNED BLOCK DEVELOPMENT, DOWNTOWN OVERLAY (D/RCO-2 PBD DO) TO DOWNTOWN/DOWNTOWN REGIONAL USE - TYPE 2, PLANNED BLOCK DEVELOPMENT, DOWNTOWN OVERLAY (D/DRU-2 PBD DO), AND APPROVING A DEVELOPMENT PLAN ON A +/- 56-ACRE SITE, AND APPROVING AN APPLICATION FOR A DOWNTOWN INFILL INCENTIVE DISTRICT PURSUANT TO THE DOWNTOWN INFILL INCENTIVE PLAN, LOCATED ON +/- 1.8 ACRES OF THE TOTAL +/- 56-ACRE SITE ON THE NORTHWEST CORNER OF CAMELBACK ROAD AND SCOTTSDALE ROAD (6900, 7000, 7003, 7014, 7032, 7102, 7150, 7055 E. CAMELBACK ROAD, 4649 N. GOLDWATER BLVD., 7000 E. VIA SOLERI DRIVE, 4710, 4500, 4510, 4610, 4626, 4700, 4720 N. SCOTTSDALE ROAD, AND 7001 E HIGHLAND AVENUE).

WHEREAS, the Planning Commission held a hearing on June, 28, 2017;

WHEREAS, the City Council held a hearing on August, 29, 2017;

WHEREAS, the City Council finds that the proposed development is in substantial harmony with the General Plan of the City of Scottsdale and will be coordinated with existing and planned development;

WHEREAS, the City Council finds that the proposed development is located in the Downtown Infill Incentive District and consistent with the Downtown Infill Incentive Plan; and

WHEREAS, it is now necessary that the comprehensive zoning map of the City of Scottsdale ("District Map") be amended to conform with the decision of the Scottsdale City Council in Case No. 25-ZN-2015 and 1-II-2016.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Scottsdale, as follows:

Section 1. That the "District Map" adopted as a part of the Zoning Ordinance of the City of Scottsdale, showing the zoning district boundaries, is amended by rezoning a +/- 56-acre site located on the northwest corner of Camelback Road and Scottsdale Road (6900, 7000, 7003, 7014, 7032, 7102, 7150, 7055 E. Camelback Road, 4649 N. Goldwater Blvd., 7000 E. Via Soleri Drive, 4710, 4500, 4510, 4610, 4626, 4700, 4720 N. Scottsdale Road, and 7001 E Highland Avenue) and marked as "Site" (the Property) on the map attached as Exhibit 2 page 1 of 2, incorporated herein by reference, from Downtown/Regional Commercial Office - Type 2, Planned Block Development, Downtown Overlay (D/RCO-2 PBD DO) to Downtown/Downtown Regional Use - Type 2, Planned Block Development, Downtown Overlay (D/DRU-2 PBD DO) zoning, and approving a Downtown Infill Incentive District application over +/- 1.8 acres of the +/- 56 acre site with Downtown/Downtown Regional Use - Type 2, Planned Block Development, Downtown Overlay (D/DRU-2 PBD DO) zoning by approving a Development Plan and amendments to Property Development Standards of the

Zoning Ordinance regarding the inclined stepback plane adjacent to the Downtown Boundary, specifically at the northeast corner of the Development Plan area (4710, 4626, 4500, 4700 and 4720 N. Scottsdale Road) and marked as "Site" on the map attached as Exhibit 2, page 2 of 2, and by adopting that certain document entitled "Development Plan Scottsdale Fashion Square" declared as a public record by Resolution No. 10717 which is incorporated into this ordinance by reference as if fully set forth herein.

Section 2. That the above rezoning approval is conditioned upon compliance with all stipulations attached hereto as Exhibit 1 and incorporated herein by reference.

PASSED AND ADOPTED by the Council of the City of Scottsdale this 29 of August, 2017.

ATTEST:

By: _____
Carolyn Jagger
City Clerk

CITY OF SCOTTSDALE, an Arizona Municipal Corporation

By: _____
W.J. "Jim" Lane
Mayor

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

By: _____
Bruce Washburn, City Attorney
By: Joe Padilla, Deputy City Attorney

Stipulations for the Zoning Application:
Scottsdale Fashion Square Mall
Case Number: 25-ZN-2015 & 1-II-2016

These stipulations are in order to protect the public health, safety, welfare, and the City of Scottsdale.

GOVERNANCE

1. APPLICABILITY. All stipulations of cases 25-ZN-2015 and 1-II-2016 shall supersede all of the stipulations of prior zoning approvals, with the exception of existing Conditional Use Permit cases 4-UP-2000 and 6-UP-2012. These stipulations shall not apply to the Dillard's parcel, which is not included as part of the subject Development Plan.

SITE DESIGN

2. CONFORMANCE TO DEVELOPMENT PLAN. Development shall conform with the Development Plan, entitled "Development Plan Scottsdale Fashion Square," which is on file with the City Clerk and made a public record by Resolution No. 10717 and incorporated into these stipulations and ordinance by reference as if fully set forth herein. Any proposed significant change to the Development Plan, as determined by the Zoning Administrator, shall be subject to additional public hearings and action before the Planning Commission and City Council. Where there is a conflict between the Development Plan and these stipulations, these stipulations shall prevail.

3. CONFORMANCE TO AMENDED DEVELOPMENT STANDARDS. Development shall conform with the amended development standards that are included as part of the Development Plan. Any change to the Property Development Standards shall be subject to additional public zoning hearings before the Planning Commission and City Council.

4. CONFORMANCE TO DEVELOPMENT AGREEMENT. The property owner of the property identified in the Development Plan shall enter into a development agreement, Contract No. 2017-097-COS, including any subsequent amendments approved by the City Council, which sets forth the manner in which the building height bonus shall be achieved, and specifies the development standard allocations among the parcels within the boundary of the Development Plan.

5. BUILDING HEIGHT LOCATIONS. Locations of building height shall be in conformance with the approved Development Plan. No building on the site shall exceed 150 feet in height (inclusive of the bonus building height, mechanical equipment and other appurtenances), measured as provided in the applicable section of the Zoning Ordinance.

6. CULTURAL IMPROVEMENTS PROGRAM. Prior to permit issuance for any new or expanded building, the property owner shall provide artwork, or pay an in-lieu fee, equal to at least one percent of the building valuation of the added floor area. This requirement shall be exclusive of the in-lieu payment outlined in Contract No. 2017-097-COS, regarding PBD bonus provisions.

7. OUTDOOR LIGHTING. The maximum height of any outdoor lighting source, except any light sources for signs, patios and/or balconies or accent lighting approved by the Development Review Board or staff in accordance with the provisions of Zoning Ordinance Section 1.900, shall be 20 feet above the adjacent finished grade.

8. OUTDOOR LIGHTING FOR PATIOS AND BALCONIES. Light sources that are utilized to illuminate patios and/or balconies that are above 20 feet shall be subject to the approval of the Development Review Board or staff in accordance with the provisions of Zoning Ordinance Section 1.900.

9. SIGNAGE. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, there shall be no new internally illuminated signage facing toward Highland Avenue.

10. AMPLIFIED MUSIC. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, there shall be no exterior amplified music after 10:00pm, and 11:00pm on weekends and holidays, at levels greater than 68 decibels as measured from the right-of-way line on the north side of Highland Avenue.

11. OPEN SPACE. Open space shall conform with the following requirements:

    a. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, an open space area or areas shall be provided which align with the main entry/open space plaza on the north side Highland Avenue at Optima Camelview, subject to Development Review Board approval.

    b. Open space areas within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, shall be planted with mature shade trees and/or palm trees in conformance with the Downtown Urban Design & Architectural Design Guidelines, subject to Development Review Board approval.

    c. Building setback areas along Highland Avenue shall be planted with mature shade trees and/or palm trees, and/or other shading devices, in conformance with the Downtown Urban Design & Architectural Design Guidelines, subject to Development Review Board approval.

INFRASTRUCTURE AND DEDICATIONS

12. TRAFFIC IMPACT STUDY. As determined by the Transportation Director, or designee, with a Development Review Board application for a new or expanded building, the property owner shall submit an updated traffic impact study to address the new development. The owner shall obtain approval of the study from the Transportation Director, or designee, prior to the Development Review Board hearing for the related new building, or building expansion. The owner shall be responsible for any infrastructure improvements identified by the updated traffic impact study(ies) that are the result of the traffic generated by new or expanded buildings on the site.

13. CIRCULATION IMPROVEMENTS. The owner shall make the required dedications and provide the following improvements in conformance with the Design Standards and Policies Manual and all other applicable city codes and policies.

    a. STREETS. Dedicate the following right-of-way and construct the following street improvements:

Street Name	Street Type	Dedications	Improvements	Notes and

				Requirements
Goldwater Boulevard	Couplet Street	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.1, a.2., a.6., a.7., a.8., a.9., a.10, a.11.
Highland Avenue	Local Commercial Street	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.3. , a.6., a.7., a.8., a.9., a.10, a.11.
Scottsdale Road	Major Collector	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.4., a.6., a.7., a.8., a.9., a.10, a.11 .
Camelback Road	Minor Arterial	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.5, a.6., a.7., a.8., a.9., a.10, a.11 .

a.1. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the east side of North Goldwater Boulevard, from the intersection of East Via Soleri Drive and North Goldwater Boulevard to the intersection of East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or B on Exhibit A to Exhibit 1.

a.2. The property owner shall construct a continuous eight (8) foot wide sidewalk where feasible and the sidewalk shall be separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the west side of North Goldwater Boulevard, from the intersection of East Camelback Road and North Goldwater Boulevard to the intersection East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or D on Exhibit A to Exhibit 1.

a.3. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the south side of East Highland Avenue, from the intersection of East Highland Avenue and North Goldwater Boulevard to the intersection of East Highland Avenue and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel B on Exhibit A to Exhibit 1.

a.4. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the west side of North Scottsdale Road, from the intersection of East Highland Avenue and North Scottsdale Road to the intersection of East Fashion Square Drive and North Scottsdale Road,

prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A or B on Exhibit A to Exhibit 1.

a.5. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the north side of East Camelback Road, from the intersection of East Camelback Road and North Goldwater Boulevard to the western boundary of the zoning application, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A on Exhibit A to Exhibit 1.

a.6. Prior to permit issuance for construction of driveways at any new vehicular entrances to the property, the property owner shall dedicate additional North Goldwater Boulevard, East Highland Avenue, North Scottsdale Road, and East Camelback Road right-of-way, as determined by Transportation Director or designee, to accommodate new right-turn deceleration lanes at any new vehicle entrances to the property.

a.7. If any new vehicular entrances to the property are approved along North Goldwater Boulevard, East Highland Avenue, North Scottsdale Road, and East Camelback Road as part of a development proposal, as determined by Transportation Director or designee, the owner shall construct new right-turn deceleration lanes to accommodate the new vehicle entrances to the property.

a.8. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently construct all street and pedestrian improvements supported by the updated traffic impact study that corresponds with the new or expanded building, and approved by the Transportation Director, or designee.

a.9. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently modify any existing traffic signals and equipment supported by the updated traffic impact study approved by the Transportation Director, or designee that to address the new development associated with the requested building permit.

a.10. All street improvements (curb, gutter, sidewalk, curb ramps, driveways, pavement, concrete, etc.) shall be constructed in accordance with the applicable City of Scottsdale's Supplements to the Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, and Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, as determined by the Transportation Director, or designee.

a.11. The sidewalk improvements noted in a.1, a.2, and a.5 above shall be required only in locations that are determined to be feasible, with the intent of feasibility to be interpreted to mean where adequate width or space is available to widen the sidewalk to the prescribed widths or provide the required separation from curb reasonably without affecting existing structures, significant mature landscaping, existing parking areas, or significant grades. The determination of feasibility shall be made by the Zoning Administrator or designee.

14. INTERSECTION IMPROVEMENTS. The owner shall make the required dedications and provide the following improvements in conformance with the Design Standards and Policies Manual and all other applicable city codes and policies:

    a. The property owner shall design and construct a third eastbound lane on Highland Avenue, beginning just east of Goldwater Boulevard and terminating as a third eastbound left-turn lane at Scottsdale Road, prior to any certificate of occupancy for a combined total building area exceeding 75,000 square feet in new or expanded buildings south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard within the area identified as Parcel B on Exhibit A to Exhibit 1.

    b. The property owner shall design and construct intersection modifications to provide a separate eastbound left-turn lane and shared through-right-turn lane at the East Scottsdale Fashion Square and North Goldwater Boulevard intersection, prior to any certificate of occupancy for any new buildings south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard, within the area identified as Parcel B on Exhibit A to Exhibit 1.

    c. The property owner shall contract with a traffic engineering consultant to conduct a study of the East Highland Avenue and North Goldwater Boulevard intersection prior to any certificate of occupancy for any new or expanded buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The study shall recommend intersection improvements to improve the safety and convenience for the westbound left-turn movement, improve intersection sight distance, and reduce speeding on North Goldwater Boulevard. The study shall not include any options that consider a connection to the existing East Highland Avenue west of North Goldwater Boulevard. The property owner shall not be obligated for any costs and/or improvements associated with the study that exceed $50,000, and the final study shall be submitted to the City of Scottsdale for review and approval.

    d. If directed by the Transportation Director based upon future traffic analysis, the property owner shall design and construct an additional eastbound left-turn lane on East Camelback Road at the North Goldwater Boulevard signalized intersection. The timing of the improvement shall be based upon the need as determined by the traffic analysis tied to proposed new building or building expansion on the site. The property owner shall be responsible for all necessary street reconstruction, pavement marking modification, and signal equipment modification to accomplish the addition of the eastbound left-turn lane.

15. ACCESS RESTRICTIONS/REQUIREMENTS. Access to the site shall conform to the following restrictions and requirements:

    a. There shall no new site driveways onto the adjacent public streets without approval of the site plan and site access as part of a Development Review Board application and approval by the Transportation Director.

    b. There shall be no new median openings along the adjacent public streets associated with any proposed development of the site without approval of the site plan and site access as part of a Development Review Board application and approval by the Transportation Director.

    c. There shall be no new traffic signals constructed on the adjacent public streets without

an approved traffic signal warrant analysis based upon existing traffic volumes and approval by the Transportation Director.

d. Minimum driveway spacing shall be 250 feet between existing and proposed driveways and street intersections unless otherwise approved by the Transportation Director.

e. There shall be an east/west driveway maintained through the site from North Goldwater Boulevard to North Scottsdale Road in or near the area identified as Parcel B on Exhibit A to Exhibit 1. The alignment of such driveway shall be determined at the time of the applicable Development Review Board application.

16. PEDESTRIAN FACILITIES.

a) With the first and each subsequent Development Review Board submittal for new development on the site, the owner shall submit a pedestrian circulation plan for the site, which shall be subject to approval by City staff. The plan shall include all existing and proposed sidewalks along the adjacent streets and all existing proposed connections from the streets to the site buildings.

b) The developer shall design and construct a pedestrian hybrid beacon on Highland Avenue between Scottsdale Road and Goldwater Boulevard prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. Adequate stopping sight distance for drivers on Goldwater Boulevard/Highland Avenue must be provided with the design. This requirement shall not be in effect if a traffic signal is determined to be warranted and approved prior to the construction of the pedestrian hybrid beacon. If a traffic signal is determined to be warranted by the Transportation Director at this intersection in the future, the pedestrian hybrid beacon shall be replaced by the full traffic signal.

c) Prior to the certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall explore a grade separated pedestrian crossing between the building or parking structure and the existing Optima residential development on the north side of East Highland Avenue.

d) Prior to the issuance a building permit for a new or expanded building within the area identified as Parcel A on Exhibit A to Exhibit 1, the owner shall dedicate a non-motorized public access easement over the existing sidewalk along North Marshall Way and East Via Soleri Drive that extends outside of the existing public right-of-way. Prior to the issuance a building permit for a new building or building expansion within the area identified as Parcel A, B, C, or D on Exhibit A To Exhibit 1, the owner shall dedicate a non-motorized public access easement over any new sidewalk or any widened sidewalk constructed along the public streets adjacent to the site that extends outside of the public right-of-way.

17. TRANSIT STOP IMPROVEMENTS.

a) The property owner shall design and construct transit stop improvements on East Camelback Road west of North Goldwater Boulevard, prior to any certificate of occupancy for any new building within the area identified as Parcel A on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

b) The property owner shall design and construct transit stop improvements on North Scottsdale Road south of East Highland Avenue, prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

18. PEDESTRIAN STREET LIGHTS.

a) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Highland Avenue street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

b) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel E on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Camelback Road street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

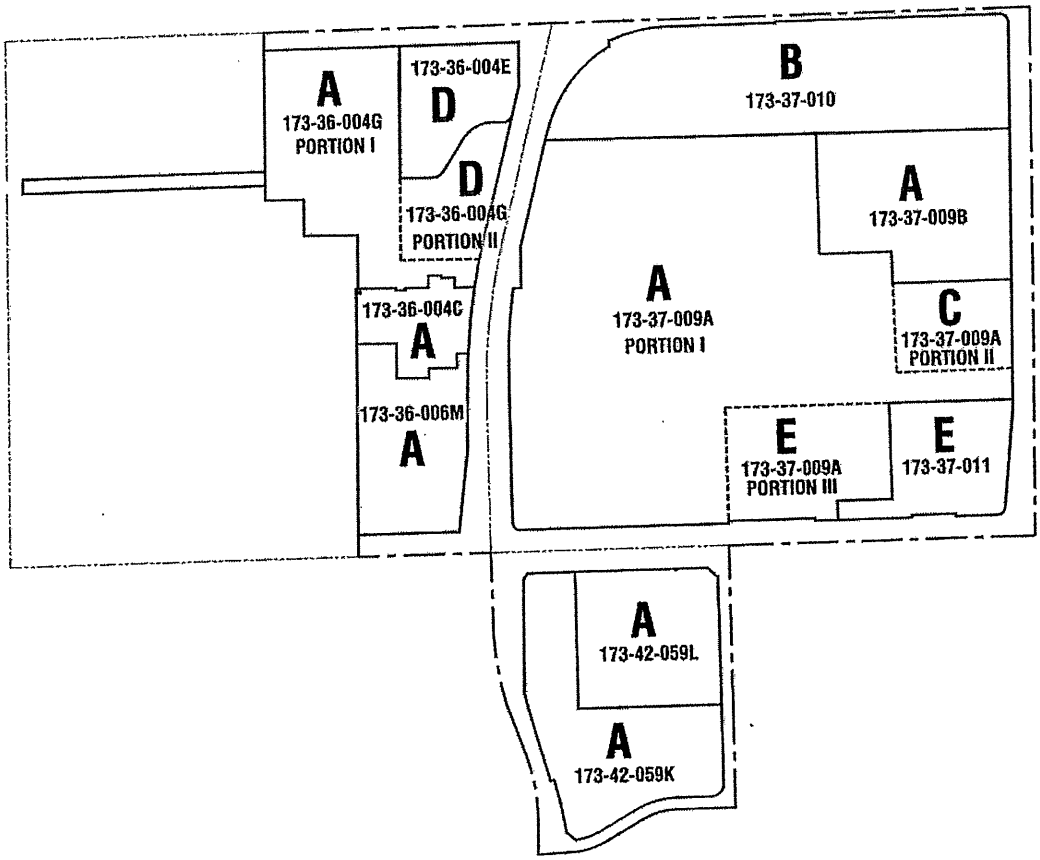
c) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel A on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the east and west sides of the North Goldwater Boulevard street frontage, between East Highland Avenue and East Via Soleri Drive, as approved by the Development Review Board.

19. OVERHEAD POWERLINES. Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall pay for and cause the existing overhead powerlines on the west side of North Scottsdale Road from East Highland Avenue to East Fashion Square Drive to be removed or relocated underground.

20. VEHICLE NON-ACCESS EASEMENT. The property owner shall dedicate a one (1) foot wide vehicular non-access easement along the North Scottsdale Road, East Camelback Road, North Goldwater Boulevard, East Highland Avenue, North Marshall Way, and East Via Soleri Drive site frontages, except at the existing and approved driveway entrances.

21. PARCELS/PLATTING. Prior to permit issuance for any new construction involving parcels 173-37-009B, 173-37-009A, or 173-36-004C as shown on the Property Parcel and Development Area Depiction (Exhibit C page 2 of 2 of Contract No. 2016-097-COS), the owner shall submit an application for approval and recordation of a land assemblage/subdivision to remedy the non-conforming aspects of these parcels. All future land assemblage/subdivisions shall comply with the requirements of the Land Division Ordinance and the Design Standards & Policies Manual.

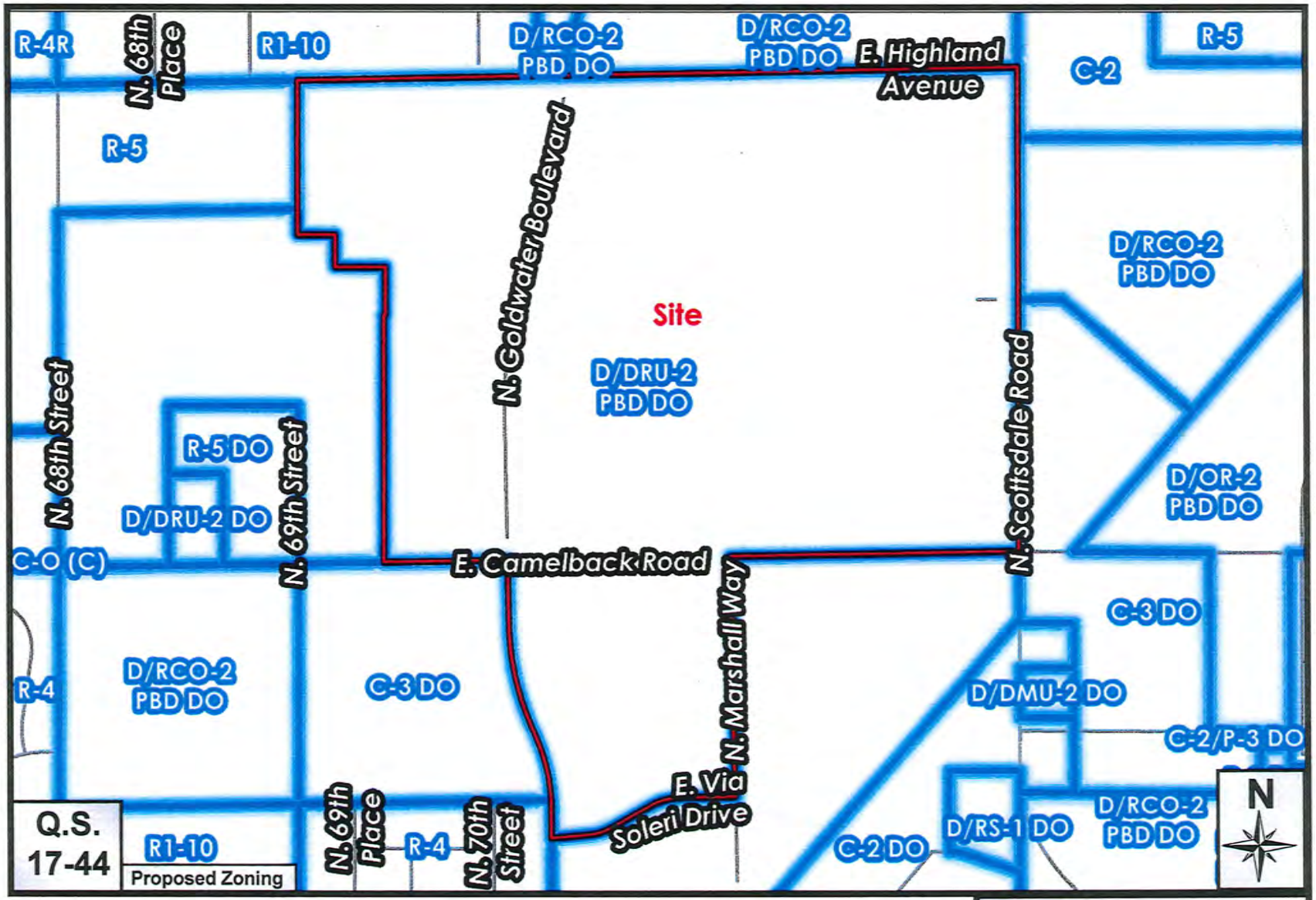
Property Parcel and Development Area Depiction



AREA BOUNDARY

PARCEL BOUNDARY

DECEMBER 21, 2016



Scottsdale Fashion Square

Ordinance No. 4299
Exhibit 2
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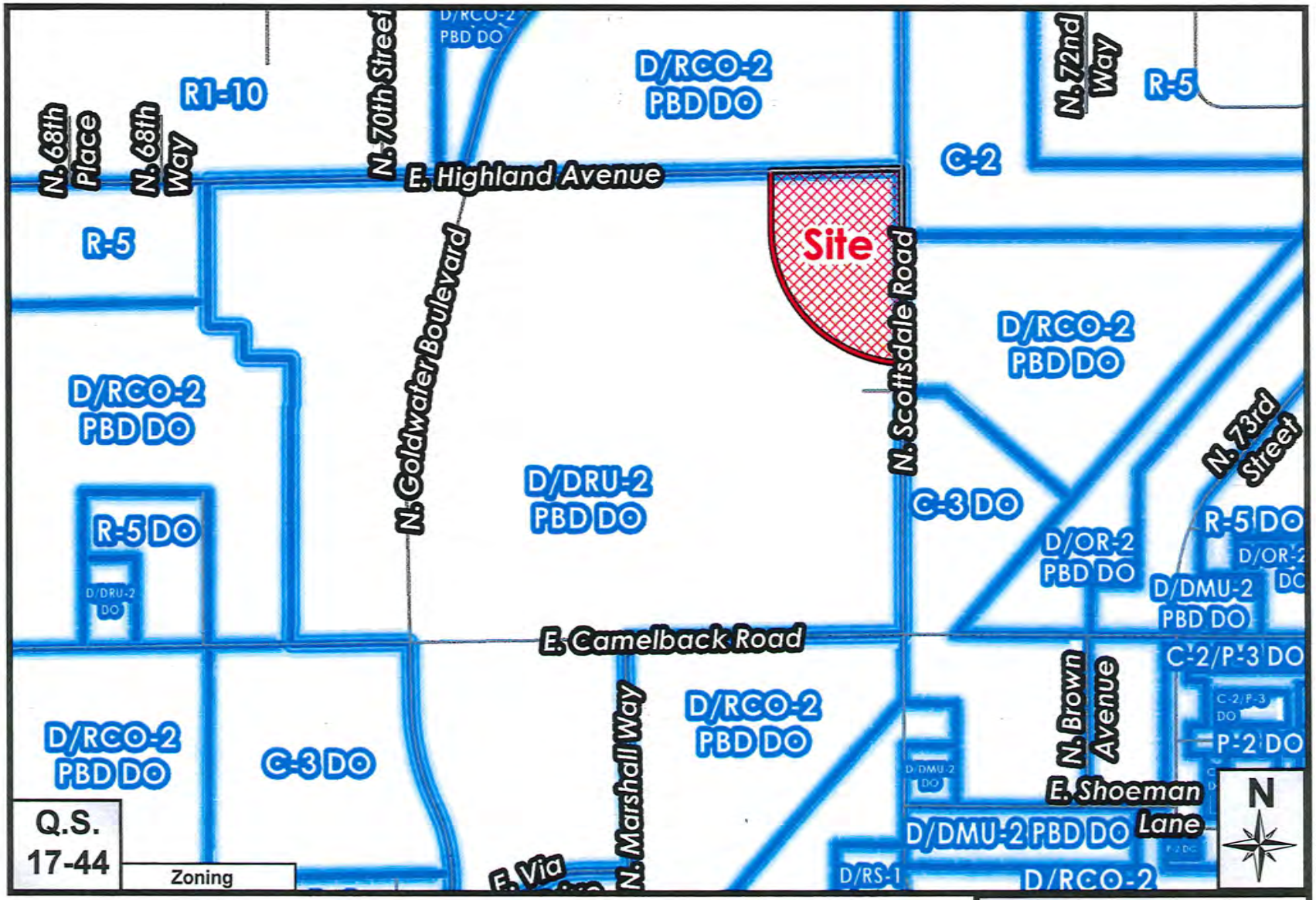
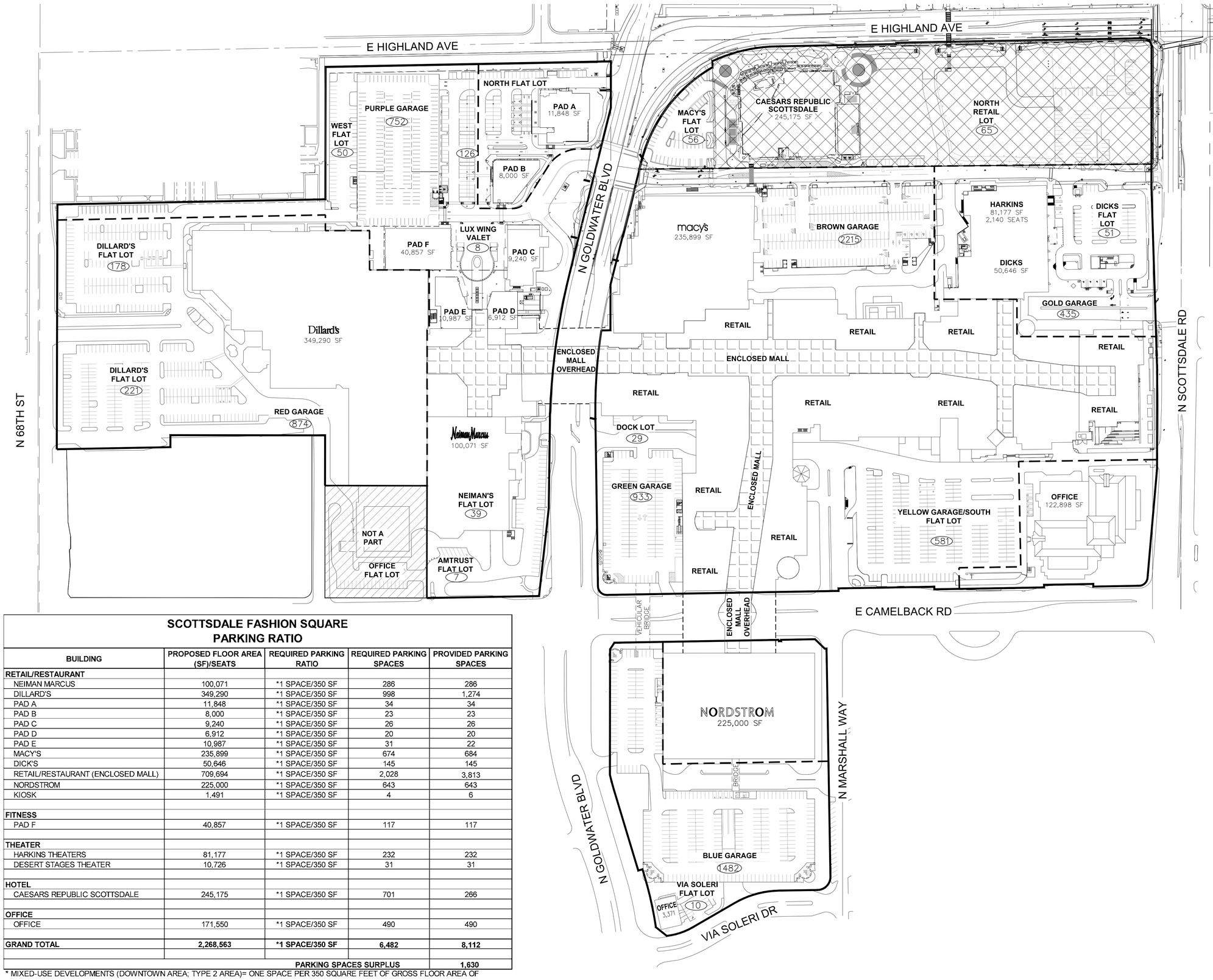
25-ZN-2015



Scottsdale Fashion Square

Ordinance No. 4299
Exhibit 2
Page 2 of 2

1-II-2016



SCHEMATIC DRAWING ONLY
NOT TO SCALE

LEGEND

- ACCESSIBLE PARKING SPACE
- (34) PROPOSED PARKING COUNT
- BOUNDARY LINE
- PARCEL LINE
- SECONDARY BOUNDARY LINE
- COMMON AREA
- NOT A PART
- PROJECT SITE AREA

SCOTTSDALE FASHION SQUARE
PARKING RATIO

BUILDING	PROPOSED FLOOR AREA (SF)/SEATS	REQUIRED PARKING RATIO	REQUIRED PARKING SPACES	PROVIDED PARKING SPACES
RETAIL/RESTAURANT				
NEIMAN MARCUS	100,071	*1 SPACE/350 SF	286	286
DILLARD'S	349,290	*1 SPACE/350 SF	998	1,274
PAD A	11,848	*1 SPACE/350 SF	34	34
PAD B	8,000	*1 SPACE/350 SF	23	23
PAD C	9,240	*1 SPACE/350 SF	26	26
PAD D	6,912	*1 SPACE/350 SF	20	20
PAD E	10,987	*1 SPACE/350 SF	31	22
MACY'S	235,899	*1 SPACE/350 SF	674	684
DICK'S	50,646	*1 SPACE/350 SF	145	145
RETAIL/RESTAURANT (ENCLOSED MALL)	709,694	*1 SPACE/350 SF	2,028	3,813
NORDSTROM	225,000	*1 SPACE/350 SF	643	643
KIOSK	1,491	*1 SPACE/350 SF	4	6
FITNESS				
PAD F	40,857	*1 SPACE/350 SF	117	117
THEATER				
HARKINS THEATERS	81,177	*1 SPACE/350 SF	232	232
DESERT STAGES THEATER	10,726	*1 SPACE/350 SF	31	31
HOTEL				
CAESARS REPUBLIC SCOTTSDALE	245,175	*1 SPACE/350 SF	701	266
OFFICE				
OFFICE	171,550	*1 SPACE/350 SF	490	490
GRAND TOTAL	**2,268,563**	***1 SPACE/350 SF**	**6,482**	**8,112**
		PARKING SPACES SURPLUS		**1,630**

* MIXED-USE DEVELOPMENTS (DOWNTOWN AREA; TYPE 2 AREA)= ONE SPACE PER 350 SQUARE FEET OF GROSS FLOOR AREA OF NONRESIDENTIAL AREA

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42633
ANDREA K. PAGE
Date Signed 5/10/19
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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

DESIGN REVIEW BOARD
PRELIMINARY PARKING PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: SS/THW
designed by: SJV
checked by: CAII
project no.: 018-3159
date: 05.09.2019

PC700
1 *of* 1

30-DR-2019
5/24/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV\1-PC700_OVERALL PARKING PLAN_0183159.dwg USER: thutchinswass
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EF-3 EIFS

MANUFACTURER:
DRYVIT

FINISH COLOR:
CHINA

ST-2 MASONRY STONE VENEER

MANUFACTURER: ECHELON

STYLE: FRANKLIN STONE

FINISH COLOR:
LIBERTY GRAY GROUND FACE

SP-1 ACCENT PANEL

MANUFACTURER:
TRESPA METEON

FINISH COLOR:
LMO561 ROMAN
BRONZE
SPECULAR

EF-2 EIFS

MANUFACTURER:
DRYVIT

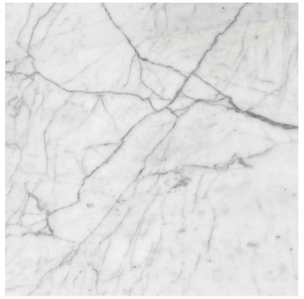
FINISH COLOR:
DOVER SKY

ST-1 MASONRY STONE VENEER

MANUFACTURER: ECHELON

STYLE: CORDOVA STONE

FINISH COLOR:
ALABASTER ROCK FACE



SP-2 STONE PANEL

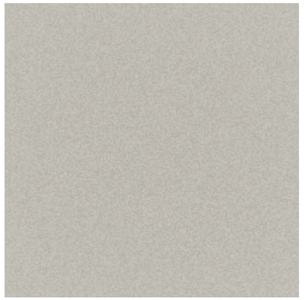
MANUFACTURER:
STONEPANELS
INTERNATIONAL LLC

FINISH COLOR:
WHITE CARRARA
MARBLE

EF-1 EIFS

MANUFACTURER:
DRYVIT

FINISH COLOR:
WINTER EVE



MTL-1 ALUMINUM COMPOSITE PANEL

MANUFACTURER:
ALPOLIC

FINISH COLOR:
MICA PLATINUM

GL-1 GLAZING

MANUFACTURER:
PPG

FINISH COLOR:
SOLARGRAY
SOLARBAN 60

GL-2 GLAZING

MANUFACTURER:
PPG

FINISH COLOR:
GRAYLITE II
SOLARBAN 60

WD-1 WOOD PLANK

MANUFACTURER:
4" x 1" PLANKS

FINISH COLOR:
STAINED

brp ARCHITECTS
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Springfield, MO 65806
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CONSULTANTS:
J&M ENGINEERING
CJD Engineering | Energy | Innovation
OLSSON ASSOCIATES
st11dio. DESIGN

DRB PACKAGE
May 8, 2019

REGISTERED ARCHITECT
CERTIFICATE NO.
28748
GEOFFREY HARDIN BUTLER
Registered
ARIZONA U.S.A.
May 8, 2019
Exp. March 31, 2022

PROJECT:
CAESARS REPUBLIC SCOTTSDALE
CAESARS REPUBLIC SCOTTSDALE
FASHION SQUARE - SCOTTSDALE, ARIZONA

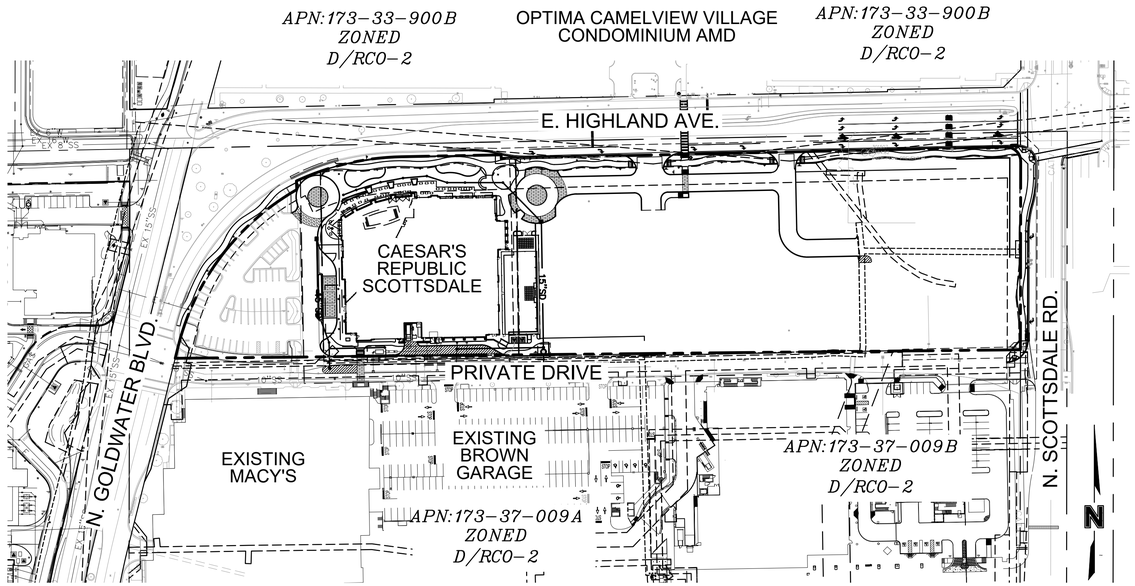
DEVELOPER:
HCW L.L.C.

MATERIAL SHEET

SHEET NO.
A.50

30-DR-2019
5/24/2019

PRELIMINARY PEDESTRIAN LIGHTING PLANS FOR
CAESAR'S REPUBLIC SCOTTSDALE
SCOTTSDALE, ARIZONA 85251



CONTEXT MAP
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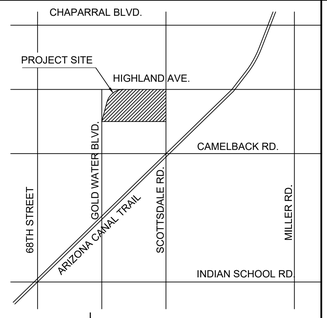

SECTION 22, T2N, R4E, G&SRM
VICINITY MAP
NTS

OWNER
MACERICH
11411 NORTH TATUM BLVD
PHOENIX, AZ 85028
PHONE: (602)953-6548
FAX: (602)953-1964
ATTN: JUSTIN LONG

DEVELOPER
HCW, LLC
2398 E CAMELBACK RD, SUITE 690
PHOENIX, AZ 85016
PHONE: (602)469-1226
FAX: (417)332-3434
ATTN: RICK HUFFMAN

ENGINEER/SURVEY/LAND ARCH
OLSSON
7250 N 16TH SUITE 210
PHOENIX, AZ 85020
PHONE: (602)748-1000
FAX: (602)748-1001
CONTACT ENG: CARDELL ANDREWS
CONTACT SVY: MARK MACHEN
CONTACT LSC: AMY SCHWENNER

SHEET INDEX

#	DESCRIPTION	SHEET
1	SITE LIGHTING COVER SHEET	SL100
2	PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN	SL101
3	PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN	SL102
4	PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN	SL103
5	LANDSCAPE UPLIGHT VERTICAL PHOTOMETRIC PLAN	SL104
6	PEDESTRIAN LIGHTING SCHEDULES	SL201
7	PEDESTRIAN LIGHTING CUT SHEETS	SL301

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CERTIFICATE NO. 59385
FRANK EGELHOFF
DATE SIGNED 3-22-19
ARIZONA, U.S.A.

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

DESIGN REVIEW BOARD
PEDESTRIAN LIGHTING COVER
SHEET
CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251
2019

drawn by: RRI
designed by: RRI
checked by: RAZ
project no.: 018-3159
date: 05.04.2019

SL100
1 of 7

30-DR-2019
5/24/2019

DWG: \\oa.ad.oaconsulting.com\fnts-ns1\projects-direct\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\MECH\Electrical\E_TTL_0183159.dwg USER: twinter
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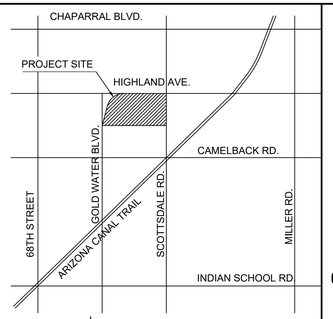
PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN

HCW CAESARS REPUBLIC

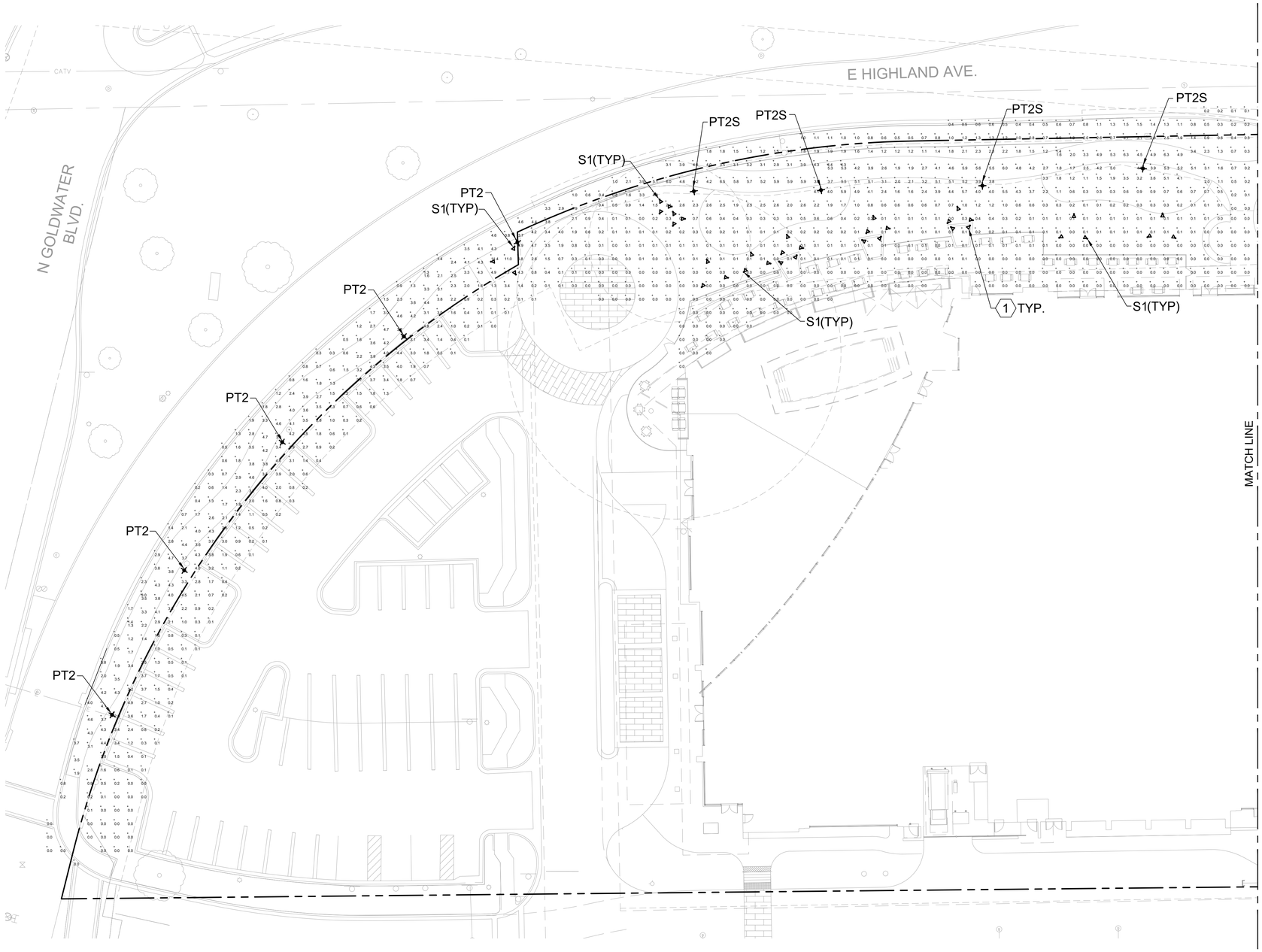
SCOTTSDALE, ARIZONA 85251



SECTION 22, T2N, R4E, G&SRM

VICINITY MAP

NTS



GENERAL NOTES:

A. REFER TO SHEET SL201 FOR LIGHTING FIXTURE SCHEDULE, CALCULATIONS LUMINAIRE SCHEDULE, AND LIGHTING CALCULATION SUMMARY.

