Archaeological Resources

Airport Vicinity Development Checklist

Parking Study

Trip Generation Comparison

Parking Master Plan

Cavasson Scottsdale

Traffic Impact Mitigation Anlaysis

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

April 2019
Project No. 17-0310

Prepared For:

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

For Submittal to:
City of Scottsdale

Prepared By:

CivTech

10605 North Hayden Road
Suite 140
Scottsdale, Arizona 85260
480-659-4250

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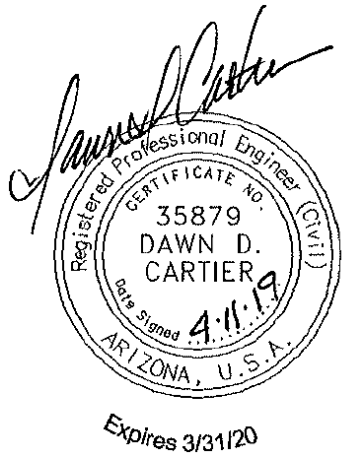

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EXECUTIVE SUMMARY

The Cavasson development is a ±134-acre project located on the southwest corner of Hayden Road and Legacy Boulevard in Scottsdale, Arizona. This development is separated into two (2) phases. Phase 1 consists of a 135-key hotel, 350 multi-family residential dwelling units, 11,000 square feet of retail with 6,000 square feet of restaurant attached, and 740,000 square feet of office space. Phase 2 of Cavasson consists of multiple hotels totaling 265 keys, 1,250 multi-family dwelling units, 183,000 square feet of retail with 6,000 square feet of restaurant attached, and 1,060,000 square feet of office space. At buildout with the construction of Phase 1 and Phase 2, Cavasson will support a total of 400 hotel keys, 1,600 dwelling units of multi-family, 194,000 square feet of shopping center, 1,800,000 square feet of office and 12,000 square feet of restaurant. The vicinity of the site is provided in **Figure 1**.

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

General

- Phase I of the Cavasson Development is anticipated to generate 12,450 daily trips to the external roadway system, with 915 occurring during the AM peak hour and 1,070 occurring during the PM peak hour, by opening year 2020. It is anticipated the Miller Road underpass will not be constructed by opening year 2020.
- Phase I project specific improvements such half street improvements and all Phase I site driveways are anticipated to be fully constructed by the developer upon opening year 2020.
- Cavasson Boulevard and Claret Drive internal to the site are also anticipated to be full constructed by opening year 2020.
- Full buildout (Phase 1 and Phase 2) of the Cavasson Development is anticipated to generate a total of 34,984 daily trips to the external roadway system, with 2,562 occurring during the AM peak hour and 3,123 occurring during the PM peak hour.
- For study purposes it is anticipated the Miller Road underpass will be constructed and provide connection to the south of the Loop 101 by study horizon year 2030.
- Both Thompson Peak Parkway and Legacy Boulevard are also planned to provide connectivity to the west ultimately offering additional roadway connections between 56th Street/Scottsdale Road by horizon year 2030.
- Legacy Boulevard is also anticipated to connect through to the east from Hayden Road to Pima Road by horizon year 2030.
- The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. It is recommended that sight triangles be designed at all site access driveways to

provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix K**.

- Typical sections provided for Hayden Road, Miller Road, Legacy Boulevard, Claret Drive and Cavasson Boulevard were approved by the City of Scottsdale Ordinance 4346 and Resolution 11147. Excerpts from the Ordinance and Resolution are provided in **Appendix M**.

Existing

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

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

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

- The intersection of **Scottsdale Road and Mayo Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the northbound/southbound through volume on Scottsdale road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 19-seconds to 28-seconds and the southbound left phase be extended from 11-seconds to 23-seconds. Also, adding overlaps for the northbound

and southbound right turns will decrease the delay on those approaches. By applying these changes to the existing intersections, the delay is expected to decrease from 76-seconds to 55-seconds.

- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the westbound left-turn volume on Frank Lloyd Wright Boulevard and the conflicting northbound left-turn volume on Scottsdale Road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 9-seconds to 25-seconds, the southbound left turn phase be extended from 23-seconds to 26-seconds, and the northbound through phase be extended from 35-seconds to 41-seconds. With these changes made to the existing intersection, the delay is expected to decrease from 160-seconds to 85-seconds.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the PM peak northbound/southbound left-turn volume as well as the conflicting northbound/southbound right-turn volumes for those phases. It is recommended that the northbound left turn phase be extended from 10-seconds to 16-seconds, the southbound left turn phase be extended from 15-seconds to 19-seconds and the eastbound left turn phase be extended from 20-seconds to 22-seconds. With these changes made to the existing intersection, the overall delay is expected to decrease from 60-seconds to 55-seconds.

Opening Year 2020

- The results of the Synchro analysis summarized in **Table 9** indicate that all 2020 study intersections operate with an overall acceptable level of service during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:
- It should be noted the Scottsdale Road/Loop 101 Ramps functions as a diamond traffic interchange with both signalized intersections functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at the diamond interchange.
- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased heavy delay by opening year 2020 with or without the proposed Cavasson Phase I development during the study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030, scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended signalize timing be optimized as well as signal phasing. With signal timing and phasing optimization, the overall intersection delay is expected to improve 33.5-seconds in the AM, 40.0-seconds in the PM peak for the westbound ramps and 27.1-seconds in the AM, 28.2-seconds in the PM peak for the eastbound ramps with the proposed Phase I development.

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

- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience heavy delay in the PM peak by opening year 2020 with or without the proposed Cavasson Phase I development. Overall the projected intersection delay is expected to be 82.7-seconds in the PM peak hour under the total 2020 build condition. It is therefore recommended all right-turn lanes provide overlap phases as well as optimizing pedestrian signal timing in the westbound approach by opening year 2020. With these improvements, the overall delay at the intersection is projected to decrease from 82.7-seconds to 38.1-seconds in the PM peak hour with the proposed Phase I development.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience heavy delay by opening year 2020 with or without the proposed Phase I development. Under the No-Build 2020 scenario, this intersection is expected to experience heavy delays during the PM peak hour only. Overall, the projected intersection delay is expected to be 71.7-seconds in the PM peak hour with the proposed Cavasson Phase I development. It is recommended all right-turn lanes provide overlap phases as well as a dedicated southbound right-turn lane. With the recommended mitigation the overall intersection delay is projected to improve from 71.7-seconds to 55.5-seconds with the proposed Phase I development during the PM peak hour.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience heavy delays by opening year 2020 with or without the proposed Cavasson Phase I development. Under the No-Build 2020, scenario this intersection experiences heavy delay during the PM peak hour only. Overall, the projected 2020 Build, intersection delay is expected to be 71.7-seconds during the PM peak hour which includes the proposed Cavasson Phase I development. It is recommended signal timing be optimized and all right-turn lanes provided overlap phases. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 71.7-seconds to 53.9-seconds with the proposed Phase I development during the PM peak hour.
- The proposed intersection of **Hayden Road and Cavasson Boulevard** is anticipated to be signalized upon completion of the Phase I development. It is recommended that right of way be provided for a future through lane east/west to provide connectivity to the east. By the opening year 2020, a single 300-foot northbound left-turn lane is warranted, as well as a single 200-foot left-turn and right-turn lanes eastbound. Additional right-of-way will be provided and striped out for the proposed future lanes required for an acceptable level of service.

Horizon Year 2030

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

- The intersection of **Hayden Road and Legacy Boulevard** is projected to experience delay during both AM and PM peak hours with or without the addition of Cavasson development by horizon year 2030. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the east of Hayden Road and connect to Pima Road by horizon year 2030. Due to the projected heavy traffic volumes on Hayden Road by horizon year 2030 three (3) through lanes northbound and three (3) through lanes southbound are recommended as well as dual northbound left-turn lanes. To remain consistent with the four (4) lane cross section on Legacy Boulevard two (2) through lanes are recommended to be constructed in the eastbound and westbound approaches. All left-turn phases are recommended to be protected/permissive with the exception of the dual northbound left-turn lanes which will be required to be protected. With the recommended signal modifications, the intersection delay is expected to decrease to 24.0-seconds in the AM peak hour, and 22.7-seconds during the PM peak hour.

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

- The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be optimized to achieve optimal levels of service for the intersection by horizon year 2030. Overall the projected intersection delay is expected to be around 97.1-seconds for the westbound ramps and 72.5-seconds for the eastbound ramps during the PM peak hour with the proposed Cavasson development.

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

- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be optimized to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 191.5-seconds for the westbound ramps and 85.2-seconds for the eastbound ramps in the PM peak hour with the Cavasson development.

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

- The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection with the assumption that Thompson Peak Parkway will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. Under the No-Build 2030 scenario, this intersection experiences heavy delay in both study peak hours. Overall, the intersection delay is projected to be 140.3-seconds in the AM peak hour and 51.9-seconds in the PM peak hour under the 2030 No-Build scenario. With the addition of the Cavasson development, the intersection is expected to experience delays of 142.3-seconds in the AM peak hour, and 84.8-seconds in the PM peak hour. To help mitigate this intersection, it is recommended signal phasing and green times be optimized as well as add in overlap right-turn phasing. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay will be 66.3-seconds in the AM peak hour, and 62.8-seconds during the PM peak hour.

- The intersection of **Scottsdale Road and Legacy Boulevard** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. This intersection experiences heavy delay under the 2030 No-Build condition for both study peak hours. Overall, the intersection delay under the 2030 No-Build condition is projected to be 47.2-seconds in the AM peak hour and 38.5-seconds in the PM peak hour. With the addition of the proposed Cavasson development, the intersection delay is expected to increase to 78.2-seonds in the AM peak hour, and 75.6-seconds in the PM peak hour. It is, recommended to optimize the signal timing and add in overlap phasing to all right-turn lanes. With the recommended mitigation the intersection delay is expected be 60.4-seconds in the AM peak hour, and 71.2-seconds in the PM peak hour.

- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. The heavy northbound and southbound movements conflict with the anticipated heavy eastbound movements. Signal optimization should occur with future signal progression plans for Scottsdale Road. It is therefore recommended this intersection be monitored for optimal signal timing and corridor progression due to the proximality of the existing Loop 101 traffic interchange.
- The intersection of **Scottsdale Road and Princess Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during the PM peak hour. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Pima Road and Thompson Peak Parkway** is projected to experience heavy delays by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Miller Road and Legacy Boulevard** is projected to be signalized by study horizon year 2020. With future traffic anticipated by the Miller Road connection to the south and with additional traffic anticipated by currently unknown surrounding developments, it is recommended that dual northbound left-turn lanes be provided as well as a dedicated northbound right-turn lane by horizon year 2020.
- The proposed internal site intersection of **Claret Drive and Cavasson Boulevard** is anticipated to be a signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes should be provided in all approaches. Signal warrants will be evaluated with future phases of the Cavasson development.

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

  The proposed intersection of **Hayden Road and Cavasson Boulevard** is anticipated to be signalized "T-intersection" upon full buildout of the Cavasson development. Dual left-turn lanes and dedicated right-turn lanes are recommended in all approaches. While dual right turn lanes may be striped in the interim condition, it is recommended that one lane provide for east/west through movements allowing connectivity to the east. By buildout year 2030, dual 300-foot northbound left-turn lanes are warranted, as well as dual 200-foot left-turn lanes and a 200-foot right-turn lane in the eastbound approach. Additional pavement provided for a second eastbound right turn lane should be converted to allow for through movements once the development east of Hayden Road is constructed.

Queue Storage

- As shown in **Table 11**, the existing storage lengths at the existing intersections are not anticipated to accommodate the additional traffic generated in 2030. Additional storage length calculations should be completed prior to traffic signal installation, a change in intersection stop control or installation of raised medians.
- It is recommended all proposed site access driveways along Legacy Boulevard, Hayden Road, Miller Road, Cavasson Boulevard and Claret Drive provide a minimum of 150-foot turn lanes at intersections regardless of intersection control so long as they are not encumbered by upstream intersections or utility conflicts. Locations with restrictions or where additional storage beyond the calculations included in this report are discussed below.
- Proposed ¾ site **Access G,** located just north of site Access M and south of Legacy Boulevard along Hayden Road, is recommended to provide a minimum 150-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane. An upstream intersection restricts the ability to provide additional southbound right turn storage.
- Proposed ¾ site **Access H** located just north of the Hayden Road/Loop 101 interchange along Hayden Road is recommended to provide a minimum 100-foot northbound left-turn lane as well as a 150-foot southbound dedicated right-turn lane. The presence of a storm drain inlet conflict restricts the ability to provide additional northbound left turn queue storage.
- Proposed ¾ site **Access I**, located just north of the Loop 101 frontage road on Claret Drive is recommended to provide a 55-foot northbound right turn lane. This is restricted from further queue storage due to the proximity of the frontage road. A southbound left turn storage of 100 feet is recommended; this length is restricted by the need to provide a back to back left turn lane (northbound storage) into Access J.

- Proposed main site **Access M** (Hayden Road/Cavasson Boulevard) is planned as a signalized intersection at the opening of the proposed Cavasson Phase I development. Access M is located between Legacy Boulevard and north of Access H along Hayden Road and is planned to provide 300-feet of queue for dual northbound left-turn lanes as well as 225-feet for a dedicated southbound right-turn lane. Internally, the development should provide a minimum of 200-feet of storage for the eastbound dual left-turn and a single right-turn lane. Additional pavement will be provided and striped out for the proposed future ultimate lane alignment for connectivity to the east.
- **Access K** (Cavasson Boulevard/Claret Drive) is an internal signalized intersection with permitted phasing in all approaches. The provision of 150-foot southbound and eastbound left-turn lanes, a 300-foot westbound left-turn lane and a 200-foot northbound left-turn lane are recommended. It is also recommended that a 200-foot northbound right-turn lane, 180-foot westbound right-turn lane and 150-foot eastbound and southbound right-turn lane be provided by full build of the Cavasson development.
- **Access B** (Miller Road/Cavasson Boulevard) is a planned signalized intersection with permitted/protected phasing. A 300-foot westbound left-turn and right-turn lane, as well as a southbound 225-foot southbound left-turn lane are recommended. As the area is built out with connectivity to the south along Miller Road, it is recommended that the future queue length for the westbound and northbound left-turn lanes and northbound right-turn lane be constructed to provide a minimum storage of 150-feet.
- **Access A** and **Access C** both are recommended to provide 100-foot southbound left-turn lanes and well as 100-foot northbound dedicated right-turn lanes. The presence of back to back turn lanes and likely retaining walls from the Miller Road underpass may restrict the ability to provide more storage at these locations.
- The intersection of **Miller Road and Legacy Boulevard** is planned to be signalized upon buildout of the Cavasson development ultimately providing dual 250-foot northbound left-turn lanes as well as a dedicated northbound right-turn lane. Although the reported volumes documented within this report do not show a need for dual northbound left-turn lanes it is CivTech's understanding the planned area analyzed within this report does not include some portions of future development within the study area. As such, longer queues and dual lanes are recommended.