B. VERTICAL CALCULATION LEVELS ARE NOT SHOWN FOR PUBLIC PEDESTRIAN WALKWAYS.

SHEET NOTES:

1. REFER TO LANDSCAPE DRAWINGS FOR EXACT LOCATION OF LOW VOLTAGE TREE UP LIGHTING.

N

0' 10' 20' 40'

SCALE IN FEET

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by:	RRI
designed by:	RRI
checked by:	RAZ
project no.:	018-3159
date:	05.04.2019

SL101

2 of 7

30-DR-2019
5/24/2019

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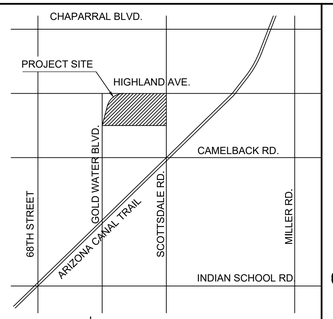
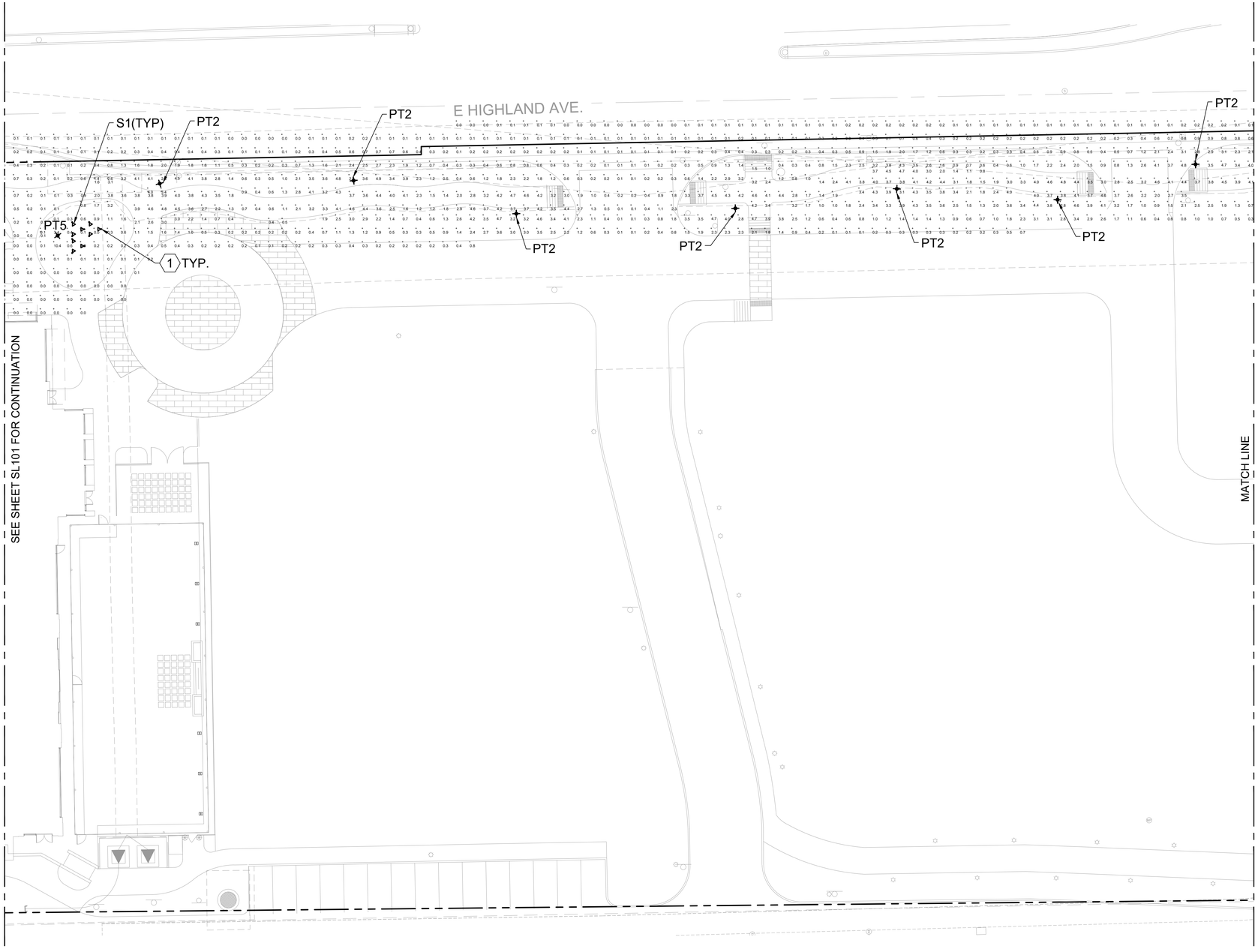
PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN

HCW CAESARS REPUBLIC

SCOTTSDALE, ARIZONA 85251



SECTION 22, T2N, R4E, G&SRM
VICINITY MAP
NTS



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N

0' 10' 20' 40'
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REVISIONS

PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: RRI
designed by: RRI
checked by: RAZ
project no.: 018-3159
date: 05.04.2019

SL102
3 of 7

30-DR-2019
5/24/2019

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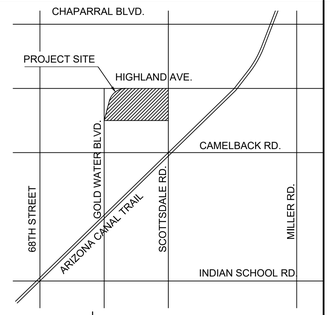
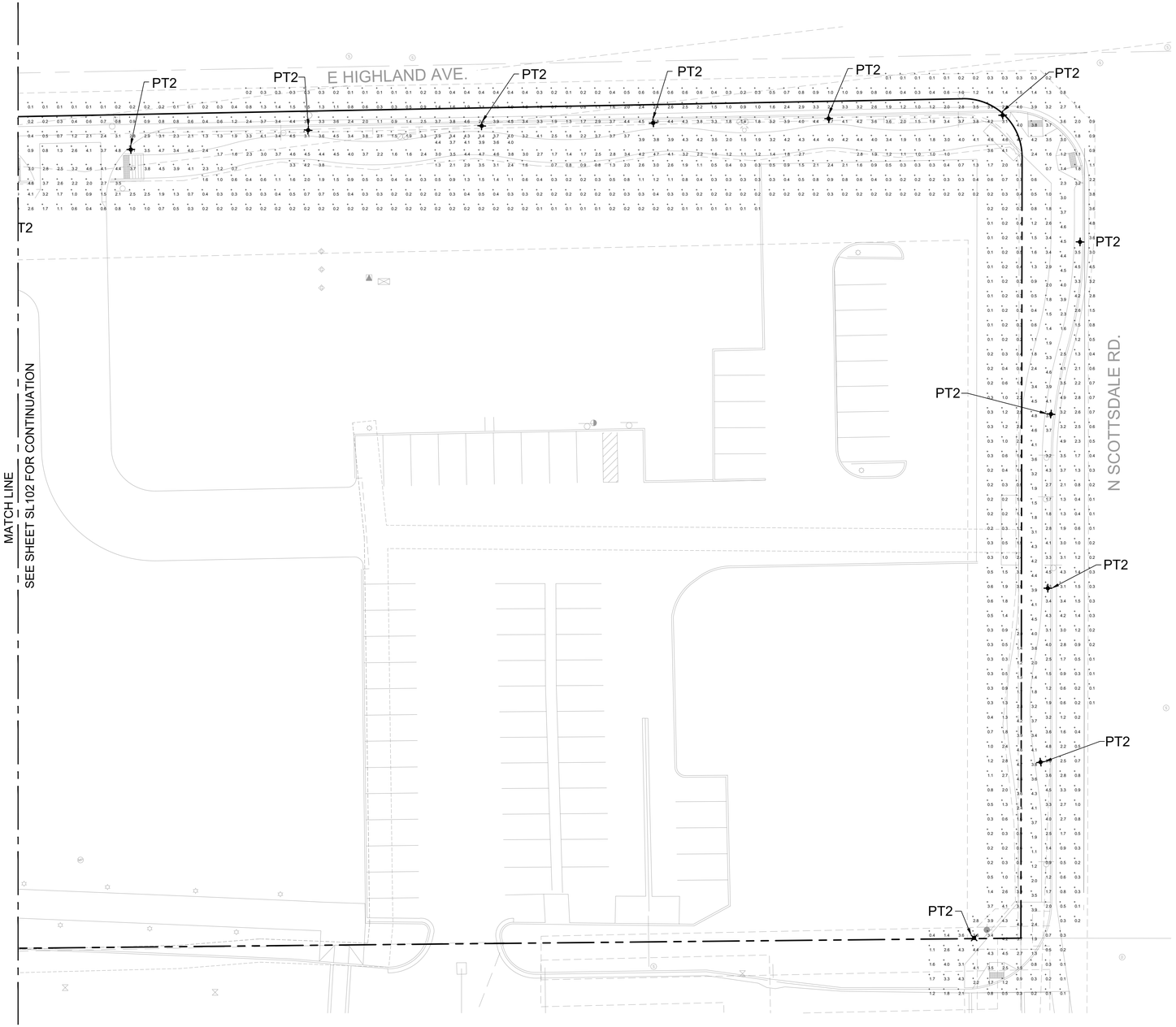
PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN
HCW CAESARS REPUBLIC
SCOTTSDALE, ARIZONA 85251



SECTION 22, T2N, R4E, G&SRM
VICINITY MAP
NTS



GENERAL NOTES:

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REVISIONS

PEDESTRIAN LIGHTING HORIZONTAL PHOTOMETRIC PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by:	RRI
designed by:	RRI
checked by:	RAZ
project no.:	018-3159
date:	05.04.2019

SL103
4 of 7

30-DR-2019
5/24/2019

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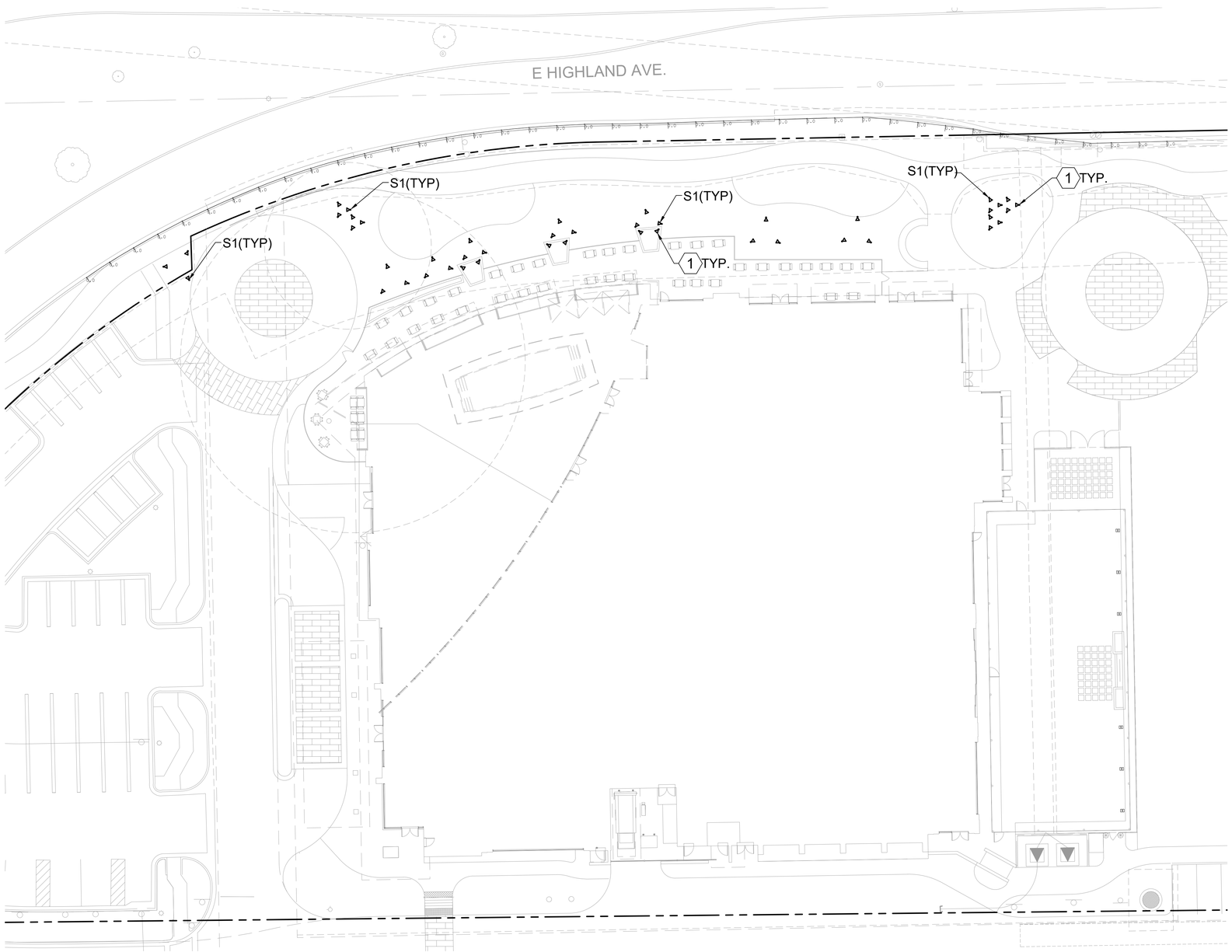
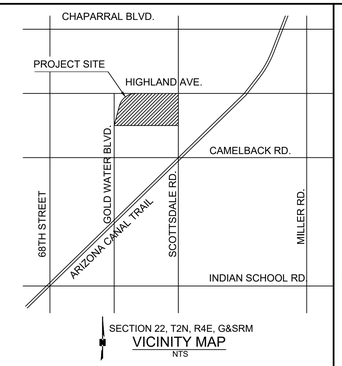
LANDSCAPE UPLIGHT VERTICAL PHOTOMETRIC PLAN

HCW CAESARS REPUBLIC

SCOTTSDALE, ARIZONA 85251





VICINITY MAP
NTS

GENERAL NOTES:

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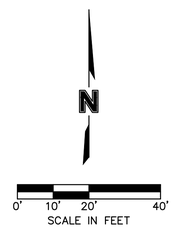
B. VERTICAL CALCULATION LEVELS ARE NOT SHOWN FOR PUBLIC PEDESTRIAN WALKWAYS.

SHEET NOTES:

1. REFER TO LANDSCAPE DRAWINGS FOR EXACT LOCATION OF LOW VOLTAGE TREE UP LIGHTING.



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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

LANDSCAPE UPLIGHT VERTICAL PHOTOMETRIC PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: RRI
designed by: RRI
checked by: RAZ
project no.: 018-3159
date: 05.04.2019

SL104
5 *of* 7

30-DR-2019
5/24/2019

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C_PRE_PBASE_0183159 C_PRE_PBASE_Areas_0183159 C_XBASE_0183159 C_XBASE_OVERALL IMPROVEMENTS C_PTBLK_0

LIGHTING FIXTURE SCHEDULE

ID	DESCRIPTION	MANUFACTURER	CATALOG NO.	LAMPS	LOAD	VOLTAGE	MOUNTING	COMMENTS
PT2	POST TOP LED, TYPE II DISTRIBUTION, DARK PLATINUM FINISH	INVUE	MSA-E02-LED-E1-T2-DP-LCF	4000K LED'S	52	277	POST TOP ON 10' ROUND STRAIGHT POLE.	
PT2S	POST TOP LED, TYPE II DISTRIBUTION, DARK PLATINUM FINISH WITH HOUSE SIDE SHIELD	INVUE	MSA-E02-LED-E1-T2-DP-LCF-HSS	4000K LED'S	52	277	POST TOP ON 10' ROUND STRAIGHT POLE.	
PT5	POST TOP LED, TYPE V DISTRIBUTION, DARK PLATINUM FINISH	INVUE	MSA-E02-LED-E1-T5WQ-DP-LCF	4000K LED'S	52	277	POST TOP ON 10' ROUND STRAIGHT POLE.	
S1	LANDSCAPE UPLIGHT	LUMIERE	203-8LED-3036-12	3000K LED	8	12	GROUND MOUNTING	FINAL FINISH SELECTION TO BE DETERMINED BY ARCHITECT

CALCULATIONS LUMINAIRE SCHEDULE

SYMBOLS	LABEL	CATALOG NUMBER	DESCRIPTION	LAMP	FILE	LUMENS	HORIZONTAL LLF	VERTICAL LLF	WATTS	MOUNTING HEIGHT	B-U-G RATING
✦	PT2	MSA-E02-LED-E1-T2-DP-LCF	EATON MSA POST TOP	4000K LED'S	MSA-E02-LED-E1-T2.IES	4,920	0.90	N/A	52	10'-0"	B2-U0-G2
✦	PT2S	MSA-E02-LED-E1-T2-DP-LCF-HSS	EATON MSA POST TOP	4000K LED'S	MSA-E02-LED-E1-SL2.IES	4891	0.90	N/A	52	10'-0"	B1-U0-G1
✦	PT5	MSA-E02-LED-E1-5WQ-DP-LCF	EATON MSA POST TOP	4000K LED'S	MSA-E02-LED-E1-5WQ.IES	5,207	0.90	N/A	52	10'-0"	B3-U0-G1
◀	S1	203-8LED-3036-12-CS	EATON LANDSCAPE FLOOD	3000K LED'S	203-SS-8LED3036-12-CS.IES	351	0.90	1.0	8	GROUND	

HORIZONTAL LIGHTING CALCULATIONS

AREA	SYMBOL	AVERAGE	MAXIMUM	MINIMUM
PUBLIC SIDEWALK	+	3.09	6.5	0.0
PERIPHERY	+	1.15	11.4	0.0

NOTES:
1. CALCULATION VALUES ARE IN FOOTCANDLES.
2. CALCULATIONS INCLUDE PUBLIC SIDEWALK LUMINAIRES AND TREE UPLIGHTING. EXTERIOR BUILDING LIGHTING NOT INCLUDED.
3. CALCULATION POINTS ARE TAKEN AT GRADE ON THE HORIZONTAL PLANE.

VERTICAL LIGHTING CALCULATIONS

AREA	SYMBOL	AVERAGE	MAXIMUM	MINIMUM
PROPERTY LINE FOR LANDSCAPE UP LIGHTING	+	0.0	0.0	0.0

NOTES:
1. CALCULATION VALUES ARE IN FOOTCANDLES.
2. CALCULATIONS INCLUDE LANDSCAPE UPLIGHTING LUMINAIRES ONLY. EXTERIOR BUILDING LIGHTING NOT INCLUDED.
3. CALCULATION POINTS ARE TAKEN 6'-0" ABOVE GRADE ON THE VERTICAL PLANE.
4. CALCULATION DOES NOT INCLUDE PEDESTRIAN LIGHT POLES.

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7250 North 16th Street, Suite 210
Phoenix, AZ 85020-5282

59365
FRANK
EGELHOFF
Date Signed 5-24-19
ARIZONA, U.S.A.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

DESIGN REVIEW BOARD
PEDESTRIAN LIGHTING SCHEDULES

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: RRI
designed by: RRI
checked by: RAZ
project no.: 018-3159
date: 05.04.2019

SL201
6 *of* 7

30-DR-2019
5/24/2019

DWG: \\oa.ad.oaconsulting.com\fnts-nas1\projects-direct\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\MECH\Electrical\E_NSLGT_0183159.dwg USER: twinter
DATE: Apr 30, 2019 - 5:08pm XREFS: C_ARCH_0183159 C_LNDSCP_ARCH_0183159 C_PBASE-SWA_0183159 C_PRE_FGSF_0183159
C_PRE_PBASE_0183159 C_PRE_PBASE_Areas_0183159 C_XBASE_0183159 C_XBASE_OVERALL IMPROVEMENTS C_PTBLK_0

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Invue

DESCRIPTION

The geometric form of MESA LED luminaire allows it to adapt to either contemporary or traditional architectural settings. Available in single or twin pole mount configurations with optional wall mounting capability, the MESA LED luminaire's mounting options allow for harmonized site design whether at the entryway or in the parking lot. UL/cUL listed for usa in wet locations.

Catalog #	Type: PT2,PT2S,PT5
Project	
Comments	Date
Prepared by	

SPECIFICATION FEATURES

Construction
HOUSING: Die-cast aluminum main housing and spidor mount base maintain a minimum 0.125 wall thickness. Integral aluminum heat sink provides superior thermal heat transfer in +40°C ambient environments. DOOR ASSEMBLY: Top mounted, heavy wall, die-cast aluminum door maintains a nominal 0.125 thickness. Door includes a self-retaining interior hinge. GASKET: Continuous silicone gasket provided to seal housing door assembly and optic tray. LENS: Downlight lens is LED board integrated acrylic over-optics, each individually sealed for IP66 rating. HARDWARE: Four iinsst fasteners on underside of housing provide access to luminaire interior. Concealed, stainless steel four bar hinge lock allows door to lock in the open position.

Optics
Choice of twelve patented, high-efficiency AccuLED Optic™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optic technology, ereates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT and 5000K CCT. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics. LightBAR optic tray is removable and able to rotate 360° in 90° increments for specific placement of the distribution relative to fixture.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficiency, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.9 power factor, less that 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature and IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Occupancy sensor and dimming options available.

Mounting
Fitter assembly mounts over 3" O.D. tenon and is secured via three concealed stainless steel set screws. Design of fitter provides seamless transition to 4" round poles. Additional mounting accessories include a dual fixture post top mounting arm and wall mount arm.

Finish
Housing is finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. LightBAR™ cover plates are standard white and may be specified to match finish of luminaire housing. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Colors brochure for a complete selection.

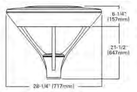
Warranty
Five-year warranty.

MSA MESA LED

1-6 LightBARs
Solid State LED

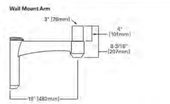
DECORATIVE LUMINAIRE

DIMENSIONS

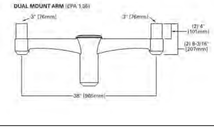


MOUNTING ACCESSORIES

Wall Mount Arm



DUAL MOUNT ARM (DPA 1.5B)



CERTIFICATION DATA
UL/cUL Listed
ISO 9001
IP66 LightBARs
LM79 / LM80 Compliant
3G Vibrations Tested

ENERGY DATA
Electronic LED Driver
≥0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz, 480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating

EPA
Effective Projected Area: (Sq. Ft.)
Single Mount 1.1

SHIPPING DATA
Approximate Net Weight:
50 lbs. (22.7 kgs.)

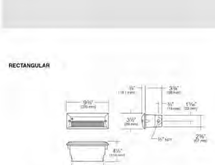
POWER AND LUMENS BY BAR COUNT (21 LED LIGHTBARS)

Number of LightBARs	E01	E02	E03	E04	E05	E06
Drive Current	350mA Drive Current					
Power (Watts)	25W	52W	75W	97W	127W	156W
Current @ 120V (A)	0.22	0.44	0.63	0.82	1.07	1.26
Current @ 277V (A)	0.10	0.20	0.28	0.36	0.48	0.56
Power (Watts)	31W	58W	82W	99W	132W	159W
Current @ 347V (A)	0.11	0.19	0.28	0.29	0.35	0.48
Current @ 480V (A)	0.09	0.15	0.20	0.21	0.30	0.36
T2 Lumens	2,480	5,320	7,379	9,833	12,298	14,798
T2 BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T3 Lumens	2,485	4,970	7,456	9,941	12,426	14,911
T3 BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
T4 Lumens	2,423	4,845	7,268	9,690	12,113	14,535
T4 BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
MMQ Lumens	2,616	5,230	7,844	10,459	13,074	15,689
MMQ BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2
SWQ Lumens	2,684	5,207	7,811	10,415	13,018	15,622
SWQ BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
SXQ Lumens	2,603	5,206	7,809	10,412	13,015	15,618
SXQ BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G3	B4-U0-G3	B4-U0-G3
SL2 Lumens	2,445	4,891	7,336	9,781	12,226	14,672
SL2 BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
SL3 Lumens	2,461	4,921	7,382	9,842	12,303	14,763
SL3 BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
SL4 Lumens	2,376	4,752	7,128	9,504	11,880	14,256
SL4 BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
RW Lumens	2,398	4,796	7,194	9,591	11,989	14,387
RW BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G4
SLL/SLR Lumens	2,227	4,453	6,680	8,906	11,133	13,360
SLL/SLR BUG Rating	B1-U1-G1	B1-U1-G2	B1-U1-G2	B1-U1-G3	B2-U2-G3	B2-U2-G4

LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours	100,000 Hours	Theoretical L70 (Hours)
25°C	>99%	>97%	>96%	>93%	>450,000
40°C	>98%	>97%	>96%	>92%	>425,000
50°C	>97%	>96%	>95%	>91%	>400,000

* Per IESNA TM-21 data.



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99
50°C	0.96

ORDERING INFORMATION

Sample Number: MSA-E06-LED-E1-T3-SM

Product Family	Number of LightBARs [1,2]	Lamp Type	Voltage	Distribution	Color [3]
MSA–Mesa	E01=(1) 21 LED LightBAR [4] E02=(2) 21 LED LightBARs E03=(3) 21 LED LightBARs E04=(4) 21 LED LightBARs E05=(5) 21 LED LightBARs E06=(6) 21 LED LightBARs F01=(1) 7 LED LightBAR [4] F02=(2) 7 LED LightBARs F03=(3) 7 LED LightBARs F04=(4) 7 LED LightBARs F05=(5) 7 LED LightBARs F06=(6) 7 LED LightBARs	LED=Solid State Light Emitting Diodes	E4=Electronic (120-277V) [5] 347=347V 480=480V [6]	T2=Type II T3=Type III SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control RW=Rectangular Wide MMQ=Type V Square Medium SWQ=Type V Square Wide SXQ=Type V Square Extra Wide SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum SM=Architectural Metallic WH=White

Options (Add as Suffix)

PC=Button Type Photocontrol (Specify Voltage)
R=NEMA Twistlock Photocontrol Receptacle
PER7 = NEMA 7 PIN Twistlock Photocontrol Receptacle [7, 15]
FG=Fuse (Specify)
DMG=0-10V Dimming Driver, Field Attaches Housing Pendant
7050=70 CRI / 5000K CCT
7050-2=70 CRI / 5000K CCT [8]
9050=90 CRI / 5000K CCT [8]
ICE=Integral Cold Weather Battery Pack (Specify 120 or 277V) [9]
LWR-LW=LumaWatt Pro Wireless Sensor, Wide Lens for 8' – 16' Mounting Height [10]
LWR-LN=LumaWatt Pro Wireless Sensor, Narrow Lens for 16' – 40' Mounting Height [10]
PKS-1=Factory Installed House Side Shield [11]
10M=0-10V Dimming Drivers
MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [12, 13, 14, 15, 16, 17]
MS/DIM-L20=Motion Sensor for Dimming Operation, 8' – 20' Mounting Height [12, 13, 14, 15, 16, 17]
MS/DIM-L40W=Motion Sensor for Dimming Operation, 21' – 40' Mounting Height (Wide Range) [12, 13, 14, 15, 16, 17]

Accessories (Order Separately) [18]

VA4926-XX=Dual Mount Arm (EPA 1.38)
VA4929-XX=Wall Mount Arm
OA/RA1016=NEMA Photocontrol - Multi-Tap
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA/RA1208=NEMA Photocontrol (Universal)
LB/HSS-21=Field Installed House Side Shield for "2" LightBARs [19, 21]
LB/HSS-31=Field Installed House Side Shield for "3" LightBARs [19, 21]
WGLC-7P-10A=WireLinx Outdoor Control Module (7-pin) [20]

NOTES
1. Standard 4000K CCT and nominal 70 CRI.
2. Not to exceed 5A maximum per fixture. Each T2 LED LightBAR powered at 5A.
3. Shield(s) recommended 90° to LightBAR.
4. Only for use with 480Y Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
5. Custom and RAL color matching available upon request. Consult your lighting representative at Eaton for more information.
6. Consult factory for availability of 480V. Not available with E01 or E02 LightBARs. Not available with 347V or 480V. Requires quantity two or more LightBARs.
7. Consult factory for lead times and lumen multipliers.
8. Available with E01-E04 or F01-F04 configurations only. Specify 120V or 277V. LED cold weather integral battery pack is rated for minimum operating temperature -40°F (-40°C). Operates one LightBAR for 90 minutes.
9. Not available with MS, MSDIM options. Rated for use in 25°C ambient.
10. LumaWatt Pro wireless sensors are factory installed and require network components (ARP-M-1, LWPGW-1, and LWPNA1) to approach-site-quantities. See www.eaton.com/lighting/ArchLumaWatt application information.
11. Not available with MS, MSDIM options.
12. Compatible with standard 3-PIN photocontrols and 5-PIN or 7-PIN ANSI twistlocks.
13. Not for use with SL2, SL3 and SL4 distributions.
14. Utilizes internal step-down transformer when 347V or 480V is selected.
15. The PSR-100 accessory is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
16. Not available with E01 configuration.
17. Approximately 57' detection diameter at 8' mounting height.
18. Approximately 49' detection diameter at 20' mounting height.
19. Approximately 105' detection diameter at 40' mounting height.
20. Replace XX with color designation
21. Not required with MMQ LightBAR.
22. Requires 7-pin NEMA twistlock photocontrol receptacle. The WGLC-7 cannot be used in conjunction with a dimmer sensors or controls.

Lumière

DESCRIPTION

Cambria 203 is a small, low voltage dimmable LED and halogen MR16 luminaire. It is available with a fully adjustable side swivel stem (203, 203-FL), an adjustable center rear swivel (203-CRS) or a stationary rear flush mount (203-FM). Side swivel models 203 and 203-FL provide 340° tilt and 360° rotation. Various lenses, louvers and color or dichroic filters can be combined - up to three at once - to create multiple lighting effects. The Lumiere exclusive Siphon Protection System (S.P.S.) prevents water from siphoning into the fixture through its own lead wires.

Catalog #	Type: S1
Project	
Comments	Date
Prepared by	

SPECIFICATION FEATURES

Material
Housing, hood and mounting stem are precision-machined from corrosion-resistant billet stock 6061-T6 aluminum, C360 brass, C932 bronze*, C110 copper or 303/304 stainless steel.

Finish
Fixtures constructed from 6061-T6 aluminum are double protected by an ROHS* compliant chemical film undercoating and polyester powdercoat paint finish, surpassing the rigorous demands of the outdoor environment. A variety of standard colors are available.

Brass, Bronze*, Copper or Stainless Steel
Fixtures constructed from brass, bronze*, copper or stainless steel are left unpainted to reveal the natural beauty of the material. Brass, bronze* and copper will patina naturally over time.

Hood
Hood is removable for easy relamping and accepts up to three internal accessories at once (lenses, louvers, filters) to achieve multiple lighting effects. Model 203, 203-CRS & 203-FM: Weep holes prevent water and mineral stains from collecting on the lens, even in the straight-up position. Model 203-FL: The flush lens design reduces fixture length, minimizes debris collection and prevents water and mineral stains from collecting on the lens.

Gasket
Housing and hood are sealed with a high temperature silicone o-ring gasket to prevent water intrusion.

Lens
Tempered glass lens, factory sealed with high temperature adhesive to prevent water intrusion and breakage due to thermal shock.

Mounting Stem
Model 203 and 203-FL include fully adjustable side-mounted swivel stem, providing 340° tilt and 360° rotation for easy aiming. Center rear swivel (203-CRS) or stationary rear flush mount (202-FM) models are also available. All models include 1/2" NPS threaded male fitting. Stainless steel aim-locking mechanisms are standard (not available on 203-FM). Lumière's exclusive Siphon Protection System (S.P.S.) prevents water from siphoning into the fixture through its own lead wires.

Hardware
Stainless steel hardware is standard to provide maximum corrosion-resistance.

Socket
Ceramic socket with 250° C Teflon® coated lead wires and GU5.3 bi-pin base.

Electrical
Remote 12V transformer required (not included). Initial power draw on LED equipped fixtures is 12 watts. When sizing transformer use 12 watts per LED fixture. Nominal power draw after start-up is 9 watts. Alas, LEDs are more voltage sensitive than standard halogen MR16 lamps. The LED module is designed to operate within the range 12V +/- 1.2V. Any less or more voltage can cause premature failures.

Lamp
Halogen lamp not included. SORAA LED modules are included and are available in three color temperatures (2700, 3200 and 4000) or Amber (585-595nm) and three distributions (spot, narrow, and flood). Both color temperature and distribution must be specified when ordering. Soraa lamp compatible (8W Max).

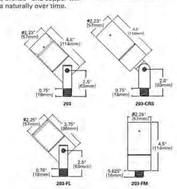
203
CAMBRIA
LED
HALOGEN

APPLICATIONS:
ACCENT / FLOOD

WORKS WITH SORAA

CERTIFICATION DATA
UL and cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS* Compliant
IP66 Ingressed Protection Rated

TECHNICAL DATA
8W LED, L70/40,000 hours at 25°C
Low Voltage: 50W Halogen MR16.



ORDERING INFORMATION

Sample Number: 203-FL50MR16-12-NSS

Series	Construction	Source (for LED, select from each column and combine)			Voltage	Finish
203=LED of MR16 Cambria Accent Fixture	—Standard Side Swivel Stem, 1/2" NPS CRS=Center Rear Swivel Stem, 1/2" NPS FM=Rear-Flush Mount, 1/2" NPS FL=Flush Lens, Side Swivel Stem, 1/2" NPS	50MR16=50W max. Halogen MR16 lamp not included)			12=12V	Painted BK=Black BZ=Bronze CB=City Silver VE=Verde WT=White Premium Finish NBR=Natural Brass NCP=Natural Copper NBZ=Natural Bronze* NSS=Natural Stainless Steel
		RLED=(80) LED	27=2700K 30=3000K 40=4000K	10=10° Spot 25=25° Narrow 36=36° Wide		
		XLED=(9) LED	AM=Amber (585-595nm)	25=25° Narrow		

*For natural bronze ROHS material consult factory.

KLV807/KLV817/EL807/EL817

Rectangular & Round Step Light

LANDSCAPE

FEATURES

- Low level, unobtrusive directional lighting that is ideal for installation in concrete, brick and masonry stairways
- Available in 12 volt, 120 volt thru 277 volt options
- New energy efficient 3 and 9 diode LEDs available in Universal Voltage 120 to 277V
- The Step Light's die-cast, low copper alloy aluminum housing and tempered prismatic glass is designed for long life

c UL us LISTED

ORDERING INFORMATION (Example)

EL807 | 3L5K | UV | BL

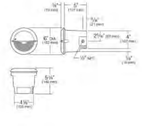
FIXTURE	ELECTRICAL MODULE		VOLTAGE
12 VOLT LED	12 VOLT LED		
KLV807 Rectangular	Source	Color Temperature	
KLV817 Round	3L 3 LEDs	3K 3000K 4K 4000K 5K 5000K	
120/277 VOLT LED	120/277 VOLT LED		120/277 VOLT LED
EL807 Rectangular	Source	Color Temperature	Voltage
EL817 Round	3L 3 LEDs 9L 9 LEDs	3K 3000K 4K 4000K 5K 5000K	UV Universal Voltage from 120 to 277V with a ±10% tolerance

FIXTURE FINISH ALUMINUM	
BL	Black
DB	Dark Bronze
GR	Verde Green

REFER TO SHEET PL102 FOR FIXTURE LOCATIONS.

RECTANGULAR

ROUND



KIM LIGHTING

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FAX 602 748 1001
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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

DESIGN REVIEW BOARD
PEDESTRIAN LIGHTING CUT SHEETS

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: RRI
designed by: RRI
checked by: RAZ
project no.: 018-3159
date: 05.04.2019

SL301
7 of 7

30-DR-2019
5/24/2019

PRELIMINARY PEDESTRIAN AND VEHICULAR CIRCULATION PLAN FOR

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, ARIZONA 85251

PROJECT DATA:

PROJECT ADDRESS:
SOUTHEAST CORNER OF GOLDWATER BOULEVARD AND HIGHLAND AVENUE SCOTTSDALE, ARIZONA 85251

BENCH MARK: A STONE IN HAND HOLE AT THE INTERSECTION OF CAMELBACK RD. & MILLER RD., CITY OF SCOTTSDALE BENCHMARK #4234.

ELEVATION= 1259.43' (PER C.O.S. NAVD '88 DATUM)

GROSS LOT AREA: 311,172 SF OR 7.14 ACRES

REDEVELOPED LOT AREA: 306,703 SF 7.04 ACRES

APN: PARCEL 173-37-010

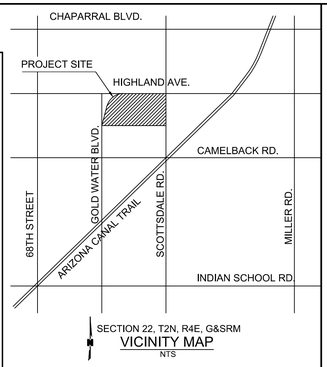
ZONING: D/DRU-2 PBD DO; 25-ZN2015 & 1-II-2016

SHEET INDEX		
#	SHEET NAME	SHEET NO.
1	PRELIMINARY PEDESTRIAN AND VEHICULAR CIRCULATION PLAN	PC500
2	PRELIMINARY PEDESTRIAN AND VEHICULAR CIRCULATION DETAILS	PC501

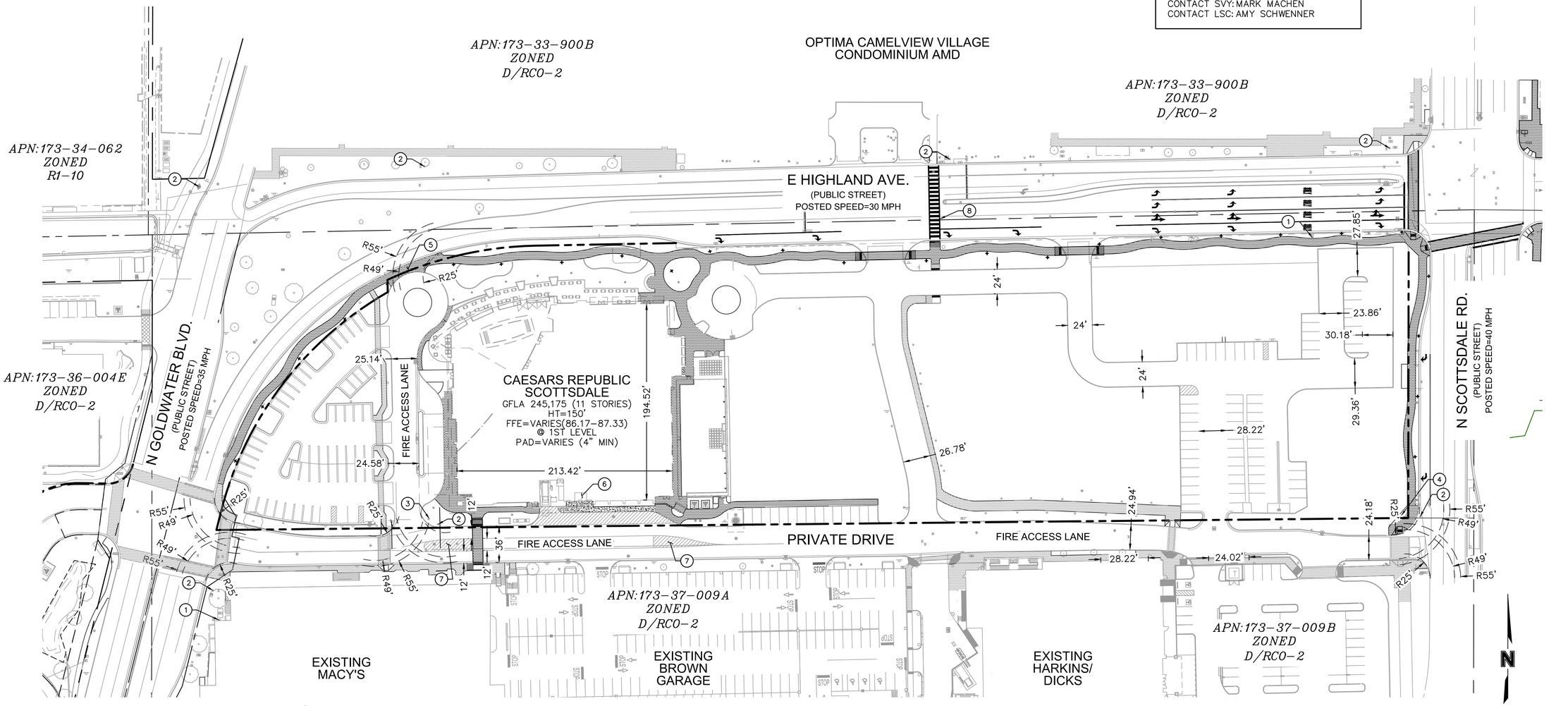
OWNER
MACERICH
11411 NORTH TATUM BLVD
PHOENIX, AZ 85028
PHONE: (602)953-6548
FAX: (602)953-1964
ATTN: JUSTIN LONG

DEVELOPER
HCW, LLC
2398 E CAMELBACK RD, SUITE 690
PHOENIX, AZ 85016
PHONE: (602)469-1226
FAX: (417)332-3434
ATTN: RICK HUFFMAN

SITE ENGINEER/SURVEY/LAND ARCH
OLSSON
7250 N 16TH SUITE 210
PHOENIX, AZ 85020
PHONE: (602)748-1000
FAX: (602)748-1001
CONTACT ENG: CARDELL ANDREWS
CONTACT SVY: MARK MACHEN
CONTACT LSC: AMY SCHWENNER



VICINITY MAP
NTS



FIRE ACCESS PLAN KEYNOTES

1. EXISTING FIRE DEPARTMENT CONNECTION (FDC).
2. EXISTING FIRE HYDRANT
3. REMOTE FIRE DEPARTMENT CONNECTION (FDC)
4. RELOCATED FIRE HYDRANT
5. FIRE ACCESS ENTRANCE WITH MOUNTABLE CURB
6. FIRE RISER ROOM
7. STRIPED MEDIAN
8. HAWK CROSSING

LEGEND

- TRUCK TURNING RADII
- EXISTING SIDEWALK
- NEW SIDEWALK

NOTE
1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

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TEL 602.748.1000
FAX 602.748.1001
7250 North 16th Street, Suite 210
Phoenix, AZ 85020-5282

Registered Professional Engineer (Civil)
CERTIFICATE NO.
42633
ANDREA K. PAGE
Date Signed 5/10/19
ARIZONA U.S.A.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

DESIGN REVIEW BOARD
PEDESTRIAN AND VEHICULAR CIRCULATION PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by:	SS/THW
designed by:	SJV
checked by:	CAII
project no.:	018-3159
date:	05.09.2019

PC500
1 *of* 2

30-DR-2019
5/24/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV\1-PC500 PED AND VEH CIRCULATION PLAN_83159.dwg USER: thutchinswass
DATE: May 09, 2019 9:37am XREFS: C_PTBLK_0183159 C_PRE_PBASE_0183159 C_XBASE_0183159 C_XBASE_OVERALL IMPROVEMENTS AMY_SCHWENNER_LA_AZ E_PLTG_0183159

CITY OF SCOTTSDALE FIRE DEPARTMENT REQUIREMENTS

1. CONSTRUCTION WITHIN THE CITY OF SCOTTSDALE SHALL COMPLY WITH THE 2012 INTERNATIONAL FIRE CODE (IFC) AS AMENDED AND ADOPTED BY FIRE CODE SUB–SECTIONS 36–18.1, AND 2012 FIRE CODE INTERPRETATIONS & REGULATIONS.
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FIRE SAFETY DURING CONSTRUCTION:

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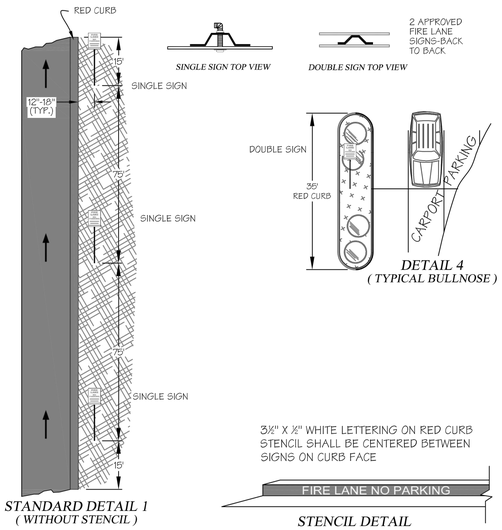

STANDARD DETAIL 1 (WITHOUT STENCIL)

DETAIL 4 (TYPICAL BULLNOSE)

STENCIL DETAIL

NOTES:

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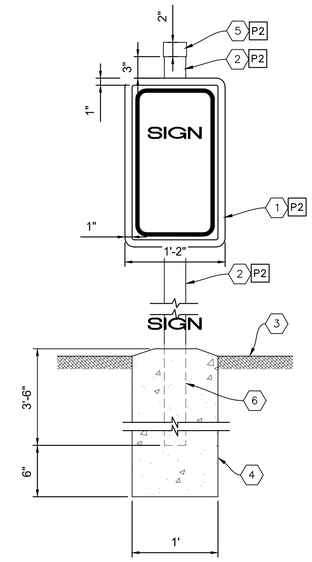
2. SIGN MUST FACE THE ONCOMING TRAFFIC.
3. STENCILS SHALL BE IN WHITE LETTERING (3" HT. ½" STROKE) ON RED PAINTED CURB.
4. STENCIL SHALL READ "FIRE LANE NO PARKING".