Sight Distance

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

INTRODUCTION

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

Study Requirements

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

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

Study Area

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

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

Horizon Years

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

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

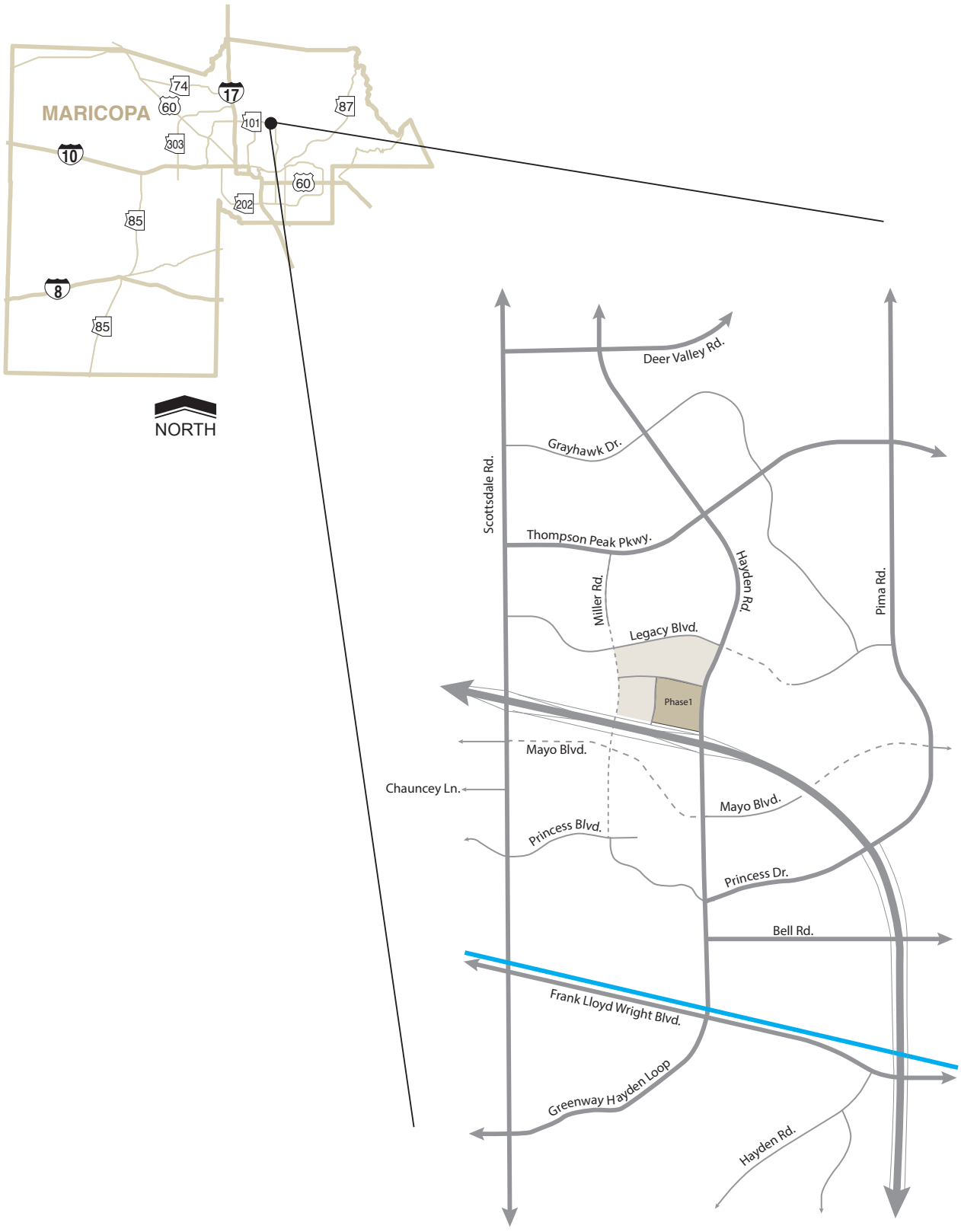


Figure 1: Vicinity Map

EXISTING CONDITIONS

Surrounding land use

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

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

EXISTING ROADWAY NETWORK

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

EXISTING INTERSECTION CONFIGURATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

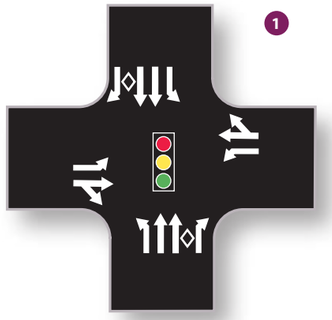
The intersection of ***Scottsdale Road and 17050 North*** operates as a four-legged signalized intersection with permissive left turns in the east and westbound approaches and permissive-protected phasing in the north and south directions. The northbound and southbound approaches each consist of one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

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

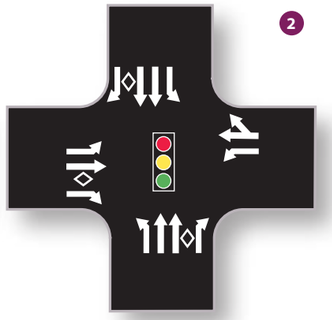
The intersection of ***Greenway Hayden Loop and Frank Lloyd Wright Boulevard*** operates as a four-legged signalized intersection with protected phasing in all directions. The northbound approach consists of one (1) dedicated left turn lane, two (2) through lanes and one (1) dedicated right-turn lane.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

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

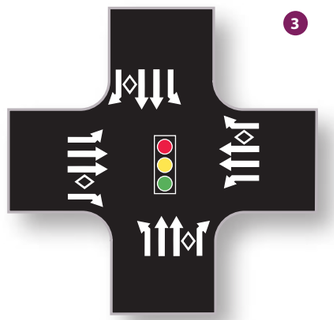
Figures 2A and **2B** depicts the existing stop controls and lane geometries within the project study area.



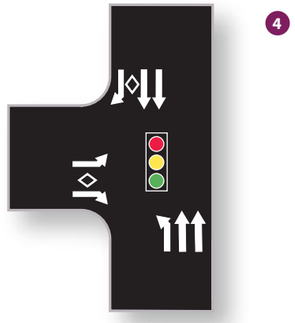
Hayden Rd & Deer Valley Rd



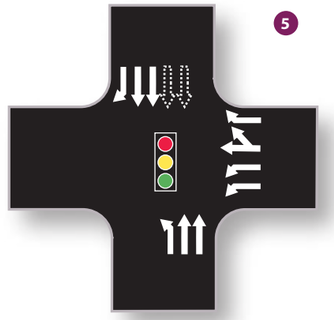
Hayden Rd & Grayhawk Dr



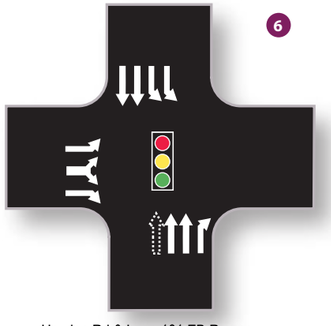
Hayden Rd & Thompson Peak Pkwy



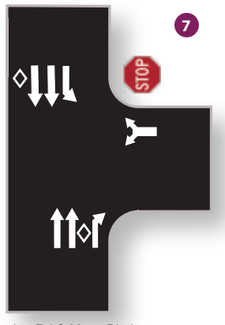
Hayden Rd & Legacy Blvd



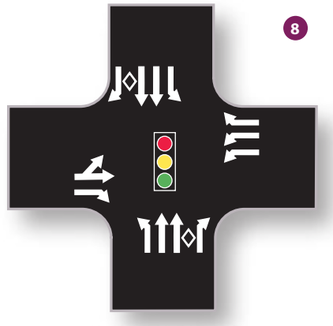
Hayden Rd & Loop 101 WB Ramps



Hayden Rd & Loop 101 EB Ramps

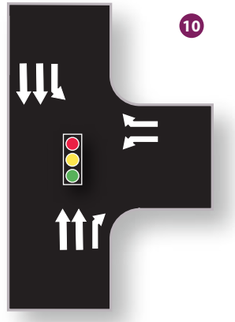


Hayden Rd & Mayo Blvd

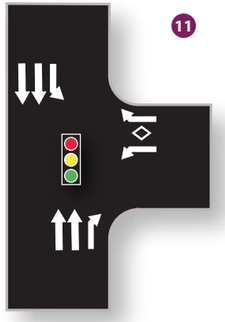


Hayden Rd & Princess Dr

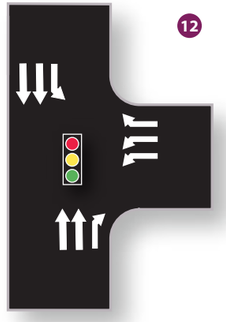
Hayden Rd & Bell Rd



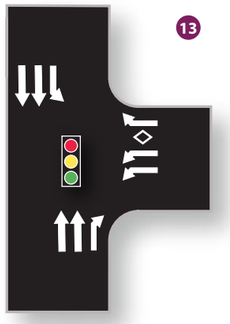
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd.

LEGEND

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

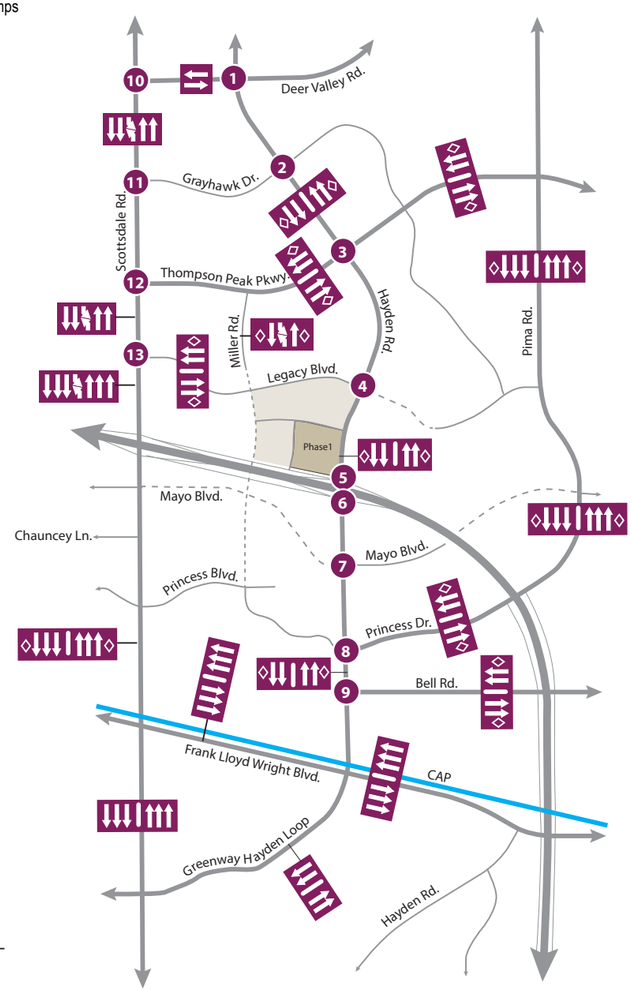
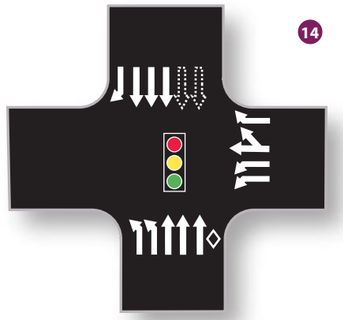
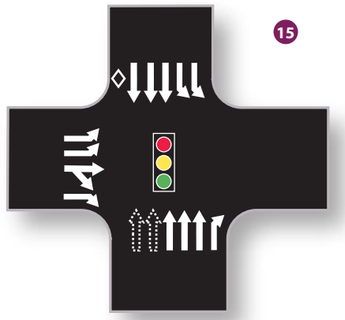


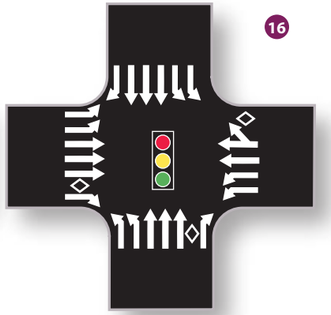
Figure 2A: Existing Lane Configurations and Traffic Controls



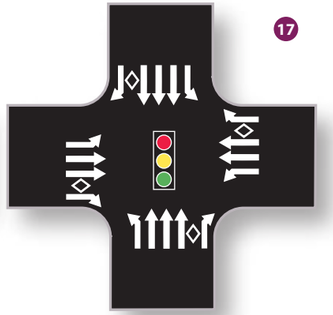
Scottsdale Rd & Loop 101 WB Ramps



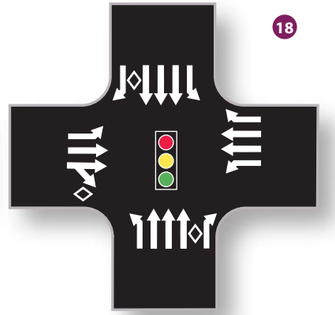
Scottsdale Rd & Loop 101 EB Ramps



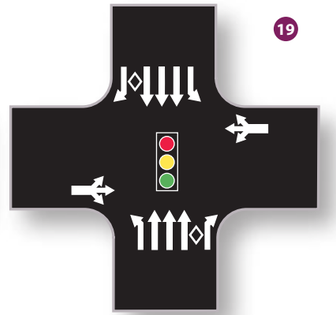
Scottsdale Rd & Mayo Blvd



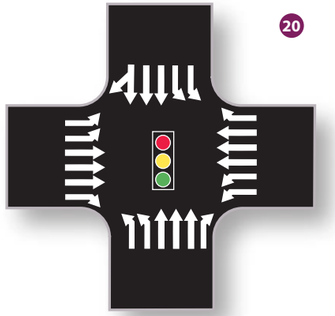
Scottsdale Rd & Chauncey Ln



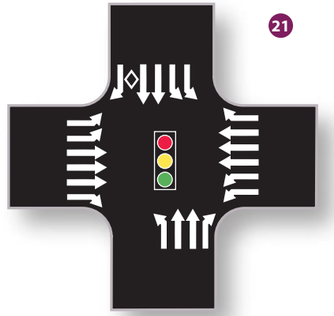
Scottsdale Rd & Princess Blvd



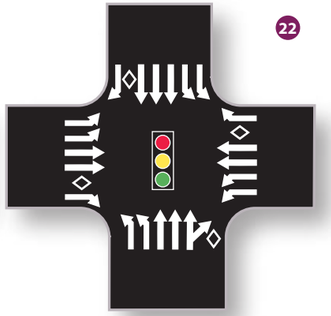
Scottsdale Rd & 17050 North



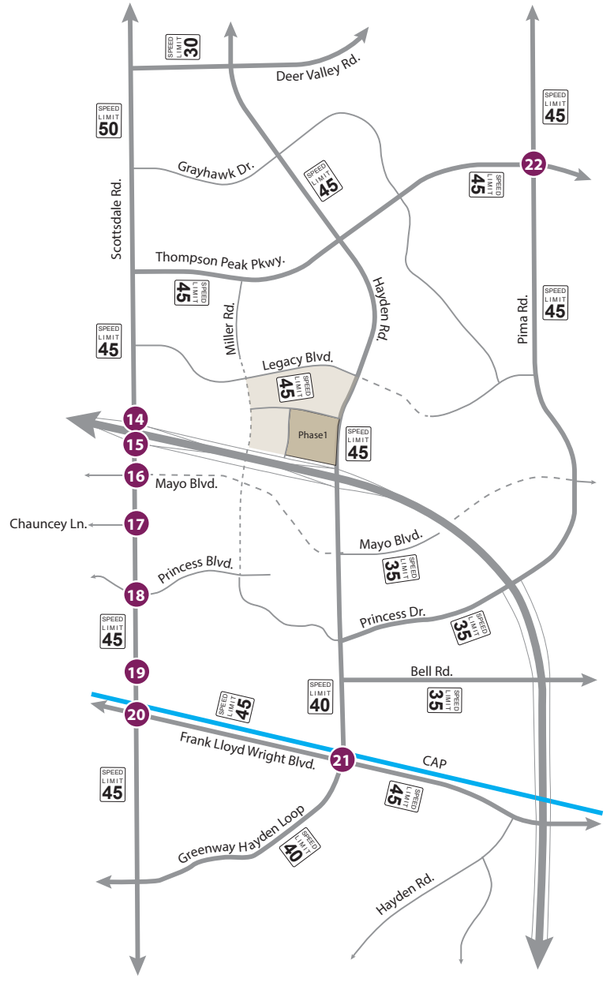
Scottsdale Rd & Frank Lloyd Wright Blvd



Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



LEGEND

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

NORTH

Figure 2B: Existing Lane Configurations and Traffic Controls

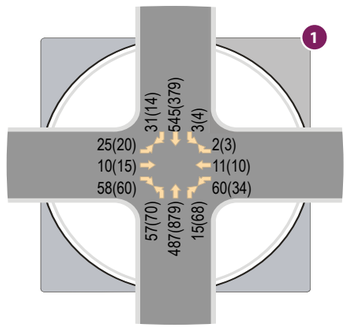
EXISTING TRAFFIC VOLUMES

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

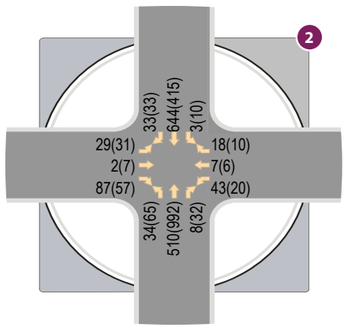
- Scottsdale Rd. & Thompson Peak Pkwy.
- Scottsdale Rd. & Legacy Blvd.
- Scottsdale Rd. & Loop 101 WB/EB Ramps
- Scottsdale Rd. & Grayhawk Dr.
- Scottsdale Rd. & Deer Valley Rd.
- Scottsdale Rd. & Mayo Blvd.
- Scottsdale Rd. & Princess Dr.
- Scottsdale Rd. & Frank Lloyd Wright Blvd.
- Scottsdale Rd.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

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

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



Hayden Rd & Deer Valley Rd



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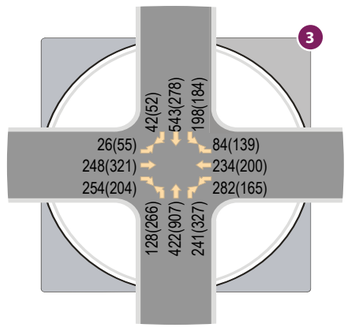

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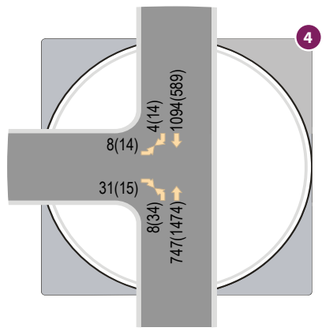
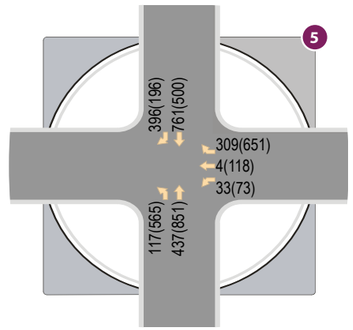


Hayden Rd & Legacy Blvd



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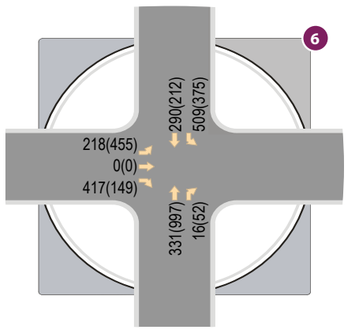

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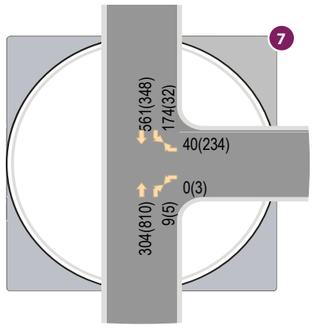

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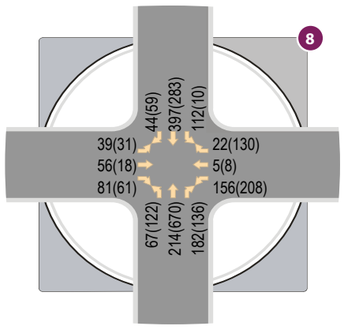
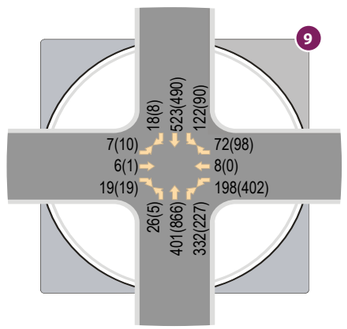


Hayden Rd & Princess Dr



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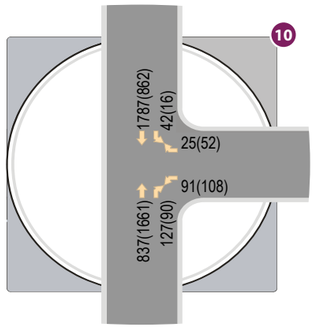
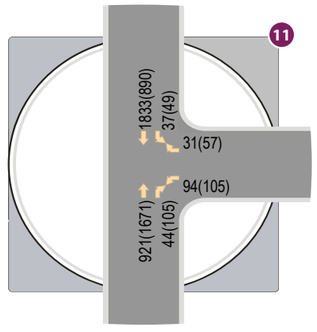
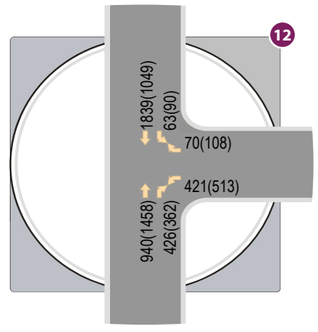


Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy

LEGEND

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

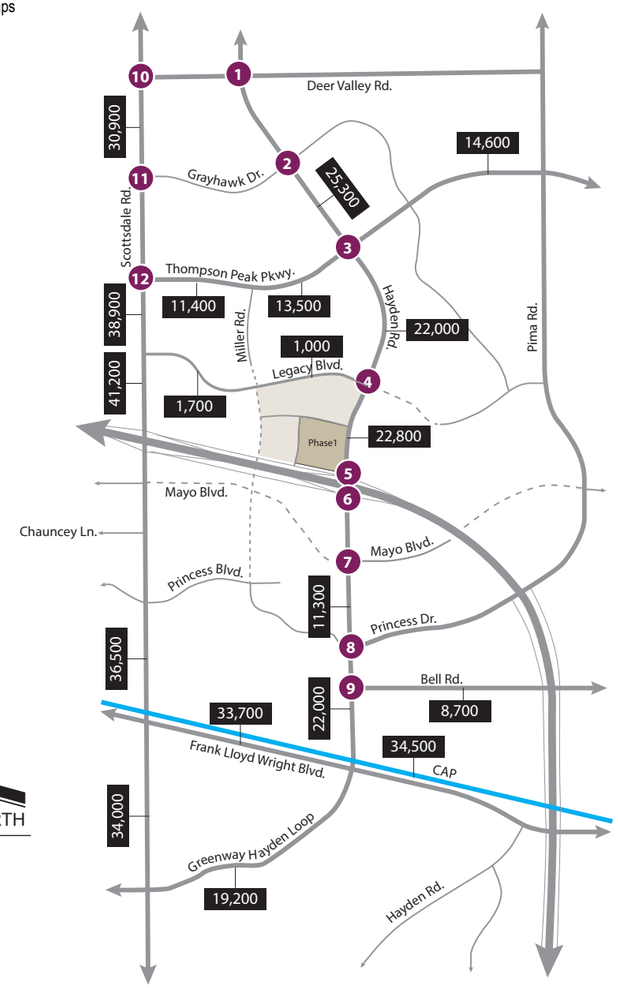
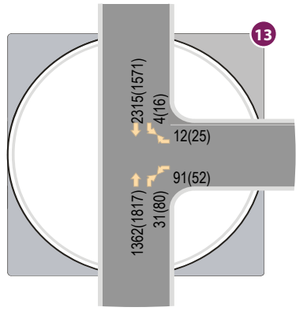
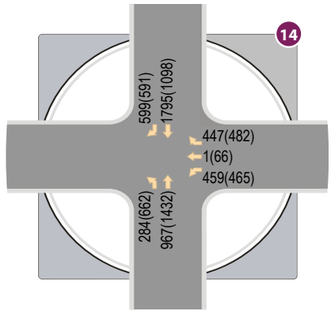


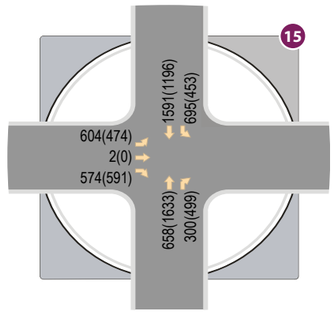
Figure 3A: Existing Traffic Volumes



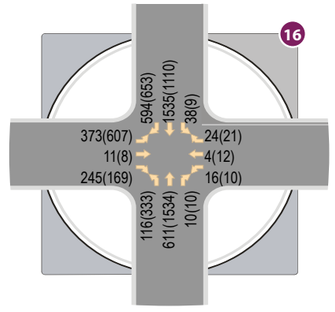
Scottsdale Rd & Legacy Blvd



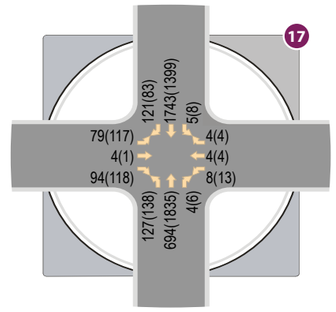
Scottsdale Rd & Loop 101 WB Ramps



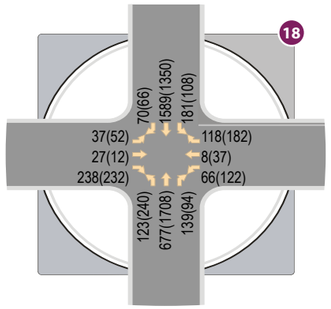
Scottsdale Rd & Loop 101 EB Ramps



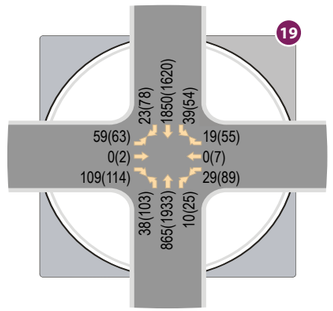
Scottsdale Rd & Mayo Blvd



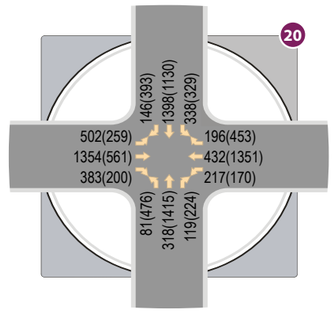
Scottsdale Rd & Chauncey Ln



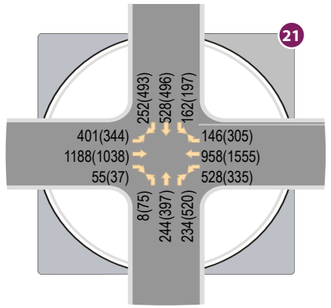
Scottsdale Rd & Peincess Blvd



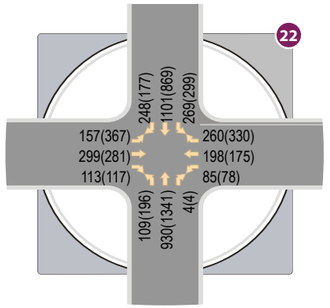
Scottsdale Rd & 17050 North



Scottsdale Rd & Frank Lloyd Wright Blvd



Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy

LEGEND

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

NORTH

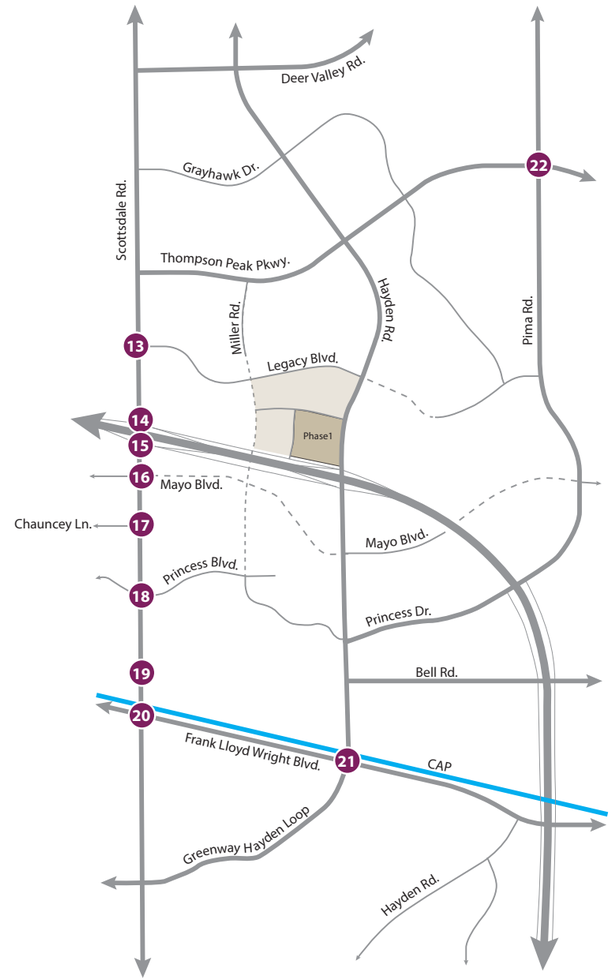


Figure 3B: Existing Traffic Volumes

EXISTING CAPACITY ANALYSIS

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

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

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

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

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

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

Table 2 – Existing Peak Hour Levels of Service

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

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

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

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

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

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

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

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

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

FUTURE ROADWAY IMPROVEMENTS

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

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

PROPOSED DEVELOPMENT

SITE LOCATION

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

SITE PHASEING AND TIMING

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

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

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

SITE ACCESS

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

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

- *Claret Drive* - is an internal north/south roadway, located along the half way point between the Miller Road alignment and Hayden Road. Claret Drive is planned to provide connectivity to the SR-101 Frontage Road and Cavasson Boulevard. Construction for Claret Drive is planned as part of the Phase I development.
- Access ***A*** is a proposed full unsignalized access located north of the westbound SR-101 Frontage Road along the future Miller Road alignment. Access A is planned to directly service Phase II of the proposed Cavasson development and may need to be restricted in the future if sight distance cannot be achieved after the construction of the Miller Road underpass.
- Access ***B*** is the proposed full movement signalized site access (Cavasson Boulevard and Miller Road intersection) which is located between the SR-101 Frontage Road and Legacy Boulevard. Access B is generally located north of Access A and south of Access C along the Miller Road Alignment. Access B is planned to be constructed as part of the Phase I development and will serve as one of the primary access points into the proposed Cavasson development.
- Access ***C*** is a proposed restricted ¾ unsignalized access providing left-in/right-in/right-out movements only. Access C is located south of Legacy Boulevard and north of Access B along the Miller Road Alignment. Access C is planned to be constructed as part of Phase II of the Cavasson development.
- Access ***D*** is a proposed full movement unsignalized access located east of Miller Road. Access D is planned to be constructed as part of the Phase II development.
- Access ***E*** is a proposed full movement unsignalized access located between Miller Road and Hayden Road, located generally east of Access D and west of Access F along Legacy Boulevard. Access E is planned to be constructed as part of the Phase II development.
- Access ***F*** is a proposed full movement unsignalized access located west of Hayden Road. Access F is planned to be constructed as part of the Phase II development.
- Access **G** is a proposed restricted ¾ unsignalized access providing left-in/right-in/right-out movements only. Access G is located south of Legacy Boulevard and north of Cavasson Boulevard along Hayden Road. Access G is planned to be constructed as part of the Phase II development proposed within the Cavasson development.
- Access ***H*** is a proposed restricted ¾ unsignalized access providing left-in/right-in/right-out movements only. Access H is located north of SR-101 westbound frontage road/ramps and south of Cavasson Boulevard along Hayden Road. Access H is planned to be constructed as part of the Phase I development.
- Access ***I*** is a proposed internal restricted ¾ unsignalized access providing left-in/right-in/right-out movements only to the Phase I development. Access I is located just north of SR-101 westbound Frontage Road along Claret Drive between the Miller Road alignment and Hayden Road. Access I is planned to be constructed as part of the Phase I development.

- Access ***J*** is a proposed internal full movement unsignalized access within the proposed Phase I development. Access J is located between the SR-101 Frontage Road and Cavasson Boulevard along the Claret Drive between Access I and Access K. Access J is planned to be constructed as part of the Phase I development.
- Access ***K*** is a proposed internal signalized intersection connecting both Cavasson Boulevard and Claret Drive. Access K is located directly between the Miller Road alignment and Hayden Road, generally located north of Access J along Cavasson Boulevard. Access K is planned to be constructed as part of the Phase I development.
- Access ***L*** is a proposed internal full movement unsignalized access within the proposed Phase I development. Access L is located between Claret Drive and Hayden Road along Cavasson Boulevard. Access L is planned to be constructed as part of the Phase I development proposed within the Cavasson development.
- Access **M** is a proposed signalized full movement site access (Cavasson Boulevard and Hayden Road intersection) which is located between proposed Access G and proposed Access H along the Hayden Road alignment. Access M is planned to be constructed as part of the Phase I development and will serve as one of the primary main driveways into the proposed Cavasson development.
- Access **N** is a proposed right-in/right-out internal access within the proposed Phase I development. Access N is located south of Cavasson Boulevard and north of Access J.
- Access **O** is a proposed right-in/right-out access located south of Legacy Boulevard and north of Access G. Access O is planned to be constructed as part of the Phase II development. Although Access O is shown on the site plan it was not analyzed within this report, it will be analyzed in more detail in future phased traffic reports.