FIRE DEPARTMENT
K FIRE LANE CURB DETAIL
NO SCALE



KEYNOTES

1. 20 GA. BACKING PLATE-PAINTED
2. 3" DIA. STL. POST NO HOLES-PAINTED.
3. ASPHALT PAVING.
4. CONC. FOOTING 1'-0" DIA X 4'-0" DEPTH.
5. STL. PIPE CAP-PAINTED.
6. 4" O.D. PIPE SLEEVES SET IN CONC. FOOTING.

X PAINT COLOR. SEE PAINT SCHEDULE 16/A0.2

L TYPICAL SIGN POST DETAIL
NO SCALE

NOTES:

1. At the beginning and end of the fire lane, the sign shall have a single headed arrow pointing in the direction the regulation is in effect. The intermediate signs shall have double headed arrows pointing in both directions.
2. The maximum spacing of the signs shall be 100', contingent upon Traffic Engineering's review and approval.
3. The signs shall be set at an angle of not less than 30° nor more than 45° with the curb or line of traffic flow
4. The clearance to the bottom of the sign shall be 7 feet. There shall be no other signs attached to the sign or the sign pole.
5. The sign substrate shall be a minimum of 12" x 18" treated aluminum with a thickness of 0.080".
6. The sign face shall have a white, ASTM Type IV reflective background with a red screen printed or translucent acrylic EC overlay film reflective legend. Use the standard sign face number R7–32 or equivalent incorporating additional information to complete the sign as shown.

DETAIL NO.		APPROVED BY:		DETAIL NO.
2365	City of Scottsdale Standard Details	Scottsdale Standards & Specifications Committee	FIRE LANE SIGN	2365

CITY OF SCOTTSDALE
M FIRE LANE SIGN DETAIL
NO SCALE

olsson®
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PEDESTRIAN AND VEHICULAR CIRCULATION DETAILS
CAESARS REPUBLIC SCOTTSDALE
SCOTTSDALE, AZ 85251
2019

drawn by: SS/THW
designed by: SJV
checked by: CAll
project no.: 018-3159
date: 05.09.2019

PC501
2 *of* 2

30-DR-2019
5/24/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV\2-PC501 PED AND VEH CIRCULATION DETAILS_83159.dwg
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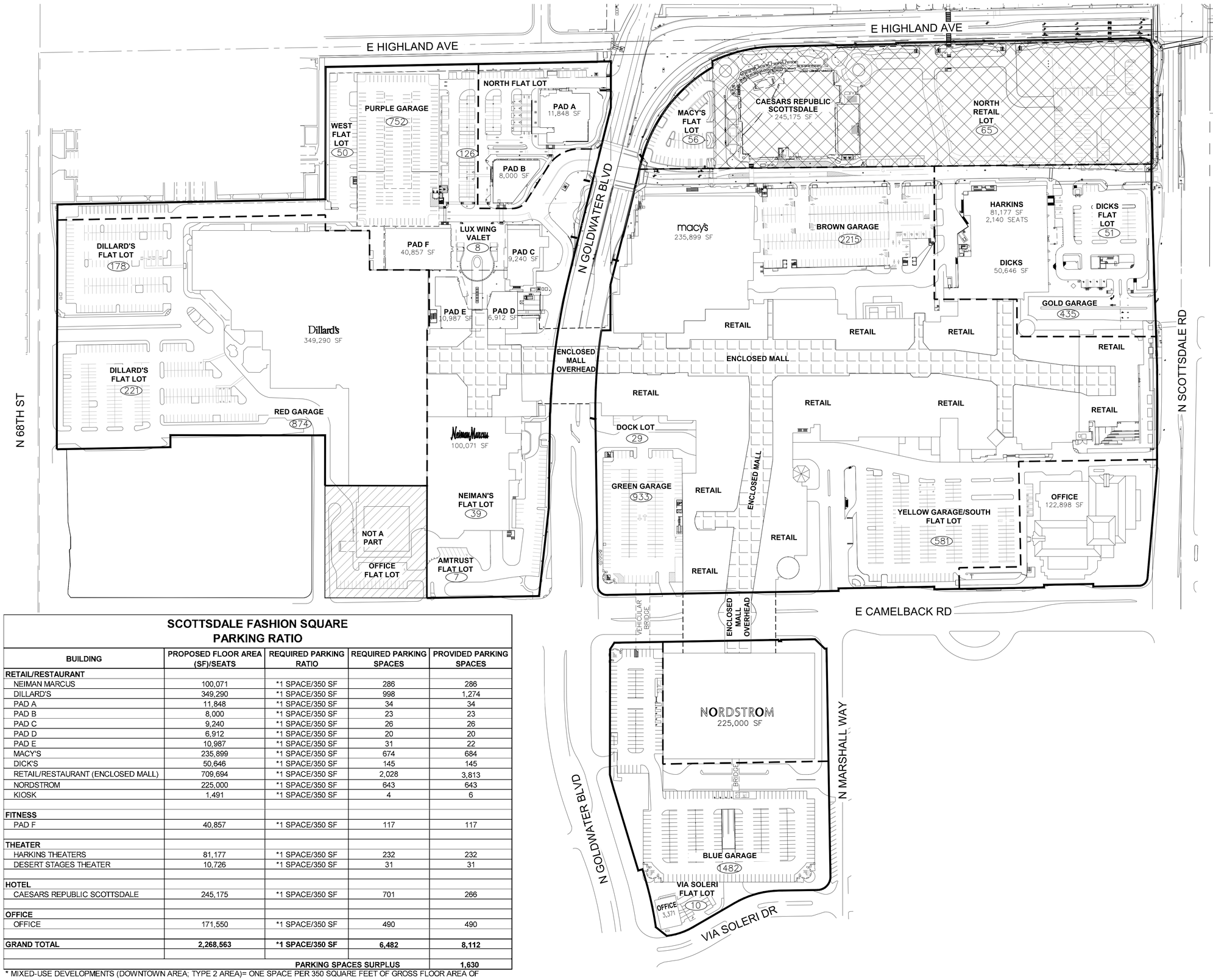
USER: thutchinswass



N

SCHEMATIC DRAWING ONLY
NOT TO SCALE

LEGEND

- ACCESSIBLE PARKING SPACE
- (34) PROPOSED PARKING COUNT
- BOUNDARY LINE
- PARCEL LINE
- SECONDARY BOUNDARY LINE
- COMMON AREA
- NOT A PART
- PROJECT SITE AREA

SCOTTSDALE FASHION SQUARE PARKING RATIO

BUILDING	PROPOSED FLOOR AREA (SF)/SEATS	REQUIRED PARKING RATIO	REQUIRED PARKING SPACES	PROVIDED PARKING SPACES
RETAIL/RESTAURANT				
NEIMAN MARCUS	100,071	*1 SPACE/350 SF	286	286
DILLARD'S	349,290	*1 SPACE/350 SF	998	1,274
PAD A	11,848	*1 SPACE/350 SF	34	34
PAD B	8,000	*1 SPACE/350 SF	23	23
PAD C	9,240	*1 SPACE/350 SF	26	26
PAD D	6,912	*1 SPACE/350 SF	20	20
PAD E	10,987	*1 SPACE/350 SF	31	22
MACY'S	235,899	*1 SPACE/350 SF	674	684
DICK'S	50,646	*1 SPACE/350 SF	145	145
RETAIL/RESTAURANT (ENCLOSED MALL)	709,694	*1 SPACE/350 SF	2,028	3,813
NORDSTROM	225,000	*1 SPACE/350 SF	643	643
KIOSK	1,491	*1 SPACE/350 SF	4	6
FITNESS				
PAD F	40,857	*1 SPACE/350 SF	117	117
THEATER				
HARKINS THEATERS	81,177	*1 SPACE/350 SF	232	232
DESERT STAGES THEATER	10,726	*1 SPACE/350 SF	31	31
HOTEL				
CAESARS REPUBLIC SCOTTSDALE	245,175	*1 SPACE/350 SF	701	266
OFFICE				
OFFICE	171,550	*1 SPACE/350 SF	490	490
GRAND TOTAL	**2,268,563**	***1 SPACE/350 SF**	**6,482**	**8,112**
		PARKING SPACES SURPLUS		**1,630**

* MIXED-USE DEVELOPMENTS (DOWNTOWN AREA; TYPE 2 AREA)= ONE SPACE PER 350 SQUARE FEET OF GROSS FLOOR AREA OF NONRESIDENTIAL AREA

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DESIGN REVIEW BOARD
PRELIMINARY PARKING PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: SS/THW
designed by: SJV
checked by: CAII
project no.: 018-3159
date: 08.20.2019

PC700
1 *of* 1

30-DR-2019
8/22/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV\1-PC700_OVERALL PARKING PLAN_0183159.dwg USER: thutchinswass
DATE: Aug 21, 2019 3:32pm XREFS: C_PTBLK_0183159 C_MALL_PBASE_63809 AMY_SCHWENNER_LA_AZ

PRELIMINARY PEDESTRIAN AND VEHICULAR CIRCULATION PLAN FOR

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, ARIZONA 85251

PROJECT DATA:

PROJECT ADDRESS:
SOUTHEAST CORNER OF GOLDWATER BOULEVARD AND HIGHLAND AVENUE SCOTTSDALE, ARIZONA 85251

BENCH MARK: A STONE IN HAND HOLE AT THE INTERSECTION OF CAMELBACK RD. & MILLER RD., CITY OF SCOTTSDALE BENCHMARK #4234.

ELEVATION= 1259.43' (PER C.O.S. NAVD '88 DATUM)

GROSS LOT AREA: 311,172 SF OR 7.14 ACRES

REDEVELOPED LOT AREA: 306,703 SF 7.04 ACRES

APN: PARCEL 173-37-010

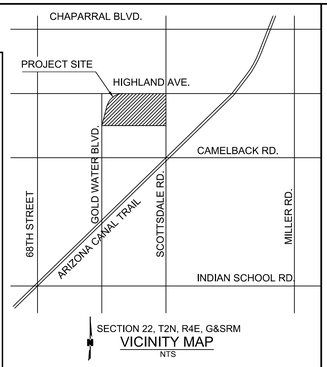
ZONING: D/DRU-2 PBD DO; 25-ZN2015 & 1-II-2016

SHEET INDEX		
#	SHEET NAME	SHEET NO.
1	PRELIMINARY PEDESTRIAN AND VEHICULAR CIRCULATION PLAN	PC500
2	PRELIMINARY PEDESTRIAN AND VEHICULAR CIRCULATION DETAILS	PC501

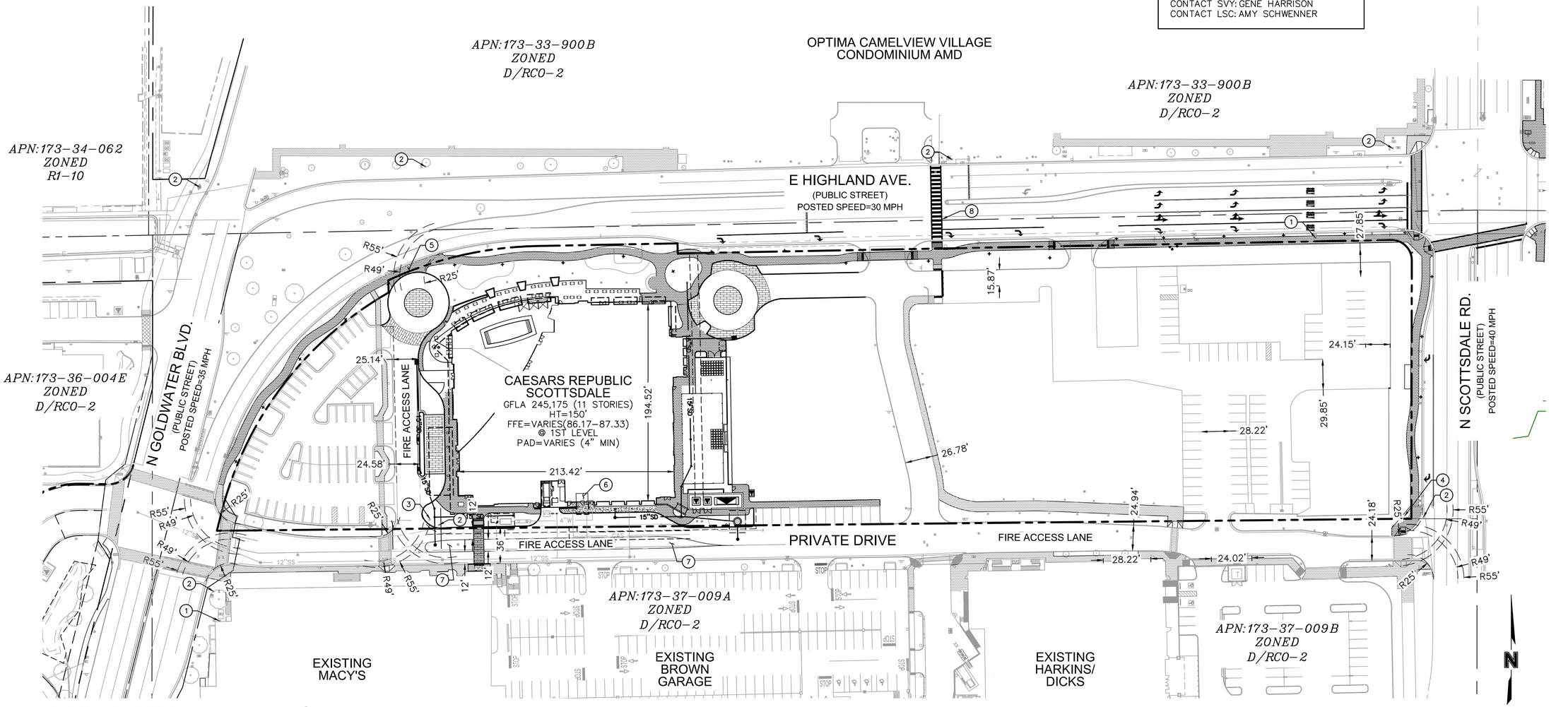
OWNER
MACERICH
11411 NORTH TATUM BLVD
PHOENIX, AZ 85028
PHONE: (602)953-6548
FAX: (602)953-1964
ATTN: JUSTIN LONG

DEVELOPER
HCW, LLC
2398 E CAMELBACK RD, SUITE 690
PHOENIX, AZ 85016
PHONE: (602)469-1226
FAX: (417)332-3434
ATTN: RICK HUFFMAN

SITE ENGINEER/SURVEY/LAND ARCH
OLSSON
7250 N 16TH SUITE 210
PHOENIX, AZ 85020
PHONE: (602)748-1000
FAX: (602)748-1001
CONTACT ENG: CARDELL ANDREWS
CONTACT SVY: GENE HARRISON
CONTACT LSC: AMY SCHWENNER



VICINITY MAP
NTS



FIRE ACCESS PLAN KEYNOTES

1. EXISTING FIRE DEPARTMENT CONNECTION (FDC).
2. EXISTING FIRE HYDRANT
3. REMOTE FIRE DEPARTMENT CONNECTION (FDC)
4. RELOCATED FIRE HYDRANT
5. FIRE ACCESS ENTRANCE WITH MOUNTABLE CURB
6. FIRE RISER ROOM
7. STRIPED MEDIAN
8. HAWK CROSSING

LEGEND

- TRUCK TURNING RADII
- EXISTING SIDEWALK
- NEW SIDEWALK

NOTE

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

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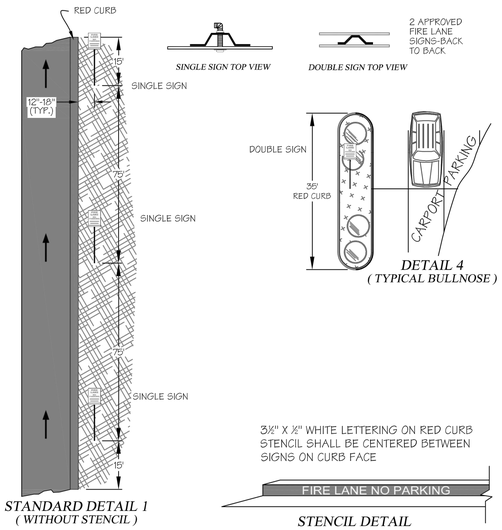

STANDARD DETAIL 1
(WITHOUT STENCIL)

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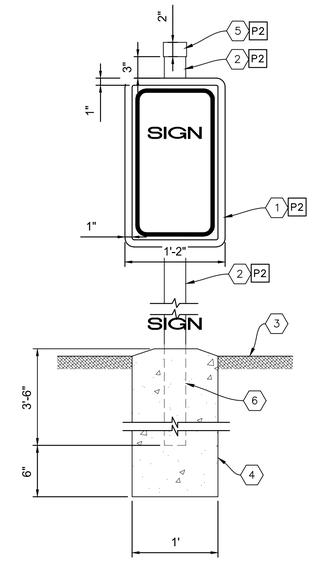
FIRE DEPARTMENT
K FIRE LANE CURB DETAIL
NO SCALE



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L TYPICAL SIGN POST DETAIL
NO SCALE

NOTES:

1. At the beginning and end of the fire lane, the sign shall have a single headed arrow pointing in the direction the regulation is in effect. The intermediate signs shall have double headed arrows pointing in both directions.
2. The maximum spacing of the signs shall be 100', contingent upon Traffic Engineering's review and approval.
3. The signs shall be set at an angle of not less than 30° nor more than 45° with the curb or line of traffic flow
4. The clearance to the bottom of the sign shall be 7 feet. There shall be no other signs attached to the sign or the sign pole.
5. The sign substrate shall be a minimum of 12" x 18" treated aluminum with a thickness of 0.080".
6. The sign face shall have a white, ASTM Type IV reflective background with a red screen printed or translucent acrylic EC overlay film reflective legend. Use the standard sign face number R7–32 or equivalent incorporating additional information to complete the sign as shown.

DETAIL NO.		APPROVED BY:		DETAIL NO.
2365	City of Scottsdale Standard Details	Scottsdale Standards & Specifications Committee	FIRE LANE SIGN	2365

CITY OF SCOTTSDALE
M FIRE LANE SIGN DETAIL
NO SCALE

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Phoenix, AZ 85020-6282

Registered Professional Engineers CERTIFICATE NO. 42633 ANDREA K. PAGE Date Signed 8/22/19 ARIZONA U.S.A. (CIVIL)

Call at least two full working days before you begin excavation. ARIZONA811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

DESIGN REVIEW BOARD
PEDESTRIAN AND VEHICULAR CIRCULATION DETAILS

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

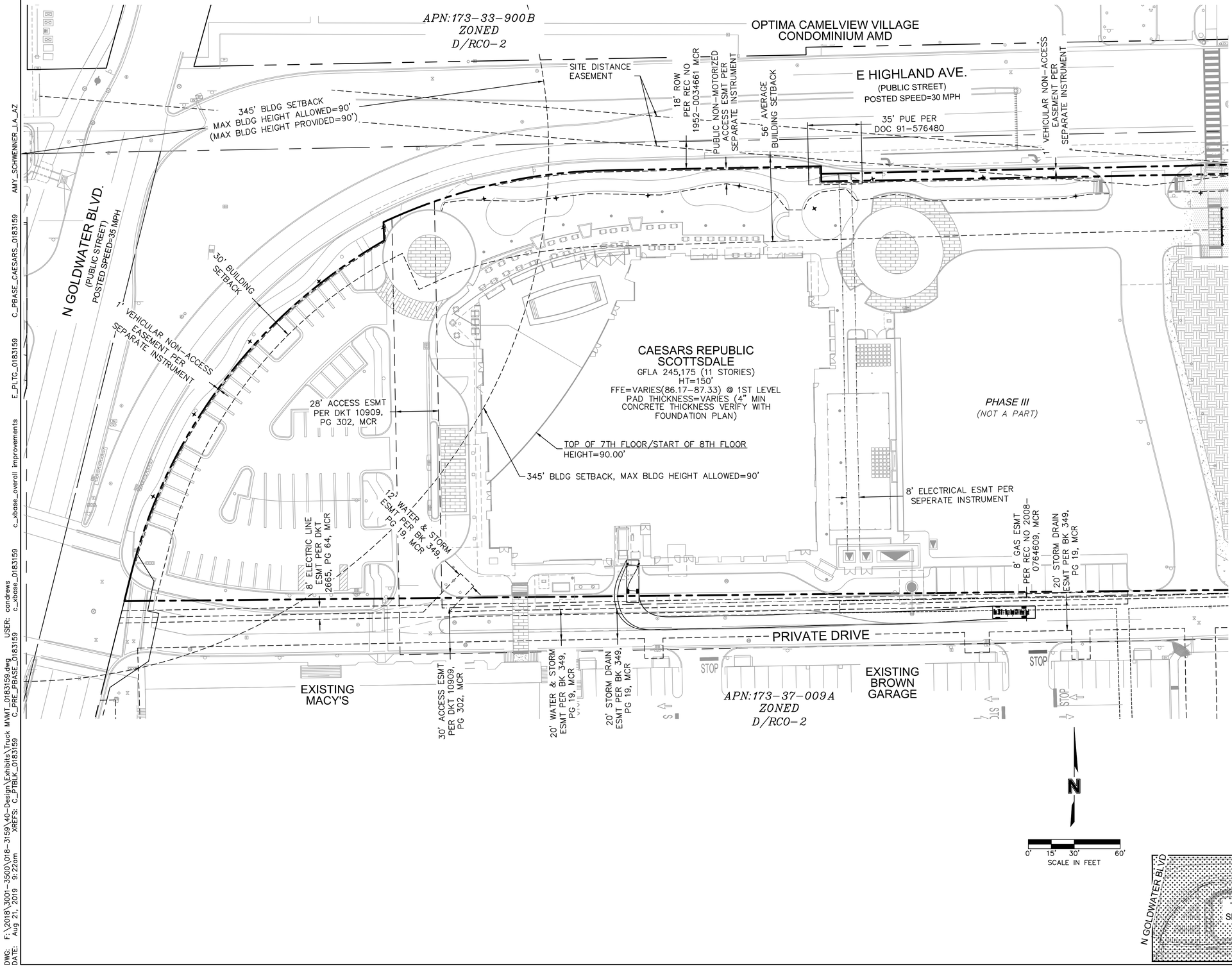
2019

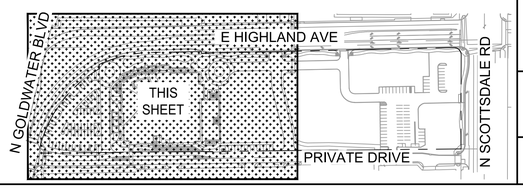
drawn by:	SS/THW
designed by:	SJV
checked by:	CAll
project no.:	018-3159
date:	08.20.2019

PC501
2 of 2

30-DR-2019
8/22/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV\2-PC501 PED AND VEH CIRCULATION DETAILS_83159.dwg
DATE: Aug 21, 2019 3:31pm XREFS: C_PTBLK_0183159 AMY_SCHWENNER_LA_AZ USER: thutchinswass





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ARIZONA811
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In Maricopa County: (602) 263-1100

REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

TRUCK MOVEMENT EXHIBIT

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by: SS/THW
designed by: SJV
checked by: CAH
project no.: 018-3159
date: 08.20.2019

1 of 1

30-DR-2019
8/22/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\Exhibits\Truck MVMT_0183159.dwg USER: condrews
DATE: Aug 21, 2019 9:22am XREFS: C_PTBLK_0183159 C_PRE_PBASE_0183159 c_xbase_0183159
C_PBASE_CAESARS_0183159 c_xbase_overall improvements
E_PLTG_0183159 AMY_SCHWENNER_LA_AZ

Cardell Andrews

From: Brian Argo <brianargo@hotmail.com>
Sent: Monday, April 8, 2019 7:04 AM
To: Cardell Andrews
Cc: David Hess; Mark Niehoff
Subject: RE: [EXTERNAL]FW: RJ-250-SC 30 & 34
Attachments: Front Load Truck Dimensions .pdf; RO Truck dimensions 1.jpg; RO Truck dimensions 2.jpg; RO TRUCK PICTURE.jpg

Good Morning Cardell,

Here is the requested information about front load and roll off trucks dimensions. Also, I see that you're thinking about a 10yd. front load container. Unfortunlty, most haulers don't carry a 10yd. it is always recommend the largest be an 8yd. due to the weight. If you have anymore questions please let me know. We hope to get the opportunity to give you all a proposal for the trash and recycle removal for this great new property.

Best Regards,

Brian Argo

Arizona Roll Off Services | Green Depot
830 E. Sherman Phoenix, AZ 85034
Cell: **480.980.0820**
Email: brianargo@hotmail.com

COMMERCIAL- FRONT LOAD| INDUSTRIAL- ROLL OFF HAULING|RECYCLE- GREEN DEPOT COMMERCIAL & INDUSTRIAL
www.arizonarolloffservices.com

From: Cardell Andrews <candrews@olsson.com>
Sent: Friday, April 5, 2019 2:43:17 PM
To: brianargo@hotmail.com
Cc: David Hess
Subject: FW: [EXTERNAL]FW: RJ-250-SC 30 & 34

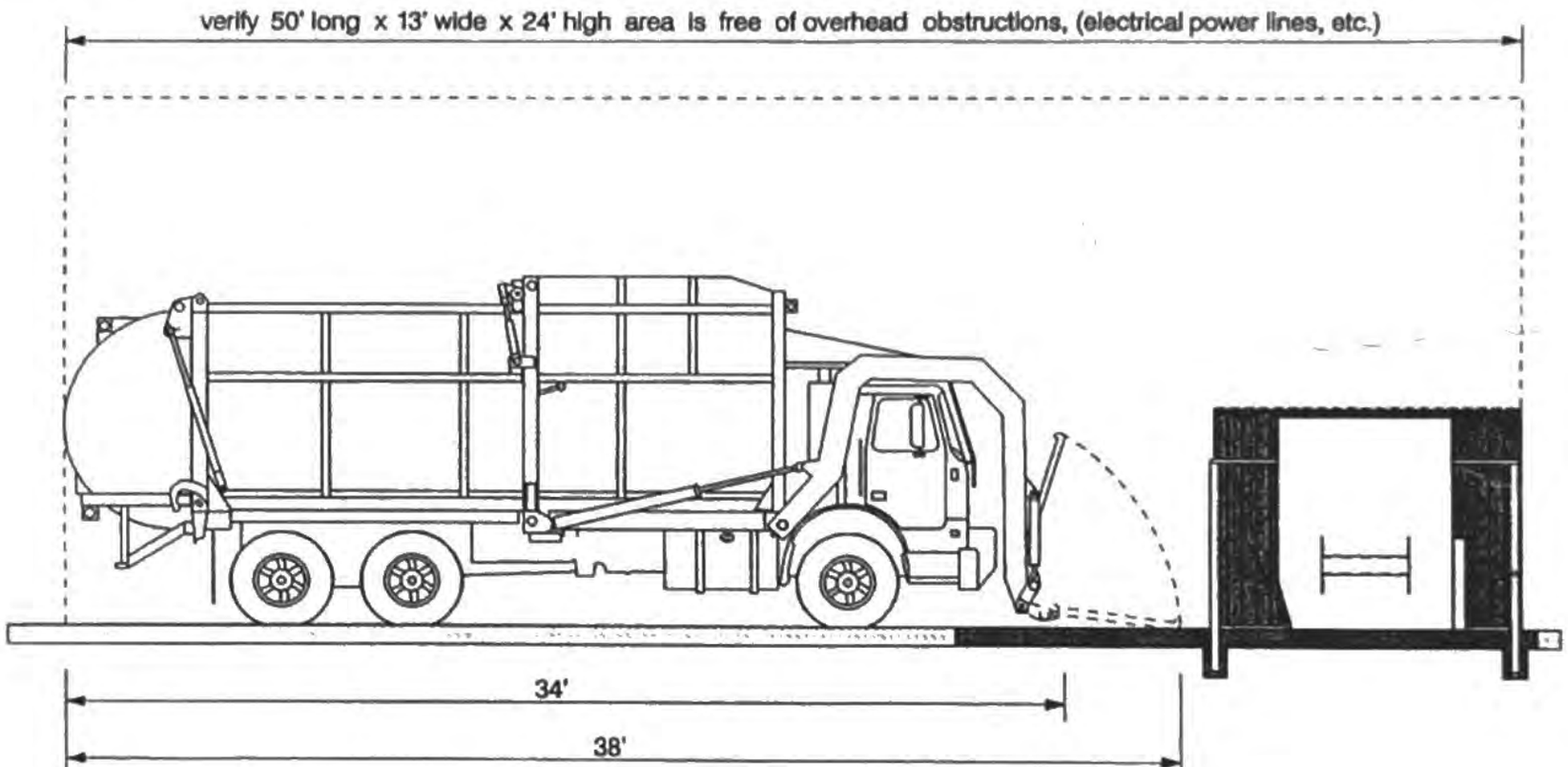
Brian,

Looks like we are using both the 34 CY roll off (attached) for trash, and a 10 YD bin (below image) for recycle. If possible, can you send me the truck information we discussed for both vehicles?

30-DR-2019
8/22/2019

REFUSE TRUCK

Enclosure Accessibility: Diagram

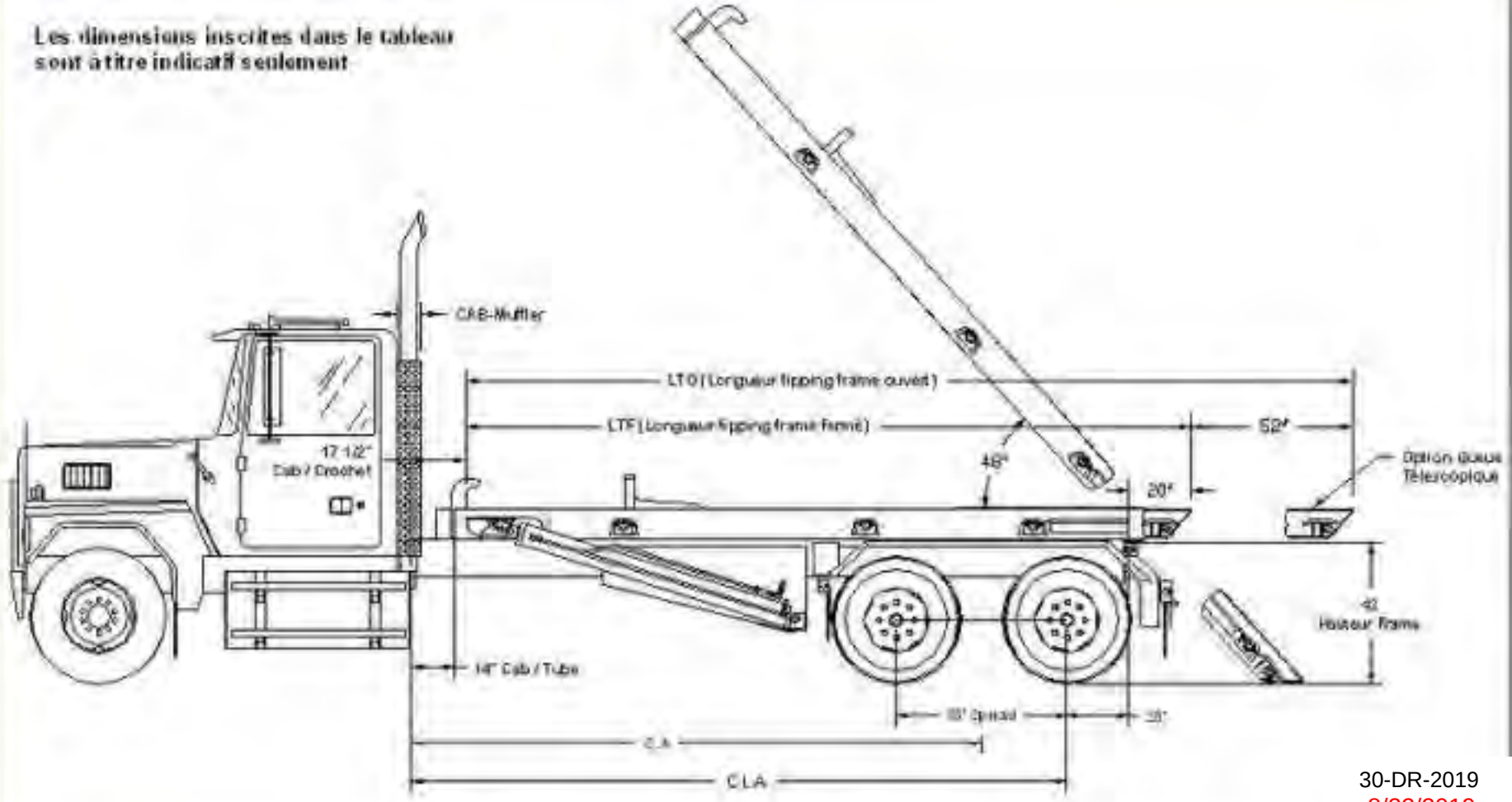


SIDE VIEW

NOTE: Vehicle shown is a 40 cu. yd. front end loading collection truck

30-DR-2019
8/22/2019

Les dimensions inscrites dans le tableau
sont à titre indicatif seulement



30-DR-2019
8/22/2019

EF-3 EIFS

MANUFACTURER:
DRYVIT

FINISH COLOR:
CAPTAIN

LRV: 52.75

ST-2 MASONRY STONE VENEER

MANUFACTURER:
SOLSTICE STONE

FINISH COLOR:
GLACIER HONED

SP-1 ACCENT PANEL

MANUFACTURER:
TRESPA METEON

FINISH COLOR:
LMO561 ROMAN BRONZE SPECULAR

EF-2 EIFS

MANUFACTURER:
DRYVIT

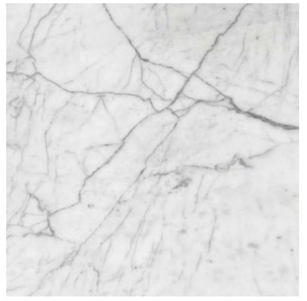
FINISH COLOR:
DOVER SKY

LRV: 52.8

ST-1 MASONRY STONE VENEER

MANUFACTURER:
SOLSTICE STONE

FINISH COLOR:
BARCELONA BEIGE WIDE COMBED



SP-2 STONE PANEL

MANUFACTURER:
STONEPANELS INTERNATIONAL LLC

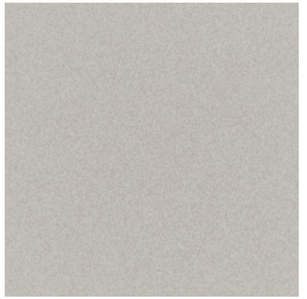
FINISH COLOR:
WHITE CARRARA MARBLE

EF-1 EIFS

MANUFACTURER:
DRYVIT

FINISH COLOR:
WINTER EVE

LRV: 19.7



MTL-1 ALUMINUM COMPOSITE PANEL

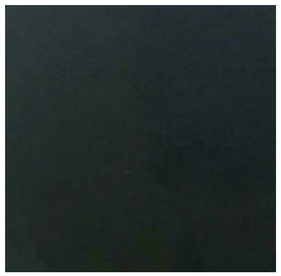
MANUFACTURER:
ALPOLIC

FINISH COLOR:
MICA PLATINUM

GL-1 GLAZING

MANUFACTURER:
PPG

FINISH COLOR:
SOLARGRAY
SOLARBAN 60



GL-2 GLAZING

MANUFACTURER:
PPG

FINISH COLOR:
GRAYLITE II
SOLARBAN 60

WD-1 WOOD PLANK

MANUFACTURER:
4" x 1" PLANKS

FINISH COLOR:
STAINED

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CONSULTANTS:

J&M ENGINEERING

CJD Engineering | Energy | Innovation

OLSSON ASSOCIATES

studio. DESIGN

DRB PACKAGE 2.0

August 14, 2019
March 31, 2022

PROJECT:

CAESARS REPUBLIC SCOTTSDALE

CAESARS REPUBLIC SCOTTSDALE

FASHION SQUARE - SCOTTSDALE, ARIZONA

DEVELOPER:

HCW L.L.C.

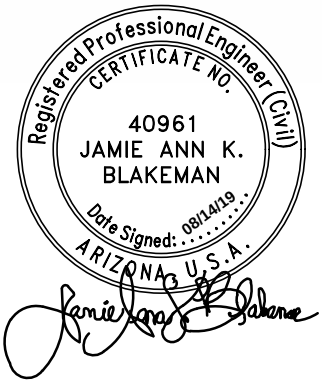
MATERIAL SHEET

SHEET NO.

A.50

30-DR-2019
8/22/2019

To:	Thomas B. Nelson HCW, LLC	**Date:**	August 14, 2019
From:	Jamie Blakeman, PE, PTOE		
Job Number:	19.5002		
RE:	Caesars Republic Traffic Impact & Mitigation Analysis		



INTRODUCTION

Lōkahi, LLC (Lōkahi) has prepared this document as an update to the original Traffic Impact and Mitigation Analysis (TI&MA) for Scottsdale Fashion Square dated May 9, 2017. This document includes the analysis for the proposed Caesars Republic development at the Scottsdale Fashion Square Mall located in Scottsdale, Arizona. The proposed Caesars Republic development is located on the southeast corner of Goldwater Boulevard and Highland Avenue. The objective of this Traffic Impact and Mitigation Analysis is to analyze the traffic related impacts of this proposed development to the adjacent roadway network.

The proposed Caesars Republic will include a 265 room, 11-story hotel, with a 3,200 square foot restaurant. Additional amenities will be provided on site that are anticipated to be primarily utilized by the hotel guests, which include a 200 square foot coffee shop, 6,800 square foot ballroom, 2,000 square foot meeting space, and 5,000 square foot bar/lounge on the 7th floor. See **Attachment A** for the proposed site plan.

The following are the six (6) intersections studied throughout this analysis:

- Goldwater Boulevard and Camelback Road (1)
- Goldwater Boulevard and Scottsdale Fashion (2)
- Goldwater Boulevard and Highland Avenue (3)
- Highland Avenue and Driveway (4)
- Highland Avenue and Scottsdale Fashion/Optima Driveway (5)
- Scottsdale Road and Highland Avenue (6)

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phoenix, az 85004
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www.lokahigroup.com

TRIP GENERATION

TRIP GENERATION - SCOTTSDALE FASHION SQUARE TI&MA, DATED MAY 9, 2017

In the Scottsdale Fashion Square TI&MA, dated May 9, 2017, the southeast corner of Goldwater Boulevard and Highland Avenue was assumed to be a 400 unit condominium. The trip generation was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 9th Edition*. The trip generation calculations also included internal trip capture due to the anticipated interaction between the proposed and existing uses. The total trips generated for the 400 unit condominium, including internal trip capture, is shown in **Table 1.**

Table 1 –Trip Generation – Previously Assumed for Parcel South of Highland Avenue

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Condominium/Townhouse/Apartment	230	400	Dwelling Units	2,149	156	27	129	126	84	41
TOTAL				**2,149**	**156**	27	129	**126**	84	41

TRIP GENERATION - CAESARS REPUBLIC

Since the May 9, 2017 TI&MA, the ITE *Trip Generation, 10th Edition* was released. Therefore, the trip generation for the proposed Caesars Republic development was calculated utilizing this 10th Edition.

The ITE rates and equations are based on studies that measured the trip generation characteristics for various types of land uses. The rates and equations are expressed in terms of trips per unit of land use type. This publication is considered to be the standard for the transportation engineering profession.

The proposed Caesars Republic development includes the following uses:

265 room Hotel	Land Use 310 - Hotel
2,000 square foot Restaurant	Land Use 931 - Quality Restaurant

As previously mentioned, additional amenities will be provided on site that are anticipated to be primarily utilized by the hotel guests. These uses include a 200 square foot coffee shop, a 6,800 square foot ballroom, 2,000 square foot meeting space, and a 5,000 square foot bar/lounge on the 7th floor.

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The total trip generation, including internal trip capture, for the proposed Caesars Republic development is shown in **Table 2** below. Detailed trip generation calculations are provided in **Attachment B.**

Table 2 –Trip Generation – Proposed Caesars Republic

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Hotel	310	265	Rooms	2,565	127	75	52	97	50	48
Quality Restaurant	931	3.2	1000 SF GLA	268	0	0	0	13	9	4
TOTAL				**2,833**	**127**	75	52	**110**	59	52

TRIP GENERATION COMPARISON

A comparison between the trips generated by the 400 unit condominium, per the May 9, 2017 SFS TI&MA, versus the proposed Caesars Republic development is shown in **Table 3**.

Table 3 – Trip Generation Comparison (SFS TI&MA 5/9/2017 vs. Caesars Republic)

	Weekday	AM Peak Hour			PM Peak Hour		
	Total	Total	In	Out	Total	In	Out
SFS TI&MA Dated May 9, 2017	2,149	156	27	129	126	84	41
Caesars Republic	2,833	127	75	52	110	59	52
Difference	**684**	**-29**	48	-77	**-15**	-26	11

Although the prior and proposed land uses are different, the weekday daily, and AM and PM peak hour trip generation are relatively similar.

TRIP DISTRIBUTION AND TRIP ASSIGNMENT

The trip distribution procedure determines the general pattern of travel for vehicles entering and leaving the proposed development. The trip distribution for the proposed Caesars Republic development was based on the existing traffic. See **Figure 1** for the proposed trip distribution. See **Figure 2** for proposed site traffic volumes for Caesars Republic. To keep consistent with the May 9, 2017 SFS TI&MA, the site volumes were also included for the buildout of the parcels to the west to Goldwater Boulevard, a 200 room hotel and a 240,000 square foot office. See **Figure 3** for the site traffic volumes for these additional developments.

Legend

AM (PM)	Inbound Trip Distribution Percentages
AM (PM)	Outbound Trip Distribution Percentages
X	Intersection

FIGURE 1 | TRIP DISTRIBUTION

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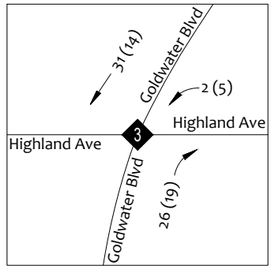
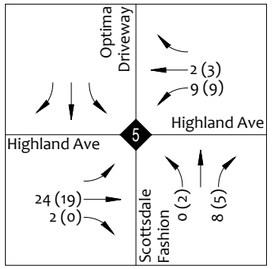
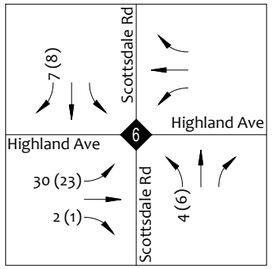
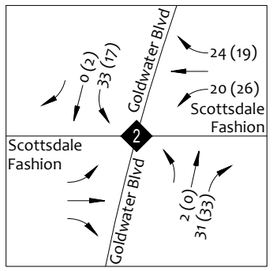
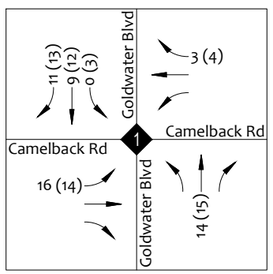
8/22/2019







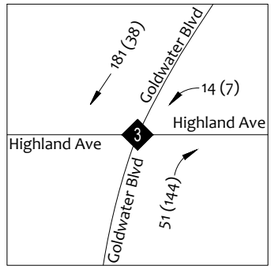


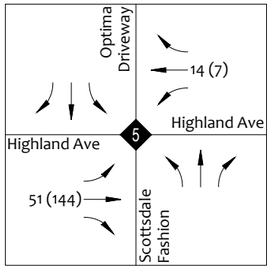


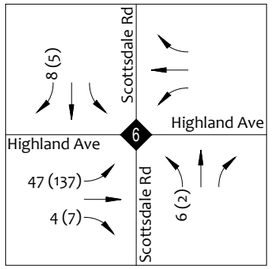
Legend

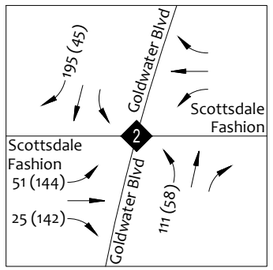
AM (PM)	Caesars Republic Site Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

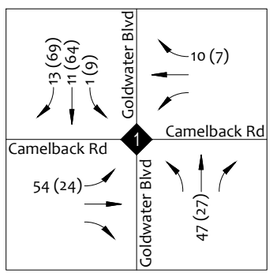
FIGURE 2 | SITE TRAFFIC VOLUMES











Legend

AM (PM)	Proposed Hotel/Office Site Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

FIGURE 3 | PROPOSED HOTEL/OFFICE SITE TRAFFIC VOLUMES

EXISTING CONDITIONS

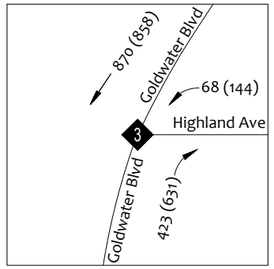
EXISTING TRAFFIC VOLUMES

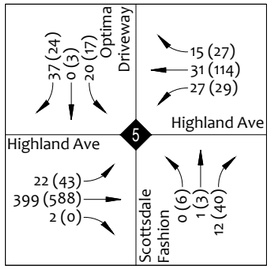
The existing traffic volumes collected on Tuesday, October 6, 2015, and Wednesday, February 15, 2017 as part of the May 9, 2017 SFS TI&MA is shown in **Figure 4**.