Figure 4: Site Plan and Access

TRIP GENERATION

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

Internal Capture

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

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

Pass-By and Diverted Link Trips

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

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

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

Table 3 –Trip Rates and Directional Splits

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

Opening Year 2020 - Phase I Trip Generation

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

Table 4 – Phase I Trip Generation

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

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

Horizon year 2030 - Phase II (Buildout) Trip Generation

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

Table 5 – Buildout Trip Generation

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

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

TRIP DISTRIBUTION

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

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

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

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

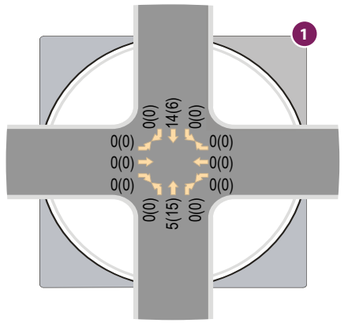
Table 6 – Trip Distribution

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

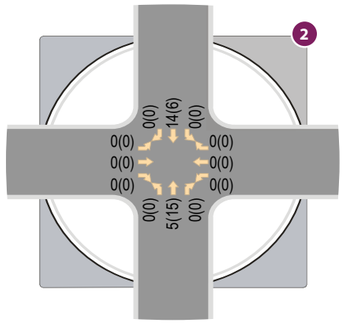
TRAFFIC ASSIGNMENT

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

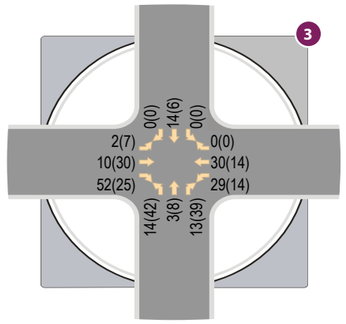
Figure 5: Trip Distribution



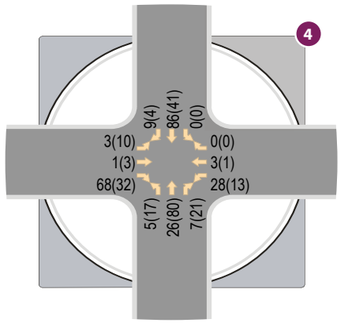
Hayden Rd & Deer Valley Rd



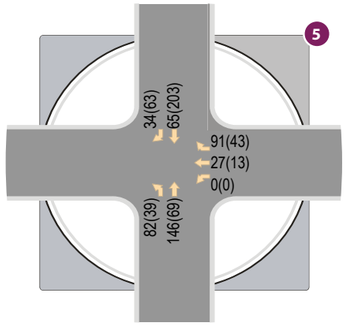
Hayden Rd & Grayhawk Dr



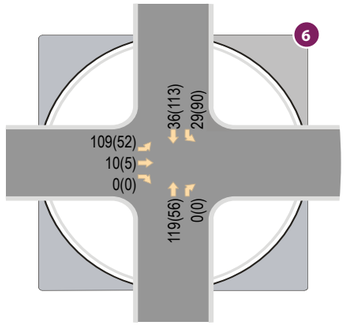
Hayden Rd & Thompson Peak Pkwy



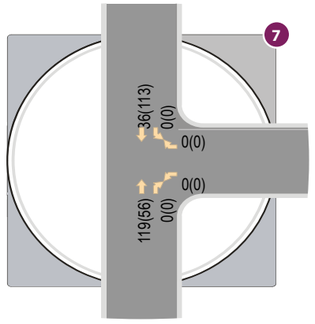
Hayden Rd & Legacy Blvd



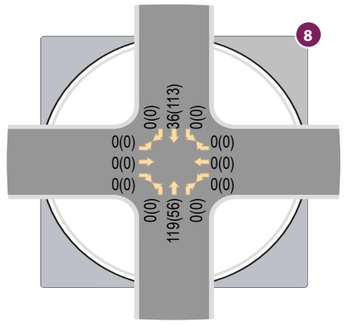
Hayden Rd & Loop 101 WB Ramps



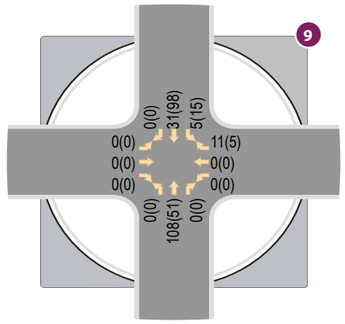
Hayden Rd & Loop 101 EB Ramps



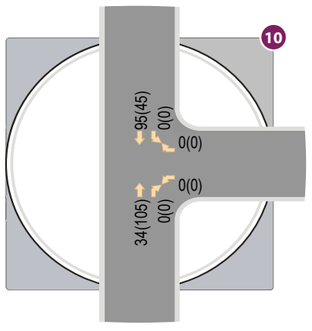
Hayden Rd & Mayo Blvd



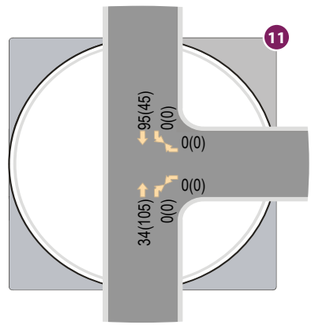
Hayden Rd & Princess Dr



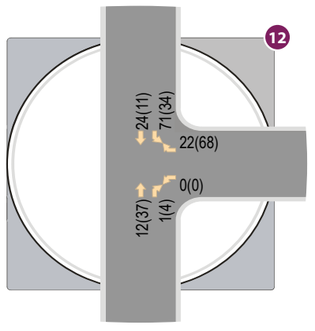
Hayden Rd & Bell Rd



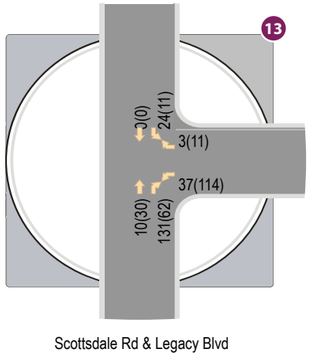
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd

LEGEND

NORTH

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

XX,XXX Average Daily Traffic

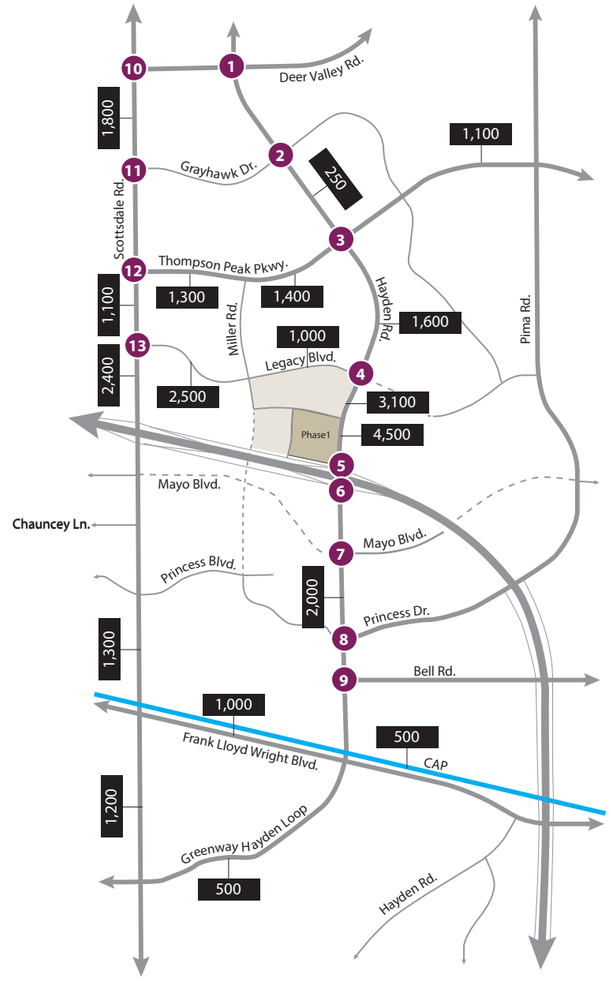
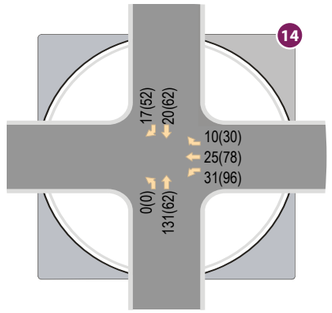
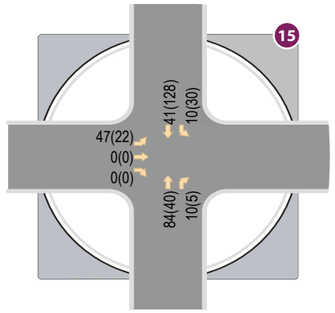


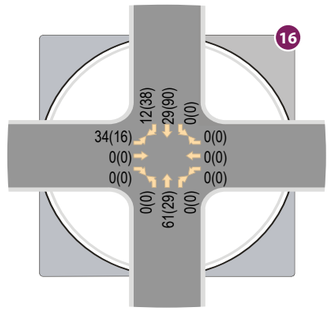
Figure 6A: 2020 Site Generated Traffic Volumes



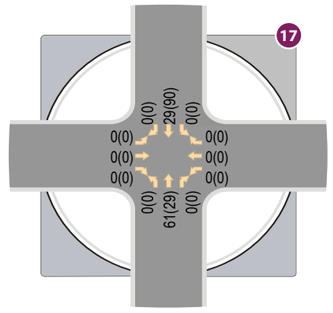
Scottsdale Rd & Loop 101 WB Ramps



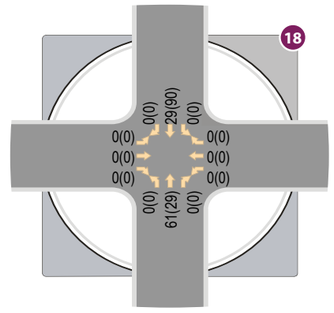
Scottsdale Rd & Loop 101 EB Ramps



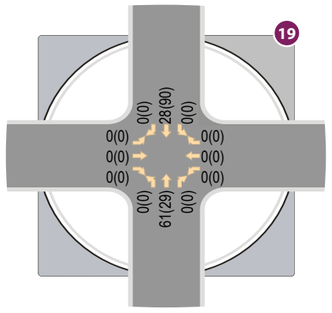
Scottsdale Rd & mayo Blvd



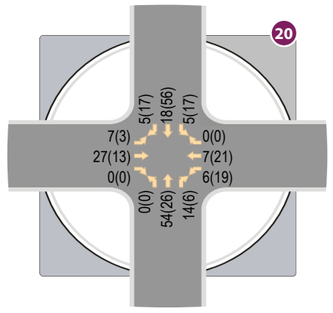
Scottsdale Rd & Chauncey Ln



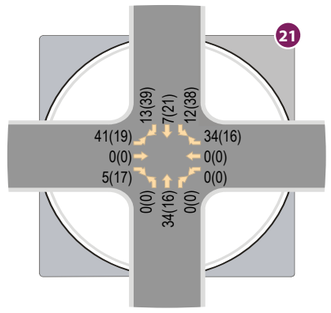
Scottsdale Rd & Peincess Blvd



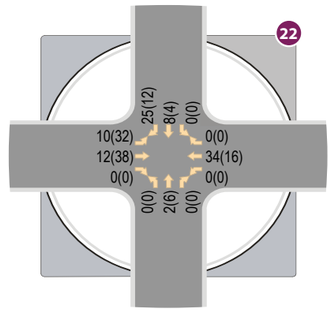
Scottsdale Rd & 17050 North



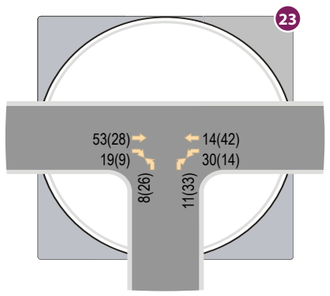
Scottsdale Rd & Frank Lloyd Wright Blvd



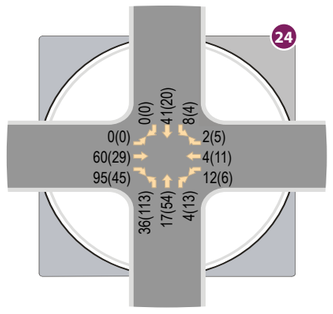
Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

LEGEND

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

NORTH

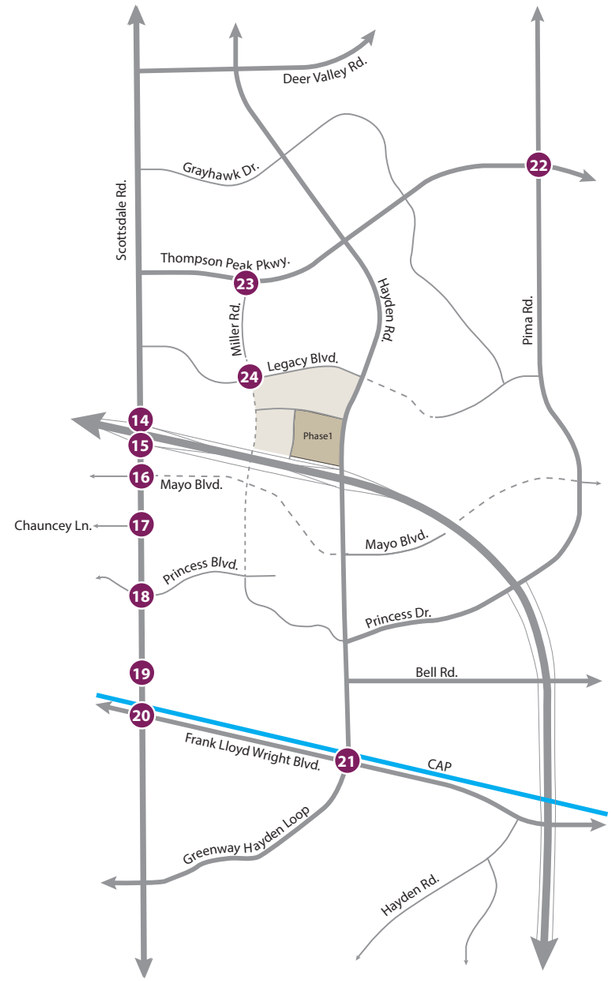
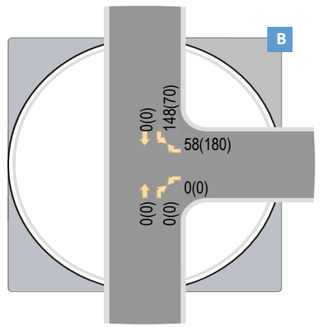
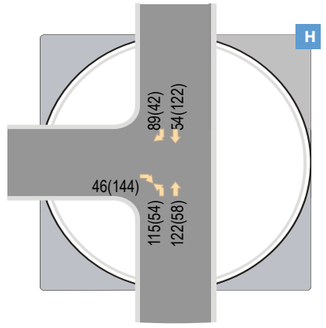


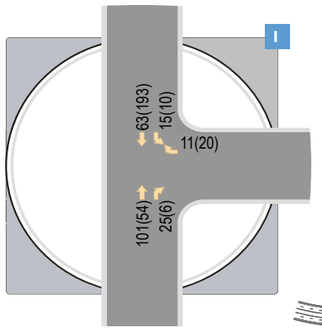
Figure 6B: 2020 Site Generated Traffic Volumes



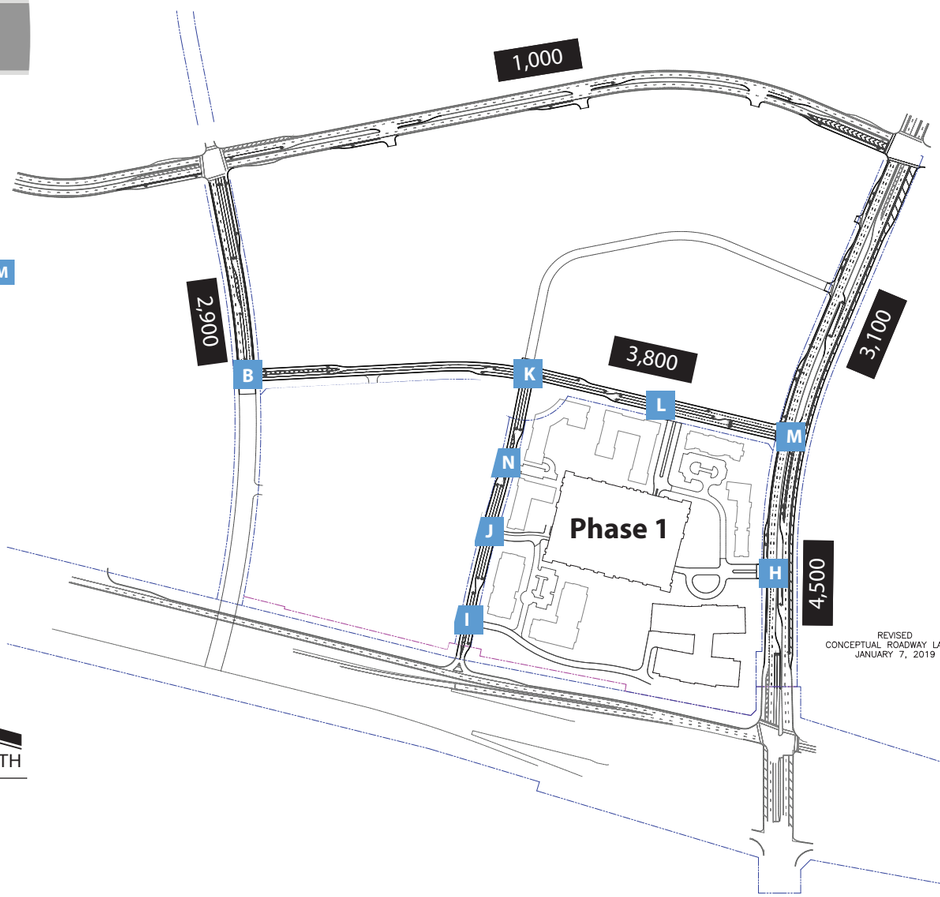
Miller Rd & Access B

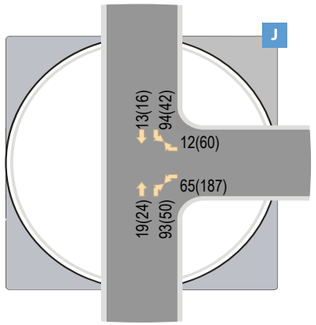


Hayden Rd & Access H

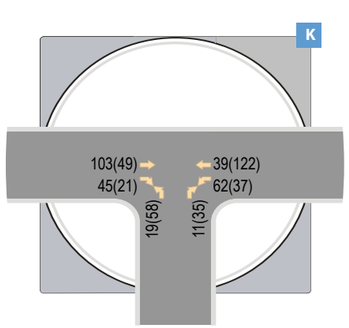


Claret Dr & Access I

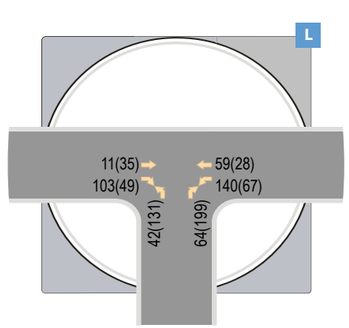




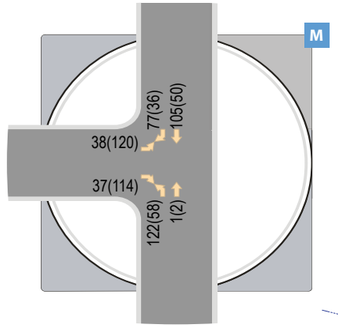
Claret Dr & Access J



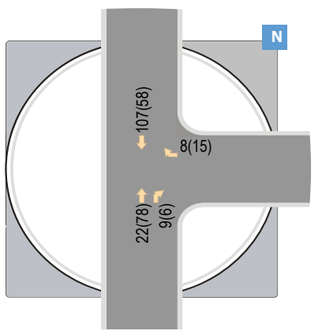
Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



Claret Dr. & Access N

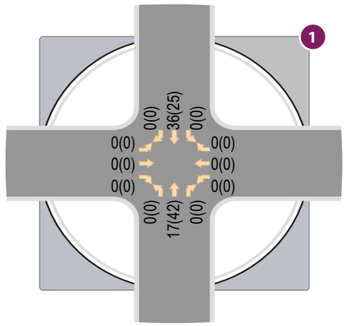
LEGEND

NORTH

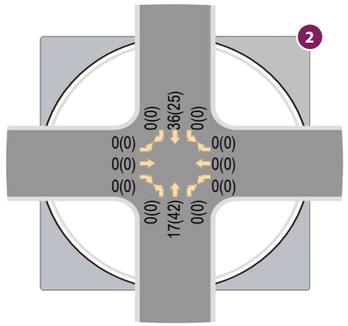
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

Figure 6C: 2020 Site Generated Traffic Volumes



Hayden Rd & Deer Valley Rd



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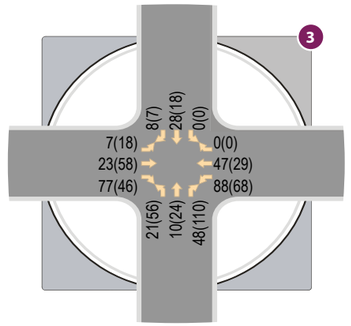

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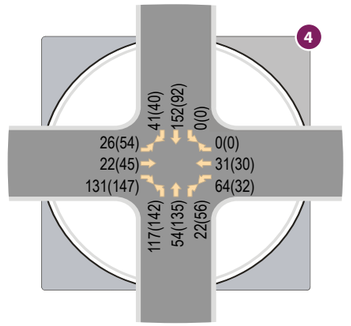

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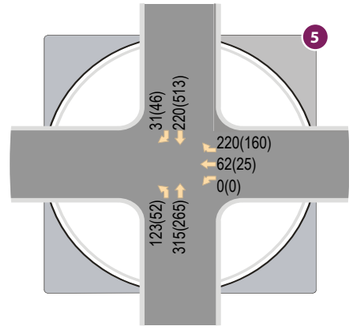
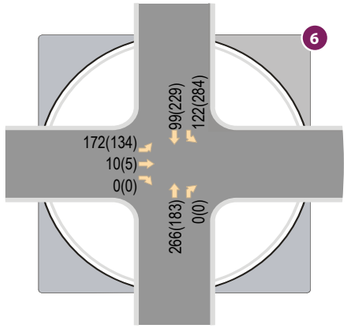
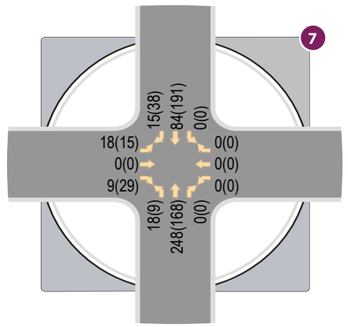


Hayden Rd & Loop 101 WB Ramps



Hayden Rd & Loop 101 EB Ramps



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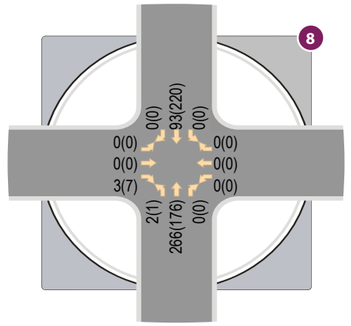
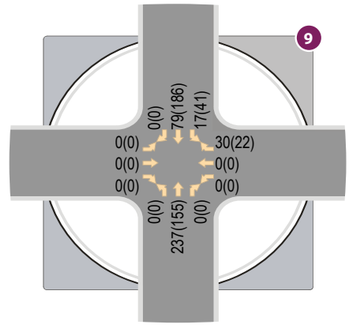
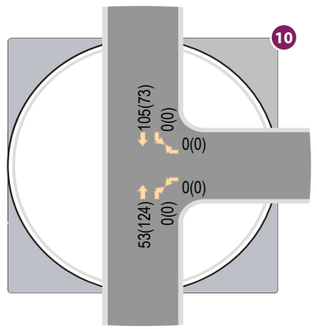


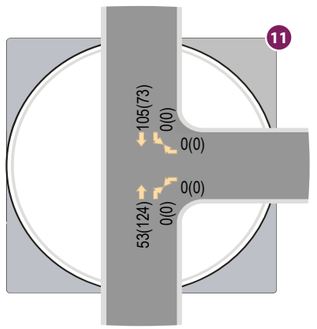
Hayden Rd & Princess Dr



Hayden Rd & Bell Rd



Scottsdale Rd & Deer Valley Rd



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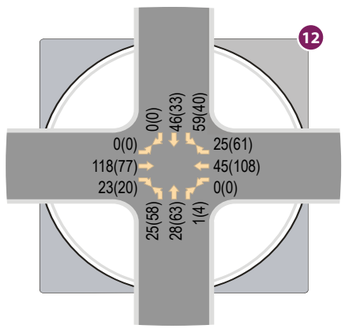
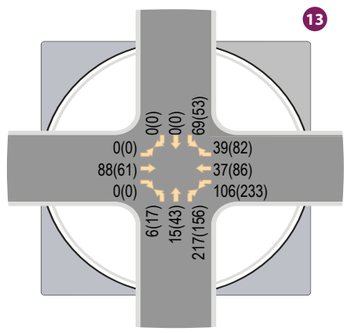


Scottsdale Rd & Thompson Peak Pkwy



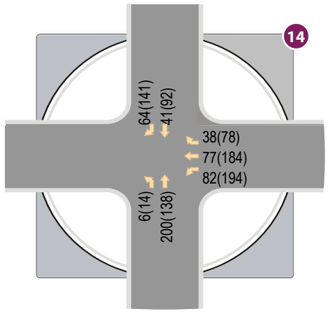
Scottsdale Rd & Legacy Blvd

LEGEND

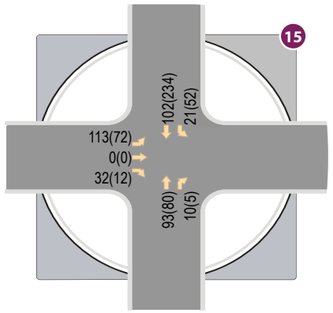
XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

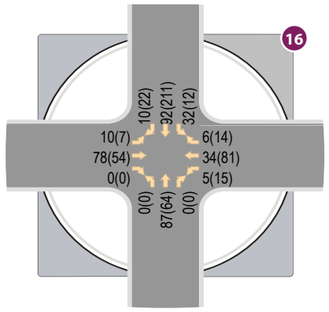
Figure 7A: 2030 Site Generated Traffic Volumes



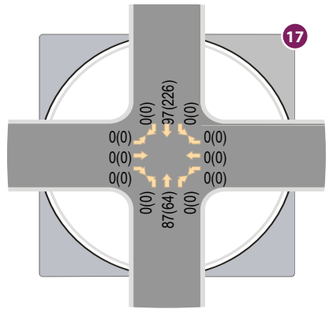
Scottsdale Rd & Loop 101 WB Ramps



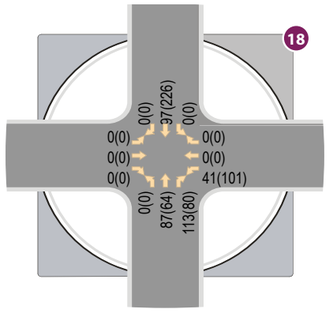
Scottsdale Rd & Loop 101 EB Ramps



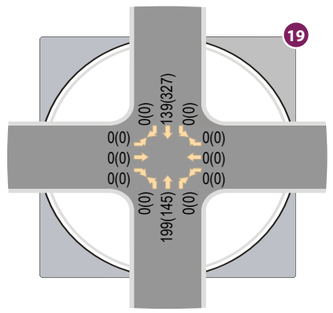
Scottsdale Rd & mayo Blvd



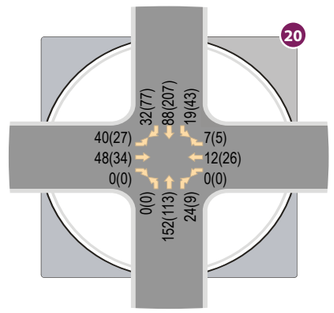
Scottsdale Rd & Chauncey Ln



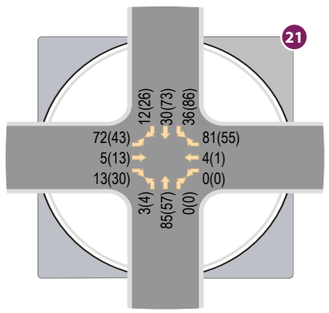
Scottsdale Rd & Peincess Blvd



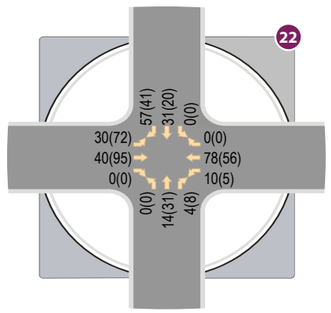
Scottsdale Rd & 17050 North



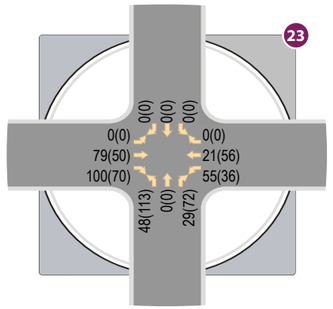
Scottsdale Rd & Frank Lloyd Wright Blvd



Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



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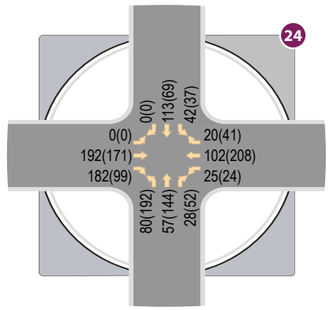
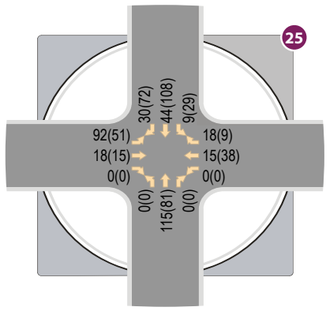
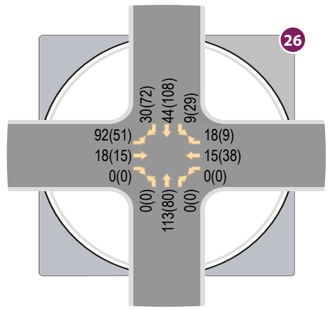


Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd



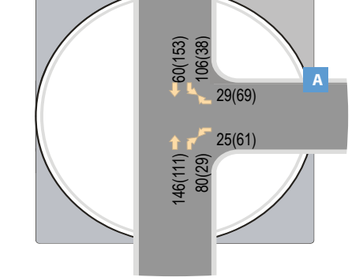
Miller Rd & Princess Dr

LEGEND

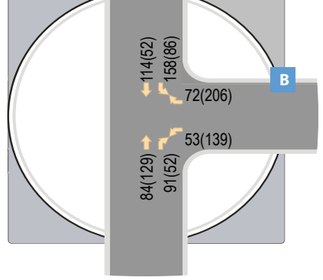
XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

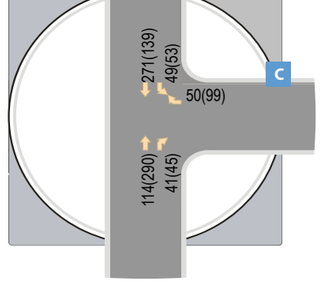
Figure 7B: 2030 Site Generated Traffic Volumes



Miller Rd & Access A



Miller Rd & Access B



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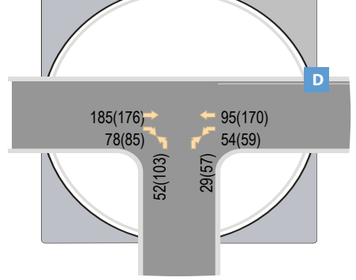
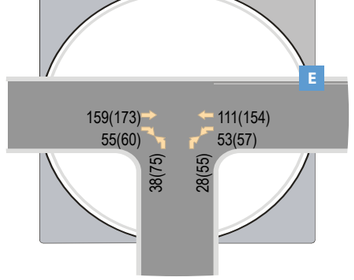


Access D & Legacy Blvd



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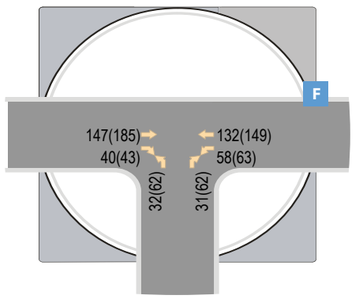

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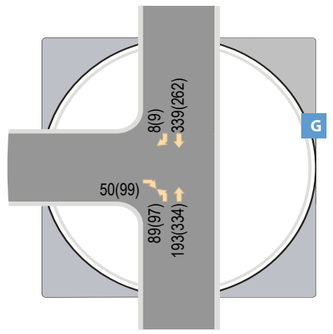
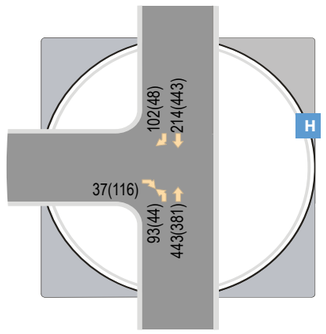
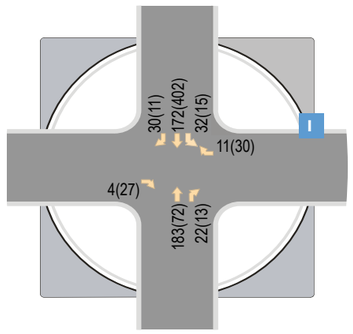


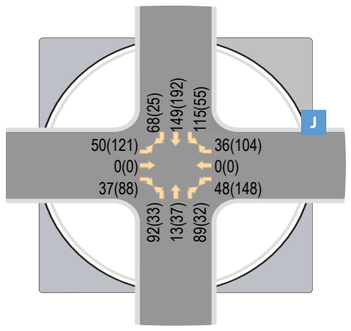
Hayden Rd & Access G



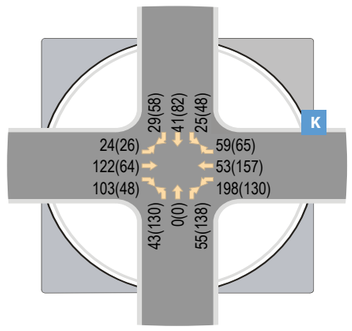
Hayden Rd & Access H



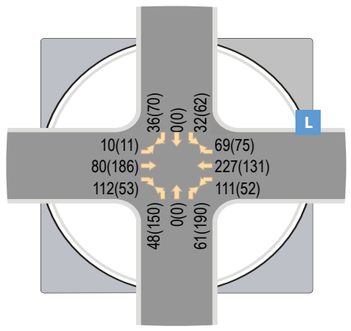
Claret Dr & Access I



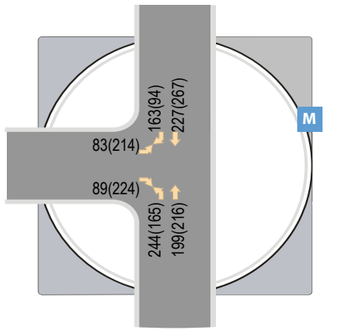
Claret Dr & Access J



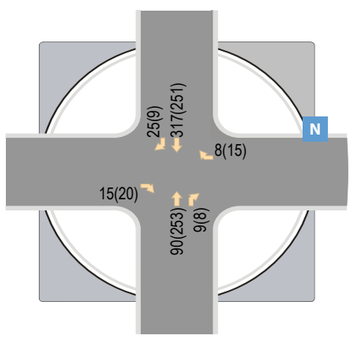
Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



Claret Dr. & Access N

O

Access "O" will be analyzed in more detail in future phased TIA.