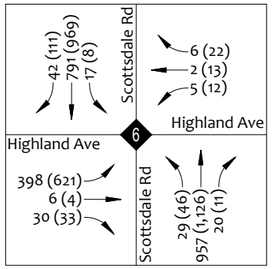
EXISTING CAPACITY ANALYSIS

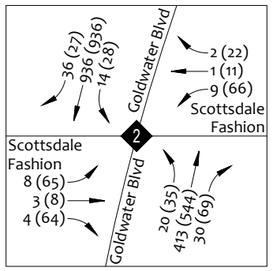
As reported in the May 9, 2017 SFS TI&MA, the existing capacity analysis was completed using the methodology presented in the *2010 Highway Capacity Manual*. The analysis was completed using the traffic software, Synchro Version 9.0. The signal timing was provided by the City of Scottsdale. See **Attachment C** for the existing signal timing as provided in the May 9, 2017 SFS TI&MA.

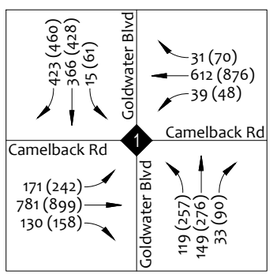
The existing capacity analysis as reported in the May 9, 2017 SFS TI&MA is shown in **Figure 5**. The detailed capacity analysis sheets as provided in the May 9, 2017 SFS TI&MA can be found in **Attachment D**.









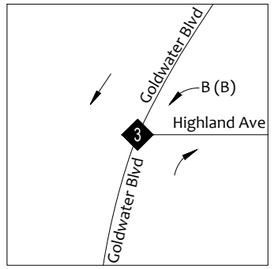


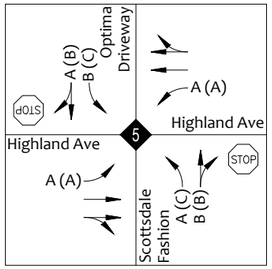
Legend

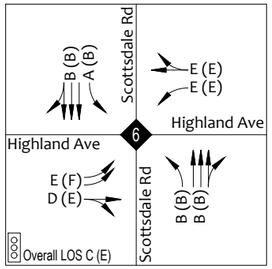
AM (PM)	Existing Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

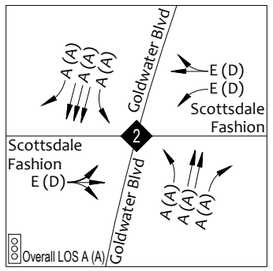
*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

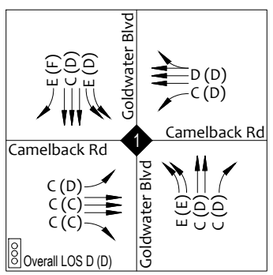
FIGURE 4 | EXISTING TRAFFIC VOLUMES











Legend

AM (PM)	Existing Peak Hour Level of Service
X	Intersection
	Lane Configuration

FIGURE 5 | EXISTING CAPACITY ANALYSIS

YEAR 2020 CONDITIONS

YEAR 2020 BACKGROUND TRAFFIC VOLUMES

The proposed Caesars Republic development is scheduled to be completed by the end of 2020, which corresponds to the 5 year analysis included in the May 9, 2017 SFS TI&MA. Therefore, shown in **Figure 6** are the 5 year background traffic volumes as shown in the May 9, 2017 SFS TI&MA, which corresponds to the year 2020 background traffic volumes for the proposed Caesars Republic.

YEAR 2020 NO BUILD CAPACITY ANALYSIS

The results of the 5 year background capacity analysis as shown in the May 9, 2017 SFS TI&MA, which corresponds to the year 2020 no build capacity analysis is shown in **Figure 7**. The detailed capacity analysis sheets as provided in the May 9, 2017 SFS TI&MA can be found in **Attachment E**.

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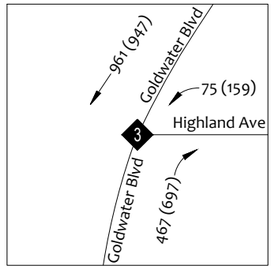
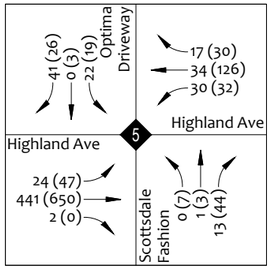
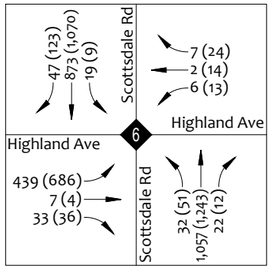
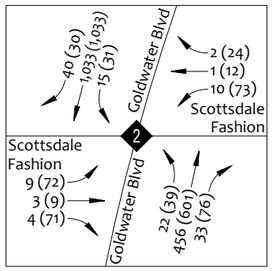
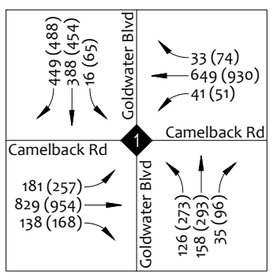








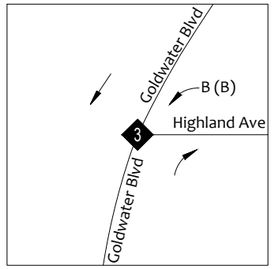


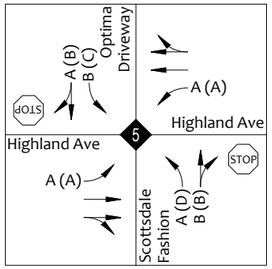
Legend

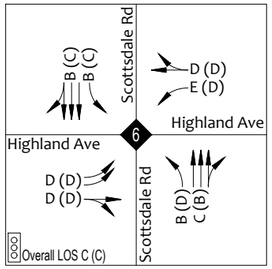
AM (PM)	Year 2020 No Build Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

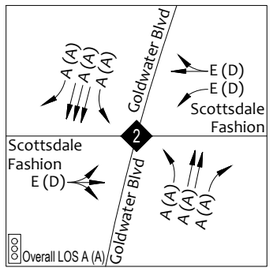
*Average Daily Traffic Volume from the City of Scottsdale 2014 Average Daily Segment Traffic Volumes map.

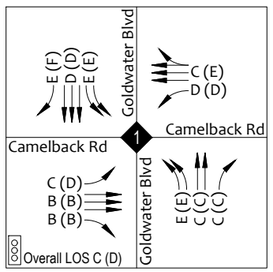
FIGURE 6 | YEAR 2020 NO BUILD TRAFFIC VOLUMES











Legend

AM (PM)	Year 2020 No Build Peak Hour Level of Service
X	Intersection
	Lane Configuration

FIGURE 7 | YEAR 2020 NO BUILD CAPACITY ANALYSIS

YEAR 2020 BUILD TRAFFIC VOLUMES

The year 2020 build traffic volumes include the proposed Caesars Republic site traffic volumes, shown in **Figure 2** and the additional development site traffic volumes shown in **Figure 3** are added to the year 2020 background traffic volumes shown in **Figure 6**. See **Figure 8** for the year 2020 build traffic volumes.

YEAR 2020 BUILD CAPACITY ANALYSIS

The year 2020 build capacity analysis was completed using the methodology presented in the *2010 Highway Capacity Manual*. The analysis was completed using the traffic software, Synchro Version 10.3. The signal timing splits were optimized to match future traffic volumes. The recently revised City of Scottsdale Design Standards and Policies Manual recommends using a PHF of 0.92, but in order to stay consistent with the previously completed report a PHF of 0.9 was assumed.

The following improvements and mitigation measures were included in the year 2020 build analysis:

Goldwater Boulevard and Camelback Road (1) – Signalized
An overlap phase was included for the southbound right turn movement.

Goldwater Boulevard and Fashion Square (2) – Signalized
The lane configuration for the eastbound approach at the intersection of Goldwater Boulevard and Fashion Square was modified to provide a dedicated left turn lane and a shared through-right turn lane. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications. Additionally, the signal cycle length was reduced to 60 seconds.

Scottsdale Road and Highland Avenue (6) – Signalized
Although the stipulation requires the build out of a third eastbound left turn lane, alternative geometrics and lane configurations were considered to determine whether an interim condition could provide adequate levels of service. For this intersection, modifying the eastbound approach to provide two dedicated left turn lanes, a shared left-through lane and a dedicated right turn lane.

The results of the year 2020 build capacity analysis are shown in **Figure 9**. The detailed capacity analysis sheets can be found in **Attachment F**.

With the build out of the proposed Caesars Republic, all movements operate at a LOS D or better, or are maintained at the year 2020 no build level of service, with the exception of the following locations:

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Highland Avenue and Scottsdale Fashion/Optima Driveway (5) – Stop Controlled

- NB left turn movement during the PM peak hour operates at LOS E. It is not uncommon for stop controlled driveways to experience greater delays during peak hours. Often drivers will opt to turn right or find alternative routes and accesses to avoid the left turn movements at stop controlled intersections during peak hours.

Scottsdale Road and Highland Avenue (6) – Signalized

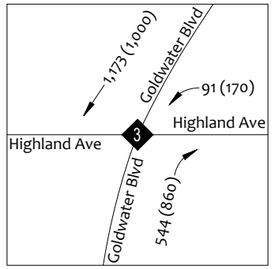
- WB shared through-right turn movement during the AM peak hour operates at LOS E (2 through and 7 right turning vehicles)

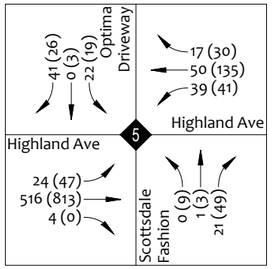
  With a 120 second cycle length, the delay experienced by these movements can be partially due to the cycle length. For a LOS E, the delay is between 55 and 80 seconds per vehicle. Should vehicles arrive just missing the green time for that movement, drivers would wait the remainder of the cycle before receiving the green light.

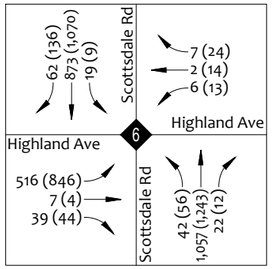
  With the anticipated traffic volumes for these movements, a maximum of 7 vehicles reported in the peak hour, it is anticipated that all vehicles will clear the intersection during a single cycle

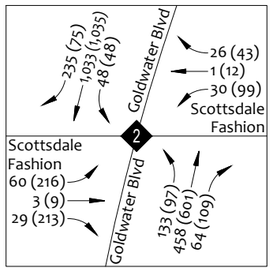
- EB shared left-through movement during the AM peak hour operates at LOS E (7 through vehicles)

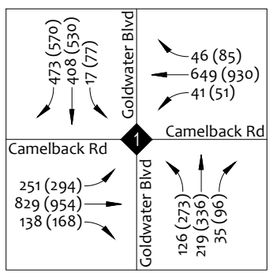
  The delay for this movement is also similar to the WB shared through-right turn detailed above.







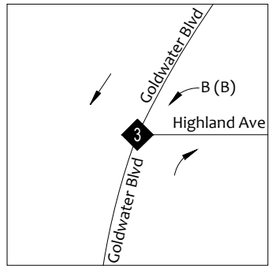


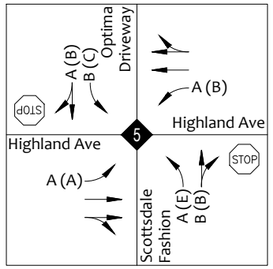


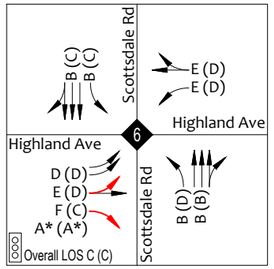
Legend

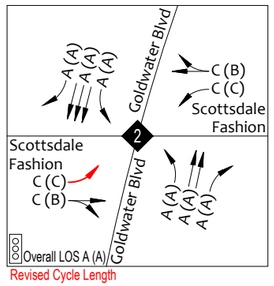
AM (PM)	Year 2020 Build Peak Hour Traffic Volumes
X	Intersection
<ADT>	Average Daily Traffic Volumes

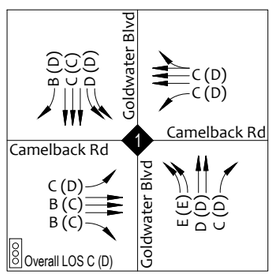
FIGURE 8 | YEAR 2020 BUILD TRAFFIC VOLUMES











Legend

AM (PM)	Year 2020 Build Peak Hour Level of Service (HCM Methodology)
AM* (PM*)	Year 2020 Build Peak Hour Level of Service (Synchro Methodology)
X	Intersection
	Lane Configuration

FIGURE 9 | YEAR 2020 BUILD CAPACITY ANALYSIS

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STIPULATIONS

As part of the Scottsdale Fashion Square Mall Zoning Application Case Number 25-ZN-2015 & 1-II-2016, stipulations were established including transportation related stipulations. See **Attachment G** for City of Scottsdale Ordinance No. 4299.

The proposed Caesars Republic development is located within "Parcel B" shown on Exhibit A to Exhibit 1 in the recorded stipulations. The following are the transportation stipulations related to the proposed Caesars Republic development:

- 12. TRAFFIC IMPACT STUDY. As determined by the Transportation Director, or designee, with a Development Review Board application for a new or expanded building, the property owner shall submit an updated traffic impact study to address the new development. The owner shall obtain approval of the study from the Transportation Director, or designee, prior to the Development Review Board hearing for the related new building, or building expansion. The owner shall be responsible for any infrastructure improvements identified by the updated traffic impact study(ies) that are the result of the traffic generated by new or expanded buildings on the site.

  This report fulfills this stipulation for the proposed Caesars Republic development.

- 13.a.1. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the east side of North Goldwater Boulevard, from the intersection of East Via Soleri Drive and North Goldwater Boulevard to the intersection of East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.3. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the south side of East Highland Avenue, from the intersection of East Highland Avenue and North Goldwater Boulevard to the intersection of East Highland Avenue and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.4. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the west side of North Scottsdale Road, from the intersection of East Highland Avenue and North Scottsdale Road to the intersection of East Fashion Square Drive and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A or B on Exhibit A to Exhibit 1.

  This sidewalk requirement appears to be triggered with the proposed Caesars Republic development.

- 13.a.8. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently construct all street and pedestrian improvements supported by the updated traffic impact study that corresponds with the new or expanded building, and approved by the Transportation Director, or designee.

  This report provides street improvement recommendations.

- 13.a.9. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently modify any existing traffic signals and equipment supported by the updated traffic impact study approved by the Transportation Director, or designee that to address the new development associated with the requested building permit.

  This report provides traffic signal improvement recommendations.

- 14.a. The property owner shall design and construct a third eastbound lane on Highland Avenue, beginning just east of Goldwater Boulevard and terminating as a third eastbound left-turn lane at Scottsdale Road, prior to any certification of occupancy for a combined total building area exceeding 75,000 square feet in new or expanded building south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard within the area identifies as Parcel B on Exhibit A to Exhibit 1.

  The proposed Caesars Republic development will be 246,913 square feet in new building and therefore appears to trigger the third eastbound lane on Highland Avenue.

  However, based on the year 2020 build analysis with the build out of the proposed Caesars Republic, acceptable levels of service can be provided with modifying the west

leg to accommodate dual left turn lanes, a shared left-through lane, and a dedicated right turn lane. This will improvement will require pavement marking, signing, and traffic signal modifications.

- 14.b. The property owner shall design and construct intersection modifications to provide separate eastbound left-turn lane and shared through-right-turn lane at the East Scottsdale Fashion Square and North Goldwater Boulevard intersection, prior to any certificate of occupancy for any new building south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard, within the area identified as Parcel B on Exhibit A to Exhibit 1.

  This lane configuration appears to be triggered with the proposed Caesars Republic development and is shown as part of the year 2020 build analysis. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications.

- 14.c. The property owner shall contract with a traffic engineering consultant to conduct a study of the East Highland Avenue and North Goldwater Boulevard intersection prior to any certificate of occupancy for any new or expanded building within the area identified as Parcel B on Exhibit A to Exhibit 1. The study shall recommend intersection improvements to improve the safety and convenience for the westbound left-turn movement, improve intersection sight distance, and reduce speeding on North Goldwater Boulevard. The study shall not include any options that consider a connection to the existing East Highland Avenue west of North Goldwater Boulevard. The property owner shall not be obligated for any costs and/or improvement associated with the study that exceed $50,000, and the final study shall be submitted to the City of Scottsdale for review and approval.

  A traffic study of the East Highland Avenue and North Goldwater Boulevard intersection appears to be triggered with the proposed Caesars Republic development.

- 14.d. If directed by the Transportation Director based upon future traffic analysis, the property owner shall design and construct an additional left-turn lane on East Camelback Road at the North Goldwater Boulevard signalized intersection. The timing of the improvements shall be based upon the need as determined by the traffic analysis tied to proposed new building or building expansion on the site. The property owner shall be responsible for all necessary street reconstruction, pavement marking modifications, and signal equipment modification to accomplish the addition of the eastbound left-turn lane.

The construction of an additional dedicated left turn lane does not appear to be necessary at this time. Based on the year 2020 build analysis with the build out of the proposed Caesars Republic, acceptable levels of service can be provided with modifying the west leg to accommodate dual left turn lanes, a shared left-through lane, and a dedicated right turn lane. This will improvement will require pavement marking, signing, and traffic signal modifications.

- 15.e. There shall be an east/west driveway maintained through the site from North Goldwater Boulevard to North Scottsdale Road in or near the area identified as Parcel B on Exhibit A to Exhibit 1. The alignment of such driveway shall be determined at the time of the applicable Development Review Board application.

  The proposed Caesars Republic development maintains the existing east/west driveway.

- 16.b. The developer shall design and construct a pedestrian hybrid beacon on Highland Avenue between Scottsdale Road and Goldwater Boulevard prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. Adequate stopping sight distance for drivers on Goldwater Boulevard/Highland Avenue must be provided with the design. This requirement shall not be in effect if a traffic signal is determined to be warranted and approved prior to the construction of the pedestrian hybrid beacon. If a traffic signal is determined to be warranted by the Transportation Director at this intersection in the future, the pedestrian hybrid beacon shall be replaced by the full traffic signal.

  This pedestrian hybrid beacon installation appears to be triggered with the proposed Caesars Republic development.

- 16.c. Prior to the certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall explore a grade separated pedestrian crossing between the building or parking structure and the existing Optima residential development on the north side of East Highland Avenue.

  The exploration of a grade separated pedestrian crossing appears to be triggered with the proposed Caesars Republic development.

- 17.b. The property owner shall design and construct transit stop improvements on North Scottsdale Road south of East Highland Avenue, prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The

design and location of the transit stop shall be approved by the Transportation Department Director or designee.

Transit stop improvements on North Scottsdale Road south of East Highland Avenue appears to be triggered with the proposed Caesars Republic development.

- 18.a. Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Highland Avenue street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

  Pedestrian lighting installation along East Highland Avenue appears to be triggered with the proposed Caesars Republic development.

SUMMARY

This report is an update to the originally recorded Traffic Impact and Mitigation Analysis for Scottsdale Fashion Square, dated May 9, 2017, which assumed a 400 unit condominium development on the southeast corner of Goldwater Boulevard and Highland Avenue. This report replaces the residential development with the proposed Caesars Republic development, which is a 265 room, 11 story hotel, with a 3,200 square foot restaurant. Additional amenities will be provided on site that are anticipated to be primarily utilized by the hotel guests, which include a 200 square foot coffee shop, 6,800 square foot ballroom, 2,000 square foot meeting space, and 5,000 square foot bar/lounge on the 7th floor.

	Weekday	AM Peak Hour			PM Peak Hour		
	Total	Total	In	Out	Total	In	Out
SFS TI&MA Dated May 9, 2017	2,149	156	27	129	126	84	41
Caesars Republic	2,833	127	75	52	110	59	52
Difference	**684**	**-29**	48	-77	**-15**	-26	11

Although the prior and proposed land uses are different, the weekday daily, and AM and PM peak hour trip generation is relatively similar.

The following improvements and mitigation measures were included in the year 2020 build analysis:

Goldwater Boulevard and Camelback Road (1) – Signalized
An overlap phase was included for the southbound right turn movement.

Goldwater Boulevard and Fashion Square (2) – Signalized
The lane configuration for the eastbound approach at the intersection of Goldwater Boulevard and Fashion Square was modified to provide a dedicated left turn lane and a shared through-right turn lane. There is more than adequate width to provide the separation of these movements with signing and pavement marking modifications. Additionally, the signal cycle length was reduced to 60 seconds.

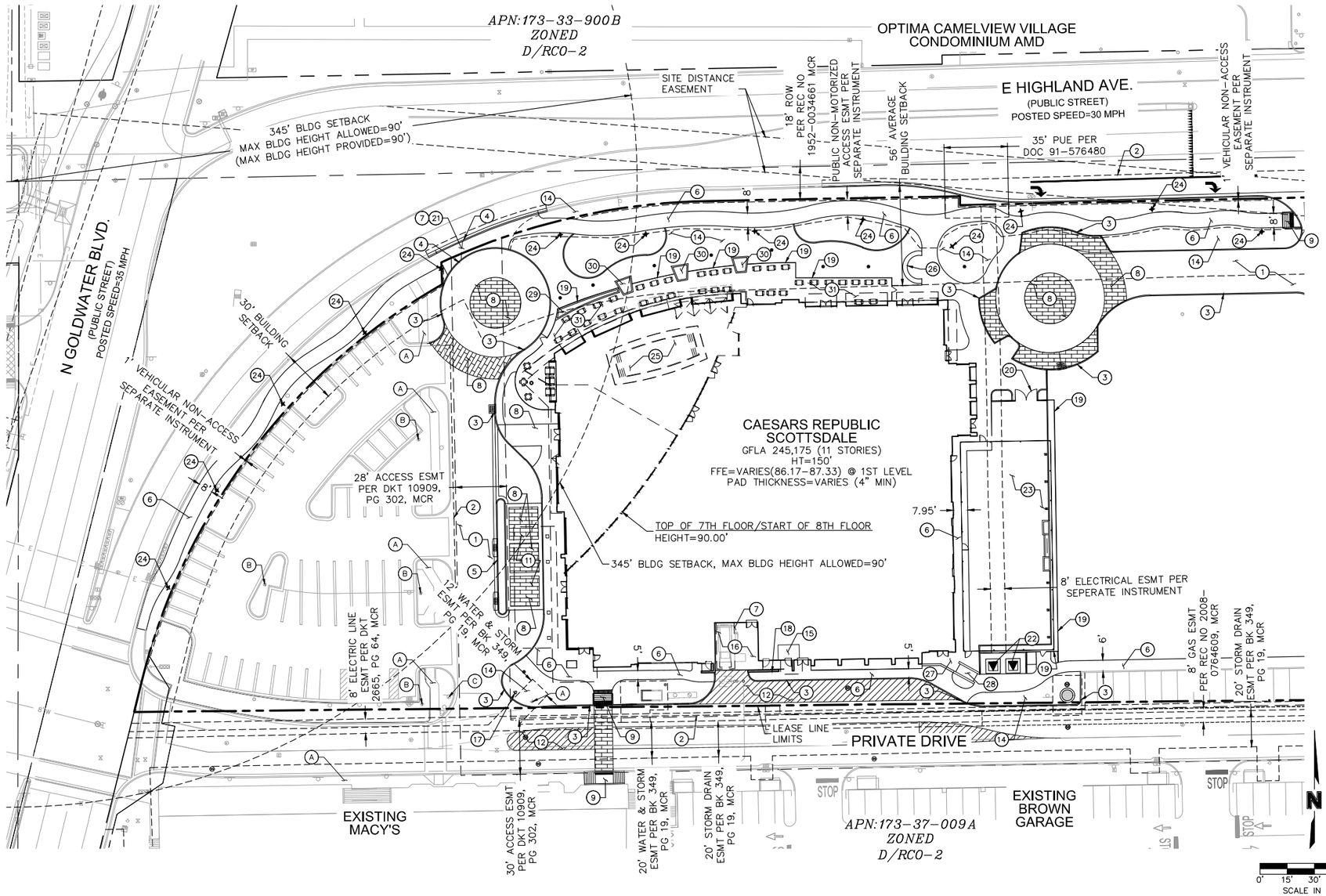
Scottsdale Road and Highland Avenue (6) – Signalized
Although the stipulation requires the build out of a third eastbound left turn lane, alternative geometrics and lane configurations were considered to determine whether an interim condition could provide adequate levels of service. For this intersection, modifying the eastbound approach to provide two dedicated left turn lanes, a shared left-through lane and a dedicated right turn lane.

These improvements are recommended with the build out of the proposed Caesars Republic development.

As part of the Scottsdale Fashion Square Mall Zoning Application Case Number 25-ZN-2015 & 1-II-2016, stipulations were established including transportation related stipulations. A number of these stipulations appear to be triggered with the proposed Caesars Republic developments, including but not limited to, sidewalk improvements, street improvements, pedestrian improvements, required traffic studies, installation of a pedestrian hybrid beacon, transit stop improvements, and pedestrian lighting installation.

ATTACHMENT A – CAESARS REPUBLIC SITE PLAN

PRELIMINARY SITE PLAN



SITE PLAN KEYNOTES

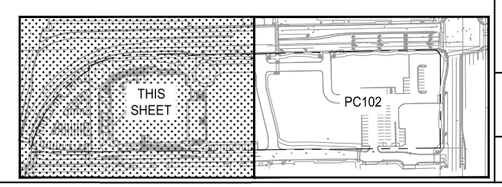
1. HEAVY DUTY ASPHALT PAVEMENT. SEE DETAIL A, SHEET C103
2. 2' MINIMUM SAWCUT. NEW ASPHALT PAVEMENT PER MAG STD DETAIL 200-1, TYPE "A"
3. 6" VERTICAL SINGLE CURB PER MAG STD DETAIL 222, TYPE "A"
4. 6" ROLL CURB AND GUTTER PER MAG STD DETAIL 220-1, TYPE "C"
5. 6" VERTICAL CURB AND GUTTER PER MAG STD DETAIL 220-1, TYPE "A"
6. 4" THICK CONCRETE SIDEWALK, WIDTH PER PLAN SEE DETAIL E, SHEET PC103
7. 6" THICK CONCRETE (REINFORCED). SEE DETAIL C, SHEET PC103
8. DECORATIVE PAVING. PER LANDSCAPE ARCHITECT PLANS
9. ACCESSIBLE ACCESS RAMP. SEE DETAIL D, SHEET PC103
10. DIRECTIONAL RAMP. PER MAG STD DETAIL 237-1.
11. 20' DROP OFF LANE
12. 4" WHITE STRIPING
13. BIKE RACK
14. LANDSCAPE AREA PER LANDSCAPE ARCHITECTS PLANS
15. FIRE RISER ROOM PER MECHANICAL PLANS
16. TRASH COMPACTOR AND STORAGE. PER ARCHITECTURAL PLANS
17. REMOTE FIRE DEPARTMENT CONNECTION (FDC)
18. GAS METER
19. 36" STAINLESS STEEL DECORATIVE RAILING. PER LANDSCAPE ARCHITECT PLANS
20. GATE PER ARCHITECTURAL PLANS
21. EMERGENCY ACCESS DRIVE
22. TRANSFORMER PAD
23. EVENT LAWN. PER LANDSCAPE ARCHITECT PLANS
24. SITE LIGHTING PER ELECTRICAL PLANS
25. 7TH FLOOR POOL
26. 30" TALL SEAT WALL. SEE DETAIL F, SHEET PC103
27. ADA ACCESS RAMP
28. SINGLE STAIR ACCESS
29. WATER FEATURE. PER LANDSCAPE ARCHITECT PLANS
30. RAISED PLANTER BOX PER LANDSCAPE ARCHITECT PLANS
31. OUTDOOR PATIO SEATING AREA

EXISTING KEYNOTES

- (A) *EXISTING SIDEWALK*
- (B) *EXISTING LIGHTING TO REMAIN*
- (C) *EXISTING SIGN TO REMAIN*
- (D) *EXISTING FIRE HYDRANT TO REMAIN*
- (E) *EXISTING TRANSFORMER TO BE RELOCATED*
- (D) *EXISTING GREASE TRAP*
- (D) *EXISTING CLEANOUT*

SITE PLAN NOTES:

1. SITE PLAN IS INTENDED TO BE USED FOR PLANNING PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION PURPOSES
2. REFERENCE SITE PLANS SHEET PC100 FOR OVERALL PROJECT SITE PLAN



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Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE4T (782-5348)
In Maricopa County: (602) 263-1100

REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

DESIGN REVIEW BOARD
PRELIMINARY SITE PLAN

CAESARS REPUBLIC SCOTTSDALE

SCOTTSDALE, AZ 85251

2019

drawn by:	SS/THW
designed by:	SJV
checked by:	CAII
project no.:	018-3159
date:	05.09.2019

30-DR-2019
8/22/2019

DWG: F:\2018\3001-3500\018-3159\40-Design\AutoCAD\Preliminary Plans\Sheets\GNCV2-PC101 SITE PLAN_83159.dwg USER: thutchinswoss
DATE: May 09, 2019 9:33am XREFS: C_PTBLK_0183159 C_PRE_PBASE_0183159 C_XBASE_0183159 C_XBASE_OVERALL IMPROVEMENTS AMY_SCHWENNER_LA_AZ E_PLTG_0183159

ATTACHMENT B – TRIP GENERATION

Scottsdale Fashion Square
HCW, LLC

Completed: SS 8/13/219
Checked: GT 8/13/219

Trip Generation Calculations - Ceasars Republic

310 Hotel

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Hotel	310	265	Rooms	8.36	50%	50%	0.47	59%	41%	0.6	51%	49%	2,215	1108	1107	125	74	51	159	81	78	Average
Hotel	310	265	Rooms	5.31	50%	50%	0.20	59%	41%	0.26	51%	49%	1,407	704	703	53	31	22	69	35	34	Minimum
Hotel	310	265	Rooms	9.53	50%	50%	0.84	59%	41%	1.06	51%	49%	2,525	1263	1262	223	132	91	281	143	138	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Hotel	**310**	**265**	**Rooms**	**T=11.29(X)-426.97**	**50%**	**50%**	**T=0.50(X)-5.34**	**59%**	**41%**	**T=0.75(X)-26.02**	**51%**	**49%**	**2,565**	**1,283**	**1,282**	**127**	**75**	**52**	**173**	**88**	**85**	**Equation**

Hotel	Standard Deviation	1.86		0.14		0.22			
	Number of Studies	6		25		28			
	Average Size	146		178		183			
	R^2	0.92		0.85		0.80			

931 Quality Restaurant

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Quality Restaurant	**931**	**3.2**	**1000 SF GLA**	**83.84**	**50%**	**50%**	**0.73**	**N/A**	**N/A**	**7.80**	**67%**	**33%**	**268**	**134**	**134**	**0**	**0**	**0**	**25**	**17**	**8**	**Average**
Quality Restaurant	931	3.2	1000 SF GLA	33.45	50%	50%	0.25	N/A	N/A	2.62	67%	33%	107	54	53	0	0	0	8	5	3	Minimum
Quality Restaurant	931	3.2	1000 SF GLA	139.93	50%	50%	1.60	N/A	N/A	18.68	67%	33%	448	224	224	0	0	0	60	40	20	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Equation	% In	% Out	Equation	% In	% Out	Equation	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Quality Restaurant	931	3.2	1000 SF GLA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Equation

Quality Restaurant	Standard Deviation	40.01		0.42		4.49			
	Number of Studies	10		7		19			
	Average Size	9		10		9			
	R^2	N/A		N/A		N/A			

New Trip Gen	**2833**	**1417**	**1416**	**127**	**75**	**52**	**198**	**105**	**93**

30-DR-2019
8/22/2019

Scottsdale Fashion Square
HCW, LLC

Completed: SAS 8/13/219
Checked: GT 8/13/219

Trip Generation Calculations - Ceasars Republic

										After Internal Capture									After Internal Capture				After Pass-By		
			BEFORE REDUCTION AM PEAK HR ADJ STREET			Internal Capture Calcs				AM REDUCED			BEFORE REDUCTION PM PEAK HR ADJ STREET			Internal Capture Calcs				PM REDUCED			PASS-BY	PM REDUCED		
LAND USE	SF	DU	ENTER	EXIT	TOTAL	Origin FROM	Destin TO	TOTAL	Rate %	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	Origin FROM	Destin TO	TOTAL	Rate %	ENTER	EXIT	TOTAL	Rate %	ENTER	EXIT	TOTAL
Hotel		200	63	43	106	62	-	0	0%	63	43	106	61	59	120	52	448	52	44%	34	33	68	0%	34	33	68
General Office Building	240,000		262	36	298	241	19	19	6%	245	34	279	49	241	290	13	809	13	4%	47	230	278	0%	47	230	278
CAESARS REPUBLIC (HOTEL)		265	75	52	127	74	0	0	0%	75	52	127	88	85	173	76	448	76	44%	50	48	97	0%	50	48	97
CAESARS REPUBLIC (RESTUARANT)	3,200		-	-	-	0	240	0	0%	-	-	-	17	8	25	12	779	12	47%	9	4	14	0%	9	4	14
General Office Building	600,000		655	90	745	603	19	19	3%	638	87	726	123	603	726	32	858	32	4%	118	576	694	0%	118	576	694
Shopping Center	30,000		5	3	9				0%	5	3	9	21	23	43				0%	21	23	43	34%	14	15	29
Shopping Center	60,000		11	6	17				0%	11	6	17	41	45	86				0%	41	45	86	34%	27	30	57
Shopping Center	200,000		35	22	57				0%	35	22	57	138	150	288				0%	138	150	288	34%	91	99	190
General Office Building	30,000		33	4	37	30	19	19	52%	16	2	18	6	30	36	2	858	2	4%	6	29	35	0%	6	29	35
Existing Shopping Center	2,086,445		617	378	995				0%				2,202	2,385	4,587				0%				34%	1,453	1,574	3,027
TOTAL			1,139	256	1,395					1,088	249	1,338	545	1,244	1,789					464	1,138	1,603		396	1,064	1,461
										96%												90%			82%

For Trip Origins, Table 6.1 ITE Trip Generation Handbook, 3rd Edition			
Land Use Pairs		AM	PM
From Office	To Restaurant	63%	4%
	To Retail	28%	20%
	To Residential	1%	2%
	To Hotel	0%	0%
From Residential	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Hotel	0%	3%
From Hotel	To Office	75%	0%
	To Retail	14%	16%
	To Residential	0%	2%
	To Restaurant	9%	68%
From Restaurant	To Office	31%	3%
	To Retail	14%	41%
	To Residential	4%	18%
	To Hotel	3%	7%

For Trip Origins, Table 6.2 ITE Trip Generation Handbook, 3rd Edition			
Land Use Pairs		AM	PM
To Office	From Restaurant	14%	30%
	From Retail	4%	31%
	From Residential	3%	57%
	From Hotel	3%	0%
To Residential	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Hotel	0%	0%
To Hotel	From Office	0%	0%
	From Retail	0%	17%
	From Residential	0%	12%
	From Restaurant	4%	71%
To Restaurant	From Office	23%	2%
	From Retail	50%	29%
	From Residential	20%	14%
	From Hotel	6%	5%

Scottsdale Fashion Square
Macerich

Completed: SAS 8/13/219
Checked: GT 8/13/219

Trip Generation Calculations - Ceasars Republic

South of Highland - From FINAL Scottsdale Fashion Report May 9, 2017 (ITE Trip Generation, 9th Edition)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	**Total**	In	Out	**Total**	In	Out	**Total**	In	Out
Condominium/Townhouse/Apartment	230	400	Dwelling Units	Ln(T)=0.87Ln(X)+2.46	50%	50%	Ln(T)=0.80Ln(X)+0.26	17%	83%	Ln(T)=0.82Ln(X)+0.32	67%	33%	2,149	1,075	1,074	156	27	129	126	84	41
												Trip Gen	**2,149**	1,075	1,074	**156**	27	129	**126**	84	41

South of Highland - HCW Proposal November 5, 2018 (ITE Trip Generation, 10th Edition)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour		
				Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	Equation/Rate	% In	% Out	**Total**	In	Out	**Total**	In	Out	**Total**	In	Out
Hotel	310	265	Rooms	T=11.29(X)-426.97	50%	50%	T=0.50(X)-5.34	59%	41%	T=0.75(X)-26.02	51%	49%	2,565	1,283	1,282	127	75	52	97	50	48
Quality Restaurant	931	3.2	1000 SF GLA	83.84	50%	50%	0.73	N/A	N/A	7.80	67%	33%	268	134	134	0	0	0	13	9	4
												New Trip Gen	**2,833**	1,417	1,416	**127**	75	52	**110**	59	52

ATTACHMENT C – 5/9/17 SFS TI&MA EXISTING SIGNAL TIMING

68th ST. & CAMELBACK

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN STANDARD
F.D.W.	23	17	
YELLOW	4.2	4.2	3.0
ALL-RED	2.8	1.8	1.0

DATE DESIGNED: 3/10/2010

SYSTEM #: 56

SECTION #: 101

COMMUNICATIONS MM-1-5-1

I.P. ADDRESS: 172.17. 10.56

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

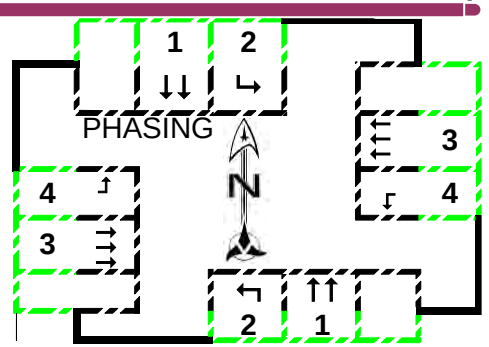
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4
MOVEMENT	NST	NSL	EWT	EWL
NOTES				
MIN GRN	8	4	10	4
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		33	
WALK2				
WLK MAX				
PED CLR/FDW	23		17	
PD CLR2				
PC MAX				
PED CO				
VEH EXT	2	1	1	1
VH EXT2				
MAX 1	30	25	70	25
MAX 2	60	50	90	50
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.2	3	4.2	3
RED CLR	2.8	1	1.8	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
-7	-4	-6	-4	0	0	0	0
-7	-4	-6	-4	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
8/22/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

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

MOVEMENTS: NST NSL EWT EWL

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 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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

0

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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

0

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 RECALLS (V, P, Mx)									ACTUAL CYCLE
GREEN	-7	-4	-6	-4	0	0	0	0	RING 1
									RING 2

0

30-DR-2019

8/22/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MID-DAY SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

	R1	1 ↕	2 ↰↳	3 ↔	4 ↴↱
	R2				

MOVEMENTS NST NSL EWT EWL

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 MID-DAY TIME-SPACE DIAGRAMS

PLAN # 4

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0900-1530 1830-2100

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

TARGET; ACTUAL CYCLE; RING 1; RING 2

PLAN # 5

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES as needed

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

TARGET; ACTUAL CYCLE; RING 1; RING 2

PLAN # 6

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES as needed

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

TARGET; ACTUAL CYCLE; RING 1; RING 2

30-DR-2019

8/22/2019

68th ST. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	23	0	17	0	0	0	0	0
YELLOW	4.2	3.0	4.2	3.0	0.0	0.0	0.0	0.0
ALL RED	2.8	1.0	1.8	1.0	0.0	0.0	0.0	0.0

SYSTEM # 56

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 EWL

	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 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								
COORD RECALLS (V, P, Mx) GREEN	-7	-4	-6	-4	0	0	0	0

TARGET

ACTUAL CYCLE 0

RING 1

RING 2

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

TARGET

ACTUAL CYCLE 0

RING 1

RING 2

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

TARGET 120

ACTUAL CYCLE 0

RING 1

RING 2

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

30-DR-2019

8/22/2019

GOLDWATER & CAMELBACK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	22	23	STANDARD	11/27/2012
YELLOW	3.6	3.6	3.0	SYSTEM # 57 / SECTION # 101
ALL-RED	2.4	2.4	1.0	

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.57

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
MOVEMENT	NBT	SBL	EWT	EWL	SBT	NBL
NOTES		PROT		perm/PROT		PROT
MIN GRN	10	4	10	4	10	4
BK MGRN						
CS MGRN						
DLY GRN						
WALK	8		7		8	
WALK2						
WLK MAX						
PED CLR/FDW	22		23		22	
PD CLR2						
PC MAX						
PED CO						
VEH EXT	2	1		1	3	1
VH EXT2						
MAX 1	50	15	45	15	50	15
MAX 2	60	50	60	45	60	50
MAX 3						
DYM MAX						
DYM STP						
YELLOW	3.6	3	3.6	3	3.6	3
RED CLR	2.4	1	2.4	1	2.4	1
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			
MAX RECALL						
SOFT RECALL						
NO REST						
ADD INIT CAL						

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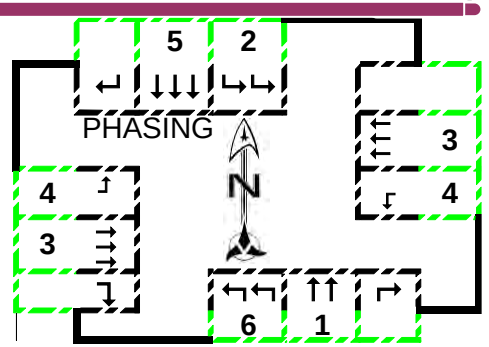


1	2	3	4	5	6	7	8
46	15	43	15	46	15	49	19
56	45	57	42	56	45	63	46

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

GOLDWATER & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	22	0	23	0	22	0	0	0
YELLOW	3.6	3.0	3.6	3.0	3.6	3.0	0.0	0.0
ALL RED	2.4	1.0	2.4	1.0	2.4	1.0	0.0	0.0

SYSTEM # 57

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 ↰			

MOVEMENTS: NBT SBL EWT EWL SBT NBL

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

N/S

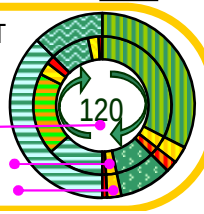
MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PLAN # 1

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	15	45	15	45	15	45	15	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	39	11	39	11	39	11	45	15	RING 1
									RING 2



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

PLAN # 2

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	52	18	38	12	52	18	38	12	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	46	14	32	8	46	14	38	12	RING 1
									RING 2

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

PLAN # 3

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	41	14	46	19	41	14	46	19	120
COORD			X				X		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	35	10	40	15	35	10	46	19	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	10	1
2	SB	10	2
3	NS	10	3
4	EB	104	4
5	WB	104	5
6	EW	104	6

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

30-DR-2019
8/22/2019

GOLDWATER & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	22	0	23	0	22	0	0	0
YELLOW	3.6	3.0	3.6	3.0	3.6	3.0	0.0	0.0
ALL RED	2.4	1.0	2.4	1.0	2.4	1.0	0.0	0.0

SYSTEM # 57

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

R1	1 ↑	2 ↪	3 ↔	4 ↴↓		
R2	5 ↓	6 ↩				
MOVEMENTS	NBT	SBL	EWT	EWL	SBT	NBL

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	107	1
2	SB	107	2
3	NS	107	3
4	EB	107	4
5	WB	107	5
6	EW	107	6

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 1530-1830

RING 1 / RING 2

PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	19	41	15	45	19	41	15	120
COORD			x				x		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	39	15	35	11	39	15	41	15	RING 1 / RING 2

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

PLAN # 8

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

RING 1 / RING 2

PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	52	16	40	12	52	16	40	12	120
COORD			x				x		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	46	12	34	8	46	12	40	12	RING 1 / RING 2

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

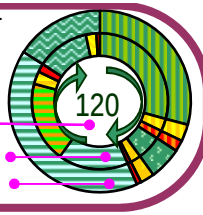
PLAN # 9

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

RING 1 / RING 2

PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	41	11	49	19	41	11	49	19	120
COORD			x				x		ACTUAL CYCLE
RECALLS (V, P, Mx)			P				P		
GREEN	35	7	43	15	35	7	49	19	RING 1 / RING 2



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

30-DR-2019

8/22/2019

GOLDWATER & FASHION SQUARE ACCESS

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	13	19	STANDARD	
YELLOW	4.1	2.9	3.0	SYSTEM # 137
ALL-RED	1.9	3.1	1.0	SECTION # 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 11.37

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

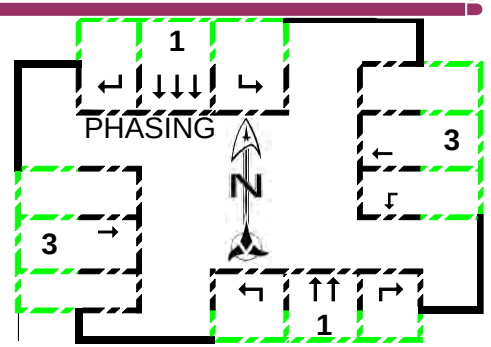
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	6
BK MGRN		
CS MGRN		
DLY GRN		
WALK	17	6
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	105	35
MAX 2	110	55
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.1	3
RED CLR	1.9	3
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
101	0		35	0	0	0	0	0
102	0		55	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

30-DR-2019
8/22/2019

GOLDWATER & FASHION SQUARE ACCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 137

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 11/27/2006

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	88	0	32	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 1 1; 1 2; 1 3

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

PLAN # 2

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	107	0	13	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	101	0	7	0	0	0	0	0	RING 1
									RING 2

120

AVAILABLE COORDINATOR PATTERN #s: 2 1; 2 2; 2 3

PLAN # 3

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	94	0	26	0	0	0	0	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

AVAILABLE COORDINATOR PATTERN #s: 3 1; 3 2; 3 3

GOLDWATER & FASHION SQUARE ACCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 137

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

R1 1 ↕ 3 ↔

R2

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	94	0	26	0	0	0	0	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

7 1

DIR CODE 1 | COORD DIR NB | B.O.G. OFFSET 110

PLAN # 8

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

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

120

8 1

SB | NS | EB | WB | EW

PLAN # 9

DATE EFFECTIVE 11/27/2006

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84	0	36	0	0	0	0	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

GOLDWATER & SOLARI

BASIC TIMING PLANS

RECOMMENDED CLEARANCES	N/S	E/W	LEFT TURN
F.D.W.	13	18	STANDARD
YELLOW	4.1	3	3.0
ALL-RED	1.9	3	1.0

DATE DESIGNED: 11/28/2012

SYSTEM #: 219 SECTION #: 101

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 12.19

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

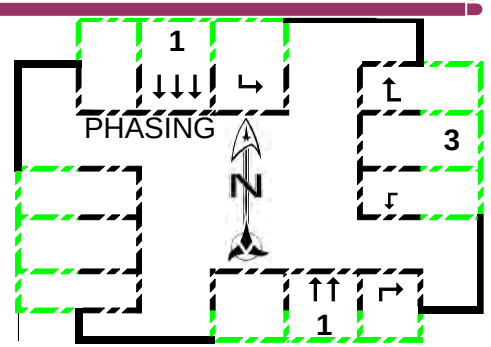
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	10	5
BK MGRN		
CS MGRN		
DLY GRN		
WALK	17	7
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	105	30
MAX 2	110	50
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.1	3
RED CLR	1.9	3
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
101	0		26	0	0	0	0	0
103	0		49	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

GOLDWATER & SOLARI

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 219

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

1 1
1 2
1 3
2 1
2 2
2 3
3 1
3 2
3 3

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88	0	32	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	107	0	13	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	101	0	7	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	100	0	20	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	94	0	14	0	0	0	0	0	RING 1
									RING 2

120

30-DR-2019

8/22/2019

GOLDWATER & SOLARI

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0
ALL RED	1.9	0.0	3.0	0.0	0.0	0.0	0.0	0.0

SYSTEM # 219

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

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 5/14/2008

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	47	0	13	0	0	0	0	0	60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	41	0	7	0	0	0	0	0	RING 1
									RING 2

60

7 1

PLAN # 8

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	105	0	15	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	99	0	9	0	0	0	0	0	RING 1
									RING 2

120

8 1

PLAN # 9

DATE EFFECTIVE 5/14/2008

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	95	0	25	0	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	89	0	19	0	0	0	0	0	RING 1
									RING 2

120

9 1

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	55	1
	SB		2
	NS		3
	EB		4
	WB		5
	EW		6

30-DR-2019

8/22/2019

SCOTTSDALE RD. & CAMELBACK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN STANDARD	DATE DESIGNED	
F.D.W.	17	25		3/31/2010	
YELLOW	4.4	4.1	3.0	SYSTEM #	SECTION #
ALL-RED	2.6	2.9	1.0	59	517

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 10.59

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

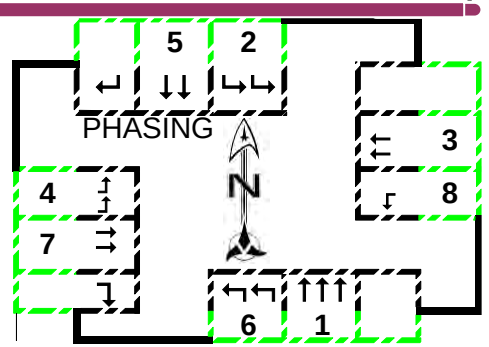
VOL DENSITY

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	5	10	5	15	5	20	5
BK MGRN								
CS MGRN								
DLY GRN								
WALK	8		7		8		7	
WALK2								
WLK MAX								
PED CLR/FDW	17		25		17		25	
PD CLR2								
PC MAX								
PED CO								
VEH EXT	0	2	3	2	0	2	3	2
VH EXT2								
MAX 1	50	20	45	20	50	20	40	20
MAX 2	55	35	50	40	55	35	45	40
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.2	3	3.8	3	4.2	3	3.8	3
RED CLR	2.8	1	3.2	1	2.8	1	3.2	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								
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
47	18	41	20	47	18	39	20
51	35	46	40	51	35	41	40

SPLIT PLAN MAXIMUMS

NOTES

1/19/11 - Sensys installed, veh ext increased.

ONLY VALID WHEN STAMPED

SCOTTSDALE RD. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	25	0	17	0	25	0
YELLOW	4.2	3.0	3.8	3.0	4.2	3.0	3.8	3.0
ALL RED	2.8	1.0	3.2	1.0	2.8	1.0	3.2	1.0

SYSTEM # 59

SECTION # 517

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

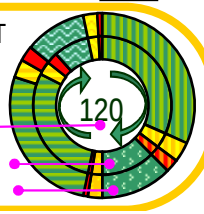
MOVEMENTS: NBT | SBL | WBT | EBL | SBT | NBL | EBT | WBL

PLAN # 1

DATE EFFECTIVE 3/26/2007

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	45	19	42	14	45	19	39	17	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	38	15	35	10	38	15	32	13	RING 1
									RING 2



PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

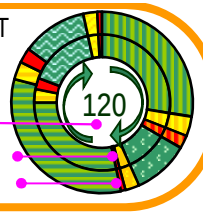
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	50	21	35	14	50	21	31	18	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	43	17	28	10	43	17	24	14	RING 1
									RING 2

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	16	41	23	40	16	46	18	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	33	12	34	19	33	12	39	14	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	50	1
2	SB	50	2
3	NS	50	3
4	EB	49	4
5	WB	49	5
6	EW	49	6

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

30-DR-2019

8/22/2019

SCOTTSDALE RD. & CAMELBACK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	25	0	17	0	25	0
YELLOW	4.2	3.0	3.8	3.0	4.2	3.0	3.8	3.0
ALL RED	2.8	1.0	3.2	1.0	2.8	1.0	3.2	1.0

SYSTEM # 59

SECTION # 517

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	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

MOVEMENTS	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

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	49
2	SB	49
3	NS	49
4	EB	49
5	WB	49
6	EW	49

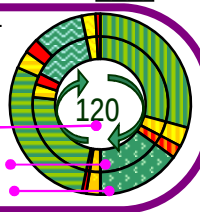
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 3/26/2007

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	42	22	35	21	42	22	41	15	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	35	18	28	17	35	18	34	11	RING 1 / RING 2



PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

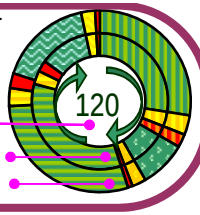
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	54	19	33	14	54	19	33	14	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	47	15	26	10	47	15	26	10	RING 1 / RING 2

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	14	48	18	40	14	42	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	33	10	41	14	33	10	35	20	RING 1 / RING 2



30-DR-2019

8/22/2019

SCOTTSDALE & DRINKWATER

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	20	19	STANDARD	5/10/2013
YELLOW	3.7	3.8	3.0	SYSTEM # 142 / SECTION # 101
ALL-RED	2.3	3.2	1.0	

COMMUNICATIONS MM-1-5-1 I.P. ADDRESS 172.17. 11.42

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

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

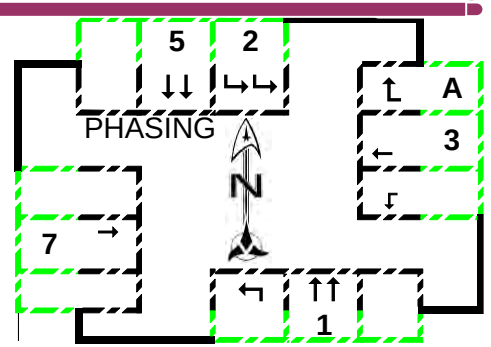
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	2	3	5	7
MOVEMENT	NBT	SBL	WBT	SBT	EBT
NOTES		Ld Prm			
MIN GRN	20	d Prm	12	20	8
BK MGRN					
CS MGRN					
DLY GRN					
WALK	7		6	7	6
WALK2					
WLK MAX					
PED CLR/FDW	19		19	19	19
PD CLR2					
PC MAX					
PED CO					
VEH EXT	1	3	3	1	1
VH EXT2					
MAX 1	45	30	50	80	50
MAX 2	50	40	55	85	55
MAX 3					
DYM MAX					
DYM STP					
YELLOW	3.6	3	4.7	3.6	4.7
RED CLR	2.4	1	2.3	2.4	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		
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
43	30	47	0	77	0	47	0
48	40	40	0	77	0	44	0

SPLIT PLAN MAXIMUMS

NOTES

OL-A active during phs 2 + 3 unless ph 3 ped active.

ONLY VALID WHEN STAMPED

SCOTTSDALE & DRINKWATER

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	19	0	19	0	19	0
YELLOW	3.6	3.0	4.7	0.0	3.6	0.0	4.7	0.0
ALL RED	2.4	1.0	2.3	0.0	2.4	0.0	2.3	0.0

SYSTEM # 142

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 # 2
ACTION PLAN #

SEQUENCE

R1: 2 ↳ | 1 ↑ | 3 ←
R2: 5 ↓ | | 7 →

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

N/S

MOVEMENTS: NBT SBL WBT SBT EBT

PLAN # 1

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	39	34	47	0	73		47	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P	M			P				
GREEN	33	30	40	0	67	0	40	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	49	34	37	0	83		37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	43	30	30	0	77	0	30	0	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 7/25/2001

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	40	34	46	0	74		46	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	34	30	39	0	68	0	39	0	RING 1
									RING 2

120

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

1 1
1 2
1 3
2 1
2 2
2 3
3 1
3 2
3 3

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	45
2	SB	45
3	NS	45
4	EB	
5	WB	
6	EW	

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

30-DR-2019
8/22/2019

SCOTTSDALE & DRINKWATER

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	19	0	19	0	19	0	19	0
YELLOW	3.6	3.0	4.7	0.0	3.6	0.0	4.7	0.0
ALL RED	2.4	1.0	2.3	0.0	2.4	0.0	2.3	0.0

SYSTEM # 142

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 ↓		7 →	

MOVEMENTS NBT SBL WBT SBT EBT

E/W N/S

WALK & GREEN

FDW & GREEN

GREEN w/o WALK

LEFT

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

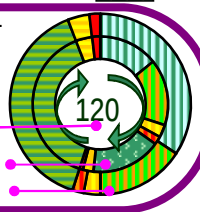
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	42	24	54	0	66		54	0	120
COORD	x				x				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	36	20	47	0	60	0	47	0	RING 1 / RING 2



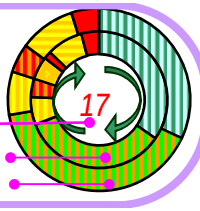
7 1 | 7 2 | 7 3

PLAN # 8

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES

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



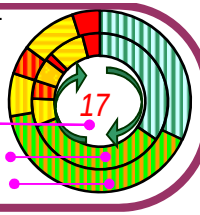
8 1 | 8 2 | 8 3

PLAN # 9

DATE EFFECTIVE 11/1/2006

OPERATIVE TIMES

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



9 1 | 9 2 | 9 3

DIR CODE	COORD DIR	B.O.G. OFFSET	
1	NB	98	1
2	SB	98	2
3	NS	98	3
	EB		4
	WB		5
	EW		6

30-DR-2019

8/22/2019

SCOTTSDALE & FASHION SQUARE

BASIC TIMING PLANS

RECOMMENDED CLEARANCES	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	9	20	STANDARD	8/18/2010
YELLOW	4.6	2.9	3.0	SYSTEM # 63 / SECTION # 101
ALL-RED	1.4	3.1	1.0	

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 10.63

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

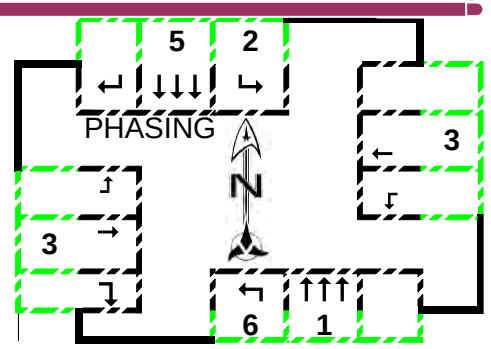
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3		5	6
MOVEMENT	NBT	SBL	EWT		SBT	NBL
NOTES		LD PRM				LD PRM
MIN GRN	10	4	6		10	4
BK MGRN						
CS MGRN						
DLY GRN						
WALK	20		6		20	
WALK2						
WLK MAX						
PED CLR/FDW	10		20		10	
PD CLR2						
PC MAX						
PED CO						
VEH EXT		1	1.5			1
VH EXT2						
MAX 1	65	15	15		65	15
MAX 2	75	30	30		75	30
MAX 3						
DYM MAX						
DYM STP						
YELLOW	4.5	3	3.1		4.5	3
RED CLR	1.5	1	3.9		1.5	1
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
64	16	26	26	64	16	33	26
75	30	30	34	75	30	37	34

SPLIT PLAN MAXIMUMS

NOTES

USE
SEQUENCE 16
AT ALL TIMES

ONLY VALID WHEN STAMPED

30-DR-2019
8/22/2019

SCOTTSDALE & FASHION SQUARE

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	20	0	10	0	0	0
YELLOW	4.5	3.0	3.1	0.0	4.5	3.0	0.0	0.0
ALL RED	1.5	1.0	3.9	0.0	1.5	1.0	0.0	0.0

SYSTEM # 63

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 # 16

ACTION PLAN #

SEQUENCE

R1: 2 → 1 ↑ 3 ↔

R2: 6 ← 5 ↓

MOVEMENTS: NBT SBL EWT SBT NBL

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	38
2	SB	38
3	NS	38
4	EB	35
5	WB	35
6	EW	35

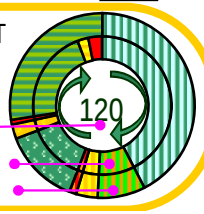
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	67	20	33		67	20	33		120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	61	16	26	0	61	16	33	0	RING 1
									RING 2

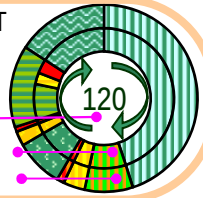


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	70	14	17	19	70	14	17	19	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	64	10	10	19	64	10	17	19	RING 1
									RING 2

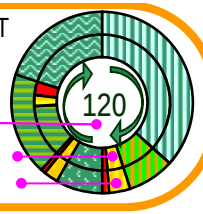


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	60	14	22	24	60	14	22	24	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	54	10	15	24	54	10	22	24	RING 1
									RING 2



30-DR-2019

8/22/2019

SCOTTSDALE & FASHION SQUARE

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	10	0	20	0	10	0	0	0
YELLOW	4.5	3.0	3.1	0.0	4.5	3.0	0.0	0.0
ALL RED	1.5	1.0	3.9	0.0	1.5	1.0	0.0	0.0

SYSTEM # 63

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 16

ACTION PLAN

SEQUENCE

R1: 2 → 1 ↑ 3 ↔

R2: 6 ← 5 ↓

MOVEMENTS NBT SBL EWT SBT NBL

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	35
2	SB	35
3	NS	35
4	EB	35
5	WB	35
6	EW	35

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	64	14	20	22	64	14	20	22
COORD	x				x			
RECALLS (V, P, Mx)	P				P			
GREEN	58	10	13	22	58	10	20	22

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

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	70	14	17	19	70	14	17	19
COORD	x				x			
RECALLS (V, P, Mx)	P				P			
GREEN	64	10	10	19	64	10	17	19

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

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	60	14	22	24	60	14	22	24
COORD	x				x			
RECALLS (V, P, Mx)	P				P			
GREEN	54	10	15	24	54	10	22	24

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

30-DR-2019

8/22/2019

SCOTTSDALE & HIGHLAND

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	16	19	STANDARD	11/4/2010
YELLOW	4.2	3.6	3.0	SYSTEM # / SECTION #
ALL-RED	1.8	3.4	1.0	64 / 721

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 10.64

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

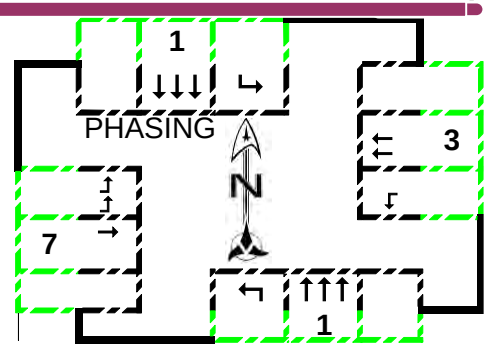
REDS

VOL DENSITY
MM-2-8

RECALLS

PHASE	1	3	7
MOVEMENT	NST	WBT	EBT
NOTES			
MIN GRN	10	6	8
BK MGRN			
CS MGRN			
DLY GRN			
WALK	14	6	6
WALK2			
WLK MAX			
PED CLR/FDW	16	19	19
PD CLR2			
PC MAX			
PED CO			
VEH EXT		2	3
VH EXT2			
MAX 1	80	15	35
MAX 2	85	30	40
MAX 3			
DYM MAX			
DYM STP			
YELLOW	4.2	2.9	3.4
RED CLR	1.8	3.1	2.6
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		
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
78	0	11	35	84	0	29	17
72	0	28	46	78	0	40	34

SPLIT PLAN MAXIMUMS

NOTES

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

30-DR-2019
8/22/2019

SCOTTSDALE & HIGHLAND

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	19	0	0	0	19	0
YELLOW	4.2	0.0	2.9	0.0	0.0	0.0	3.4	0.0
ALL RED	1.8	0.0	3.1	0.0	0.0	0.0	2.6	0.0

SYSTEM # 64

SECTION # 721

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 ↕		3 ←	
R2				7 →

MOVEMENTS NST WBT EBT

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	39
2	SB	39
3	NS	39
4	EB	15
5	WB	15
6	EW	15

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	79		15	26	79		26	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	9	26	79	0	20	15	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	84		15	21	84		21	15	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	9	21	84	0	15	15	RING 1
									RING 2

120

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	72		17	31	72		31	17	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	66	0	11	31	72	0	25	17	RING 1
									RING 2

120

30-DR-2019
8/22/2019

SCOTTSDALE & HIGHLAND

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	16	0	19	0	0	0	19	0
YELLOW	4.2	0.0	2.9	0.0	0.0	0.0	3.4	0.0
ALL RED	1.8	0.0	3.1	0.0	0.0	0.0	2.6	0.0

SYSTEM # 64

SECTION # 721

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 ↕ | 3 ←
R2: 7 →

MOVEMENTS NST WBT EBT

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

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

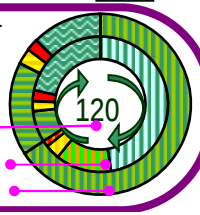
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	79		15	26	79		26	15	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	73	0	9	26	79	0	20	15	RING 1 / RING 2

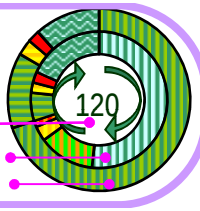


PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	84		14	22	84		22	14	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	0	8	22	84	0	16	14	RING 1 / RING 2

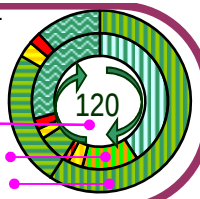


PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	71		14	35	71		35	14	120
COORD	x								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	65	0	8	35	71	0	29	14	RING 1 / RING 2



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

30-DR-2019
8/22/2019

SCOTTSDALE & RANCHO VISTA

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	13	22	STANDARD	5/5/2015
YELLOW	4.3	3.2	3.0	SYSTEM # 230 / SECTION # 721
ALL-RED	1.7	3.8	1.0	

COMMUNICATIONS I.P. ADDRESS
MM-1-5-1 172.17. 12.30

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

REDS

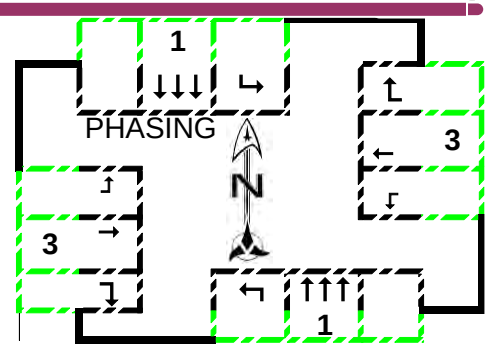
VOL DENSITY

MM-2-8

RECALLS

PHASE	1	3
MOVEMENT	NST	EWT
NOTES		
MIN GRN	15	5
BK MGRN		
CS MGRN		
DLY GRN		
WALK	12	6
WALK2		
WLK MAX		
PED CLR/FDW	13	19
PD CLR2		
PC MAX		
PED CO		
VEH EXT		2
VH EXT2		
MAX 1	100	30
MAX 2	105	45
MAX 3		
DYM MAX		
DYM STP		
YELLOW	4.3	2.8
RED CLR	1.7	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		

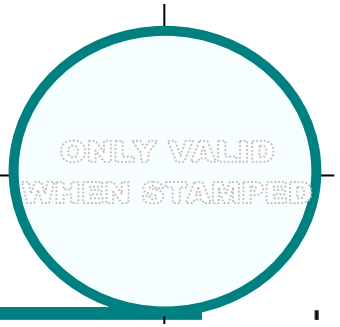
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
98	0	26	0	0	0	0	0
102	0	41	0	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES



30-DR-2019
8/22/2019

SCOTTSDALE & RANCHO VISTA

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.3	0.0	2.8	0.0	0.0	0.0	0.0	0.0
ALL RED	1.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 230

SECTION # 721

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

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	30
2	SB	30
3	NS	30
4	EB	50
5	WB	50
6	EW	50

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	88		32						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	82	0	26	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES 0600-0900

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

120

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	41		19						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	35	0	13	0	0	0	0	0	RING 1
									RING 2

60

30-DR-2019

8/22/2019

SCOTTSDALE & RANCHO VISTA

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	13	0	19	0	0	0	0	0
YELLOW	4.3	0.0	2.8	0.0	0.0	0.0	0.0	0.0
ALL RED	1.7	0.0	3.2	0.0	0.0	0.0	0.0	0.0

SYSTEM # 230

SECTION # 721

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

R1: 1 ↕ | 3 ↔

R2

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

N/S

PLAN # 7

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	48		12						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	42	0	6	0	0	0	0	0	RING 1
									RING 2

60

PLAN # 8

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	100		20						120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	94	0	14	0	0	0	0	0	RING 1
									RING 2

120

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	41		19						60
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	35	0	13	0	0	0	0	0	RING 1
									RING 2

60

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	30
2	SB	30
3	NS	30
4	EB	30
5	WB	30
6	EW	30

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

ATTACHMENT D – 5/9/17 SFS TI&MA EXISTING CAPACITY ANALYSIS

The Synchro outputs under Attachment D are taken directly from the Scottsdale Fashion Square Traffic Impact & Mitigation Analysis, dated May 9, 2017. For organizational purposes, the intersections for the Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis have been changed to:

Intersection	May 9, 2017 TI&MA Intersection Number	Caesars Republic TI&MA Intersection Number
Goldwater Boulevard and Camelback Road	8	1
Goldwater Boulevard and Fashion Square	3	2
Goldwater Boulevard and Highland Avenue	4	3
Highland Avenue and Site Driveway	N/A	4
Highland Avenue and Fashion Square/Optima Driveway	5	5
Scottsdale Road and Highland Avenue	6	6

HCM 2010 Signalized Intersection Summary
1: 68th Street/68th Street & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	992	126	131	928	54	203	291	167	47	181	38
Future Volume (veh/h)	73	992	126	131	928	54	203	291	167	47	181	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	78	1067	135	141	998	58	218	313	180	51	195	41
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	1905	241	306	2172	126	435	559	475	117	231	197
Arrive On Green	0.05	0.42	0.42	0.03	0.15	0.15	0.21	0.30	0.30	0.03	0.12	0.12
Sat Flow, veh/h	1774	4573	578	1774	4917	285	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	78	791	411	141	688	368	218	313	180	51	195	41
Grp Sat Flow(s),veh/h/ln	1774	1695	1761	1774	1695	1812	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	21.3	21.3	0.0	22.3	22.3	8.2	17.0	10.8	0.0	12.3	2.8
Cycle Q Clear(g_c), s	0.0	21.3	21.3	0.0	22.3	22.3	8.2	17.0	10.8	0.0	12.3	2.8
Prop In Lane	1.00		0.33	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	273	1413	734	306	1497	800	435	559	475	117	231	197
V/C Ratio(X)	0.29	0.56	0.56	0.46	0.46	0.46	0.50	0.56	0.38	0.43	0.84	0.21
Avail Cap(c_a), veh/h	273	1413	734	306	1497	800	435	559	475	119	466	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	26.6	26.6	42.8	38.1	38.2	39.6	35.3	33.2	56.2	51.4	47.2
Incr Delay (d2), s/veh	0.2	1.6	3.1	0.4	0.9	1.7	0.9	4.0	2.3	0.9	3.2	0.2
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	2.2	10.2	11.0	4.6	10.7	11.6	6.3	9.3	5.0	1.7	6.5	1.2
LnGrp Delay(d),s/veh	36.5	28.2	29.7	43.2	39.0	39.8	40.5	39.4	35.5	57.1	54.6	47.4
LnGrp LOS	D	C	C	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1280			1197			711			287	
Approach Delay, s/veh		29.2			39.8			38.7			54.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	43.0	13.1	56.0	29.0	21.9	10.1	59.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 4	36.0	* 9	50.0	* 10	30.0	* 6	53.0
Max Q Clear Time (g_c+I1), s	2.0	19.0	2.0	23.3	10.2	14.3	2.0	24.3
Green Ext Time (p_c), s	0.0	0.6	0.1	2.8	0.0	0.6	0.0	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

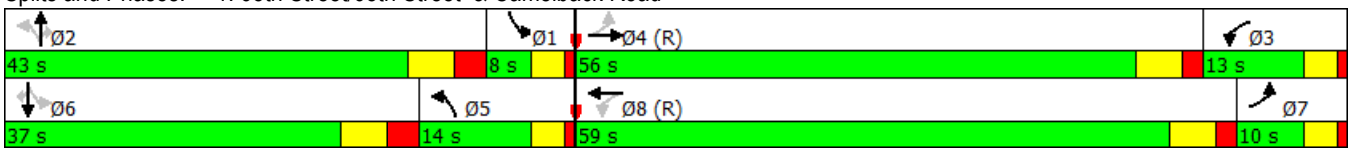
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	8	43	13	56	14	37	10	59
Maximum Split (%)	6.7%	35.8%	10.8%	46.7%	11.7%	30.8%	8.3%	49.2%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	112	69	56	0	106	69	59	0
End Time (s)	0	112	69	56	0	106	69	59
Yield/Force Off (s)	116	105	65	50	116	99	65	53
Yield/Force Off 170(s)	116	82	65	33	116	76	65	36
Local Start Time (s)	112	69	56	0	106	69	59	0
Local Yield (s)	116	105	65	50	116	99	65	53
Local Yield 170(s)	116	82	65	33	116	76	65	36

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	1202	141	1056	218	313	180	51	195	41
v/c Ratio	0.34	0.56	0.60	0.45	0.41	0.53	0.29	0.39	0.74	0.13
Control Delay	22.6	26.6	57.8	38.5	32.0	37.9	7.5	36.4	65.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	26.6	57.8	38.5	32.0	37.9	7.5	36.4	65.6	0.9
Queue Length 50th (ft)	29	252	75	262	112	199	9	24	147	0
Queue Length 95th (ft)	53	299	114	299	179	299	63	51	215	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	251	2162	268	2342	530	592	615	132	465	470
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	0.31	0.56	0.53	0.45	0.41	0.53	0.29	0.39	0.42	0.09

Intersection Summary

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	322	9	9	266
Future Vol, veh/h	2	2	322	9	9	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	398	11	11	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	754	403	0	0	409	0
Stage 1	403	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	326	647	-	-	1150	-
Stage 1	624	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	324	647	-	-	1150	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	432	1150	-
HCM Lane V/C Ratio	-	-	0.011	0.01	-
HCM Control Delay (s)	-	-	13.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	4	9	1	2	20	413	30	14	936	36
Future Volume (veh/h)	8	3	4	9	1	2	20	413	30	14	936	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	9	3	5	10	1	2	23	469	34	16	1064	41
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	13	14	108	18	35	484	3073	1375	817	4416	1375
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.87	0.87	0.87	0.87	0.87	0.87
Sat Flow, veh/h	693	407	458	1402	556	1111	508	3539	1583	892	5085	1583
Grp Volume(v), veh/h	17	0	0	10	0	3	23	469	34	16	1064	41
Grp Sat Flow(s),veh/h/ln	1558	0	0	1402	0	1667	508	1770	1583	892	1695	1583
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.2	0.9	2.4	0.3	0.3	4.2	0.4
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.7	0.0	0.2	5.1	2.4	0.3	2.7	4.2	0.4
Prop In Lane	0.53		0.29	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	0	0	108	0	53	484	3073	1375	817	4416	1375
V/C Ratio(X)	0.18	0.00	0.00	0.09	0.00	0.06	0.05	0.15	0.02	0.02	0.24	0.03
Avail Cap(c_a), veh/h	377	0	0	367	0	361	484	3073	1375	817	4416	1375
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	0.00	0.00	1.00	0.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	0.0	0.0	56.6	0.0	56.4	1.7	1.2	1.1	1.4	1.3	1.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0
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	0.6	0.0	0.0	0.3	0.0	0.1	0.2	1.2	0.2	0.1	1.9	0.2
LnGrp Delay(d),s/veh	57.2	0.0	0.0	56.7	0.0	56.5	1.9	1.3	1.1	1.5	1.4	1.1
LnGrp LOS	E			E		E	A	A	A	A	A	A
Approach Vol, veh/h		17			13			526			1121	
Approach Delay, s/veh		57.2			56.7			1.3			1.4	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		110.2		9.8		110.2		9.8
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 82		26.0		* 82		26.0
Max Q Clear Time (g_c+I1), s		7.1		3.2		6.2		2.7
Green Ext Time (p_c), s		2.4		0.0		2.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	2.4
HCM 2010 LOS	A

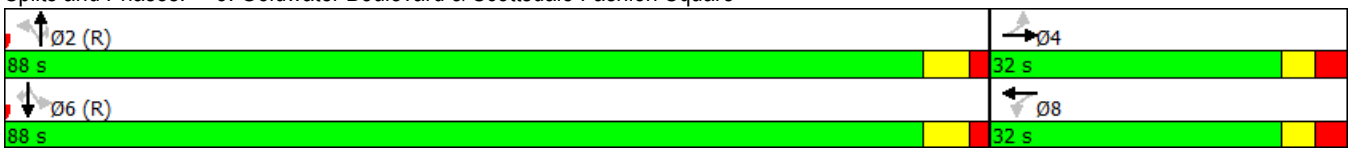
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	88	32	88	32
Maximum Split (%)	73.3%	26.7%	73.3%	26.7%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	88	0	88
End Time (s)	88	0	88	0
Yield/Force Off (s)	82	114	82	114
Yield/Force Off 170(s)	69	95	69	95
Local Start Time (s)	0	88	0	88
Local Yield (s)	82	114	82	114
Local Yield 170(s)	69	95	69	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



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Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	10	3	23	469	34	16	1064	41
v/c Ratio	0.17	0.10	0.03	0.05	0.14	0.02	0.02	0.22	0.03
Control Delay	46.8	56.1	41.7	1.8	1.2	0.8	1.3	1.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	56.1	41.7	1.8	1.2	0.8	1.3	1.0	0.5
Queue Length 50th (ft)	9	8	1	0	0	0	0	0	0
Queue Length 95th (ft)	33	25	11	m7	40	m5	5	53	4
Internal Link Dist (ft)	275		60		1010			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	391	403	364	449	3316	1486	843	4765	1486
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	0.04	0.02	0.01	0.05	0.14	0.02	0.02	0.22	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	0	0	423	0	870
Future Vol, veh/h	68	0	0	423	0	870
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	0	0	486	0	1000

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	400	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	611	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	591	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	611	-	-	-	-	-
Mov Cap-2 Maneuver	611	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	611	-
HCM Lane V/C Ratio	-	0.128	-
HCM Control Delay (s)	-	11.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.4	-

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	399	2	27	31	15	0	1	12	20	0	37
Future Vol, veh/h	22	399	2	27	31	15	0	1	12	20	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	481	2	33	37	18	0	1	14	24	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	55	0	0	483	0	0	619	655	242	405	647	28
Stage 1	-	-	-	-	-	-	535	535	-	111	111	-
Stage 2	-	-	-	-	-	-	84	120	-	294	536	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1548	-	-	1076	-	-	373	384	759	530	388	1041
Stage 1	-	-	-	-	-	-	497	522	-	882	803	-
Stage 2	-	-	-	-	-	-	915	796	-	690	522	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1548	-	-	1076	-	-	344	366	759	500	370	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	366	-	500	370	-
Stage 1	-	-	-	-	-	-	488	513	-	867	778	-
Stage 2	-	-	-	-	-	-	849	772	-	663	513	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	3.1	10.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	701	1548	-	-	1076	-	-	500	1041
HCM Lane V/C Ratio	-	0.022	0.017	-	-	0.03	-	-	0.048	0.043
HCM Control Delay (s)	0	10.3	7.4	-	-	8.4	-	-	12.6	8.6
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	398	6	30	5	2	6	29	957	20	17	791	42
Future Volume (vph)	398	6	30	5	2	6	29	957	20	17	791	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1631		1770	1645		1770	5070		1770	5047	
Flt Permitted	0.75	1.00		1.00	1.00		0.27	1.00		0.22	1.00	
Satd. Flow (perm)	2717	1631		1863	1645		497	5070		403	5047	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	457	7	34	6	2	7	33	1100	23	20	909	48
RTOR Reduction (vph)	0	27	0	0	7	0	0	2	0	0	5	0
Lane Group Flow (vph)	457	14	0	6	2	0	33	1121	0	20	952	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	24.9	24.9		3.2	3.2		73.9	73.9		73.9	73.9	
Effective Green, g (s)	24.9	24.9		3.2	3.2		73.9	73.9		73.9	73.9	
Actuated g/C Ratio	0.21	0.21		0.03	0.03		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	563	338		49	43		306	3122		248	3108	
v/s Ratio Prot		0.01			0.00			c0.22			0.19	
v/s Ratio Perm	c0.17			c0.00			0.07			0.05		
v/c Ratio	0.81	0.04		0.12	0.05		0.11	0.36		0.08	0.31	
Uniform Delay, d1	45.3	38.0		57.0	56.9		9.5	11.4		9.3	10.9	
Progression Factor	1.04	1.31		1.00	1.00		1.63	1.29		1.00	1.00	
Incremental Delay, d2	8.7	0.1		1.1	0.5		0.7	0.3		0.6	0.3	
Delay (s)	56.0	50.0		58.2	57.4		16.1	15.0		10.0	11.2	
Level of Service	E	D		E	E		B	B		A	B	
Approach Delay (s)		55.5			57.7			15.0			11.1	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	79	15	26
Maximum Split (%)	65.8%	12.5%	21.7%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	79	94
End Time (s)	79	94	0
Yield/Force Off (s)	73	88	114
Yield/Force Off 170(s)	57	69	95
Local Start Time (s)	0	79	94
Local Yield (s)	73	88	114
Local Yield 170(s)	57	69	95

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: 6: Scottsdale Road & Highland Avenue

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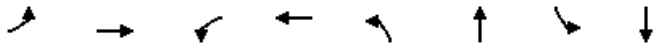


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	457	41	6	9	33	1123	20	957
v/c Ratio	0.81	0.11	0.06	0.09	0.10	0.34	0.08	0.29
Control Delay	60.2	22.6	53.8	35.0	16.2	13.2	10.1	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.2	22.6	53.8	35.0	16.2	13.2	10.1	9.8
Queue Length 50th (ft)	160	4	5	2	7	88	5	103
Queue Length 95th (ft)	#277	35	18	18	m35	228	17	140
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	563	364	139	129	321	3277	259	3264
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	0.81	0.11	0.04	0.07	0.10	0.34	0.08	0.29

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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	503	145	62	529	126	138	480	29	130	503	81
Future Volume (veh/h)	118	503	145	62	529	126	138	480	29	130	503	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	126	535	154	66	563	134	147	511	31	138	535	86
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	683	306	167	663	157	732	1553	94	732	1121	501
Arrive On Green	0.02	0.06	0.06	0.09	0.23	0.23	0.21	0.32	0.32	0.07	0.10	0.10
Sat Flow, veh/h	3442	3539	1583	1774	2840	674	3442	4906	295	3442	3539	1583
Grp Volume(v), veh/h	126	535	154	66	350	347	147	352	190	138	535	86
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1744	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.4	17.9	11.3	4.2	22.7	22.8	4.2	9.5	9.6	4.5	17.1	5.9
Cycle Q Clear(g_c), s	4.4	17.9	11.3	4.2	22.7	22.8	4.2	9.5	9.6	4.5	17.1	5.9
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	185	683	306	167	413	407	732	1074	573	732	1121	501
V/C Ratio(X)	0.68	0.78	0.50	0.40	0.85	0.85	0.20	0.33	0.33	0.19	0.48	0.17
Avail Cap(c_a), veh/h	287	944	422	192	516	509	732	1074	573	732	1121	501
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	57.9	53.7	50.6	51.1	44.0	44.0	38.8	31.3	31.3	46.0	44.4	39.4
Incr Delay (d2), s/veh	4.0	2.7	1.2	1.5	10.4	11.0	0.1	0.8	1.5	0.1	1.4	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	2.2	9.0	5.1	2.1	12.3	12.2	2.0	4.6	5.1	2.2	8.6	2.7
LnGrp Delay(d),s/veh	61.9	56.4	51.8	52.6	54.4	55.0	39.0	32.1	32.9	46.1	45.8	40.1
LnGrp LOS	E	E	D	D	D	D	D	C	C	D	D	D
Approach Vol, veh/h		815			763			689			759	
Approach Delay, s/veh		56.4			54.5			33.8			45.2	
Approach LOS		E			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.5	45.0	15.3	30.2	29.5	45.0	10.5	35.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 15	38.0	13.0	32.0	* 15	38.0	10.0	35.0
Max Q Clear Time (g_c+I1), s	6.5	11.6	6.2	19.9	6.2	19.1	6.4	24.8
Green Ext Time (p_c), s	0.6	3.6	0.3	3.3	0.6	3.8	0.2	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.0
HCM 2010 LOS	D

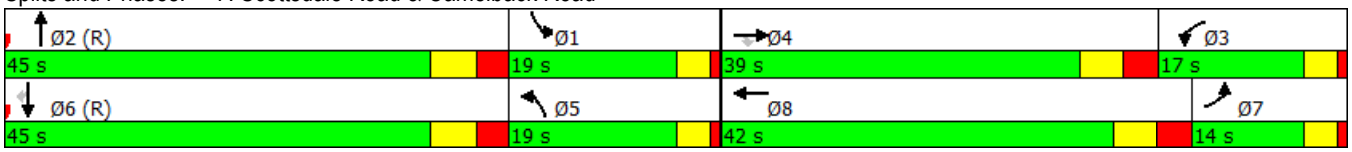
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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	45	17	39	19	45	14	42
Maximum Split (%)	15.8%	37.5%	14.2%	32.5%	15.8%	37.5%	11.7%	35.0%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	50	33	114	95	50	36	114
End Time (s)	114	95	50	33	114	95	50	36
Yield/Force Off (s)	110	88	46	26	110	88	46	29
Yield/Force Off 170(s)	110	77	46	15	110	77	46	18
Local Start Time (s)	45	0	103	64	45	0	106	64
Local Yield (s)	60	38	116	96	60	38	116	99
Local Yield 170(s)	60	27	116	85	60	27	116	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



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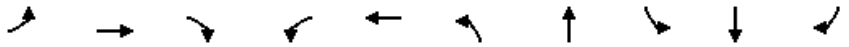


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	126	535	154	66	697	147	542	138	535	86
v/c Ratio	0.48	0.64	0.31	0.34	0.79	0.49	0.27	0.46	0.38	0.12
Control Delay	71.6	37.9	22.8	53.4	47.4	57.4	25.6	49.7	18.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	37.9	22.8	53.4	47.4	57.4	25.6	49.7	18.9	4.5
Queue Length 50th (ft)	54	234	87	47	257	56	101	54	153	10
Queue Length 95th (ft)	87	292	154	93	305	88	149	88	231	52
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	290	958	541	213	1028	429	2027	429	1420	700
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	0.43	0.56	0.28	0.31	0.68	0.34	0.27	0.32	0.38	0.12

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	781	130	39	612	31	119	149	33	15	366	423
Future Volume (veh/h)	171	781	130	39	612	31	119	149	33	15	366	423
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	174	797	133	40	624	32	121	152	34	15	373	432
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	454	1653	515	413	1611	82	177	1150	515	177	1653	515
Arrive On Green	0.13	0.32	0.32	0.04	0.11	0.11	0.05	0.32	0.32	0.03	0.22	0.22
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	174	797	133	40	426	230	121	152	34	15	373	432
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	0.0	15.1	7.4	0.0	14.0	14.1	4.1	3.6	1.8	0.5	7.2	31.3
Cycle Q Clear(g_c), s	0.0	15.1	7.4	0.0	14.0	14.1	4.1	3.6	1.8	0.5	7.2	31.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	1653	515	413	1102	591	177	1150	515	177	1653	515
V/C Ratio(X)	0.38	0.48	0.26	0.10	0.39	0.39	0.68	0.13	0.07	0.08	0.23	0.84
Avail Cap(c_a), veh/h	454	1653	515	413	1102	591	315	1150	515	315	1653	515
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	0.84	0.84	0.84	0.67	0.67	0.67	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	33.8	32.4	29.8	31.9	42.4	42.5	55.9	28.6	27.9	55.2	34.5	43.9
Incr Delay (d2), s/veh	0.4	0.9	1.0	0.1	0.7	1.3	4.5	0.2	0.2	0.2	0.3	14.9
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	5.0	7.1	3.4	1.1	6.7	7.4	2.1	1.8	0.8	0.2	3.5	15.9
LnGrp Delay(d),s/veh	34.3	33.3	30.9	32.0	43.1	43.8	60.5	28.8	28.2	55.4	34.8	58.9
LnGrp LOS	C	C	C	C	D	D	E	C	C	E	C	E
Approach Vol, veh/h		1104			696			307			820	
Approach Delay, s/veh		33.1			42.7			41.2			47.9	
Approach LOS		C			D			D			D	

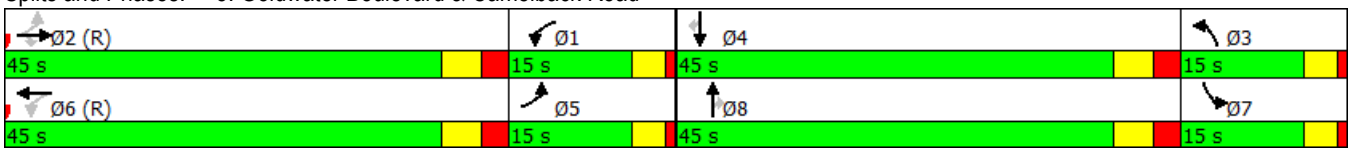
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	45.0	10.2	45.0	19.8	45.0	10.2	45.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.0	39.0	11.0	39.0	11.0	39.0	11.0	39.0
Max Q Clear Time (g_c+I1), s	2.0	17.1	6.1	33.3	2.0	16.1	2.5	5.6
Green Ext Time (p_c), s	0.4	6.3	0.2	2.0	0.4	4.4	0.2	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	15	45	15	45	15	45	15	45
Maximum Split (%)	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%	12.5%	37.5%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	89	44	29	104	89	44	29	104
End Time (s)	104	89	44	29	104	89	44	29
Yield/Force Off (s)	100	83	40	23	100	83	40	23
Yield/Force Off 170(s)	100	72	40	12	100	72	40	12
Local Start Time (s)	45	0	105	60	45	0	105	60
Local Yield (s)	56	39	116	99	56	39	116	99
Local Yield 170(s)	56	28	116	88	56	28	116	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 44 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	797	133	40	656	121	152	34	15	373	432
v/c Ratio	0.55	0.44	0.21	0.15	0.38	0.45	0.10	0.05	0.07	0.20	0.57
Control Delay	28.7	15.9	4.3	21.0	23.2	58.1	22.7	0.1	50.7	26.8	13.0
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	28.7	15.9	4.3	21.0	23.2	58.1	22.7	0.1	50.7	26.8	13.0
Queue Length 50th (ft)	79	190	28	24	185	46	32	0	5	71	81
Queue Length 95th (ft)	136	240	52	m34	228	77	67	0	17	100	154
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	380	1803	629	328	1714	314	1502	729	314	1844	756
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	0.46	0.44	0.21	0.12	0.38	0.39	0.10	0.05	0.05	0.20	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1: 68th Street/68th Street & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1028	176	218	1224	65	175	299	177	77	215	63
Future Volume (veh/h)	89	1028	176	218	1224	65	175	299	177	77	215	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	96	1105	189	234	1316	70	188	322	190	83	231	68
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	1859	318	367	2225	118	312	466	396	117	268	228
Arrive On Green	0.09	0.43	0.43	0.04	0.15	0.15	0.14	0.25	0.25	0.03	0.14	0.14
Sat Flow, veh/h	1774	4374	748	1774	4944	263	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	96	856	438	234	902	484	188	322	190	83	231	68
Grp Sat Flow(s),veh/h/ln	1774	1695	1731	1774	1695	1816	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	23.3	23.3	4.7	29.8	29.8	7.2	18.8	12.3	1.4	14.5	4.6
Cycle Q Clear(g_c), s	0.0	23.3	23.3	4.7	29.8	29.8	7.2	18.8	12.3	1.4	14.5	4.6
Prop In Lane	1.00		0.43	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	293	1441	736	367	1526	817	312	466	396	117	268	228
V/C Ratio(X)	0.33	0.59	0.59	0.64	0.59	0.59	0.60	0.69	0.48	0.71	0.86	0.30
Avail Cap(c_a), veh/h	293	1441	736	367	1526	817	312	466	396	149	466	396
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	26.5	26.6	45.8	40.8	40.8	46.4	40.8	38.4	56.4	50.2	45.9
Incr Delay (d2), s/veh	0.2	1.8	3.5	1.9	1.1	2.1	3.2	8.2	4.1	6.6	3.2	0.3
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	2.9	11.2	11.9	7.8	14.2	15.5	6.0	10.7	5.8	2.9	7.7	2.0
LnGrp Delay(d),s/veh	42.1	28.4	30.1	47.7	41.9	42.9	49.6	49.0	42.5	63.0	53.3	46.2
LnGrp LOS	D	C	C	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1390			1620			700			382	
Approach Delay, s/veh		29.8			43.1			47.4			54.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	37.0	18.1	57.0	20.6	24.3	15.1	60.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 6	30.0	* 12	51.0	* 6	30.0	* 9	54.0
Max Q Clear Time (g_c+I1), s	3.4	20.8	6.7	25.3	9.2	16.5	2.0	31.8
Green Ext Time (p_c), s	0.1	0.6	0.1	3.1	0.0	0.7	0.1	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