LEGEND

NORTH

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

XX,XXX Average Daily Traffic

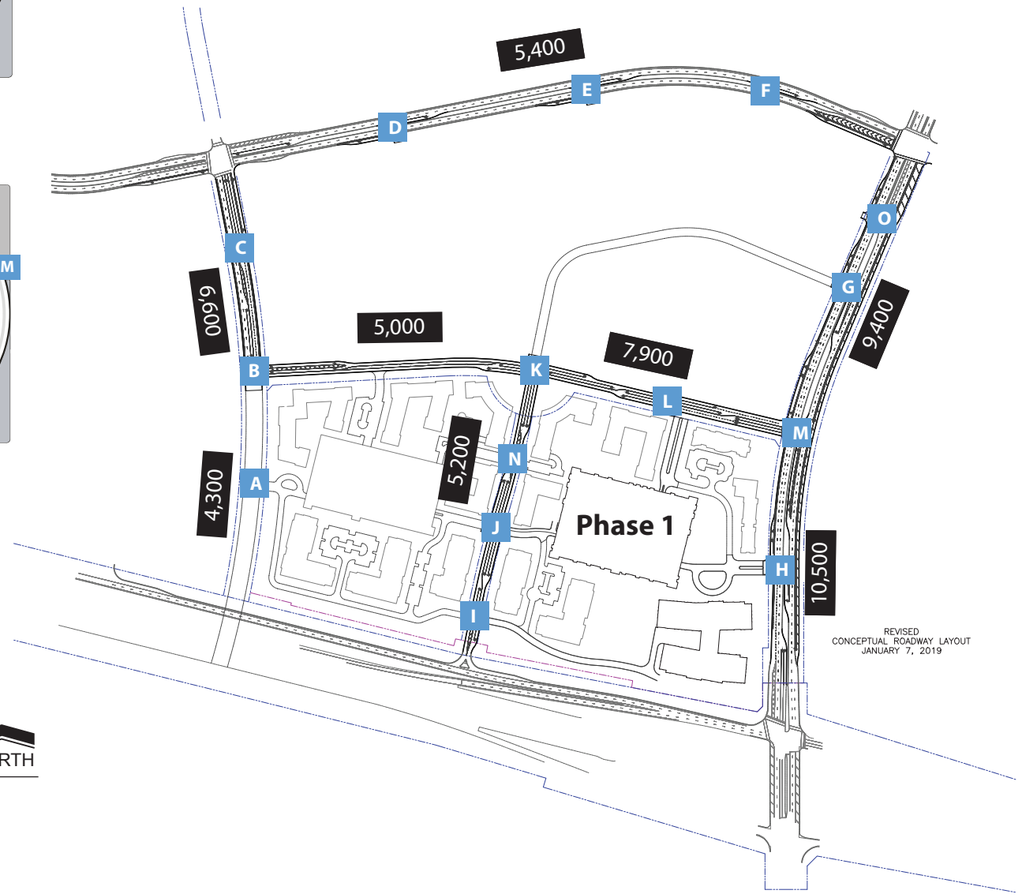


Figure 7C: 2030 Site Generated Traffic Volumes

FUTURE BACKGROUND TRAFFIC

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

Table 7 – Calculated Growth Rates and Expansion Factors

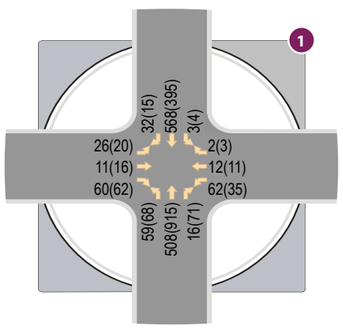
Year	Growth Rate	Expansion Factor
Seasonally Adjusted (2018)	3%	1.03
Adjusted 2018 to 2020	2%	1.042
Adjusted 2018 to 2030	2% (2018-2025) 1% (2026-2030)	1.216

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

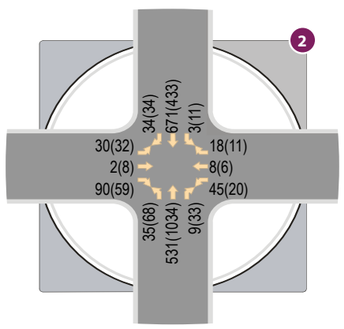
Opening year 2020 calculated background traffic volumes are presented in **Figures 8A**, **8B**, and **8C**. Horizon year 2030 calculated background traffic volumes are presented in **Figures 9A**, **9B**, and **9C**, respectively.

TOTAL TRAFFIC

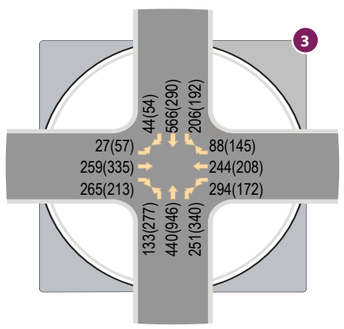
The total traffic volumes were determined for each horizon year by adding the site generated traffic volumes and the background traffic volumes. The total traffic volumes for the 2020 horizon year are illustrated in **Figures 10A**, **10B** and **10C**. The total traffic volumes for horizon year 2030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



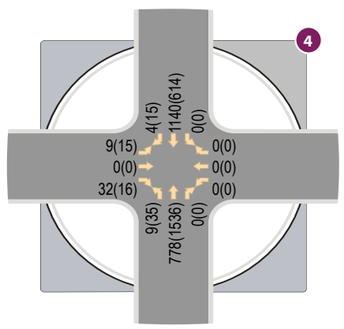
Hayden Rd & Deer Valley Rd



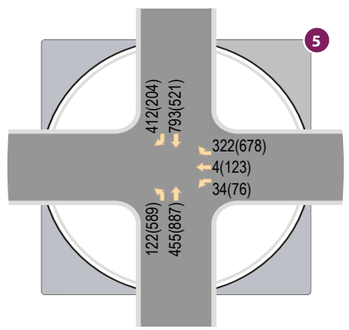
Hayden Rd & Grayhawk Dr



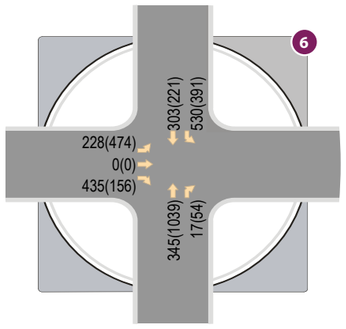
Hayden Rd & Thompson Peak Pkwy



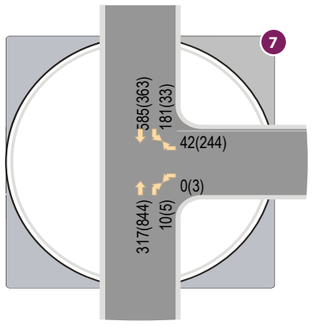
Hayden Rd & Legacy Blvd



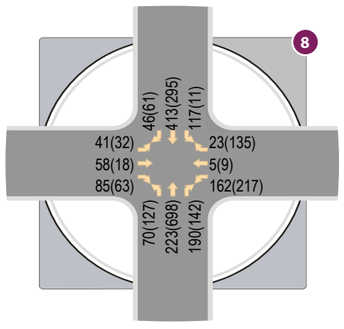
Hayden Rd & Loop 101 WB Ramps



Hayden Rd & Loop 101 EB Ramps



Hayden Rd & Mayo Blvd



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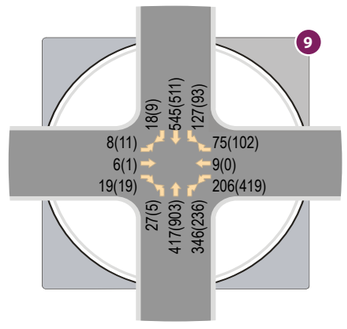
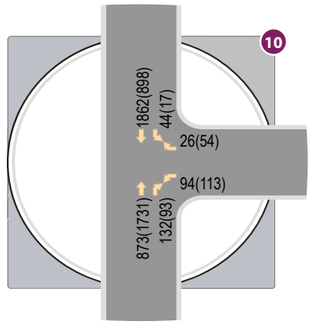
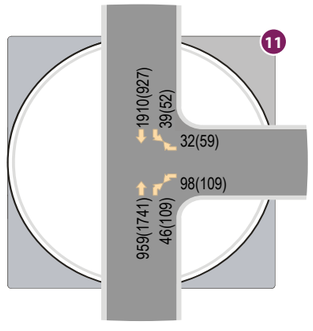


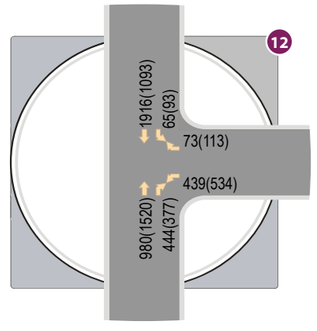
Hayden Rd & Bell Rd



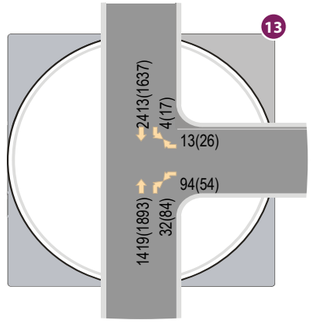
Scottsdale Rd & Deer Valley Rd



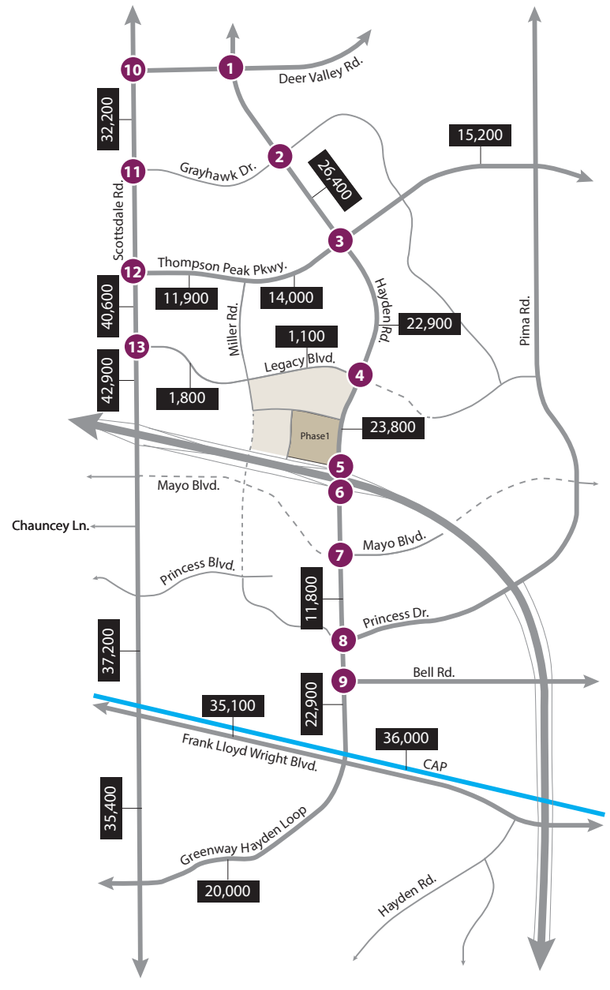
Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd



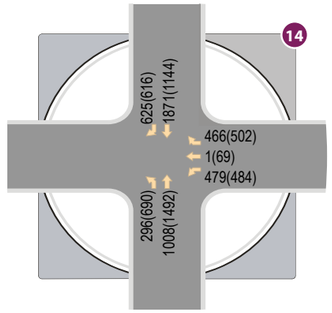
LEGEND

NORTH

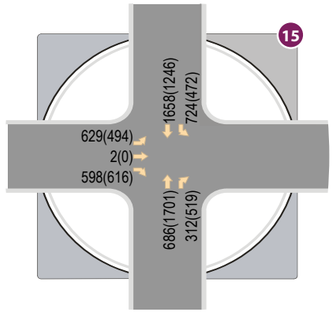
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

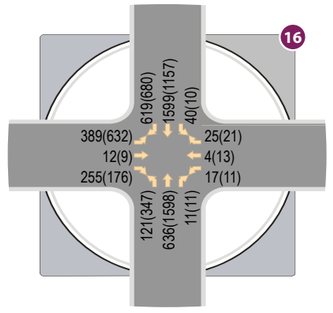
Figure 8A: 2020 Background Traffic Volumes



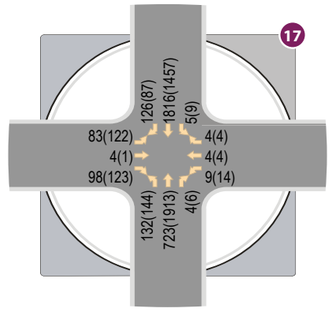
Scottsdale Rd & Loop 101 WB Ramps



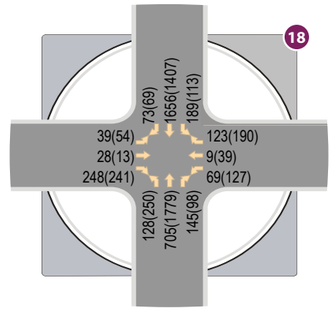
Scottsdale Rd & Loop 101 EB Ramps



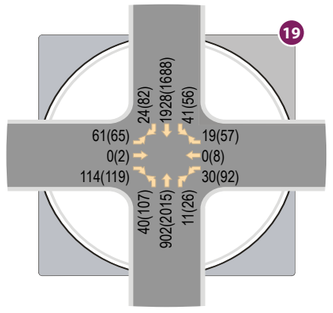
Scottsdale Rd & mayo Blvd



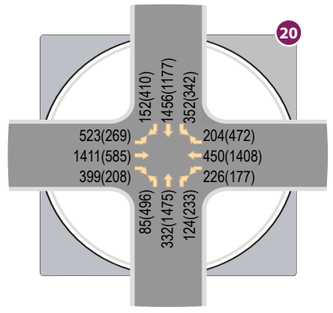
Scottsdale Rd & Chauncey Ln



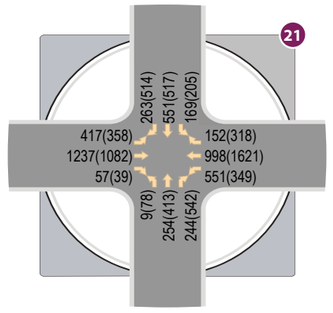
Scottsdale Rd & Peincess Blvd



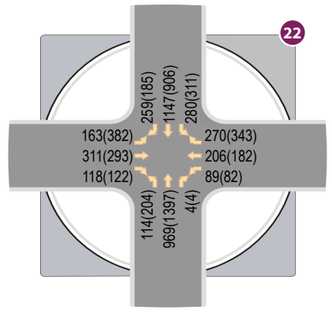
Scottsdale Rd & 17050 North



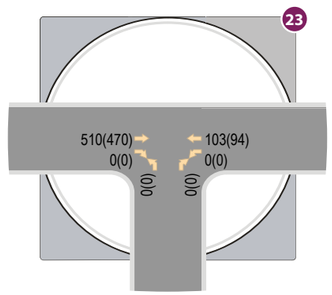
Scottsdale Rd & Frank Lloyd Wright Blvd



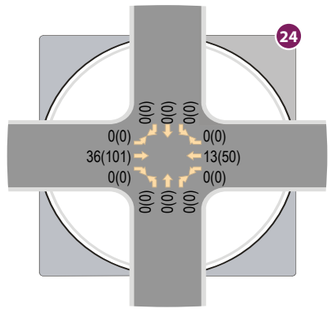
Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy



Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

LEGEND

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

NORTH

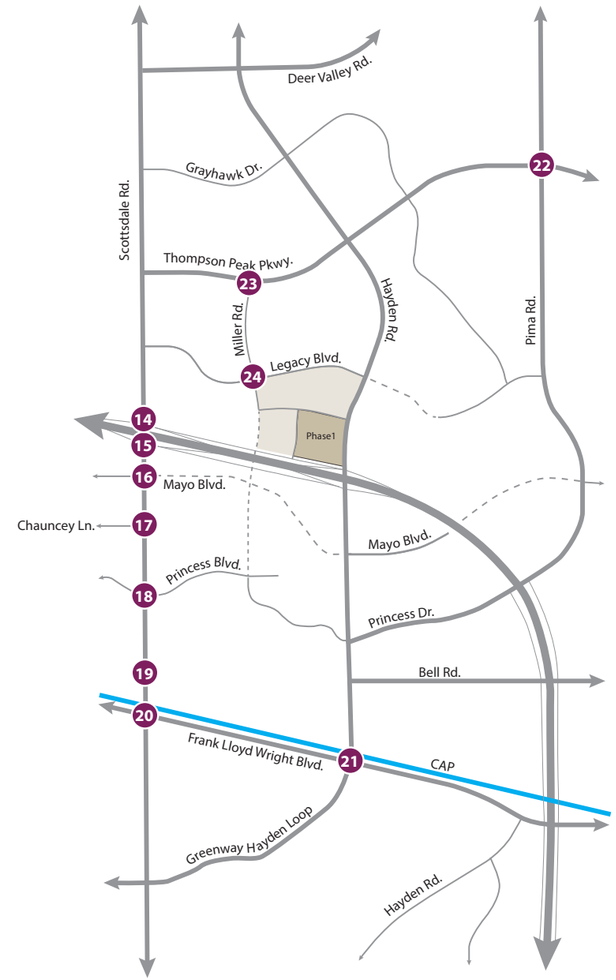
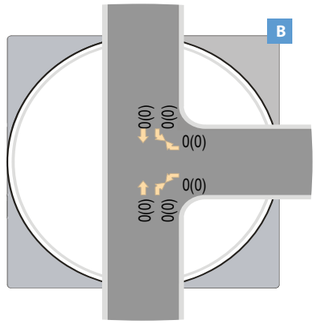
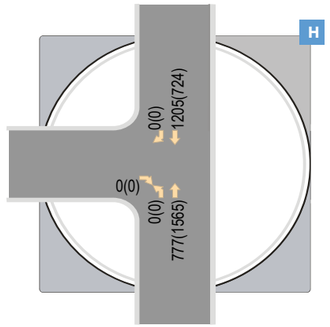


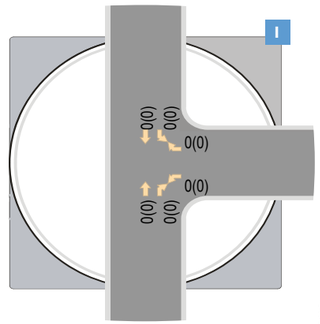
Figure 8B: 2020 Background Traffic Volumes



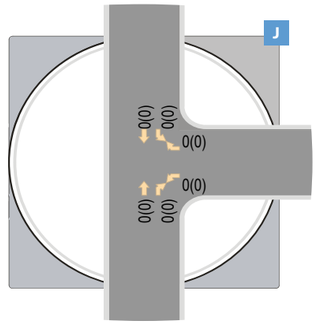
Miller Rd & Access B



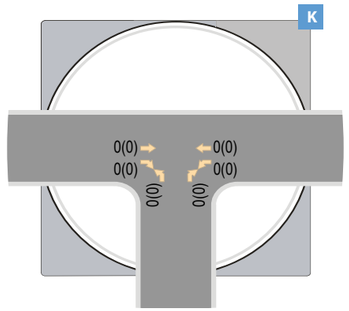
Hayden Rd & Access H



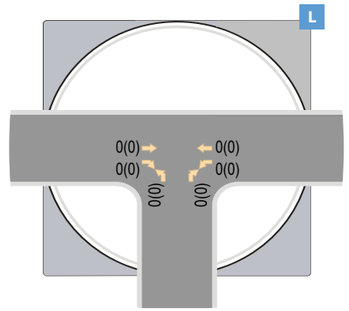
Claret Dr & Access I



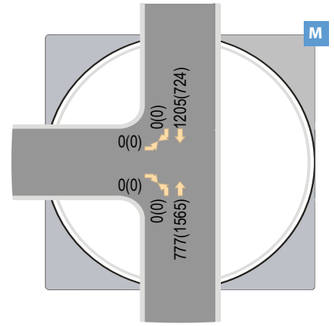
Claret Dr & Access J



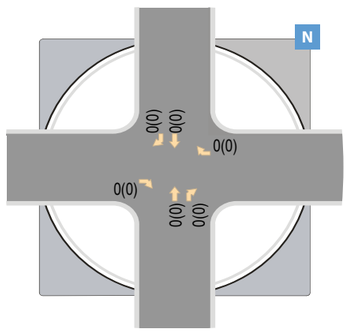
Claret Dr & Cavasson Blvd



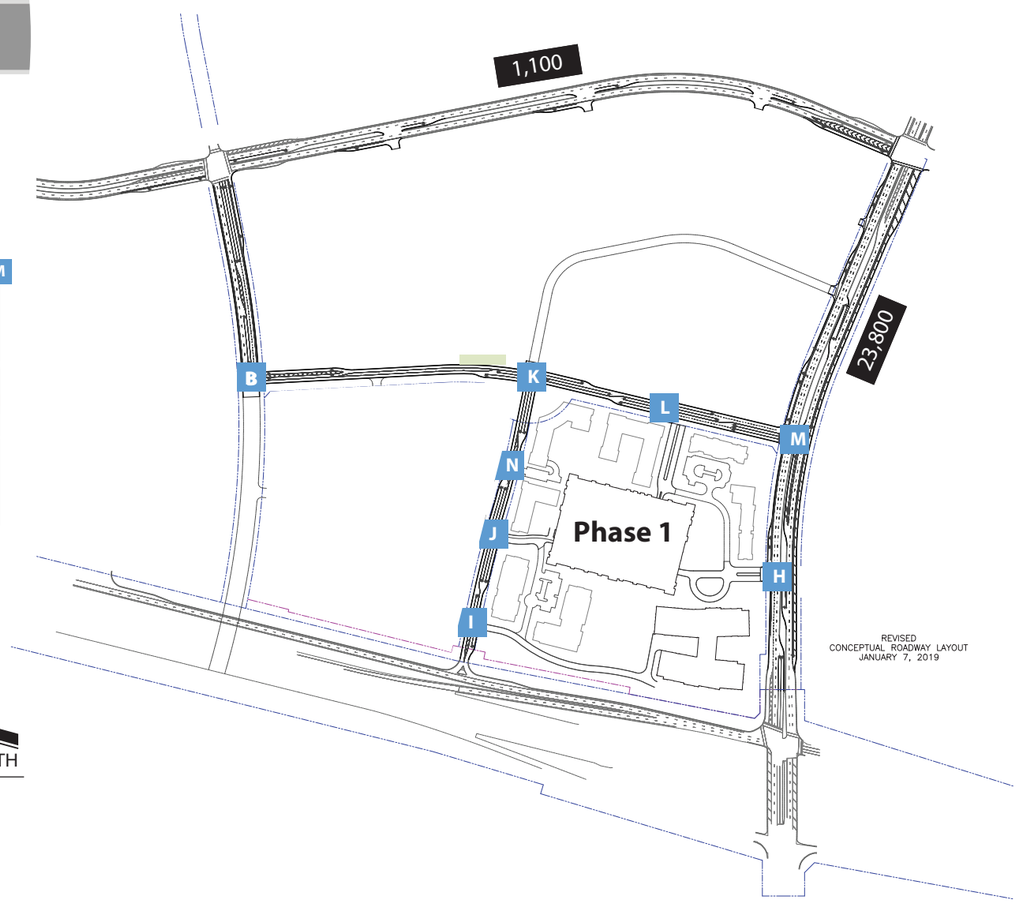
Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



Claret Dr. & Access N



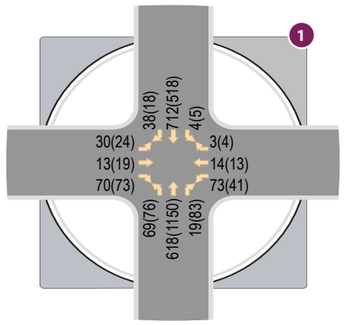
LEGEND

NORTH

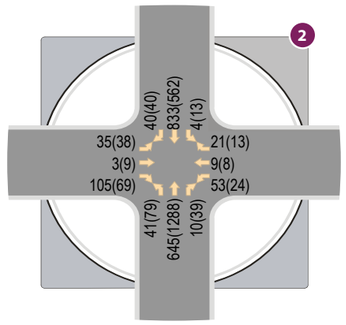
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

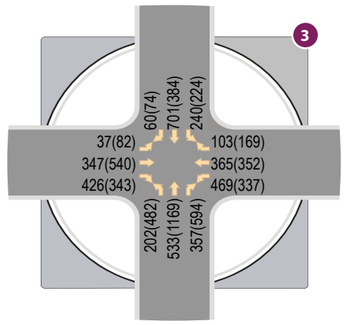
Figure 8C: 2020 Background Traffic Volumes



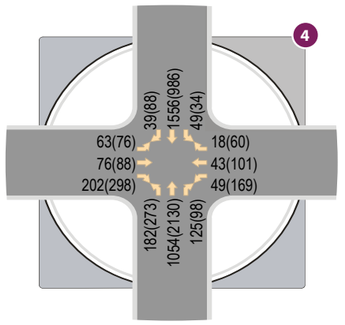
Hayden Rd & Deer Valley Rd



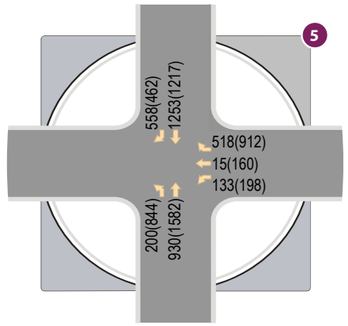
Hayden Rd & Grayhawk Dr



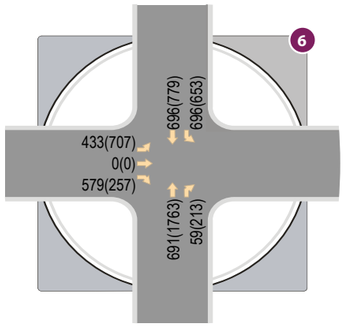
Hayden Rd & Thompson Peak Pkwy



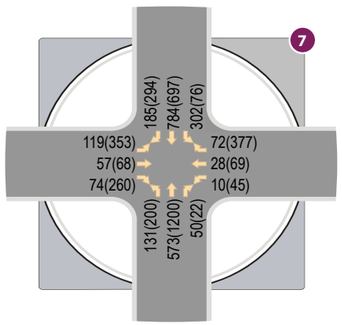
Hayden Rd & Legacy Blvd



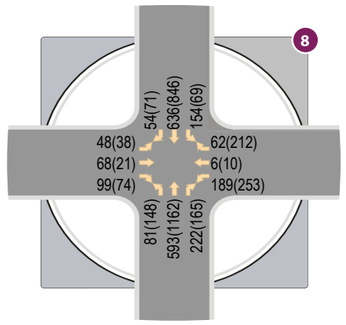
Hayden Rd & Loop 101 WB Ramps



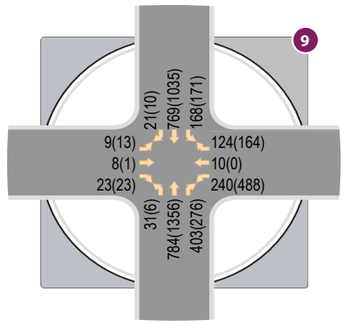
Hayden Rd & Loop 101 EB Ramps



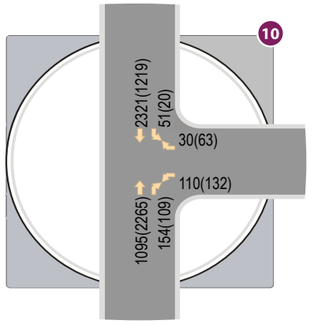
Hayden Rd & Mayo Blvd



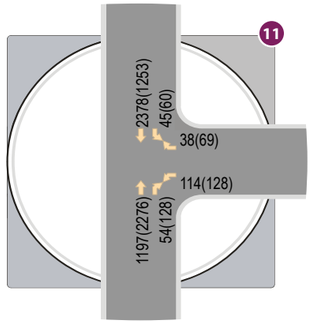
Hayden Rd & Princess Dr



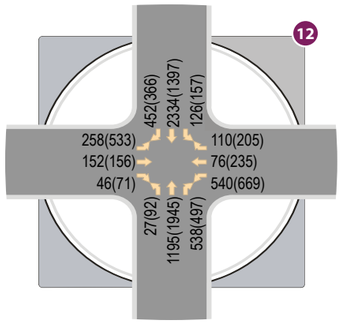
Hayden Rd & Bell Rd



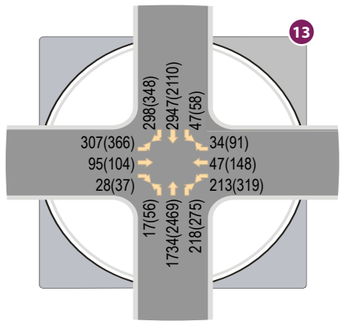
Scottsdale Rd & Deer Valley Rd



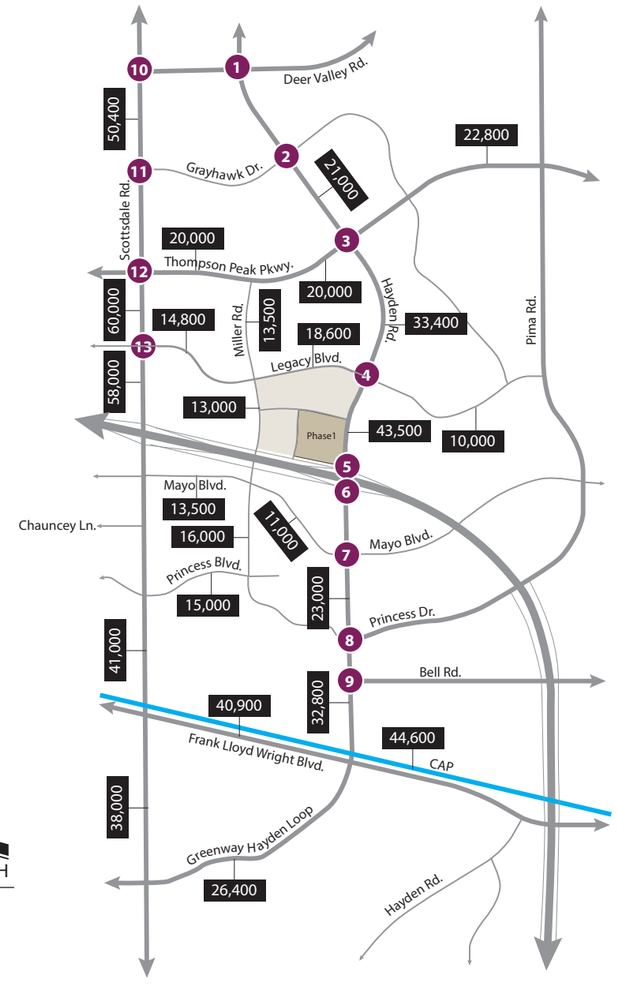
Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd



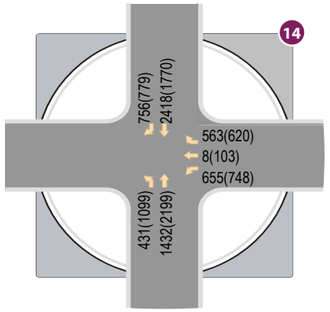
LEGEND

NORTH

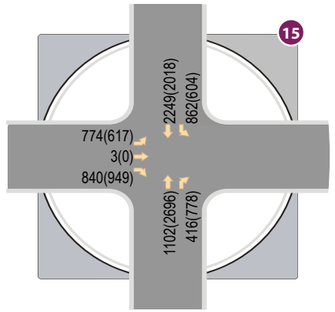
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

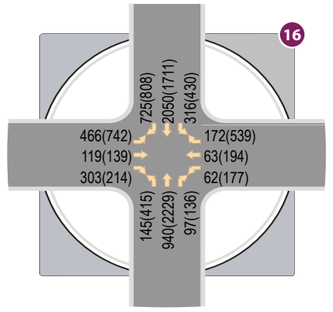
Figure 9A: 2030 Background Traffic Volumes