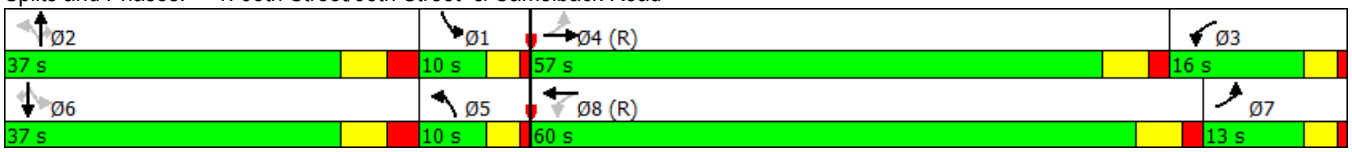
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	10	37	16	57	10	37	13	60
Maximum Split (%)	8.3%	30.8%	13.3%	47.5%	8.3%	30.8%	10.8%	50.0%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	49	33	96	86	49	36	96
End Time (s)	96	86	49	33	96	86	49	36
Yield/Force Off (s)	92	79	45	27	92	79	45	30
Yield/Force Off 170(s)	92	56	45	10	92	56	45	13
Local Start Time (s)	110	73	57	0	110	73	60	0
Local Yield (s)	116	103	69	51	116	103	69	54
Local Yield 170(s)	116	80	69	34	116	80	69	37

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 96 (80%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



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1: 68th Street/68th Street & Camelback Road

04/11/2017

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	96	1294	234	1386	188	322	190	83	231	68
v/c Ratio	0.46	0.58	0.84	0.58	0.46	0.66	0.36	0.56	0.77	0.20
Control Delay	31.5	25.7	35.1	24.7	38.0	47.4	11.0	50.7	65.0	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	31.5	25.7	35.1	24.7	38.0	47.4	11.0	50.7	65.0	4.2
Queue Length 50th (ft)	31	268	36	226	105	227	20	43	174	0
Queue Length 95th (ft)	56	317	m#179	297	166	332	82	81	246	17
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	232	2239	301	2383	408	490	531	160	465	470
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	0.41	0.58	0.78	0.58	0.46	0.66	0.36	0.52	0.50	0.14

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.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	32	430	23	14	214
Future Vol, veh/h	23	32	430	23	14	214
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	35	473	25	15	235

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	751	485	0	0	498	0
Stage 1	485	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	327	582	-	-	1066	-
Stage 1	563	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	323	582	-	-	1066	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	729	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	1066	-
HCM Lane V/C Ratio	-	-	0.139	0.014	-
HCM Control Delay (s)	-	-	14.6	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	8	64	66	11	22	35	544	69	28	936	27
Future Volume (veh/h)	65	8	64	66	11	22	35	544	69	28	936	27
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	71	9	70	72	12	24	38	591	75	30	1017	29
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	21	85	194	71	142	444	2734	1223	652	3928	1223
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	1.00	1.00	1.00	0.77	0.77	0.77
Sat Flow, veh/h	597	165	667	1314	556	1111	537	3539	1583	767	5085	1583
Grp Volume(v), veh/h	150	0	0	72	0	36	38	591	75	30	1017	29
Grp Sat Flow(s),veh/h/ln	1428	0	0	1314	0	1667	537	1770	1583	767	1695	1583
Q Serve(g_s), s	10.1	0.0	0.0	0.0	0.0	2.3	0.7	0.0	0.0	1.1	6.8	0.5
Cycle Q Clear(g_c), s	12.4	0.0	0.0	8.2	0.0	2.3	7.5	0.0	0.0	1.1	6.8	0.5
Prop In Lane	0.47		0.47	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	0	0	194	0	213	444	2734	1223	652	3928	1223
V/C Ratio(X)	0.66	0.00	0.00	0.37	0.00	0.17	0.09	0.22	0.06	0.05	0.26	0.02
Avail Cap(c_a), veh/h	582	0	0	508	0	611	444	2734	1223	652	3928	1223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	0.0	49.3	0.0	46.7	0.3	0.0	0.0	3.2	3.9	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.4	0.0	0.1	0.3	0.1	0.1	0.1	0.2	0.0
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	5.0	0.0	0.0	2.3	0.0	1.1	0.1	0.0	0.0	0.3	3.2	0.2
LnGrp Delay(d),s/veh	52.5	0.0	0.0	49.7	0.0	46.8	0.5	0.1	0.1	3.4	4.0	3.2
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		150			108			704			1076	
Approach Delay, s/veh		52.5			48.7			0.1			4.0	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		98.7		21.3		98.7		21.3
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 64		44.0		* 64		44.0
Max Q Clear Time (g_c+I1), s		9.5		14.4		8.8		10.2
Green Ext Time (p_c), s		2.6		0.9		2.6		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

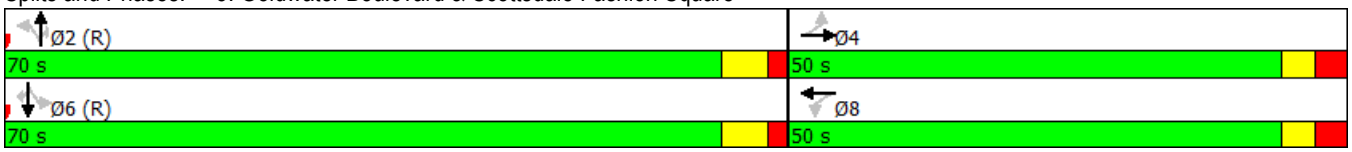
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	70	50	70	50
Maximum Split (%)	58.3%	41.7%	58.3%	41.7%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	70	0	70
End Time (s)	70	0	70	0
Yield/Force Off (s)	64	114	64	114
Yield/Force Off 170(s)	51	95	51	95
Local Start Time (s)	0	70	0	70
Local Yield (s)	64	114	64	114
Local Yield 170(s)	51	95	51	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	72	36	38	591	75	30	1017	29
v/c Ratio	0.75	0.61	0.17	0.10	0.21	0.06	0.05	0.25	0.02
Control Delay	58.6	70.7	24.1	12.9	11.6	7.2	4.1	4.0	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	70.7	24.1	12.9	11.6	7.2	4.1	4.0	1.5
Queue Length 50th (ft)	83	54	8	20	165	13	4	63	0
Queue Length 95th (ft)	147	99	38	m35	m196	m36	15	105	8
Internal Link Dist (ft)	275		60		1011			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	557	381	629	392	2783	1260	628	3999	1251
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	0.27	0.19	0.06	0.10	0.21	0.06	0.05	0.25	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	144	0	0	631	0	858
Future Vol, veh/h	144	0	0	631	0	858
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	162	0	0	709	0	964

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	386	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	621	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	601	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	621	-	-	-	-	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	621	-
HCM Lane V/C Ratio	-	0.261	-
HCM Control Delay (s)	-	12.8	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1	-

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Intersection	
Int Delay, s/veh	2

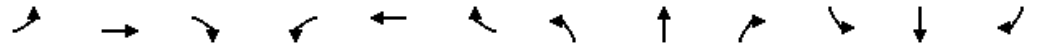
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	588	0	29	114	27	6	3	40	17	3	24
Future Vol, veh/h	43	588	0	29	114	27	6	3	40	17	3	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	676	0	33	131	31	7	3	46	20	3	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	162	0	0	676	0	0	909	1004	338	652	988	81
Stage 1	-	-	-	-	-	-	775	775	-	213	213	-
Stage 2	-	-	-	-	-	-	134	229	-	439	775	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1414	-	-	911	-	-	230	240	658	353	246	963
Stage 1	-	-	-	-	-	-	357	406	-	769	725	-
Stage 2	-	-	-	-	-	-	855	713	-	567	406	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1414	-	-	911	-	-	209	223	658	307	229	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	223	-	307	229	-
Stage 1	-	-	-	-	-	-	345	392	-	742	699	-
Stage 2	-	-	-	-	-	-	796	687	-	505	392	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.1	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	209	579	1414	-	-	911	-	-	307	710
HCM Lane V/C Ratio	0.033	0.085	0.035	-	-	0.037	-	-	0.064	0.044
HCM Control Delay (s)	22.8	11.8	7.6	-	-	9.1	-	-	17.5	10.3
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.2	0.1

30-DR-2019
8/22/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	621	4	33	12	13	22	46	1126	11	8	969	111
Future Volume (vph)	621	4	33	12	13	22	46	1126	11	8	969	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1611		1770	1688		1770	5078		1770	5007	
Flt Permitted	0.73	1.00		0.65	1.00		0.19	1.00		0.17	1.00	
Satd. Flow (perm)	2642	1611		1202	1688		353	5078		324	5007	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	698	4	37	13	15	25	52	1265	12	9	1089	125
RTOR Reduction (vph)	0	30	0	0	24	0	0	1	0	0	12	0
Lane Group Flow (vph)	698	11	0	13	16	0	52	1276	0	9	1202	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	24.0	24.0		6.2	6.2		71.8	71.8		71.8	71.8	
Effective Green, g (s)	24.0	24.0		6.2	6.2		71.8	71.8		71.8	71.8	
Actuated g/C Ratio	0.20	0.20		0.05	0.05		0.60	0.60		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	528	322		62	87		211	3038		193	2995	
v/s Ratio Prot		0.01			0.01			c0.25			0.24	
v/s Ratio Perm	c0.26			c0.01			0.15			0.03		
v/c Ratio	1.32	0.04		0.21	0.19		0.25	0.42		0.05	0.40	
Uniform Delay, d1	48.0	38.7		54.6	54.5		11.4	12.9		10.0	12.7	
Progression Factor	1.25	1.85		1.00	1.00		0.97	1.20		1.00	1.00	
Incremental Delay, d2	157.6	0.0		1.7	1.0		2.5	0.4		0.5	0.4	
Delay (s)	217.7	71.5		56.2	55.5		13.5	15.9		10.4	13.1	
Level of Service	F	E		E	E		B	B		B	B	
Approach Delay (s)		209.6			55.7			15.8			13.1	
Approach LOS		F			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

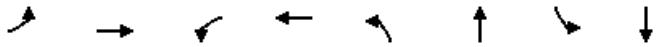
c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	79	15	26
Maximum Split (%)	65.8%	12.5%	21.7%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	79	94
End Time (s)	79	94	0
Yield/Force Off (s)	73	88	114
Yield/Force Off 170(s)	57	69	95
Local Start Time (s)	0	79	94
Local Yield (s)	73	88	114
Local Yield 170(s)	57	69	95

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: 6: Scottsdale Road & Highland Avenue

30-DR-2019
8/22/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	698	41	13	40	52	1277	9	1214
v/c Ratio	1.32	0.12	0.18	0.31	0.24	0.41	0.05	0.40
Control Delay	202.4	28.9	58.2	34.2	13.8	15.2	10.4	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	202.4	28.9	58.2	34.2	13.8	15.2	10.4	12.3
Queue Length 50th (ft)	~387	8	10	11	23	310	3	162
Queue Length 95th (ft)	#519	39	30	46	m59	324	10	190
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	528	351	90	149	214	3091	197	3058
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	1.32	0.12	0.14	0.27	0.24	0.41	0.05	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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	526	228	81	500	146	294	700	90	268	574	221
Future Volume (veh/h)	249	526	228	81	500	146	294	700	90	268	574	221
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	262	554	240	85	526	154	309	737	95	282	604	233
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	680	304	225	610	178	795	1259	161	764	944	422
Arrive On Green	0.19	0.38	0.38	0.13	0.23	0.23	0.23	0.28	0.28	0.07	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2705	788	3442	4566	584	3442	3539	1583
Grp Volume(v), veh/h	262	554	240	85	343	337	309	546	286	282	604	233
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1724	1721	1695	1760	1721	1770	1583
Q Serve(g_s), s	8.8	16.8	16.1	5.3	22.4	22.6	9.1	16.7	16.9	9.4	19.8	16.9
Cycle Q Clear(g_c), s	8.8	16.8	16.1	5.3	22.4	22.6	9.1	16.7	16.9	9.4	19.8	16.9
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	321	680	304	225	399	389	795	935	485	764	944	422
V/C Ratio(X)	0.82	0.81	0.79	0.38	0.86	0.87	0.39	0.58	0.59	0.37	0.64	0.55
Avail Cap(c_a), veh/h	459	1038	464	225	472	460	795	935	485	764	944	422
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	47.8	35.0	34.8	48.1	44.6	44.7	39.0	37.5	37.6	47.6	49.2	47.8
Incr Delay (d2), s/veh	6.5	2.6	4.4	1.0	13.1	14.0	0.3	2.7	5.2	0.3	3.0	4.6
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	4.4	8.4	7.3	2.7	12.4	12.3	4.4	8.2	8.9	4.5	10.1	8.0
LnGrp Delay(d),s/veh	54.3	37.6	39.2	49.1	57.7	58.7	39.3	40.2	42.8	47.9	52.2	52.5
LnGrp LOS	D	D	D	D	E	E	D	D	D	D	D	D
Approach Vol, veh/h		1056			765			1141			1119	
Approach Delay, s/veh		42.1			57.2			40.6			51.2	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.6	40.1	19.2	30.1	31.7	39.0	15.2	34.1
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 17	33.1	12.8	35.2	* 18	32.0	16.0	32.0
Max Q Clear Time (g_c+I1), s	11.4	18.9	7.3	18.8	11.1	21.8	10.8	24.6
Green Ext Time (p_c), s	1.2	4.7	0.6	4.2	1.3	3.6	0.4	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	47.0
HCM 2010 LOS	D

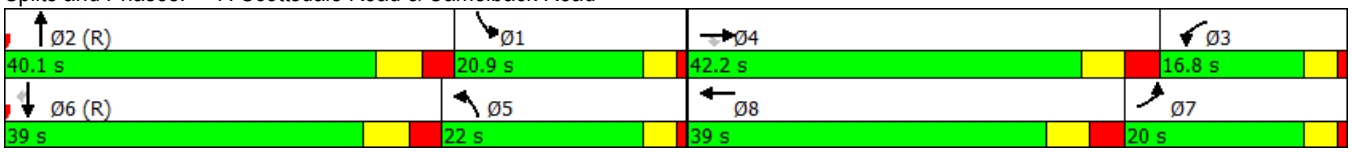
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	20.9	40.1	16.8	42.2	22	39	20	39
Maximum Split (%)	17.4%	33.4%	14.0%	35.2%	18.3%	32.5%	16.7%	32.5%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	2	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.1	98	81.2	39	17	98	78	39
End Time (s)	39	18.1	98	81.2	39	17	98	78
Yield/Force Off (s)	35	11.1	94	74.2	35	10	94	71
Yield/Force Off 170(s)	35	0.1	94	63.2	35	119	94	60
Local Start Time (s)	40.1	0	103.2	61	39	0	100	61
Local Yield (s)	57	33.1	116	96.2	57	32	116	93
Local Yield 170(s)	57	22.1	116	85.2	57	21	116	82

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 98 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	262	554	240	85	680	309	832	282	604	233
v/c Ratio	0.66	0.63	0.42	0.40	0.81	0.69	0.49	0.67	0.51	0.34
Control Delay	46.2	15.6	4.0	53.4	49.4	57.9	33.1	75.8	52.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	15.6	4.0	53.4	49.4	57.9	33.1	75.8	52.2	27.7
Queue Length 50th (ft)	111	137	18	60	248	119	186	95	261	88
Queue Length 95th (ft)	152	181	23	114	312	164	246	149	318	174
Internal Link Dist (ft)		1329			616		511		1288	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	457	1050	638	232	934	514	1715	483	1173	680
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	0.53	0.38	0.37	0.73	0.60	0.49	0.58	0.51	0.34

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	899	158	48	876	70	257	276	90	61	428	460
Future Volume (veh/h)	242	899	158	48	876	70	257	276	90	61	428	460
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	257	956	168	51	932	74	273	294	96	65	455	489
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	1483	462	358	1402	111	328	387	173	1071	1653	515
Arrive On Green	0.24	0.58	0.58	0.04	0.10	0.10	0.10	0.11	0.11	0.10	0.11	0.11
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	257	956	168	51	657	349	273	294	96	65	455	489
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	7.3	15.1	6.7	0.0	22.4	22.5	9.4	9.7	6.9	2.0	9.9	36.8
Cycle Q Clear(g_c), s	7.3	15.1	6.7	0.0	22.4	22.5	9.4	9.7	6.9	2.0	9.9	36.8
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	333	1483	462	358	989	524	328	387	173	1071	1653	515
V/C Ratio(X)	0.77	0.64	0.36	0.14	0.66	0.67	0.83	0.76	0.55	0.06	0.28	0.95
Avail Cap(c_a), veh/h	333	1483	462	358	989	524	430	1150	515	1071	1653	515
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	0.66	0.66	0.66	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	39.6	20.8	19.1	37.5	48.6	48.6	53.3	51.9	50.7	38.0	40.6	52.6
Incr Delay (d2), s/veh	8.0	1.8	1.8	0.0	2.3	4.4	8.0	1.2	1.0	0.0	0.4	28.5
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	8.2	7.1	3.1	1.5	10.9	11.9	4.8	4.8	3.1	1.0	4.7	20.2
LnGrp Delay(d),s/veh	47.6	22.6	20.9	37.5	50.9	53.0	61.4	53.1	51.7	38.0	41.0	81.1
LnGrp LOS	D	C	C	D	D	D	E	D	D	D	D	F
Approach Vol, veh/h		1381			1057			663			1009	
Approach Delay, s/veh		27.1			50.9			56.3			60.2	
Approach LOS		C			D			E			E	

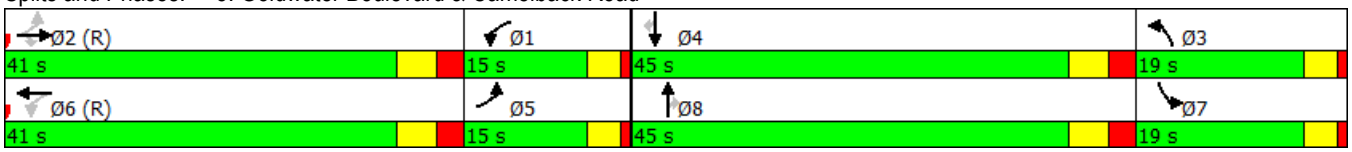
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	41.0	15.4	45.0	18.6	41.0	41.3	19.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	11.0	35.0	15.0	39.0	11.0	35.0	15.0	39.0
Max Q Clear Time (g_c+I1), s	2.0	17.1	11.4	38.8	9.3	24.5	4.0	11.7
Green Ext Time (p_c), s	0.1	2.8	0.1	0.1	0.0	2.2	0.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	None
Maximum Split (s)	15	41	19	45	15	41	19	45
Maximum Split (%)	12.5%	34.2%	15.8%	37.5%	12.5%	34.2%	15.8%	37.5%
Minimum Split (s)	8	36	8	36	8	36	8	36
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	10
Vehicle Extension (s)	1	1	1	3	1	1	1	2
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)								
Flash Dont Walk (s)								
Dual Entry	Yes	No	Yes	No	No	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	41	0	101	56	41	0	101	56
End Time (s)	56	41	0	101	56	41	0	101
Yield/Force Off (s)	52	35	116	95	52	35	116	95
Yield/Force Off 170(s)	52	35	116	95	52	35	116	95
Local Start Time (s)	41	0	101	56	41	0	101	56
Local Yield (s)	52	35	116	95	52	35	116	95
Local Yield 170(s)	52	35	116	95	52	35	116	95

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



30-DR-2019
8/22/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	257	956	168	51	1006	273	294	96	65	455	489
v/c Ratio	0.98	0.56	0.28	0.20	0.64	0.76	0.43	0.25	0.08	0.28	0.74
Control Delay	73.8	17.2	2.8	45.2	52.3	66.2	48.1	9.8	40.2	35.3	33.1
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	73.8	17.2	2.8	45.2	52.3	66.2	48.1	9.8	40.2	35.3	33.1
Queue Length 50th (ft)	119	91	5	34	303	107	116	0	19	104	219
Queue Length 95th (ft)	#305	110	13	m54	335	151	156	45	44	140	373
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	263	1714	603	271	1577	429	1226	613	925	1652	662
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	0.98	0.56	0.28	0.19	0.64	0.64	0.24	0.16	0.07	0.28	0.74

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.

ATTACHMENT E – 5/9/17 SFS TI&MA YEAR 2020 NO BUILD CAPACITY ANALYSIS

The Synchro outputs under Attachment E are taken directly from the Scottsdale Fashion Square Traffic Impact & Mitigation Analysis, dated May 9, 2017. For organizational purposes, the intersections for the Scottsdale Fashion Square – Caesars Republic Traffic Impact & Mitigation Analysis have been changed to:

Intersection	May 9, 2017 TI&MA Intersection Number	Caesars Republic TI&MA Intersection Number
Goldwater Boulevard and Camelback Road	8	1
Goldwater Boulevard and Fashion Square	3	2
Goldwater Boulevard and Highland Avenue	4	3
Highland Avenue and Site Driveway	N/A	4
Highland Avenue and Fashion Square/Optima Driveway	5	5
Scottsdale Road and Highland Avenue	6	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	1095	136	145	1025	60	224	321	184	52	200	42
Future Volume (veh/h)	81	1095	136	145	1025	60	224	321	184	52	200	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	90	1217	151	161	1139	67	249	357	204	58	222	47
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
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	1948	242	328	2211	130	347	497	422	114	259	220
Arrive On Green	0.08	0.43	0.43	0.21	0.90	0.90	0.16	0.27	0.27	0.03	0.14	0.14
Sat Flow, veh/h	1774	4584	569	1774	4913	289	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	90	900	468	161	786	420	249	357	204	58	222	47
Grp Sat Flow(s),veh/h/ln	1774	1695	1762	1774	1695	1812	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.0	24.9	24.9	0.0	5.2	5.2	11.3	20.9	13.0	0.0	14.0	3.2
Cycle Q Clear(g_c), s	0.0	24.9	24.9	0.0	5.2	5.2	11.3	20.9	13.0	0.0	14.0	3.2
Prop In Lane	1.00		0.32	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	1441	749	328	1526	815	347	497	422	114	259	220
V/C Ratio(X)	0.24	0.62	0.62	0.49	0.52	0.52	0.72	0.72	0.48	0.51	0.86	0.21
Avail Cap(c_a), veh/h	374	1441	749	328	1526	815	347	497	422	178	466	396
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	27.0	27.0	35.8	3.6	3.6	45.8	39.9	37.0	56.4	50.5	45.8
Incr Delay (d2), s/veh	0.1	2.1	3.9	0.3	1.0	1.8	7.0	8.7	3.9	1.3	3.2	0.2
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	2.0	12.0	12.9	4.3	2.4	2.7	8.4	11.9	6.1	1.9	7.4	1.4
LnGrp Delay(d),s/veh	21.9	29.1	30.9	36.1	4.5	5.3	52.7	48.6	41.0	57.7	53.7	46.0
LnGrp LOS	C	C	C	D	A	A	D	D	D	E	D	D
Approach Vol, veh/h		1458			1367			810			327	
Approach Delay, s/veh		29.2			8.5			47.9			53.3	
Approach LOS		C			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	39.0	16.3	57.0	23.0	23.7	13.3	60.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 8	32.0	* 8	51.0	* 10	30.0	* 5	54.0
Max Q Clear Time (g_c+I1), s	2.0	22.9	2.0	26.9	13.3	16.0	2.0	7.2
Green Ext Time (p_c), s	0.1	0.6	0.1	3.3	0.0	0.7	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

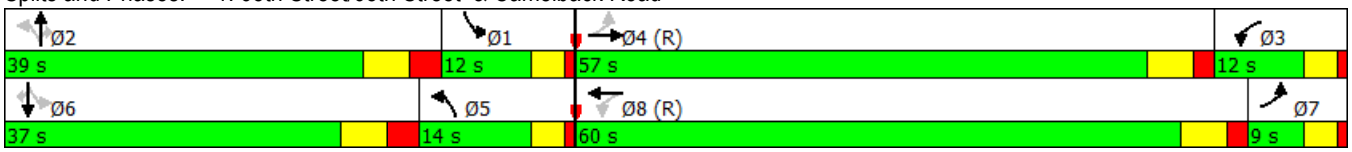
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	12	39	12	57	14	37	9	60
Maximum Split (%)	10.0%	32.5%	10.0%	47.5%	11.7%	30.8%	7.5%	50.0%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	108	69	57	0	106	69	60	0
End Time (s)	0	108	69	57	0	106	69	60
Yield/Force Off (s)	116	101	65	51	116	99	65	54
Yield/Force Off 170(s)	116	78	65	34	116	76	65	37
Local Start Time (s)	108	69	57	0	106	69	60	0
Local Yield (s)	116	101	65	51	116	99	65	54
Local Yield 170(s)	116	78	65	34	116	76	65	37

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	1368	161	1206	249	357	204	58	222	47
v/c Ratio	0.42	0.59	0.70	0.49	0.58	0.71	0.38	0.40	0.77	0.14
Control Delay	25.0	24.9	37.3	9.0	41.5	48.5	12.3	39.2	65.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	24.9	37.3	9.0	41.5	48.5	12.3	39.2	65.2	0.9
Queue Length 50th (ft)	31	282	33	98	140	250	29	29	167	0
Queue Length 95th (ft)	56	332	#130	134	213	362	95	59	238	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	220	2333	236	2473	428	504	540	190	465	470
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	0.41	0.59	0.68	0.49	0.58	0.71	0.38	0.31	0.48	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	2	356	10	10	294
Future Vol, veh/h	2	2	356	10	10	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	396	11	11	327

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	750	401	0	0	407	0
Stage 1	401	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	7.12	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	328	649	-	-	1152	-
Stage 1	626	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	649	-	-	1152	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	626	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	434	1152	-
HCM Lane V/C Ratio	-	-	0.01	0.01	-
HCM Control Delay (s)	-	-	13.4	8.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

30-DR-2019
8/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	3	4	10	1	2	22	456	33	15	1033	40
Future Volume (veh/h)	9	3	4	10	1	2	22	456	33	15	1033	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	10	3	4	11	1	2	24	507	37	17	1148	44
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
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	73	13	12	109	18	36	448	3071	1374	805	4413	1374
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	1.00	1.00	1.00	0.87	0.87	0.87
Sat Flow, veh/h	772	413	364	1403	556	1111	468	3539	1583	859	5085	1583
Grp Volume(v), veh/h	17	0	0	11	0	3	24	507	37	17	1148	44
Grp Sat Flow(s),veh/h/ln	1549	0	0	1403	0	1667	468	1770	1583	859	1695	1583
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.3	4.6	0.5
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.7	0.0	0.2	4.9	0.0	0.0	0.3	4.6	0.5
Prop In Lane	0.59		0.24	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	0	0	109	0	54	448	3071	1374	805	4413	1374
V/C Ratio(X)	0.17	0.00	0.00	0.10	0.00	0.06	0.05	0.17	0.03	0.02	0.26	0.03
Avail Cap(c_a), veh/h	414	0	0	403	0	403	448	3071	1374	805	4413	1374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	0.0	0.0	56.5	0.0	56.3	0.1	0.0	0.0	1.1	1.4	1.1
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.0
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	0.6	0.0	0.0	0.4	0.0	0.1	0.1	0.0	0.0	0.1	2.2	0.2
LnGrp Delay(d),s/veh	57.1	0.0	0.0	56.7	0.0	56.5	0.3	0.1	0.0	1.1	1.5	1.1
LnGrp LOS	E			E		E	A	A	A	A	A	A
Approach Vol, veh/h		17			14			568			1209	
Approach Delay, s/veh		57.1			56.6			0.1			1.5	
Approach LOS		E			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		110.1		9.9		110.1		9.9
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 79		29.0		* 79		29.0
Max Q Clear Time (g_c+I1), s		6.9		3.2		6.6		2.7
Green Ext Time (p_c), s		2.7		0.1		2.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	2.0
HCM 2010 LOS	A

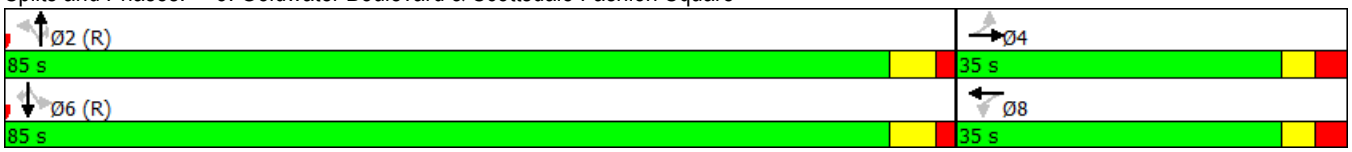
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	85	35	85	35
Maximum Split (%)	70.8%	29.2%	70.8%	29.2%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	85	0	85
End Time (s)	85	0	85	0
Yield/Force Off (s)	79	114	79	114
Yield/Force Off 170(s)	66	95	66	95
Local Start Time (s)	0	85	0	85
Local Yield (s)	79	114	79	114
Local Yield 170(s)	66	95	66	95

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	75	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	11	3	24	507	37	17	1148	44
v/c Ratio	0.17	0.11	0.03	0.06	0.15	0.02	0.02	0.24	0.03
Control Delay	49.1	56.3	41.7	3.2	2.2	2.0	1.3	1.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	56.3	41.7	3.2	2.2	2.0	1.3	1.0	0.5
Queue Length 50th (ft)	10	8	1	0	0	0	0	0	0
Queue Length 95th (ft)	34	28	11	m11	71	m11	5	60	5
Internal Link Dist (ft)	275		60		1010			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	438	450	406	410	3316	1485	811	4764	1486
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	0.04	0.02	0.01	0.06	0.15	0.02	0.02	0.24	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	0	0	467	0	961
Future Vol, veh/h	75	0	0	467	0	961
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	0	0	519	0	1068

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	427	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	593	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	573	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	593	-	-	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	593	-
HCM Lane V/C Ratio	-	0.141	-
HCM Control Delay (s)	-	12.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.5	-

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	441	2	30	34	17	0	1	13	22	0	41
Future Vol, veh/h	24	441	2	30	34	17	0	1	13	22	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	490	2	33	38	19	0	1	14	24	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	492	0	0	630	667	246	413	660	28
Stage 1	-	-	-	-	-	-	544	544	-	114	114	-
Stage 2	-	-	-	-	-	-	86	123	-	299	546	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1546	-	-	1068	-	-	366	378	754	523	382	1041
Stage 1	-	-	-	-	-	-	491	517	-	879	800	-
Stage 2	-	-	-	-	-	-	912	793	-	685	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1546	-	-	1068	-	-	337	360	754	493	364	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	360	-	493	364	-
Stage 1	-	-	-	-	-	-	482	508	-	864	775	-
Stage 2	-	-	-	-	-	-	845	768	-	659	507	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	3.1	10.3	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	699	1546	-	-	1068	-	-	493	1041
HCM Lane V/C Ratio	-	0.022	0.017	-	-	0.031	-	-	0.05	0.044
HCM Control Delay (s)	0	10.3	7.4	-	-	8.5	-	-	12.7	8.6
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Future Volume (vph)	439	7	33	6	2	7	32	1057	22	19	873	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.88		1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1633		1770	1639		1770	5070		1770	5046	
Flt Permitted	0.75	1.00		0.74	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	2714	1633		1380	1639		447	5070		353	5046	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	8	37	7	2	8	36	1174	24	21	970	52
RTOR Reduction (vph)	0	29	0	0	8	0	0	1	0	0	3	0
Lane Group Flow (vph)	488	16	0	7	2	0	36	1197	0	21	1019	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	27.3	27.3		5.4	5.4		69.3	69.3		69.3	69.3	
Effective Green, g (s)	27.3	27.3		5.4	5.4		69.3	69.3		69.3	69.3	
Actuated g/C Ratio	0.23	0.23		0.05	0.05		0.58	0.58		0.58	0.58	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	617	371		62	73		258	2927		203	2914	
v/s Ratio Prot		0.01			0.00			c0.24			0.20	
v/s Ratio Perm	c0.18			c0.01			0.08			0.06		
v/c Ratio	0.79	0.04		0.11	0.03		0.14	0.41		0.10	0.35	
Uniform Delay, d1	43.7	36.2		55.0	54.8		11.6	14.0		11.4	13.4	
Progression Factor	1.04	1.05		1.00	1.00		1.46	1.56		1.00	1.00	
Incremental Delay, d2	6.8	0.0		0.8	0.2		1.1	0.4		1.0	0.3	
Delay (s)	52.3	38.0		55.8	55.0		18.1	22.4		12.4	13.8	
Level of Service	D	D		E	D		B	C		B	B	
Approach Delay (s)		51.1			55.3			22.2			13.7	
Approach LOS		D			E			C			B	

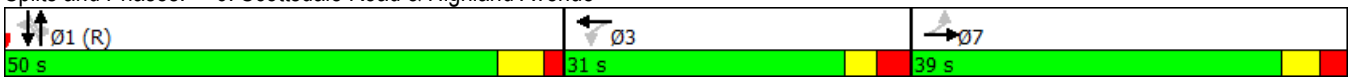
Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	50	31	39
Maximum Split (%)	41.7%	25.8%	32.5%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	8
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	50	81
End Time (s)	50	81	0
Yield/Force Off (s)	44	75	114
Yield/Force Off 170(s)	28	56	95
Local Start Time (s)	0	50	81
Local Yield (s)	44	75	114
Local Yield 170(s)	28	56	95

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: 6: Scottsdale Road & Highland Avenue



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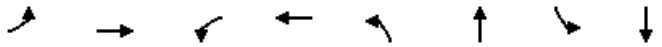


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	488	45	7	10	36	1198	21	1022
v/c Ratio	0.79	0.11	0.06	0.07	0.13	0.39	0.10	0.33
Control Delay	54.7	14.1	49.3	29.3	25.2	23.2	17.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	14.1	49.3	29.3	25.2	23.2	17.8	14.2
Queue Length 50th (ft)	182	3	5	1	17	242	5	108
Queue Length 95th (ft)	202	22	20	18	m51	336	29	242
Internal Link Dist (ft)		504		150		1290		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	753	480	287	347	271	3079	215	3066
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	0.65	0.09	0.02	0.03	0.13	0.39	0.10	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Future Volume (veh/h)	125	534	154	66	561	134	146	509	31	138	534	86
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	139	593	171	73	623	149	162	566	34	153	593	96
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	772	346	178	739	176	739	1391	83	739	1003	449
Arrive On Green	0.02	0.07	0.07	0.10	0.26	0.26	0.21	0.28	0.28	0.07	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2836	677	3442	4908	293	3442	3539	1583
Grp Volume(v), veh/h	139	593	171	73	388	384	162	390	210	153	593	96
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1743	1721	1695	1811	1721	1770	1583
Q Serve(g_s), s	4.8	19.8	12.5	4.6	24.9	25.0	4.7	11.2	11.3	5.0	19.3	6.7
Cycle Q Clear(g_c), s	4.8	19.8	12.5	4.6	24.9	25.0	4.7	11.2	11.3	5.0	19.3	6.7
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	200	772	346	178	461	454	739	961	513	739	1003	449
V/C Ratio(X)	0.70	0.77	0.49	0.41	0.84	0.84	0.22	0.41	0.41	0.21	0.59	0.21
Avail Cap(c_a), veh/h	315	1180	528	178	605	596	739	961	513	739	1003	449
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.8	52.7	49.3	50.6	42.0	42.1	38.8	34.8	34.9	46.1	47.7	42.0
Incr Delay (d2), s/veh	3.7	1.4	0.9	1.5	8.2	8.5	0.1	1.3	2.4	0.1	2.4	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	2.4	9.9	5.6	2.3	13.2	13.1	2.2	5.4	6.0	2.4	9.8	3.1
LnGrp Delay(d),s/veh	61.5	54.1	50.3	52.1	50.2	50.5	39.0	36.1	37.3	46.2	50.2	43.1
LnGrp LOS	E	D	D	D	D	D	D	D	D	D	D	D
Approach Vol, veh/h		903			845			762			842	
Approach Delay, s/veh		54.5			50.5			37.0			48.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.8	41.0	16.0	33.2	29.8	41.0	11.0	38.3
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 12	34.0	12.0	40.0	* 12	34.0	11.0	41.0
Max Q Clear Time (g_c+I1), s	7.0	13.3	6.6	21.8	6.7	21.3	6.8	27.0
Green Ext Time (p_c), s	0.5	3.8	0.3	4.4	0.5	3.5	0.2	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.1
HCM 2010 LOS	D

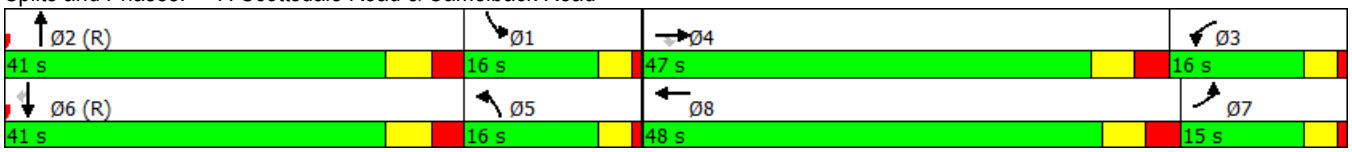
Notes

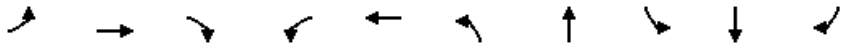
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	16	41	16	47	16	41	15	48
Maximum Split (%)	13.3%	34.2%	13.3%	39.2%	13.3%	34.2%	12.5%	40.0%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	91	50	34	107	91	50	35	107
End Time (s)	107	91	50	34	107	91	50	35
Yield/Force Off (s)	103	84	46	27	103	84	46	28
Yield/Force Off 170(s)	103	73	46	16	103	73	46	17
Local Start Time (s)	41	0	104	57	41	0	105	57
Local Yield (s)	53	34	116	97	53	34	116	98
Local Yield 170(s)	53	23	116	86	53	23	116	87

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 50 (42%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	139	593	171	73	772	162	600	153	593	96
v/c Ratio	0.49	0.65	0.32	0.35	0.79	0.54	0.32	0.51	0.45	0.15
Control Delay	68.6	69.9	35.1	51.8	44.7	59.0	28.9	68.6	25.4	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	69.9	35.1	51.8	44.7	59.0	28.9	68.6	25.4	11.1
Queue Length 50th (ft)	47	259	88	52	283	62	120	65	204	12
Queue Length 95th (ft)	50	318	159	98	326	97	174	102	298	87
Internal Link Dist (ft)		1321			647		577		1290	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	318	1179	641	228	1191	343	1863	343	1304	652
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	0.44	0.50	0.27	0.32	0.65	0.47	0.32	0.45	0.45	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Future Volume (veh/h)	181	829	138	41	649	33	126	158	35	16	388	449
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	921	153	46	721	37	140	176	39	18	431	499
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
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	448	1737	541	278	1239	63	199	1398	625	73	1822	567
Arrive On Green	0.33	0.68	0.68	0.15	0.50	0.50	0.06	0.40	0.40	0.01	0.12	0.12
Sat Flow, veh/h	1774	5085	1583	1774	4955	253	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	201	921	153	46	492	266	140	176	39	18	431	499
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1818	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	3.8	1.8	0.6	9.2	37.2
Cycle Q Clear(g_c), s	0.0	10.8	4.6	0.0	12.3	12.4	4.8	3.8	1.8	0.6	9.2	37.2
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	448	1737	541	278	848	455	199	1398	625	73	1822	567
V/C Ratio(X)	0.45	0.53	0.28	0.17	0.58	0.58	0.70	0.13	0.06	0.25	0.24	0.88
Avail Cap(c_a), veh/h	448	1737	541	278	848	455	287	1398	625	161	1822	567
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.81	0.81	0.81	0.66	0.66	0.66	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	29.7	14.2	13.2	35.0	25.6	25.6	55.5	23.1	22.5	58.6	38.0	50.4
Incr Delay (d2), s/veh	0.6	0.9	1.1	0.2	1.9	3.6	4.5	0.2	0.2	1.7	0.3	17.2
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	4.5	5.1	2.1	1.2	5.8	6.5	2.4	1.9	0.8	0.3	4.4	19.1
LnGrp Delay(d),s/veh	30.3	15.2	14.3	35.2	27.5	29.2	60.0	23.3	22.7	60.4	38.3	67.6
LnGrp LOS	C	B	B	D	C	C	E	C	C	E	D	E
Approach Vol, veh/h		1275			804			355			948	
Approach Delay, s/veh		17.4			28.5			37.7			54.1	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	47.0	10.9	49.0	24.1	36.0	6.5	53.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	41.0	10.0	43.0	17.0	30.0	5.6	47.4
Max Q Clear Time (g_c+I1), s	2.0	12.8	6.8	39.2	2.0	14.4	2.6	5.8
Green Ext Time (p_c), s	0.3	8.1	0.1	1.7	0.6	4.5	0.1	1.3

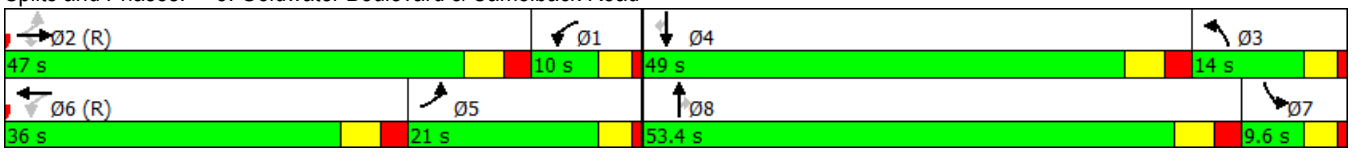
Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

30-DR-2019
8/22/2019

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10	47	14	49	21	36	9.6	53.4
Maximum Split (%)	8.3%	39.2%	11.7%	40.8%	17.5%	30.0%	8.0%	44.5%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	Yes	No	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	47	0	106	57	36	0	110.4	57
End Time (s)	57	47	0	106	57	36	0	110.4
Yield/Force Off (s)	53	41	116	100	53	30	116	104.4
Yield/Force Off 170(s)	53	30	116	89	53	19	116	93.4
Local Start Time (s)	47	0	106	57	36	0	110.4	57
Local Yield (s)	53	41	116	100	53	30	116	104.4
Local Yield 170(s)	53	30	116	89	53	19	116	93.4

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	70	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	201	921	153	46	758	140	176	39	18	431	499
v/c Ratio	0.56	0.52	0.25	0.28	0.58	0.53	0.11	0.05	0.11	0.23	0.65
Control Delay	24.4	35.1	16.8	12.0	38.3	60.5	20.5	0.1	67.4	25.5	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	35.1	16.8	12.0	38.3	60.5	20.5	0.1	67.4	25.5	19.6
Queue Length 50th (ft)	51	160	29	10	111	54	38	0	7	84	136
Queue Length 95th (ft)	92	213	73	m14	195	88	70	0	21	112	324
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	386	1767	620	169	1296	286	1608	804	160	1910	773
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	0.52	0.52	0.25	0.27	0.58	0.49	0.11	0.05	0.11	0.23	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

30-DR-2019
8/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	1135	194	241	1351	72	193	330	195	85	237	70
Future Volume (veh/h)	98	1135	194	241	1351	72	193	330	195	85	237	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	109	1261	216	268	1501	80	214	367	217	94	263	78
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	1
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	247	1639	281	360	2142	114	316	497	422	123	301	256
Arrive On Green	0.09	0.38	0.38	0.05	0.14	0.14	0.14	0.27	0.27	0.04	0.16	0.16
Sat Flow, veh/h	1774	4372	749	1774	4943	263	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	109	978	499	268	1029	552	214	367	217	94	263	78
Grp Sat Flow(s),veh/h/ln	1774	1695	1731	1774	1695	1816	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.8	30.4	30.4	11.2	34.7	34.7	9.0	21.6	14.0	2.2	16.5	5.2
Cycle Q Clear(g_c), s	0.8	30.4	30.4	11.2	34.7	34.7	9.0	21.6	14.0	2.2	16.5	5.2
Prop In Lane	1.00		0.43	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	247	1271	649	360	1469	787	316	497	422	123	301	256
V/C Ratio(X)	0.44	0.77	0.77	0.74	0.70	0.70	0.68	0.74	0.51	0.77	0.87	0.30
Avail Cap(c_a), veh/h	247	1271	649	360	1469	787	316	497	422	149	497	422
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.49	0.49	0.49	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	32.9	32.9	51.0	44.0	44.0	46.8	40.2	37.4	56.2	49.1	44.3
Incr Delay (d2), s/veh	0.5	4.5	8.5	3.6	1.4	2.6	5.7	9.5	4.4	13.8	5.1	0.2
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	3.4	14.9	16.0	9.1	16.6	18.0	7.2	12.4	6.6	3.5	8.9	2.3
LnGrp Delay(d),s/veh	48.9	37.5	41.5	54.7	45.4	46.6	52.4	49.7	41.8	70.0	54.1	44.6
LnGrp LOS	D	D	D	D	D	D	D	D	D	E	D	D
Approach Vol, veh/h		1586			1849			798			435	
Approach Delay, s/veh		39.5			47.1			48.3			55.8	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	39.0	21.8	51.0	20.8	26.4	14.8	58.0
Change Period (Y+Rc), s	* 4	7.0	* 4	6.0	* 4	7.0	* 4	6.0
Max Green Setting (Gmax), s	* 6	32.0	* 16	45.0	* 6	32.0	* 9	52.0
Max Q Clear Time (g_c+I1), s	4.2	23.6	13.2	32.4	11.0	18.5	2.8	36.7
Green Ext Time (p_c), s	0.0	0.6	0.1	3.2	0.0	0.9	0.1	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

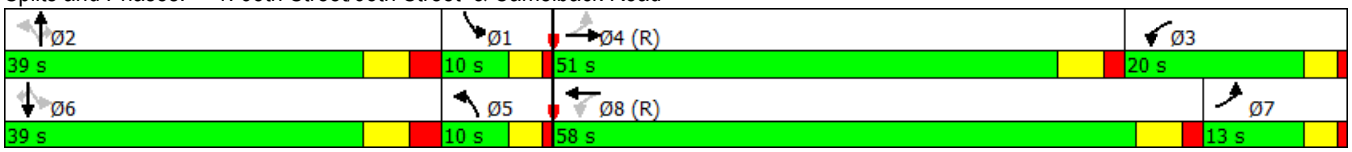
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	None	None	C-Max
Maximum Split (s)	10	39	20	51	10	39	13	58
Maximum Split (%)	8.3%	32.5%	16.7%	42.5%	8.3%	32.5%	10.8%	48.3%
Minimum Split (s)	8	37	8	56	9.5	37	8	56
Yellow Time (s)	3	4.2	3	4.2	3	4.2	3	4.2
All-Red Time (s)	1	2.8	1	1.8	1	2.8	1	1.8
Minimum Initial (s)	4	8	4	10	4	8	4	10
Vehicle Extension (s)	2	1	1	1	3	2	1	1
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		33		7		33
Flash Dont Walk (s)		23		17		23		17
Dual Entry	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	47	27	96	86	47	34	96
End Time (s)	96	86	47	27	96	86	47	34
Yield/Force Off (s)	92	79	43	21	92	79	43	28
Yield/Force Off 170(s)	92	56	43	4	92	56	43	11
Local Start Time (s)	110	71	51	0	110	71	58	0
Local Yield (s)	116	103	67	45	116	103	67	52
Local Yield 170(s)	116	80	67	28	116	80	67	35

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 96 (80%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 1: 68th Street/68th Street & Camelback Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	109	1477	268	1581	214	367	217	94	263	78
v/c Ratio	0.59	0.77	0.93	0.71	0.51	0.72	0.39	0.63	0.79	0.19
Control Delay	46.9	35.3	52.4	34.7	39.2	49.0	12.9	55.5	64.1	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	35.3	52.4	34.7	39.2	49.0	12.9	55.5	64.1	1.0
Queue Length 50th (ft)	37	357	100	311	118	260	34	48	197	0
Queue Length 95th (ft)	89	421	m#170	366	181	374	102	86	272	0
Internal Link Dist (ft)		470		1166		612			237	
Turn Bay Length (ft)	200		225		140		140	165		180
Base Capacity (vph)	197	1910	302	2216	420	510	550	159	496	535
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	0.55	0.77	0.89	0.71	0.51	0.72	0.39	0.59	0.53	0.15

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.

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8/22/2019

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	35	475	25	15	236
Future Vol, veh/h	25	35	475	25	15	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	39	528	28	17	262

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	838	542	0	0	556	0
Stage 1	542	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	336	540	-	-	1015	-
Stage 1	583	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	540	-	-	1015	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1015	-
HCM Lane V/C Ratio	-	-	0.156	0.016	-
HCM Control Delay (s)	-	-	15	8.6	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	9	71	73	12	24	39	601	76	31	1033	30
Future Volume (veh/h)	72	9	71	73	12	24	39	601	76	31	1033	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	10	79	81	13	27	43	668	84	34	1148	33
Adj No. of Lanes	0	1	0	1	1	0	1	2	1	1	3	1
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	130	22	94	206	77	161	384	2679	1199	596	3850	1199
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	1.00	1.00	1.00	0.76	0.76	0.76
Sat Flow, veh/h	598	154	660	1303	541	1124	473	3539	1583	708	5085	1583
Grp Volume(v), veh/h	169	0	0	81	0	40	43	668	84	34	1148	33
Grp Sat Flow(s),veh/h/ln	1412	0	0	1303	0	1664	473	1770	1583	708	1695	1583
Q Serve(g_s), s	11.6	0.0	0.0	0.0	0.0	2.5	1.2	0.0	0.0	1.5	8.5	0.6
Cycle Q Clear(g_c), s	14.1	0.0	0.0	9.5	0.0	2.5	9.7	0.0	0.0	1.5	8.5	0.6
Prop In Lane	0.47		0.47	1.00		0.68	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	0	0	206	0	238	384	2679	1199	596	3850	1199
V/C Ratio(X)	0.69	0.00	0.00	0.39	0.00	0.17	0.11	0.25	0.07	0.06	0.30	0.03
Avail Cap(c_a), veh/h	565	0	0	486	0	596	384	2679	1199	596	3850	1199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	0.0	48.1	0.0	45.2	0.5	0.0	0.0	3.7	4.6	3.6
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.5	0.0	0.1	0.5	0.2	0.1	0.2	0.2	0.0
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	5.5	0.0	0.0	2.5	0.0	1.2	0.2	0.1	0.0	0.3	4.0	0.3
LnGrp Delay(d),s/veh	51.7	0.0	0.0	48.6	0.0	45.3	0.9	0.2	0.1	3.9	4.8	3.7
LnGrp LOS	D			D		D	A	A	A	A	A	A
Approach Vol, veh/h		169			121			795			1215	
Approach Delay, s/veh		51.7			47.5			0.2			4.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		96.8		23.2		96.8		23.2
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0
Max Green Setting (Gmax), s		* 65		43.0		* 65		43.0
Max Q Clear Time (g_c+I1), s		11.7		16.1		10.5		11.5
Green Ext Time (p_c), s		3.2		1.0		3.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

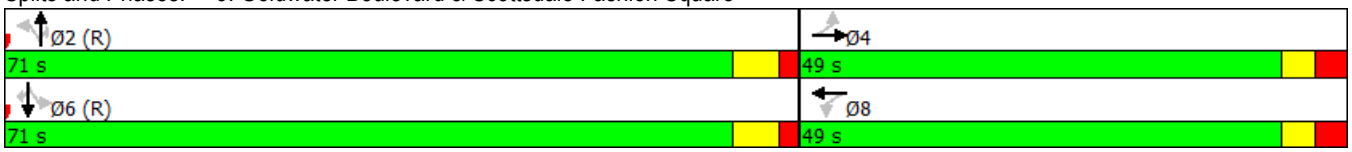
Notes

User approved pedestrian interval to be less than phase max green.

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	71	49	71	49
Maximum Split (%)	59.2%	40.8%	59.2%	40.8%
Minimum Split (s)	39	31.4	39	31.1
Yellow Time (s)	4.1	3	4.1	3
All-Red Time (s)	1.9	3	1.9	3
Minimum Initial (s)	10	6	10	6
Vehicle Extension (s)	0.2	2	0.2	2
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)	17	6	17	6
Flash Dont Walk (s)	13	19	13	19
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)	65	114	65	114
Yield/Force Off 170(s)	52	95	52	95
Local Start Time (s)	0	71	0	71
Local Yield (s)	65	114	65	114
Local Yield 170(s)	52	95	52	95

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	169	81	40	43	668	84	34	1148	33
v/c Ratio	0.77	0.62	0.17	0.13	0.24	0.07	0.06	0.29	0.03
Control Delay	59.3	68.5	22.4	11.7	10.1	5.5	4.7	4.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	68.5	22.4	11.7	10.1	5.5	4.7	4.7	1.9
Queue Length 50th (ft)	97	60	9	18	154	7	5	80	1
Queue Length 95th (ft)	163	107	39	m38	221	m33	18	131	10
Internal Link Dist (ft)	275		60		1011			212	
Turn Bay Length (ft)		50		160		90	120		120
Base Capacity (vph)	544	365	617	329	2732	1238	568	3926	1229
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	0.31	0.22	0.06	0.13	0.24	0.07	0.06	0.29	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	159	0	0	697	0	947
Future Vol, veh/h	159	0	0	697	0	947
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	0	0	774	0	1052

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	421	-	-	0	-	-
Stage 1	0	-	-	-	-	-
Stage 2	421	-	-	-	-	-
Critical Hdwy	5.74	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	-	-	-	-	-
Pot Cap-1 Maneuver	597	0	0	-	0	-
Stage 1	-	0	0	-	0	-
Stage 2	577	0	0	-	0	-
Platoon blocked, %				-		-
Mov Cap-1 Maneuver	597	-	-	-	-	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	577	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBR	WBLn1	SBT
Capacity (veh/h)	-	597	-
HCM Lane V/C Ratio	-	0.296	-
HCM Control Delay (s)	-	13.5	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	1.2	-

30-DR-2019
8/22/2019

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	650	0	32	126	30	7	3	44	19	3	26
Future Vol, veh/h	47	650	0	32	126	30	7	3	44	19	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	722	0	36	140	33	8	3	49	21	3	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	722	0	0	970	1071	361	695	1055	87
Stage 1	-	-	-	-	-	-	827	827	-	228	228	-
Stage 2	-	-	-	-	-	-	143	244	-	467	827	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1401	-	-	876	-	-	208	219	636	329	224	954
Stage 1	-	-	-	-	-	-	332	384	-	754	714	-
Stage 2	-	-	-	-	-	-	845	703	-	545	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1401	-	-	876	-	-	188	202	636	282	207	954
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	202	-	282	207	-
Stage 1	-	-	-	-	-	-	320	370	-	726	685	-
Stage 2	-	-	-	-	-	-	782	674	-	480	370	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.6	13.8	13.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	188	559	1401	-	-	876	-	-	282	695
HCM Lane V/C Ratio	0.041	0.093	0.037	-	-	0.041	-	-	0.075	0.046
HCM Control Delay (s)	25	12.1	7.7	-	-	9.3	-	-	18.8	10.4
HCM Lane LOS	D	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.3	0.1	-	-	0.1	-	-	0.2	0.1

30-DR-2019
8/22/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Future Volume (vph)	686	4	36	13	14	24	51	1243	12	9	1070	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	1609		1770	1687		1770	5078		1770	5006	
Flt Permitted	0.73	1.00		0.37	1.00		0.11	1.00		0.10	1.00	
Satd. Flow (perm)	2634	1609		690	1687		211	5078		184	5006	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	762	4	40	14	16	27	57	1381	13	10	1189	137
RTOR Reduction (vph)	0	26	0	0	15	0	0	1	0	0	11	0
Lane Group Flow (vph)	762	18	0	14	28	0	57	1393	0	10	1315	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7			3			1			1		
Actuated Green, G (s)	42.5	42.5		10.8	10.8		48.7	48.7		48.7	48.7	
Effective Green, g (s)	42.5	42.5		10.8	10.8		48.7	48.7		48.7	48.7	
Actuated g/C Ratio	0.35	0.35		0.09	0.09		0.41	0.41		0.41	0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	932	569		62	151		85	2060		74	2031	
v/s Ratio Prot		0.01			0.02			c0.27			0.26	
v/s Ratio Perm	c0.29			c0.02			0.27			0.05		
v/c Ratio	0.82	0.03		0.23	0.19		0.67	0.68		0.14	0.65	
Uniform Delay, d1	35.2	25.3		50.7	50.5		29.1	29.2		22.4	28.7	
Progression Factor	1.27	2.03		1.00	1.00		0.58	0.56		1.00	1.00	
Incremental Delay, d2	5.6	0.0		1.9	0.6		30.1	1.5		3.8	1.6	
Delay (s)	50.4	51.4		52.6	51.2		47.1	17.9		26.2	30.3	
Level of Service	D	D		D	D		D	B		C	C	
Approach Delay (s)		50.4			51.5			19.1			30.3	
Approach LOS		D			D			B			C	

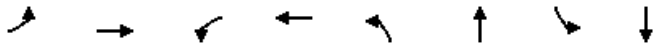
Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	7
Movement	NBSB	WBTL	EBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	None
Maximum Split (s)	49	31	40
Maximum Split (%)	40.8%	25.8%	33.3%
Minimum Split (s)	38	31	31
Yellow Time (s)	4.2	2.9	3.4
All-Red Time (s)	1.8	3.1	2.6
Minimum Initial (s)	10	6	6
Vehicle Extension (s)	2	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)	14	6	6
Flash Dont Walk (s)	16	19	19
Dual Entry	Yes	No	No
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	49	80
End Time (s)	49	80	0
Yield/Force Off (s)	43	74	114
Yield/Force Off 170(s)	27	55	95
Local Start Time (s)	0	49	80
Local Yield (s)	43	74	114
Local Yield 170(s)	27	55	95

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: 6: Scottsdale Road & Highland Avenue



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	762	44	14	43	57	1394	10	1326
v/c Ratio	0.82	0.07	0.21	0.23	0.66	0.66	0.13	0.63
Control Delay	53.2	19.8	52.7	35.3	53.3	18.1	31.7	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	19.8	52.7	35.3	53.3	18.1	31.7	30.5
Queue Length 50th (ft)	270	7	10	20	43	389	5	306
Queue Length 95th (ft)	#417	37	30	51	m#93	457	21	377
Internal Link Dist (ft)		504		150		1288		654
Turn Bay Length (ft)	255		50		185		85	
Base Capacity (vph)	931	595	143	364	87	2113	76	2094
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	0.82	0.07	0.10	0.12	0.66	0.66	0.13	0.63

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.

HCM 2010 Signalized Intersection Summary
7: Scottsdale Road & Camelback Road

04/11/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	558	242	86	531	155	312	743	96	284	609	235
Future Volume (veh/h)	264	558	242	86	531	155	312	743	96	284	609	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	293	620	269	96	590	172	347	826	107	316	677	261
Adj No. of Lanes	2	2	1	1	2	0	2	3	0	2	2	1
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	352	745	333	237	655	190	708	1258	162	676	944	422
Arrive On Green	0.20	0.42	0.42	0.13	0.24	0.24	0.21	0.28	0.28	0.06	0.09	0.09
Sat Flow, veh/h	3442	3539	1583	1774	2706	787	3442	4562	588	3442	3539	1583
Grp Volume(v), veh/h	293	620	269	96	385	377	347	613	320	316	677	261
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1774	1770	1724	1721	1695	1759	1721	1770	1583
Q Serve(g_s), s	9.8	18.7	17.9	5.9	25.3	25.4	10.7	19.2	19.3	10.6	22.3	19.1
Cycle Q Clear(g_c), s	9.8	18.7	17.9	5.9	25.3	25.4	10.7	19.2	19.3	10.6	22.3	19.1
Prop In Lane	1.00		1.00	1.00		0.46	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	352	745	333	237	428	417	708	935	485	676	944	422
V/C Ratio(X)	0.83	0.83	0.81	0.40	0.90	0.90	0.49	0.66	0.66	0.47	0.72	0.62
Avail Cap(c_a), veh/h	488	1038	464	237	457	445	708	935	485	676	944	422
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	46.7	32.8	32.6	47.6	44.1	44.1	42.1	38.4	38.5	50.1	50.3	48.8
Incr Delay (d2), s/veh	7.4	3.6	6.2	1.1	19.8	20.7	0.5	3.6	6.9	0.4	3.5	4.9
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	5.0	9.5	8.3	3.0	14.8	14.5	5.1	9.4	10.4	5.1	11.4	9.0
LnGrp Delay(d),s/veh	54.1	36.5	38.8	48.7	63.8	64.8	42.6	42.0	45.4	50.4	53.8	53.8
LnGrp LOS	D	D	D	D	E	E	D	D	D	D	D	D
Approach Vol, veh/h		1182			858			1280			1254	
Approach Delay, s/veh		41.4			62.6			43.0			52.9	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.6	40.1	20.1	32.3	28.7	39.0	16.3	36.0
Change Period (Y+Rc), s	* 4	7.0	4.0	7.0	* 4	7.0	4.0	7.0
Max Green Setting (Gmax), s	* 17	33.1	12.8	35.2	* 18	32.0	17.0	31.0
Max Q Clear Time (g_c+I1), s	12.6	21.3	7.9	20.7	12.7	24.3	11.8	27.4
Green Ext Time (p_c), s	1.1	4.8	0.6	4.5	1.3	3.3	0.5	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	49.0
HCM 2010 LOS	D

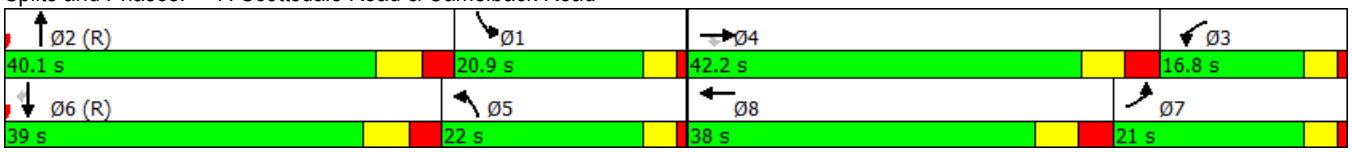
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
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)	20.9	40.1	16.8	42.2	22	39	21	38
Maximum Split (%)	17.4%	33.4%	14.0%	35.2%	18.3%	32.5%	17.5%	31.7%
Minimum Split (s)	9.5	27	9.5	27	9.5	25	9.5	25
Yellow Time (s)	3	4.2	3	3.8	3	4.2	3	3.8
All-Red Time (s)	1	2.8	1	3.2	1	2.8	1	3.2
Minimum Initial (s)	5	20	5	20	5	15	2	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)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.1	98	81.2	39	17	98	77	39
End Time (s)	39	18.1	98	81.2	39	17	98	77
Yield/Force Off (s)	35	11.1	94	74.2	35	10	94	70
Yield/Force Off 170(s)	35	0.1	94	63.2	35	119	94	59
Local Start Time (s)	40.1	0	103.2	61	39	0	99	61
Local Yield (s)	57	33.1	116	96.2	57	32	116	92
Local Yield 170(s)	57	22.1	116	85.2	57	21	116	81

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 98 (82%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 7: Scottsdale Road & Camelback Road



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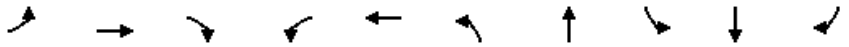


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	293	620	269	96	762	347	933	316	677	261
v/c Ratio	0.69	0.73	0.46	0.40	0.87	0.74	0.59	0.72	0.62	0.39
Control Delay	42.7	19.6	3.8	53.8	53.3	59.8	36.5	78.7	61.6	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	19.6	3.8	53.8	53.3	59.8	36.5	78.7	61.6	31.9
Queue Length 50th (ft)	124	150	4	67	282	133	226	110	295	136
Queue Length 95th (ft)	171	179	23	129	#365	184	280	165	357	216
Internal Link Dist (ft)		1329			616		511		1288	
Turn Bay Length (ft)	155			115		190		145		
Base Capacity (vph)	486	1038	654	238	909	514	1591	483	1085	666
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	0.60	0.60	0.41	0.40	0.84	0.68	0.59	0.65	0.62	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Future Volume (veh/h)	257	954	168	51	930	74	273	293	96	65	454	488
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	286	1060	187	57	1033	82	303	326	107	72	504	542
Adj No. of Lanes	1	3	1	1	3	0	2	2	1	2	3	1
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	396	1937	603	254	1281	102	362	1242	555	129	1441	449
Arrive On Green	0.36	0.76	0.76	0.02	0.09	0.09	0.11	0.35	0.35	0.01	0.09	0.09
Sat Flow, veh/h	1774	5085	1583	1774	4805	381	3442	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	286	1060	187	57	728	387	303	326	107	72	504	542
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1796	1721	1770	1583	1721	1695	1583
Q Serve(g_s), s	10.4	10.2	4.4	0.0	25.3	25.4	10.4	7.9	5.6	2.5	11.1	34.0
Cycle Q Clear(g_c), s	10.4	10.2	4.4	0.0	25.3	25.4	10.4	7.9	5.6	2.5	11.1	34.0
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	1937	603	254	904	479	362	1242	555	129	1441	449
V/C Ratio(X)	0.72	0.55	0.31	0.22	0.81	0.81	0.84	0.26	0.19	0.56	0.35	1.21
Avail Cap(c_a), veh/h	396	1937	603	254	904	479	402	1242	555	169	1441	449
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.70	0.70	0.70	0.58	0.58	0.58	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	33.5	10.1	9.4	41.3	51.7	51.7	52.7	27.9	27.1	58.3	44.0	54.4
Incr Delay (d2), s/veh	4.5	0.8	0.9	0.3	4.6	8.4	13.4	0.5	0.8	3.6	0.6	112.3
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	8.1	4.7	2.1	1.7	12.5	13.8	5.6	3.9	2.6	1.3	5.3	28.9
LnGrp Delay(d),s/veh	38.0	10.9	10.3	41.5	56.2	60.1	66.0	28.4	27.9	61.8	44.7	166.7
LnGrp LOS	D	B	B	D	E	E	E	C	C	E	D	F
Approach Vol, veh/h		1533			1172			736			1118	
Approach Delay, s/veh		15.9			56.8			43.8			104.9	
Approach LOS		B			E			D			F	

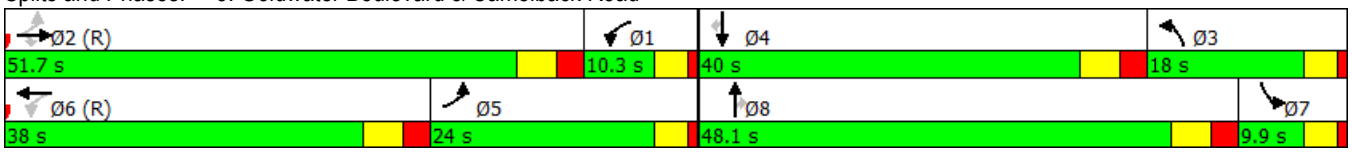
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	51.7	16.6	40.0	25.4	38.0	8.5	48.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.3	45.7	14.0	34.0	20.0	32.0	5.9	42.1
Max Q Clear Time (g_c+I1), s	2.0	12.2	12.4	36.0	12.4	27.4	4.5	9.9
Green Ext Time (p_c), s	0.4	10.2	0.2	0.0	0.6	2.8	0.2	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	52.7
HCM 2010 LOS	D

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBTL	NBL	SBT	EBL	WBTL	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	10.3	51.7	18	40	24	38	9.9	48.1
Maximum Split (%)	8.6%	43.1%	15.0%	33.3%	20.0%	31.7%	8.3%	40.1%
Minimum Split (s)	9.5	24	9.5	24	9.5	24	9.5	24
Yellow Time (s)	3	3.6	3	3.6	3	3.6	3	3.6
All-Red Time (s)	1	2.4	1	2.4	1	2.4	1	2.4
Minimum Initial (s)	4	10	4	10	4	10	4	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)								
Flash Dont Walk (s)								
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	51.7	0	102	62	38	0	110.1	62
End Time (s)	62	51.7	0	102	62	38	0	110.1
Yield/Force Off (s)	58	45.7	116	96	58	32	116	104.1
Yield/Force Off 170(s)	58	45.7	116	96	58	32	116	104.1
Local Start Time (s)	51.7	0	102	62	38	0	110.1	62
Local Yield (s)	58	45.7	116	96	58	32	116	104.1
Local Yield 170(s)	58	45.7	116	96	58	32	116	104.1

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		

Splits and Phases: 8: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	1060	187	57	1115	303	326	107	72	504	542
v/c Ratio	0.85	0.54	0.26	0.35	0.82	0.78	0.24	0.15	0.43	0.33	0.80
Control Delay	43.7	11.1	0.9	42.2	56.7	66.5	27.3	1.7	74.8	39.0	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	11.1	0.9	42.2	56.7	66.5	27.3	1.7	74.8	39.0	34.7
Queue Length 50th (ft)	166	75	1	31	337	119	94	0	28	123	233
Queue Length 95th (ft)	#299	91	m3	m47	376	#177	132	13	56	163	#394
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	360	1979	710	165	1366	400	1333	692	168	1507	674
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	0.79	0.54	0.26	0.35	0.82	0.76	0.24	0.15	0.43	0.33	0.80

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.

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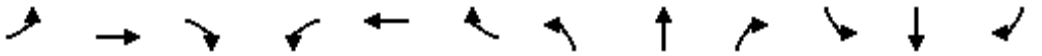
ATTACHMENT F – YEAR 2020 BUILD CAPACITY ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	251	829	138	41	649	46	126	219	35	17	408	473
Future Volume (veh/h)	251	829	138	41	649	46	126	219	35	17	408	473
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	279	921	153	46	721	51	140	243	39	19	453	526
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	579	1745	542	411	1218	86	202	948	423	260	1447	832
Arrive On Green	0.48	0.68	0.68	0.30	0.50	0.50	0.06	0.27	0.27	0.13	0.47	0.47
Sat Flow, veh/h	1781	5106	1585	1781	4870	343	3456	3554	1585	3456	5106	1585
Grp Volume(v), veh/h	279	921	153	46	503	269	140	243	39	19	453	526
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1809	1728	1777	1585	1728	1702	1585
Q Serve(g_s), s	0.0	10.7	4.5	0.0	12.6	12.7	4.8	6.5	2.2	0.6	6.6	0.0
Cycle Q Clear(g_c), s	0.0	10.7	4.5	0.0	12.6	12.7	4.8	6.5	2.2	0.6	6.6	0.0
Prop In Lane	1.00		1.00	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	579	1745	542	411	851	452	202	948	423	260	1447	832
V/C Ratio(X)	0.48	0.53	0.28	0.11	0.59	0.60	0.69	0.26	0.09	0.07	0.31	0.63
Avail Cap(c_a), veh/h	579	1745	542	411	851	452	547	948	423	605	1447	832
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.76	0.76	0.76	0.64	0.64	0.64	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	21.1	14.2	13.2	25.3	25.6	25.7	55.4	34.6	33.1	48.8	24.4	13.2
Incr Delay (d2), s/veh	0.5	0.9	1.0	0.1	1.9	3.7	4.2	0.7	0.4	0.1	0.5	3.5
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	4.3	3.2	1.6	0.8	4.3	4.9	2.2	2.9	0.9	0.3	2.5	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	15.1	14.2	25.4	27.6	29.4	59.7	35.3	33.5	48.9	24.9	16.7
LnGrp LOS	C	B	B	C	C	C	E	D	C	D	C	B
Approach Vol, veh/h		1353			818			422			998	
Approach Delay, s/veh		16.3			28.0			43.2			21.0	
Approach LOS		B			C			D			C	

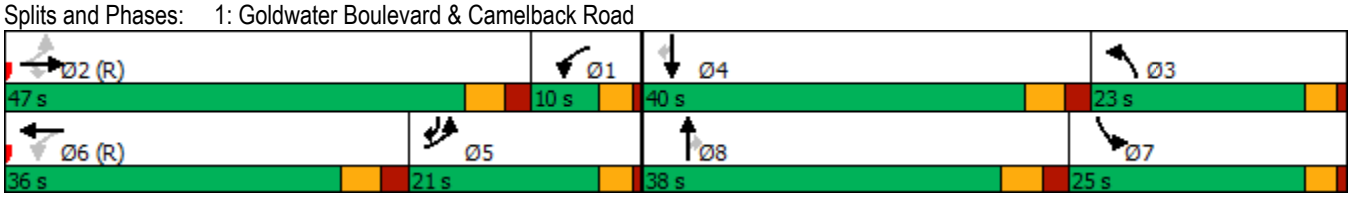
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	47.0	11.0	40.0	33.0	36.0	13.0	38.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	6.0	41.0	19.0	34.0	17.0	30.0	21.0	32.0
Max Q Clear Time (g_c+I1), s	2.0	12.7	6.8	8.6	2.0	14.7	2.6	8.5
Green Ext Time (p_c), s	0.0	8.1	0.3	5.3	0.7	4.5	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	251	829	138	41	649	126	219	35	17	408	473
Future Volume (vph)	251	829	138	41	649	126	219	35	17	408	473
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8		7	4	5
Permitted Phases	2		2	6				8			4
Detector Phase	5	2	2	1	6	3	8	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	10.0	10.0	4.0	10.0	4.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0	9.5	24.0	24.0	9.5	24.0	9.5
Total Split (s)	21.0	47.0	47.0	10.0	36.0	23.0	38.0	38.0	25.0	40.0	21.0
Total Split (%)	17.5%	39.2%	39.2%	8.3%	30.0%	19.2%	31.7%	31.7%	20.8%	33.3%	17.5%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.0	3.6	3.6	3.0	3.6	3.0
All-Red Time (s)	1.0	2.4	2.4	1.0	2.4	1.0	2.4	2.4	1.0	2.4	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	Max	None
Act Effct Green (s)	61.7	51.7	51.7	46.7	38.8	10.2	41.0	41.0	9.2	34.1	57.0
Actuated g/C Ratio	0.51	0.43	0.43	0.39	0.32	0.08	0.34	0.34	0.08	0.28	0.48
v/c Ratio	0.64	0.42	0.21	0.21	0.47	0.48	0.20	0.06	0.07	0.31	0.63
Control Delay	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
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	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
LOS	C	C	B	A	D	E	C	A	D	C	B
Approach Delay		31.4			36.3		36.4			25.0	
Approach LOS		C			D		D			C	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green		
Natural Cycle: 70		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.64		
Intersection Signal Delay: 31.3	Intersection LOS: C	
Intersection Capacity Utilization 58.1%	ICU Level of Service B	
Analysis Period (min) 15		

Splits and Phases: 1: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	279	921	153	46	772	140	243	39	19	453	526
v/c Ratio	0.64	0.42	0.21	0.21	0.47	0.48	0.20	0.06	0.07	0.31	0.63
Control Delay	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
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	27.0	34.6	19.9	9.4	37.9	57.4	30.1	0.2	45.9	31.9	18.4
Queue Length 50th (ft)	79	182	41	10	127	54	62	0	7	93	213
Queue Length 95th (ft)	145	234	m87	m13	171	85	114	0	18	120	289
Internal Link Dist (ft)		1166			1321		630			1010	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	435	2190	743	221	1632	543	1209	642	600	1443	820
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	0.64	0.42	0.21	0.21	0.47	0.26	0.20	0.06	0.03	0.31	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	3	29	30	1	26	133	458	64	48	1033	235
Future Volume (veh/h)	60	3	29	30	1	26	133	458	64	48	1033	235
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	67	3	32	33	1	29	148	509	71	53	1148	261
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	225	13	138	221	5	145	357	2509	1119	709	3606	1119
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.71	0.71	0.71
Sat Flow, veh/h	1380	138	1468	1373	53	1540	382	3554	1585	834	5106	1585
Grp Volume(v), veh/h	67	0	35	33	0	30	148	509	71	53	1148	261
Grp Sat Flow(s),veh/h/ln	1380	0	1606	1373	0	1593	382	1777	1585	834	1702	1585
Q Serve(g_s), s	2.8	0.0	1.2	1.4	0.0	1.0	6.2	0.0	0.0	1.2	5.1	3.5
Cycle Q Clear(g_c), s	3.9	0.0	1.2	2.6	0.0	1.0	11.3	0.0	0.0	1.2	5.1	3.5
Prop In Lane	1.00		0.91	1.00		0.97	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	225	0	151	221	0	149	357	2509	1119	709	3606	1119
V/C Ratio(X)	0.30	0.00	0.23	0.15	0.00	0.20	0.41	0.20	0.06	0.07	0.32	0.23
Avail Cap(c_a), veh/h	519	0	493	513	0	489	357	2509	1119	709	3606	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	0.0	25.2	26.4	0.0	25.1	0.7	0.0	0.0	2.8	3.3	3.1
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.1	0.0	0.2	3.2	0.2	0.1	0.2	0.2	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	0.9	0.0	0.5	0.4	0.0	0.4	0.3	0.1	0.0	0.1	1.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	0.0	25.5	26.5	0.0	25.3	3.9	0.2	0.1	3.0	3.6	3.6
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		102			63			728			1462	
Approach Delay, s/veh		26.6			25.9			0.9			3.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		48.4		11.6		48.4		11.6				
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0				
Max Green Setting (Gmax), s		* 30		18.4		* 30		18.4				
Max Q Clear Time (g_c+I1), s		13.3		5.9		7.1		4.6				
Green Ext Time (p_c), s		1.8		0.1		1.7		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			4.3									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

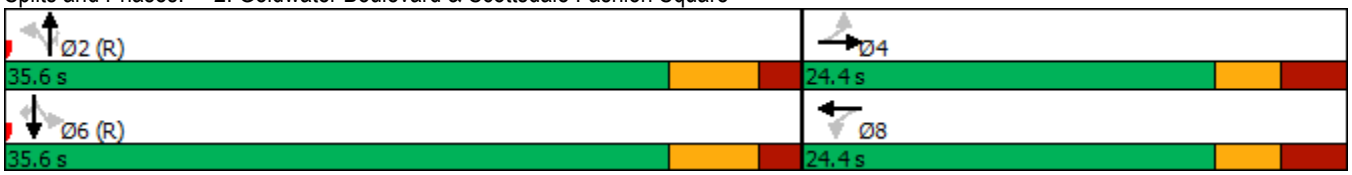
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	60	3	30	1	133	458	64	48	1033	235
Future Volume (vph)	60	3	30	1	133	458	64	48	1033	235
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.1	31.1	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	24.4	24.4	24.4	24.4	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.0	3.0	3.0	3.0	1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	35	33	30	148	509	71	53	1148	261
v/c Ratio	0.38	0.15	0.19	0.13	0.46	0.20	0.06	0.08	0.31	0.21
Control Delay	29.5	11.2	24.8	10.8	11.1	2.4	0.4	4.5	4.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	11.2	24.8	10.8	11.1	2.4	0.4	4.5	4.3	1.2
Queue Length 50th (ft)	23	1	11	0	12	18	0	5	50	0
Queue Length 95th (ft)	52	21	31	19	m146	38	m4	18	84	21
Internal Link Dist (ft)		275		60		1010			212	
Turn Bay Length (ft)			50		160		90	120		120
Base Capacity (vph)	421	515	419	508	320	2586	1175	632	3715	1226
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	0.16	0.07	0.08	0.06	0.46	0.20	0.06	0.08	0.31	0.21

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	0	0	544	0	1173
Future Vol, veh/h	91	0	0	544	0	1173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	0	0	604	0	1303

Major/Minor	Minor1			Major2	
Conflicting Flow All	521	-		-	-
Stage 1	0	-		-	-
Stage 2	521	-		-	-
Critical Hdwy	5.74	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	6.04	-		-	-
Follow-up Hdwy	3.82	-		-	-
Pot Cap-1 Maneuver	535	0		0	-
Stage 1	-	0		0	-
Stage 2	512	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	535	-		-	-
Mov Cap-2 Maneuver	535	-		-	-
Stage 1	-	-		-	-
Stage 2	512	-		-	-

Approach	WB	SB
HCM Control Delay, s	13.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	535	-
HCM Lane V/C Ratio	0.189	-
HCM Control Delay (s)	13.3	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.7	-

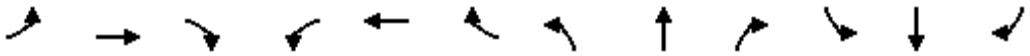
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	516	4	39	50	17	0	1	21	22	0	41
Future Vol, veh/h	24	516	4	39	50	17	0	1	21	22	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	573	4	43	56	19	0	1	23	24	0	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	75	0	0	577	0	0	743	790	289	493	783	38
Stage 1	-	-	-	-	-	-	629	629	-	152	152	-
Stage 2	-	-	-	-	-	-	114	161	-	341	631	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1522	-	-	993	-	-	304	321	708	459	324	1026
Stage 1	-	-	-	-	-	-	437	474	-	835	771	-
Stage 2	-	-	-	-	-	-	879	764	-	647	473	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	993	-	-	277	302	708	422	305	1026
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	302	-	422	305	-
Stage 1	-	-	-	-	-	-	429	465	-	820	738	-
Stage 2	-	-	-	-	-	-	804	731	-	613	464	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	3.2	10.6	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	667	1522	-	-	993	-	-	422	1026
HCM Lane V/C Ratio	-	0.037	0.018	-	-	0.044	-	-	0.058	0.044
HCM Control Delay (s)	0	10.6	7.4	-	-	8.8	-	-	14.1	8.7
HCM Lane LOS	A	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	-	0.1	0.1	-	-	0.1	-	-	0.2	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Future Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3221	1618	1583	1770	1639		1770	5070		1770	5035	
Flt Permitted	0.75	0.73	1.00	0.75	1.00		0.24	1.00		0.19	1.00	
Satd. Flow (perm)	2546	1234	1583	1406	1639		441	5070		357	5035	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	573	8	43	7	2	8	47	1174	24	21	970	69
RTOR Reduction (vph)	0	0	34	0	8	0	0	1	0	0	4	0
Lane Group Flow (vph)	390	191	9	7	2	0	47	1197	0	21	1035	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Actuated Green, G (s)	26.0	26.0	26.0	5.3	5.3		70.7	70.7		70.7	70.7	
Effective Green, g (s)	26.0	26.0	26.0	5.3	5.3		70.7	70.7		70.7	70.7	
Actuated g/C Ratio	0.22	0.22	0.22	0.04	0.04		0.59	0.59		0.59	0.59	
Clearance Time (s)	6.0	6.0	6.0	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		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	551	267	342	62	72		259	2987		210	2966	
v/s Ratio Prot					0.00			c0.24			0.21	
v/s Ratio Perm	0.15	c0.15	0.01	c0.00			0.11			0.06		
v/c Ratio	0.71	0.72	0.03	0.11	0.03		0.18	0.40		0.10	0.35	
Uniform Delay, d1	43.5	43.6	37.0	55.1	54.9		11.3	13.3		10.8	12.7	
Progression Factor	1.09	1.09	3.31	1.00	1.00		1.26	1.35		1.00	1.00	
Incremental Delay, d2	4.1	8.7	0.0	0.8	0.2		1.5	0.4		1.0	0.3	
Delay (s)	51.7	56.2	122.5	55.9	55.1		15.7	18.3		11.7	13.1	
Level of Service	D	E	F	E	E		B	B		B	B	
Approach Delay (s)		57.9			55.4			18.2			13.0	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Future Volume (vph)	516	7	39	6	2	7	42	1057	22	19	873	62
Satd. Flow (prot)	3221	1617	1583	1770	1639	0	1770	5070	0	1770	5034	0
Flt Permitted	0.751	0.728		0.755			0.237			0.192		
Satd. Flow (perm)	2546	1234	1583	1406	1639	0	441	5070	0	358	5034	0
Satd. Flow (RTOR)			82		8			3			10	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	32%											
Lane Group Flow (vph)	390	191	43	7	10	0	47	1198	0	21	1039	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Total Split (s)	46.0	46.0	46.0	30.0	30.0		44.0	44.0		44.0	44.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Act Effct Green (s)	26.0	26.0	26.0	9.3	9.3		74.3	74.3		74.3	74.3	
Actuated g/C Ratio	0.22	0.22	0.22	0.08	0.08		0.62	0.62		0.62	0.62	
v/c Ratio	0.71	0.72	0.11	0.06	0.07		0.17	0.38		0.10	0.33	
Control Delay	53.9	61.3	3.6	49.5	29.6		22.7	19.6		17.7	13.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.9	61.3	3.6	49.5	29.6		22.7	19.6		17.7	13.9	
LOS	D	E	A	D	C		C	B		B	B	
Approach Delay		52.7			37.8			19.7			14.0	
Approach LOS		D			D			B			B	

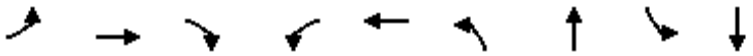
Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Scottsdale Road & Highland Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	516	7	39	6	2	42	1057	19	873
Future Volume (vph)	516	7	39	6	2	42	1057	19	873
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		7			3		1		1
Permitted Phases	7		7	3		1		1	
Detector Phase	7	7	7	3	3	1	1	1	1
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	6.0	6.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	38.0	38.0	38.0	38.0
Total Split (s)	46.0	46.0	46.0	30.0	30.0	44.0	44.0	44.0	44.0
Total Split (%)	38.3%	38.3%	38.3%	25.0%	25.0%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.4	3.4	3.4	2.9	2.9	4.2	4.2	4.2	4.2
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	26.0	26.0	26.0	9.3	9.3	74.3	74.3	74.3	74.3
Actuated g/C Ratio	0.22	0.22	0.22	0.08	0.08	0.62	0.62	0.62	0.62
v/c Ratio	0.71	0.72	0.11	0.06	0.07	0.17	0.38	0.10	0.33
Control Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
LOS	D	E	A	D	C	C	B	B	B
Approach Delay		52.7			37.8		19.7		14.0
Approach LOS		D			D		B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 24.7	Intersection LOS: C
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

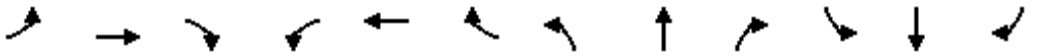
Splits and Phases: 6: Scottsdale Road & Highland Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	390	191	43	7	10	47	1198	21	1039
v/c Ratio	0.71	0.72	0.11	0.06	0.07	0.17	0.38	0.10	0.33
Control Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	61.3	3.6	49.5	29.6	22.7	19.6	17.7	13.9
Queue Length 50th (ft)	166	163	1	5	1	17	223	5	101
Queue Length 95th (ft)	165	183	5	20	18	m64	345	29	251
Internal Link Dist (ft)		504			150		1290		654
Turn Bay Length (ft)	255			50		185		85	
Base Capacity (vph)	848	411	582	281	334	273	3141	221	3121
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	0.46	0.46	0.07	0.02	0.03	0.17	0.38	0.10	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	954	168	51	930	85	273	336	96	77	530	570
Future Volume (veh/h)	294	954	168	51	930	85	273	336	96	77	530	570
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	327	1060	187	57	1033	94	303	373	107	86	589	633
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	373	1489	462	412	1429	130	363	977	436	363	1404	679
Arrive On Green	0.31	0.58	0.58	0.05	0.10	0.10	0.11	0.28	0.28	0.18	0.46	0.46
Sat Flow, veh/h	1781	5106	1585	1781	4764	433	3456	3554	1585	3456	5106	1585
Grp Volume(v), veh/h	327	1060	187	57	738	389	303	373	107	86	589	633
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1792	1728	1777	1585	1728	1702	1585
Q Serve(g_s), s	13.5	17.7	7.7	0.0	25.2	25.3	10.3	10.2	6.3	2.6	9.3	22.6
Cycle Q Clear(g_c), s	13.5	17.7	7.7	0.0	25.2	25.3	10.3	10.2	6.3	2.6	9.3	22.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	373	1489	462	412	1021	538	363	977	436	363	1404	679
V/C Ratio(X)	0.88	0.71	0.40	0.14	0.72	0.72	0.83	0.38	0.25	0.24	0.42	0.93
Avail Cap(c_a), veh/h	373	1489	462	412	1021	538	432	977	436	432	1404	679
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.60	0.60	0.60	0.55	0.55	0.55	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	37.2	21.4	19.3	38.2	49.2	49.2	52.7	35.2	33.8	45.3	26.0	21.8
Incr Delay (d2), s/veh	13.3	1.8	1.6	0.1	2.5	4.7	11.5	1.1	1.3	0.3	0.8	20.2
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	8.8	5.1	2.7	1.5	11.9	12.9	5.1	4.6	2.6	1.1	3.5	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5	23.2	20.9	38.3	51.7	53.9	64.2	36.4	35.2	45.6	26.9	42.0
LnGrp LOS	D	C	C	D	D	D	E	D	D	D	C	D
Approach Vol, veh/h		1574			1184			783			1308	
Approach Delay, s/veh		28.6			51.8			47.0			35.4	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.4	41.0	16.6	39.0	22.4	42.0	16.6	39.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	17.0	35.0	15.0	33.0	16.0	36.0	15.0	33.0
Max Q Clear Time (g_c+I1), s	2.0	19.7	12.3	24.6	15.5	27.3	4.6	12.2
Green Ext Time (p_c), s	0.1	7.2	0.3	4.1	0.1	4.7	0.1	2.7

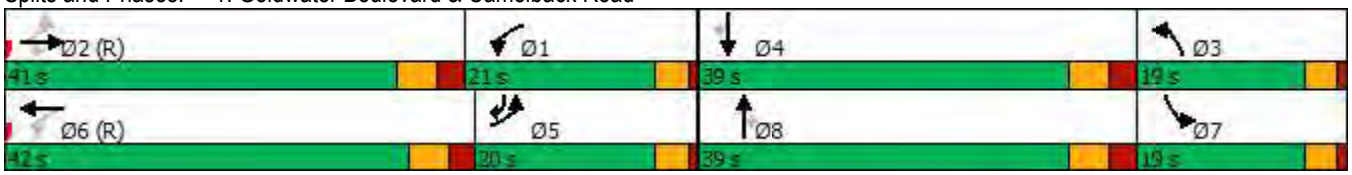
Intersection Summary	
HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	294	954	168	51	930	273	336	96	77	530	570
Future Volume (vph)	294	954	168	51	930	273	336	96	77	530	570
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6	3	8		7	4	5
Permitted Phases	2		2	6				8			4
Detector Phase	5	2	2	1	6	3	8	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	10.0	10.0	4.0	10.0	4.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0	9.5	24.0	24.0	9.5	24.0	9.5
Total Split (s)	20.0	41.0	41.0	21.0	42.0	19.0	39.0	39.0	19.0	39.0	20.0
Total Split (%)	16.7%	34.2%	34.2%	17.5%	35.0%	15.8%	32.5%	32.5%	15.8%	32.5%	16.7%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.0	3.6	3.6	3.0	3.6	3.0
All-Red Time (s)	1.0	2.4	2.4	1.0	2.4	1.0	2.4	2.4	1.0	2.4	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	Max	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: Goldwater Boulevard & Camelback Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	327	1060	187	57	1127	303	373	107	86	589	633
v/c Ratio	1.06	0.62	0.31	0.19	0.73	0.75	0.35	0.19	0.23	0.42	0.83
Control Delay	90.3	17.3	4.7	39.5	53.9	63.3	35.0	7.1	50.4	32.3	32.4
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	90.3	17.3	4.7	39.5	53.9	63.3	35.0	7.1	50.4	32.3	32.4
Queue Length 50th (ft)	~232	83	3	32	340	117	123	0	33	126	335
Queue Length 95th (ft)	m#383	175	m29	m47	380	167	168	43	60	154	#328
Internal Link Dist (ft)		1166			1329		570			1011	
Turn Bay Length (ft)	225		105	110		180		105	140		215
Base Capacity (vph)	308	1697	598	334	1550	429	1065	550	429	1398	760
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	1.06	0.62	0.31	0.17	0.73	0.71	0.35	0.19	0.20	0.42	0.83

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	9	213	99	12	43	97	601	109	48	1035	75
Future Volume (veh/h)	216	9	213	99	12	43	97	601	109	48	1035	75
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	240	10	237	110	13	48	108	668	121	53	1150	83
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	436	17	404	266	92	340	301	1905	850	488	2738	850
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	1.00	1.00	1.00	0.54	0.54	0.54
Sat Flow, veh/h	1341	65	1530	1133	349	1289	452	3554	1585	687	5106	1585
Grp Volume(v), veh/h	240	0	247	110	0	61	108	668	121	53	1150	83
Grp Sat Flow(s),veh/h/ln	1341	0	1595	1133	0	1638	452	1777	1585	687	1702	1585
Q Serve(g_s), s	10.0	0.0	8.1	5.6	0.0	1.7	6.5	0.0	0.0	2.3	8.1	1.5
Cycle Q Clear(g_c), s	11.7	0.0	8.1	13.7	0.0	1.7	14.6	0.0	0.0	2.3	8.1	1.5
Prop In Lane	1.00		0.96	1.00		0.79	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	436	0	421	266	0	432	301	1905	850	488	2738	850
V/C Ratio(X)	0.55	0.00	0.59	0.41	0.00	0.14	0.36	0.35	0.14	0.11	0.42	0.10
Avail Cap(c_a), veh/h	493	0	489	315	0	502	301	1905	850	488	2738	850
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	19.2	25.2	0.0	16.9	1.8	0.0	0.0	7.0	8.3	6.8
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.4	0.0	0.1	2.2	0.3	0.2	0.4	0.5	0.2
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	3.0	0.0	2.9	1.5	0.0	0.6	0.2	0.1	0.1	0.3	2.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	19.8	25.6	0.0	16.9	4.1	0.3	0.2	7.4	8.8	7.0
LnGrp LOS	C	A	B	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h		487			171			897			1286	
Approach Delay, s/veh		20.8			22.5			0.8			8.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.2		21.8		38.2		21.8				
Change Period (Y+Rc), s		* 6		6.0		* 6		6.0				
Max Green Setting (Gmax), s		* 30		18.4		* 30		18.4				
Max Q Clear Time (g_c+I1), s		16.6		13.7		10.1		15.7				
Green Ext Time (p_c), s		1.4		0.7		1.8		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

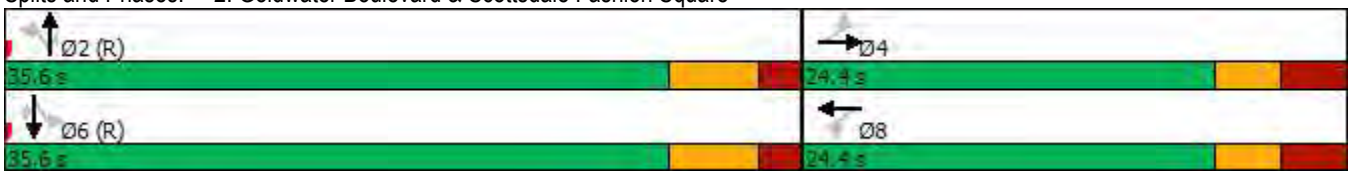
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	216	9	99	12	97	601	109	48	1035	75
Future Volume (vph)	216	9	99	12	97	601	109	48	1035	75
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.1	31.1	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	24.4	24.4	24.4	24.4	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.1	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	3.0	3.0	3.0	3.0	1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 2: Goldwater Boulevard & Scottsdale Fashion Square



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	240	247	110	61	108	668	121	53	1150	83
v/c Ratio	0.75	0.59	0.44	0.14	0.47	0.34	0.13	0.13	0.40	0.09
Control Delay	35.1	21.2	23.9	7.8	17.8	8.5	2.9	8.9	8.8	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	21.2	23.9	7.8	17.8	8.5	2.9	8.9	8.8	2.6
Queue Length 50th (ft)	79	62	33	4	22	67	0	8	79	0
Queue Length 95th (ft)	138	114	69	26	m39	m96	m8	27	123	17
Internal Link Dist (ft)		275		60		1011			212	
Turn Bay Length (ft)			50		160		90	120		120
Base Capacity (vph)	409	522	316	537	229	1978	938	409	2842	921
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	0.59	0.47	0.35	0.11	0.47	0.34	0.13	0.13	0.40	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	170	0	0	860	0	1000
Future Vol, veh/h	170	0	0	860	0	1000
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	16974	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	189	0	0	956	0	1111

Major/Minor	Minor1			Major2	
Conflicting Flow All	444	-		-	-
Stage 1	0	-		-	-
Stage 2	444	-		-	-
Critical Hdwy	5.74	-		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	6.04	-		-	-
Follow-up Hdwy	3.82	-		-	-
Pot Cap-1 Maneuver	582	0		0	-
Stage 1	-	0		0	-
Stage 2	561	0		0	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	582	-		-	-
Mov Cap-2 Maneuver	582	-		-	-
Stage 1	-	-		-	-
Stage 2	561	-		-	-

Approach	WB	SB
HCM Control Delay, s	14.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	WBLn1	SBT
Capacity (veh/h)	582	-
HCM Lane V/C Ratio	0.325	-
HCM Control Delay (s)	14.1	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	1.4	-

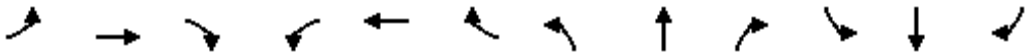
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	813	0	41	135	30	9	3	49	19	3	26
Future Vol, veh/h	47	813	0	41	135	30	9	3	49	19	3	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	175	-	-	100	-	-	20	-	-	25	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	903	0	46	150	33	10	3	54	21	3	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	903	0	0	1176	1282	452	816	1266	92
Stage 1	-	-	-	-	-	-	1007	1007	-	259	259	-
Stage 2	-	-	-	-	-	-	169	275	-	557	1007	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1389	-	-	749	-	-	147	164	555	269	168	947
Stage 1	-	-	-	-	-	-	258	317	-	723	692	-
Stage 2	-	-	-	-	-	-	816	681	-	482	317	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1389	-	-	749	-	-	130	148	555	221	152	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	148	-	221	152	-
Stage 1	-	-	-	-	-	-	248	305	-	696	650	-
Stage 2	-	-	-	-	-	-	739	639	-	414	305	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2	16.7	15.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	130	479	1389	-	-	749	-	-	221	615
HCM Lane V/C Ratio	0.077	0.121	0.038	-	-	0.061	-	-	0.096	0.052
HCM Control Delay (s)	35	13.5	7.7	-	-	10.1	-	-	23	11.2
HCM Lane LOS	E	B	A	-	-	B	-	-	C	B
HCM 95th %tile Q(veh)	0.2	0.4	0.1	-	-	0.2	-	-	0.3	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Future Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00		1.00	0.98	
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3221	1615	1583	1770	1687		1770	5078		1770	4999	
Flt Permitted	0.73	0.70	1.00	0.37	1.00		0.12	1.00		0.10	1.00	
Satd. Flow (perm)	2471	1182	1583	690	1687		217	5078		195	4999	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	940	4	49	14	16	27	62	1381	13	10	1189	151
RTOR Reduction (vph)	0	0	32	0	6	0	0	1	0	0	12	0
Lane Group Flow (vph)	630	314	17	14	37	0	62	1393	0	10	1328	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Actuated Green, G (s)	40.5	40.5	40.5	10.8	10.8		50.7	50.7		50.7	50.7	
Effective Green, g (s)	40.5	40.5	40.5	10.8	10.8		50.7	50.7		50.7	50.7	
Actuated g/C Ratio	0.34	0.34	0.34	0.09	0.09		0.42	0.42		0.42	0.42	
Clearance Time (s)	6.0	6.0	6.0	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		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	833	398	534	62	151		91	2145		82	2112	
v/s Ratio Prot					c0.02			0.27			0.27	
v/s Ratio Perm	0.25	c0.27	0.01	0.02			c0.29			0.05		
v/c Ratio	0.76	0.79	0.03	0.23	0.24		0.68	0.65		0.12	0.63	
Uniform Delay, d1	35.4	35.9	26.6	50.7	50.8		28.1	27.6		21.1	27.2	
Progression Factor	0.98	0.97	1.28	1.00	1.00		0.62	0.57		1.00	1.00	
Incremental Delay, d2	3.8	9.5	0.0	1.9	0.8		29.1	1.3		3.0	1.4	
Delay (s)	38.4	44.5	34.0	52.6	51.6		46.5	17.0		24.1	28.7	
Level of Service	D	D	C	D	D		D	B		C	C	
Approach Delay (s)		40.1			51.9			18.2			28.6	
Approach LOS		D			D			B			C	

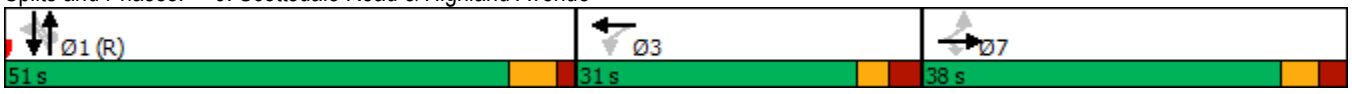
Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Future Volume (vph)	846	4	44	13	14	24	56	1243	12	9	1070	136
Satd. Flow (prot)	3221	1615	1583	1770	1688	0	1770	5080	0	1770	4999	0
Flt Permitted	0.729	0.697		0.370			0.116			0.105		
Satd. Flow (perm)	2471	1181	1583	689	1688	0	216	5080	0	196	4999	0
Satd. Flow (RTOR)			82		7			1			21	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	33%											
Lane Group Flow (vph)	630	314	49	14	43	0	62	1394	0	10	1340	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		7			3			1			1	
Permitted Phases	7		7	3			1			1		
Total Split (s)	38.0	38.0	38.0	31.0	31.0		51.0	51.0		51.0	51.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Act Effct Green (s)	40.5	40.5	40.5	12.0	12.0		51.8	51.8		51.8	51.8	
Actuated g/C Ratio	0.34	0.34	0.34	0.10	0.10		0.43	0.43		0.43	0.43	
v/c Ratio	0.76	0.79	0.08	0.21	0.25		0.67	0.64		0.12	0.62	
Control Delay	41.4	50.3	2.8	52.7	43.9		52.6	17.4		29.4	29.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.4	50.3	2.8	52.7	43.9		52.6	17.4		29.4	29.0	
LOS	D	D	A	D	D		D	B		C	C	
Approach Delay		42.3			46.0			18.9			29.0	
Approach LOS		D			D			B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 28.8	Intersection LOS: C
Intersection Capacity Utilization 70.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Scottsdale Road & Highland Avenue

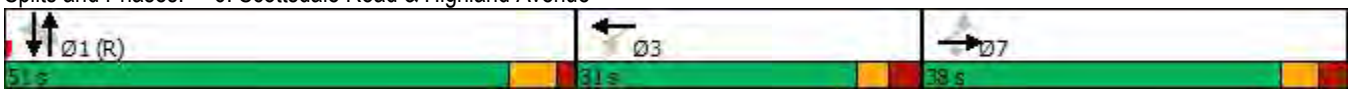


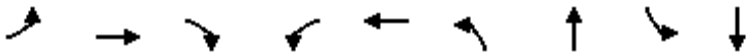
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	846	4	44	13	14	56	1243	9	1070
Future Volume (vph)	846	4	44	13	14	56	1243	9	1070
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		7			3		1		1
Permitted Phases	7		7	3		1		1	
Detector Phase	7	7	7	3	3	1	1	1	1
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	10.0	10.0	10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	38.0	38.0	38.0	38.0
Total Split (s)	38.0	38.0	38.0	31.0	31.0	51.0	51.0	51.0	51.0
Total Split (%)	31.7%	31.7%	31.7%	25.8%	25.8%	42.5%	42.5%	42.5%	42.5%
Yellow Time (s)	3.4	3.4	3.4	2.9	2.9	4.2	4.2	4.2	4.2
All-Red Time (s)	2.6	2.6	2.6	3.1	3.1	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 6: Scottsdale Road & Highland Avenue





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	630	314	49	14	43	62	1394	10	1340
v/c Ratio	0.76	0.79	0.08	0.21	0.25	0.67	0.64	0.12	0.62
Control Delay	41.4	50.3	2.8	52.7	43.9	52.6	17.4	29.4	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	50.3	2.8	52.7	43.9	52.6	17.4	29.4	29.0
Queue Length 50th (ft)	193	193	0	10	26	49	393	5	311
Queue Length 95th (ft)	#353	#445	m5	30	58	m#100	455	20	371
Internal Link Dist (ft)		504			150		1288		654
Turn Bay Length (ft)	255			50		185		85	
Base Capacity (vph)	834	398	589	143	357	93	2195	84	2171
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	0.76	0.79	0.08	0.10	0.12	0.67	0.64	0.12	0.62

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.

ATTACHMENT G – SCOTTSDALE STIPULATIONS ORDINANCE 4299

ORDINANCE NO. 4299

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, AMENDING ORDINANCE NO. 455, THE ZONING ORDINANCE OF THE CITY OF SCOTTSDALE, BY AND FOR THE PURPOSE OF CHANGING THE ZONING ON THE "DISTRICT MAP" TO ZONING APPROVED IN CASE NO 25-ZN-2015 AND CASE NO 1-II-2016 FROM DOWNTOWN/REGIONAL COMMERCIAL OFFICE - TYPE 2, PLANNED BLOCK DEVELOPMENT, DOWNTOWN OVERLAY (D/RCO-2 PBD DO) TO DOWNTOWN/DOWNTOWN REGIONAL USE - TYPE 2, PLANNED BLOCK DEVELOPMENT, DOWNTOWN OVERLAY (D/DRU-2 PBD DO), AND APPROVING A DEVELOPMENT PLAN ON A +/- 56-ACRE SITE, AND APPROVING AN APPLICATION FOR A DOWNTOWN INFILL INCENTIVE DISTRICT PURSUANT TO THE DOWNTOWN INFILL INCENTIVE PLAN, LOCATED ON +/- 1.8 ACRES OF THE TOTAL +/- 56-ACRE SITE ON THE NORTHWEST CORNER OF CAMELBACK ROAD AND SCOTTSDALE ROAD (6900, 7000, 7003, 7014, 7032, 7102, 7150, 7055 E. CAMELBACK ROAD, 4649 N. GOLDWATER BLVD., 7000 E. VIA SOLERI DRIVE, 4710, 4500, 4510, 4610, 4626, 4700, 4720 N. SCOTTSDALE ROAD, AND 7001 E HIGHLAND AVENUE).

WHEREAS, the Planning Commission held a hearing on June, 28, 2017;

WHEREAS, the City Council held a hearing on August, 29, 2017;

WHEREAS, the City Council finds that the proposed development is in substantial harmony with the General Plan of the City of Scottsdale and will be coordinated with existing and planned development;

WHEREAS, the City Council finds that the proposed development is located in the Downtown Infill Incentive District and consistent with the Downtown Infill Incentive Plan; and

WHEREAS, it is now necessary that the comprehensive zoning map of the City of Scottsdale ("District Map") be amended to conform with the decision of the Scottsdale City Council in Case No. 25-ZN-2015 and 1-II-2016.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Scottsdale, as follows:

Section 1. That the "District Map" adopted as a part of the Zoning Ordinance of the City of Scottsdale, showing the zoning district boundaries, is amended by rezoning a +/- 56-acre site located on the northwest corner of Camelback Road and Scottsdale Road (6900, 7000, 7003, 7014, 7032, 7102, 7150, 7055 E. Camelback Road, 4649 N. Goldwater Blvd., 7000 E. Via Soleri Drive, 4710, 4500, 4510, 4610, 4626, 4700, 4720 N. Scottsdale Road, and 7001 E Highland Avenue) and marked as "Site" (the Property) on the map attached as Exhibit 2 page 1 of 2, incorporated herein by reference, from Downtown/Regional Commercial Office - Type 2, Planned Block Development, Downtown Overlay (D/RCO-2 PBD DO) to Downtown/Downtown Regional Use - Type 2, Planned Block Development, Downtown Overlay (D/DRU-2 PBD DO) zoning, and approving a Downtown Infill Incentive District application over +/- 1.8 acres of the +/- 56 acre site with Downtown/Downtown Regional Use - Type 2, Planned Block Development, Downtown Overlay (D/DRU-2 PBD DO) zoning by approving a Development Plan and amendments to Property Development Standards of the

Zoning Ordinance regarding the inclined stepback plane adjacent to the Downtown Boundary, specifically at the northeast corner of the Development Plan area (4710, 4626, 4500, 4700 and 4720 N. Scottsdale Road) and marked as "Site" on the map attached as Exhibit 2, page 2 of 2, and by adopting that certain document entitled "Development Plan Scottsdale Fashion Square" declared as a public record by Resolution No. 10717 which is incorporated into this ordinance by reference as if fully set forth herein.

Section 2. That the above rezoning approval is conditioned upon compliance with all stipulations attached hereto as Exhibit 1 and incorporated herein by reference.

PASSED AND ADOPTED by the Council of the City of Scottsdale this 29 of August, 2017.

ATTEST:

By: _____
Carolyn Jagger
City Clerk

CITY OF SCOTTSDALE, an Arizona Municipal Corporation

By: _____
W.J. "Jim" Lane
Mayor

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

By: _____
Bruce Washburn, City Attorney
By: Joe Padilla, Deputy City Attorney

Stipulations for the Zoning Application:
Scottsdale Fashion Square Mall
Case Number: 25-ZN-2015 & 1-II-2016

These stipulations are in order to protect the public health, safety, welfare, and the City of Scottsdale.

GOVERNANCE

1. APPLICABILITY. All stipulations of cases 25-ZN-2015 and 1-II-2016 shall supersede all of the stipulations of prior zoning approvals, with the exception of existing Conditional Use Permit cases 4-UP-2000 and 6-UP-2012. These stipulations shall not apply to the Dillard's parcel, which is not included as part of the subject Development Plan.

SITE DESIGN

2. CONFORMANCE TO DEVELOPMENT PLAN. Development shall conform with the Development Plan, entitled "Development Plan Scottsdale Fashion Square," which is on file with the City Clerk and made a public record by Resolution No. 10717 and incorporated into these stipulations and ordinance by reference as if fully set forth herein. Any proposed significant change to the Development Plan, as determined by the Zoning Administrator, shall be subject to additional public hearings and action before the Planning Commission and City Council. Where there is a conflict between the Development Plan and these stipulations, these stipulations shall prevail.

3. CONFORMANCE TO AMENDED DEVELOPMENT STANDARDS. Development shall conform with the amended development standards that are included as part of the Development Plan. Any change to the Property Development Standards shall be subject to additional public zoning hearings before the Planning Commission and City Council.

4. CONFORMANCE TO DEVELOPMENT AGREEMENT. The property owner of the property identified in the Development Plan shall enter into a development agreement, Contract No. 2017-097-COS, including any subsequent amendments approved by the City Council, which sets forth the manner in which the building height bonus shall be achieved, and specifies the development standard allocations among the parcels within the boundary of the Development Plan.

5. BUILDING HEIGHT LOCATIONS. Locations of building height shall be in conformance with the approved Development Plan. No building on the site shall exceed 150 feet in height (inclusive of the bonus building height, mechanical equipment and other appurtenances), measured as provided in the applicable section of the Zoning Ordinance.

6. CULTURAL IMPROVEMENTS PROGRAM. Prior to permit issuance for any new or expanded building, the property owner shall provide artwork, or pay an in-lieu fee, equal to at least one percent of the building valuation of the added floor area. This requirement shall be exclusive of the in-lieu payment outlined in Contract No. 2017-097-COS, regarding PBD bonus provisions.

7. OUTDOOR LIGHTING. The maximum height of any outdoor lighting source, except any light sources for signs, patios and/or balconies or accent lighting approved by the Development Review Board or staff in accordance with the provisions of Zoning Ordinance Section 1.900, shall be 20 feet above the adjacent finished grade.

8. OUTDOOR LIGHTING FOR PATIOS AND BALCONIES. Light sources that are utilized to illuminate patios and/or balconies that are above 20 feet shall be subject to the approval of the Development Review Board or staff in accordance with the provisions of Zoning Ordinance Section 1.900.

9. SIGNAGE. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, there shall be no new internally illuminated signage facing toward Highland Avenue.

10. AMPLIFIED MUSIC. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, there shall be no exterior amplified music after 10:00pm, and 11:00pm on weekends and holidays, at levels greater than 68 decibels as measured from the right-of-way line on the north side of Highland Avenue.

11. OPEN SPACE. Open space shall conform with the following requirements:

    a. Within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, an open space area or areas shall be provided which align with the main entry/open space plaza on the north side Highland Avenue at Optima Camelview, subject to Development Review Board approval.

    b. Open space areas within the area of the site identified as Parcel B on Exhibit A to Exhibit 1, shall be planted with mature shade trees and/or palm trees in conformance with the Downtown Urban Design & Architectural Design Guidelines, subject to Development Review Board approval.

    c. Building setback areas along Highland Avenue shall be planted with mature shade trees and/or palm trees, and/or other shading devices, in conformance with the Downtown Urban Design & Architectural Design Guidelines, subject to Development Review Board approval.

INFRASTRUCTURE AND DEDICATIONS

12. TRAFFIC IMPACT STUDY. As determined by the Transportation Director, or designee, with a Development Review Board application for a new or expanded building, the property owner shall submit an updated traffic impact study to address the new development. The owner shall obtain approval of the study from the Transportation Director, or designee, prior to the Development Review Board hearing for the related new building, or building expansion. The owner shall be responsible for any infrastructure improvements identified by the updated traffic impact study(ies) that are the result of the traffic generated by new or expanded buildings on the site.

13. CIRCULATION IMPROVEMENTS. The owner shall make the required dedications and provide the following improvements in conformance with the Design Standards and Policies Manual and all other applicable city codes and policies.

    a. STREETS. Dedicate the following right-of-way and construct the following street improvements:

Street Name	Street Type	Dedications	Improvements	Notes and

				Requirements
Goldwater Boulevard	Couplet Street	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.1, a.2., a.6., a.7., a.8., a.9., a.10, a.11.
Highland Avenue	Local Commercial Street	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.3. , a.6., a.7., a.8., a.9., a.10, a.11.
Scottsdale Road	Major Collector	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.4., a.6., a.7., a.8., a.9., a.10, a.11 .
Camelback Road	Minor Arterial	Right-of-way for right-turn deceleration lanes	Construct sidewalk and turn lane improvements	a.5, a.6., a.7., a.8., a.9., a.10, a.11 .

a.1. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the east side of North Goldwater Boulevard, from the intersection of East Via Soleri Drive and North Goldwater Boulevard to the intersection of East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or B on Exhibit A to Exhibit 1.

a.2. The property owner shall construct a continuous eight (8) foot wide sidewalk where feasible and the sidewalk shall be separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the west side of North Goldwater Boulevard, from the intersection of East Camelback Road and North Goldwater Boulevard to the intersection East Highland Avenue and North Goldwater Boulevard, prior to obtaining a Certificate-of-Occupancy for any new building within the area identified as Parcel A or D on Exhibit A to Exhibit 1.

a.3. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the south side of East Highland Avenue, from the intersection of East Highland Avenue and North Goldwater Boulevard to the intersection of East Highland Avenue and North Scottsdale Road, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel B on Exhibit A to Exhibit 1.

a.4. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb on the west side of North Scottsdale Road, from the intersection of East Highland Avenue and North Scottsdale Road to the intersection of East Fashion Square Drive and North Scottsdale Road,

prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A or B on Exhibit A to Exhibit 1.

a.5. The property owner shall construct a continuous minimum eight (8) foot wide sidewalk, separated from the back of curb where feasible, as determined by Transportation Director, or designee, on the north side of East Camelback Road, from the intersection of East Camelback Road and North Goldwater Boulevard to the western boundary of the zoning application, prior to obtaining a Certificate-of-Occupancy for any new site building in that area identified as Parcel A on Exhibit A to Exhibit 1.

a.6. Prior to permit issuance for construction of driveways at any new vehicular entrances to the property, the property owner shall dedicate additional North Goldwater Boulevard, East Highland Avenue, North Scottsdale Road, and East Camelback Road right-of-way, as determined by Transportation Director or designee, to accommodate new right-turn deceleration lanes at any new vehicle entrances to the property.

a.7. If any new vehicular entrances to the property are approved along North Goldwater Boulevard, East Highland Avenue, North Scottsdale Road, and East Camelback Road as part of a development proposal, as determined by Transportation Director or designee, the owner shall construct new right-turn deceleration lanes to accommodate the new vehicle entrances to the property.

a.8. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently construct all street and pedestrian improvements supported by the updated traffic impact study that corresponds with the new or expanded building, and approved by the Transportation Director, or designee.

a.9. Prior to the issuance of a building permit for a new or expanded building, the property owner shall submit plans and obtain approval to concurrently modify any existing traffic signals and equipment supported by the updated traffic impact study approved by the Transportation Director, or designee that to address the new development associated with the requested building permit.

a.10. All street improvements (curb, gutter, sidewalk, curb ramps, driveways, pavement, concrete, etc.) shall be constructed in accordance with the applicable City of Scottsdale's Supplements to the Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, and Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, as determined by the Transportation Director, or designee.

a.11. The sidewalk improvements noted in a.1, a.2, and a.5 above shall be required only in locations that are determined to be feasible, with the intent of feasibility to be interpreted to mean where adequate width or space is available to widen the sidewalk to the prescribed widths or provide the required separation from curb reasonably without affecting existing structures, significant mature landscaping, existing parking areas, or significant grades. The determination of feasibility shall be made by the Zoning Administrator or designee.

14. INTERSECTION IMPROVEMENTS. The owner shall make the required dedications and provide the following improvements in conformance with the Design Standards and Policies Manual and all other applicable city codes and policies:

    a. The property owner shall design and construct a third eastbound lane on Highland Avenue, beginning just east of Goldwater Boulevard and terminating as a third eastbound left-turn lane at Scottsdale Road, prior to any certificate of occupancy for a combined total building area exceeding 75,000 square feet in new or expanded buildings south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard within the area identified as Parcel B on Exhibit A to Exhibit 1.

    b. The property owner shall design and construct intersection modifications to provide a separate eastbound left-turn lane and shared through-right-turn lane at the East Scottsdale Fashion Square and North Goldwater Boulevard intersection, prior to any certificate of occupancy for any new buildings south of East Highland Avenue between North Scottsdale Road and North Goldwater Boulevard, within the area identified as Parcel B on Exhibit A to Exhibit 1.

    c. The property owner shall contract with a traffic engineering consultant to conduct a study of the East Highland Avenue and North Goldwater Boulevard intersection prior to any certificate of occupancy for any new or expanded buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The study shall recommend intersection improvements to improve the safety and convenience for the westbound left-turn movement, improve intersection sight distance, and reduce speeding on North Goldwater Boulevard. The study shall not include any options that consider a connection to the existing East Highland Avenue west of North Goldwater Boulevard. The property owner shall not be obligated for any costs and/or improvements associated with the study that exceed $50,000, and the final study shall be submitted to the City of Scottsdale for review and approval.

    d. If directed by the Transportation Director based upon future traffic analysis, the property owner shall design and construct an additional eastbound left-turn lane on East Camelback Road at the North Goldwater Boulevard signalized intersection. The timing of the improvement shall be based upon the need as determined by the traffic analysis tied to proposed new building or building expansion on the site. The property owner shall be responsible for all necessary street reconstruction, pavement marking modification, and signal equipment modification to accomplish the addition of the eastbound left-turn lane.

15. ACCESS RESTRICTIONS/REQUIREMENTS. Access to the site shall conform to the following restrictions and requirements:

    a. There shall no new site driveways onto the adjacent public streets without approval of the site plan and site access as part of a Development Review Board application and approval by the Transportation Director.

    b. There shall be no new median openings along the adjacent public streets associated with any proposed development of the site without approval of the site plan and site access as part of a Development Review Board application and approval by the Transportation Director.

    c. There shall be no new traffic signals constructed on the adjacent public streets without

an approved traffic signal warrant analysis based upon existing traffic volumes and approval by the Transportation Director.

d. Minimum driveway spacing shall be 250 feet between existing and proposed driveways and street intersections unless otherwise approved by the Transportation Director.

e. There shall be an east/west driveway maintained through the site from North Goldwater Boulevard to North Scottsdale Road in or near the area identified as Parcel B on Exhibit A to Exhibit 1. The alignment of such driveway shall be determined at the time of the applicable Development Review Board application.

16. PEDESTRIAN FACILITIES.

a) With the first and each subsequent Development Review Board submittal for new development on the site, the owner shall submit a pedestrian circulation plan for the site, which shall be subject to approval by City staff. The plan shall include all existing and proposed sidewalks along the adjacent streets and all existing proposed connections from the streets to the site buildings.

b) The developer shall design and construct a pedestrian hybrid beacon on Highland Avenue between Scottsdale Road and Goldwater Boulevard prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. Adequate stopping sight distance for drivers on Goldwater Boulevard/Highland Avenue must be provided with the design. This requirement shall not be in effect if a traffic signal is determined to be warranted and approved prior to the construction of the pedestrian hybrid beacon. If a traffic signal is determined to be warranted by the Transportation Director at this intersection in the future, the pedestrian hybrid beacon shall be replaced by the full traffic signal.

c) Prior to the certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall explore a grade separated pedestrian crossing between the building or parking structure and the existing Optima residential development on the north side of East Highland Avenue.

d) Prior to the issuance a building permit for a new or expanded building within the area identified as Parcel A on Exhibit A to Exhibit 1, the owner shall dedicate a non-motorized public access easement over the existing sidewalk along North Marshall Way and East Via Soleri Drive that extends outside of the existing public right-of-way. Prior to the issuance a building permit for a new building or building expansion within the area identified as Parcel A, B, C, or D on Exhibit A To Exhibit 1, the owner shall dedicate a non-motorized public access easement over any new sidewalk or any widened sidewalk constructed along the public streets adjacent to the site that extends outside of the public right-of-way.

17. TRANSIT STOP IMPROVEMENTS.

a) The property owner shall design and construct transit stop improvements on East Camelback Road west of North Goldwater Boulevard, prior to any certificate of occupancy for any new building within the area identified as Parcel A on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

b) The property owner shall design and construct transit stop improvements on North Scottsdale Road south of East Highland Avenue, prior to any certificate of occupancy for any new buildings within the area identified as Parcel B on Exhibit A to Exhibit 1. The transit stop improvements shall consist of a shelter, trash can, bench, and bike rack. The design and location of the transit stop shall be approved by the Transportation Department Director or designee.

18. PEDESTRIAN STREET LIGHTS.

a) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Highland Avenue street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

b) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel E on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the East Camelback Road street frontage, between North Scottsdale Road and North Goldwater Boulevard, as approved by the Development Review Board.

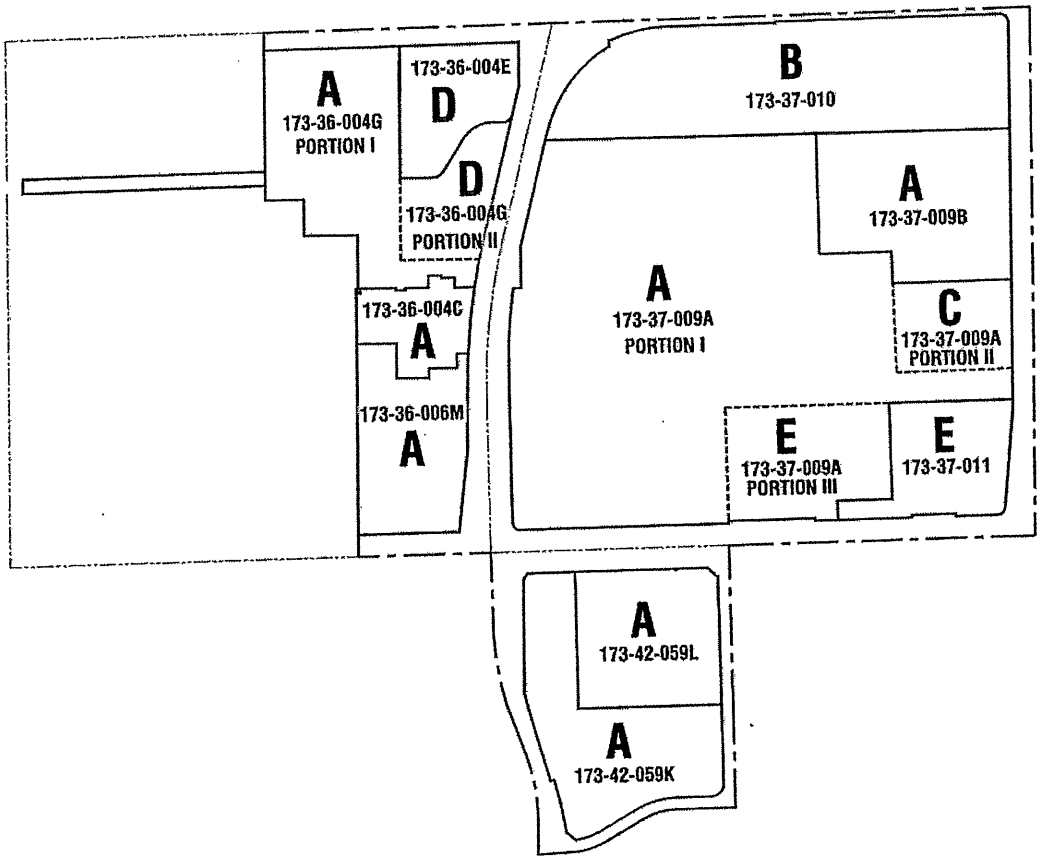
c) Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel A on Exhibit A to Exhibit 1, the property owner shall install pole mounted pedestrian street lights along the east and west sides of the North Goldwater Boulevard street frontage, between East Highland Avenue and East Via Soleri Drive, as approved by the Development Review Board.

19. OVERHEAD POWERLINES. Prior to issuance of Certificate of Occupancy for any new building within the area identified as Parcel B on Exhibit A to Exhibit 1, the property owner shall pay for and cause the existing overhead powerlines on the west side of North Scottsdale Road from East Highland Avenue to East Fashion Square Drive to be removed or relocated underground.

20. VEHICLE NON-ACCESS EASEMENT. The property owner shall dedicate a one (1) foot wide vehicular non-access easement along the North Scottsdale Road, East Camelback Road, North Goldwater Boulevard, East Highland Avenue, North Marshall Way, and East Via Soleri Drive site frontages, except at the existing and approved driveway entrances.

21. PARCELS/PLATTING. Prior to permit issuance for any new construction involving parcels 173-37-009B, 173-37-009A, or 173-36-004C as shown on the Property Parcel and Development Area Depiction (Exhibit C page 2 of 2 of Contract No. 2016-097-COS), the owner shall submit an application for approval and recordation of a land assemblage/subdivision to remedy the non-conforming aspects of these parcels. All future land assemblage/subdivisions shall comply with the requirements of the Land Division Ordinance and the Design Standards & Policies Manual.

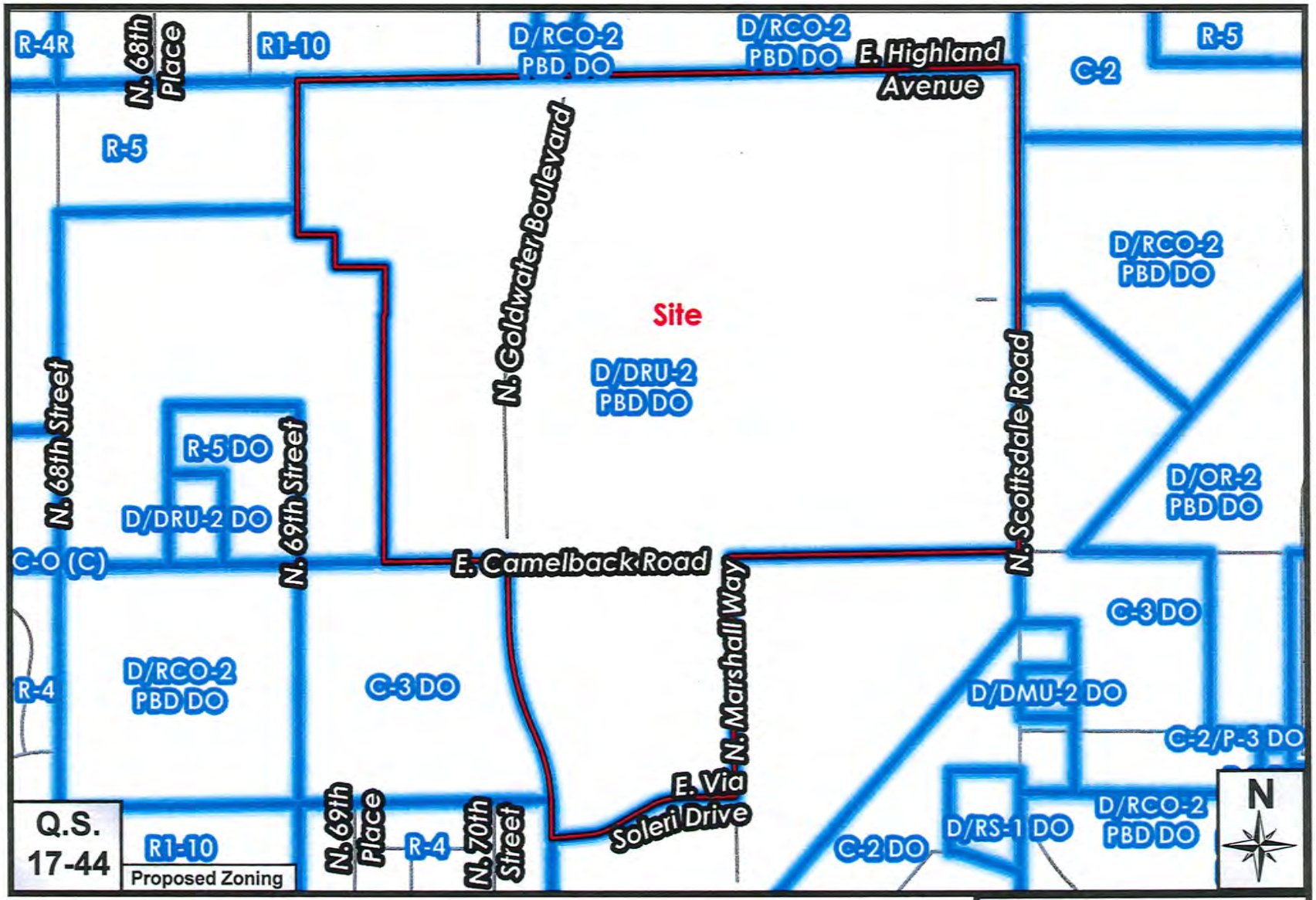
Property Parcel and Development Area Depiction



AREA BOUNDARY

PARCEL BOUNDARY

DECEMBER 21, 2016



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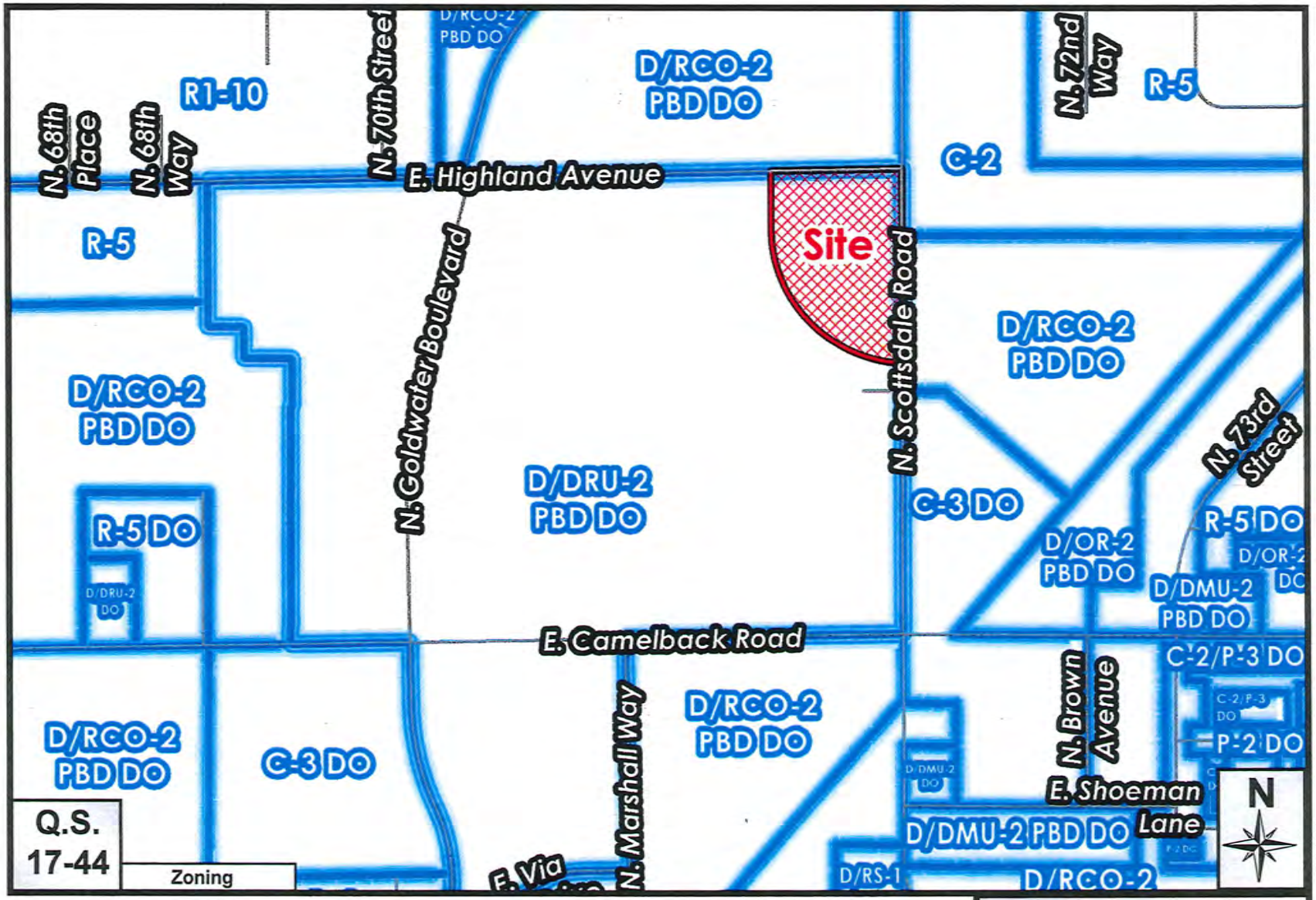

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