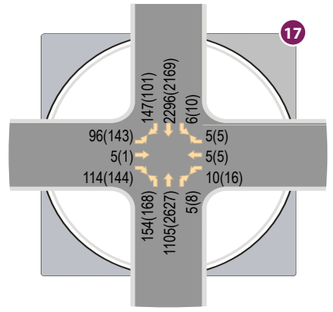
Scottsdale Rd & Loop 101 WB Ramps



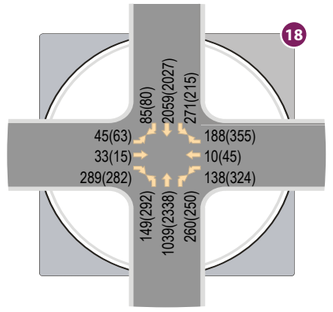
Scottsdale Rd & Loop 101 EB Ramps



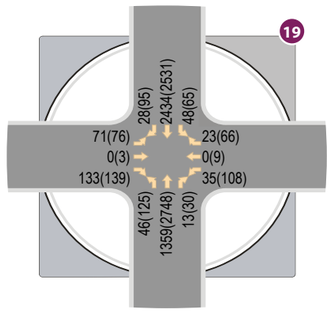
Scottsdale Rd & mayo Blvd



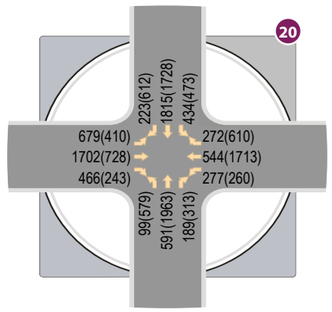
Scottsdale Rd & Chauncey Ln



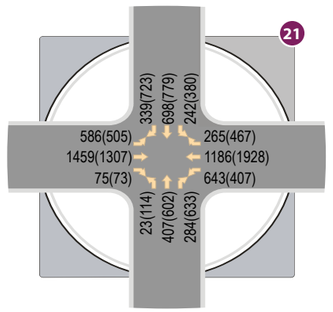
Scottsdale Rd & Peincess Blvd



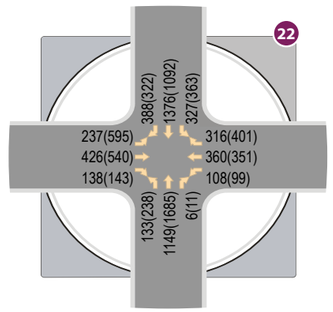
Scottsdale Rd & 17050 North



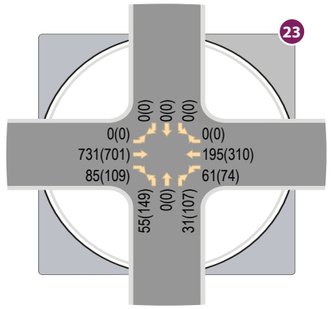
Scottsdale Rd & Frank Lloyd Wright Blvd



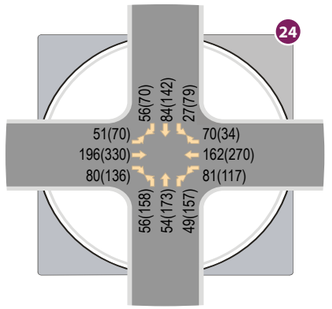
Greenway-Hayden & Frank Lloyd Wright Blvd



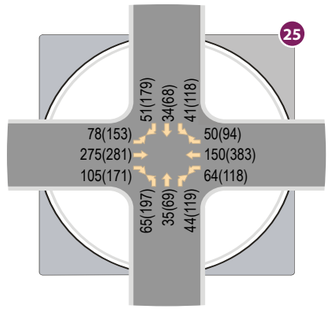
Pima Rd & Thompson Peak Pkwy



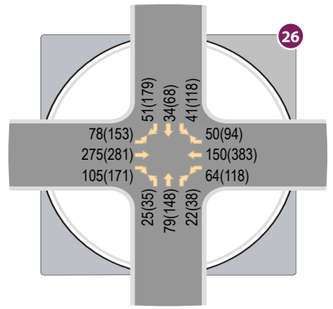
Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd



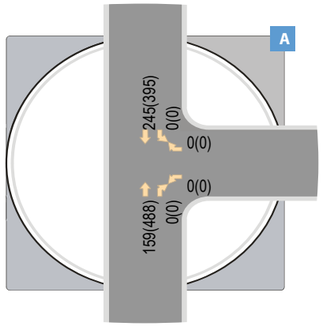
Miller Rd & Princess Dr

LEGEND

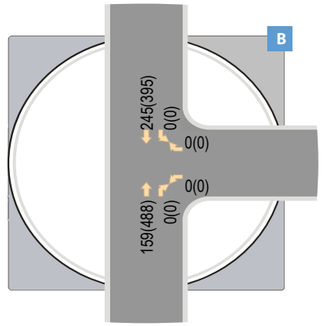
XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

Figure 9B: 2030 Background Traffic Volumes



Miller Rd & Access A



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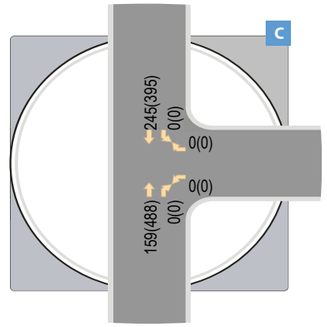

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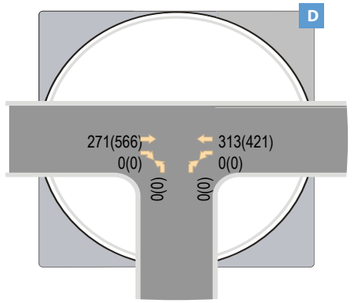
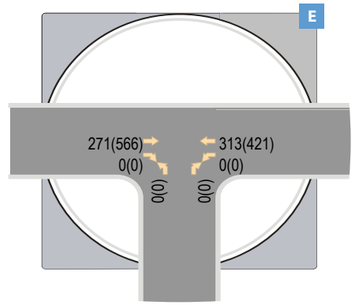


Access D & Legacy Blvd



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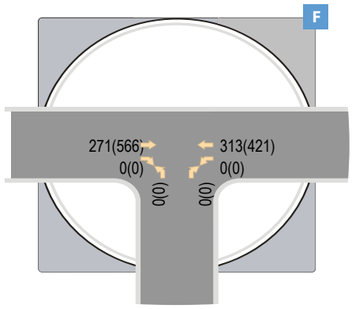

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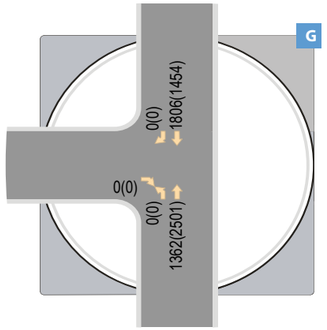

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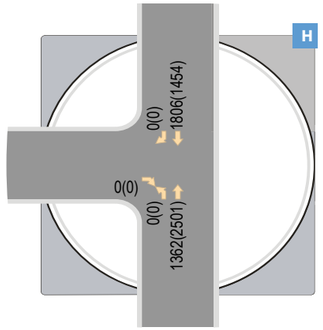
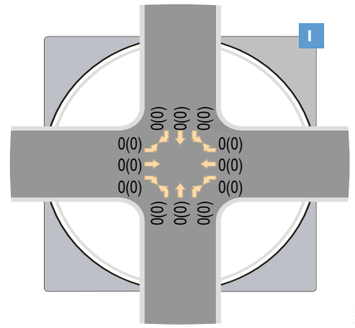
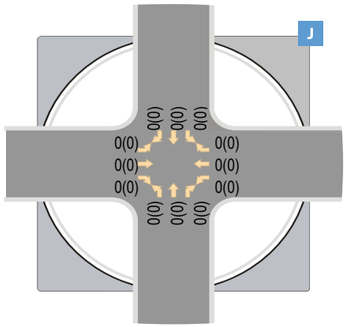


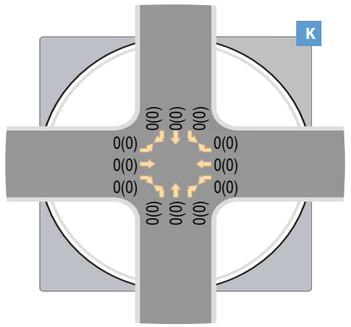
Hayden Rd & Access H



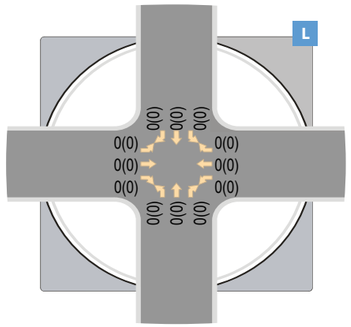
Claret Dr & Access I



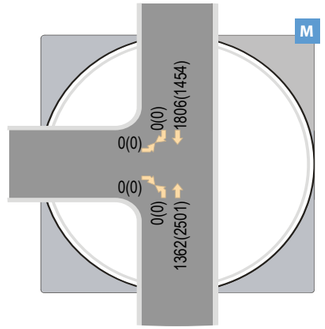
Claret Dr & Access J



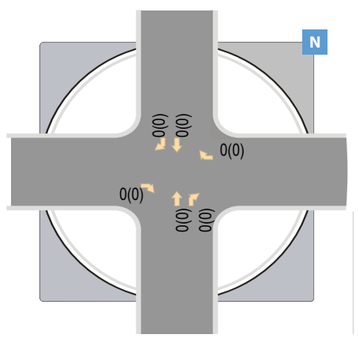
Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



Claret Dr. & Access N

O

Access “O” will be analyzed in more detail in future phased TIA.

LEGEND

NORTH

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

XX,XXX Average Daily Traffic

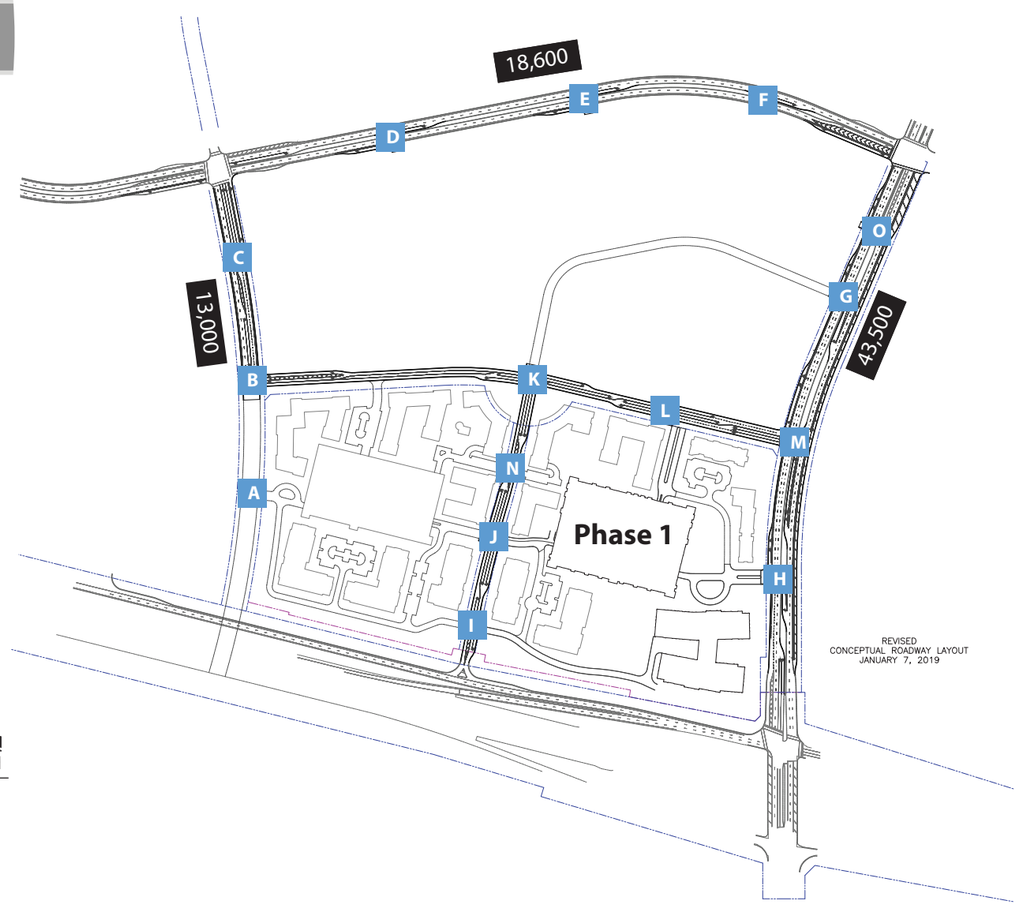
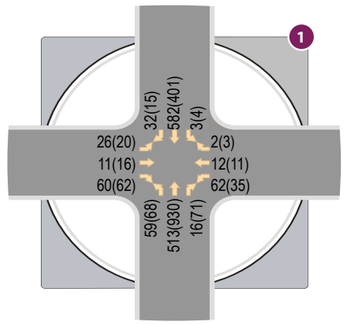
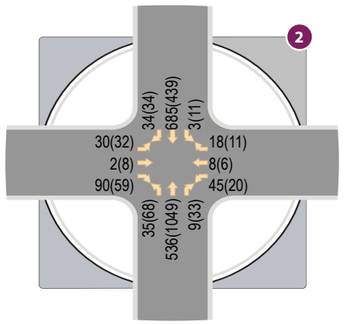


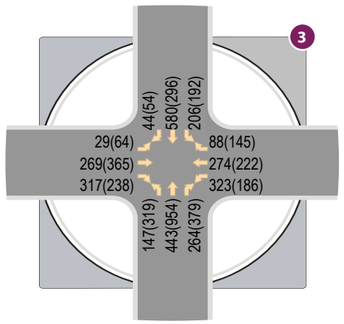
Figure 9C: 2030 Background Traffic Volumes



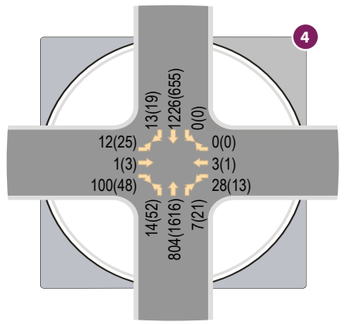
Hayden Rd & Deer Valley Rd



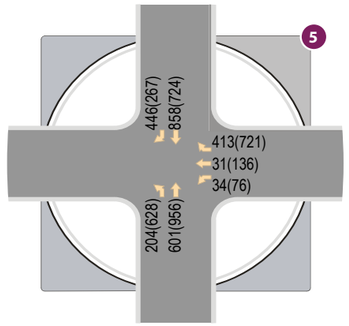
Hayden Rd & Grayhawk Dr



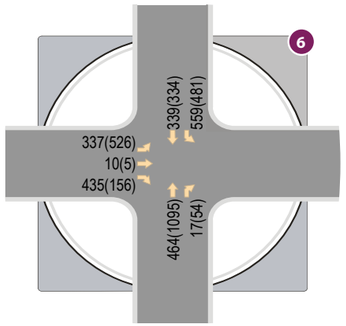
Hayden Rd & Thompson Peak Pkwy



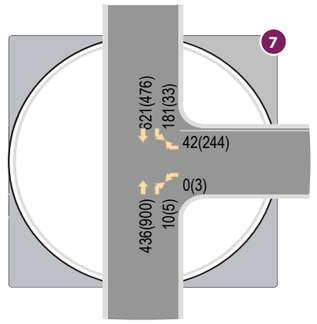
Hayden Rd & Legacy Blvd



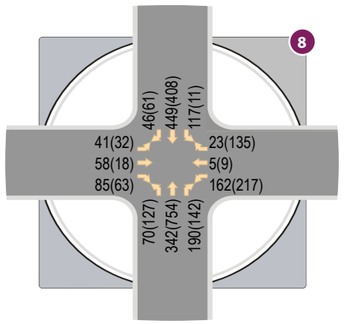
Hayden Rd & Loop 101 WB Ramps



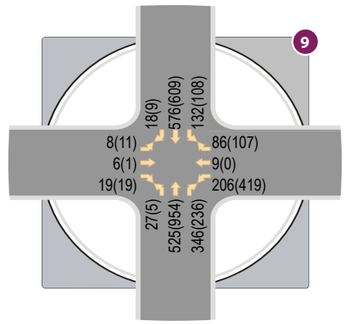
Hayden Rd & Loop 101 EB Ramps



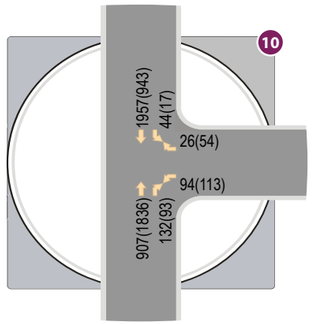
Hayden Rd & Mayo Blvd



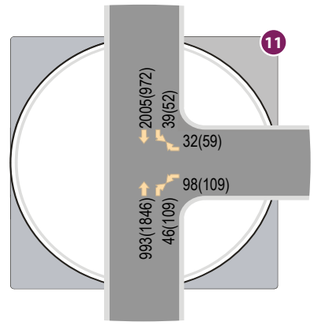
Hayden Rd & Princess Dr



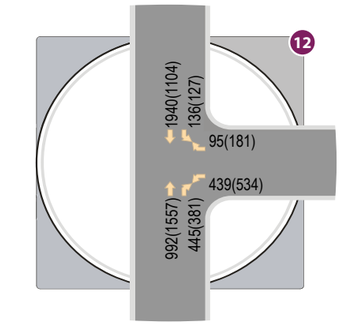
Hayden Rd & Bell Rd



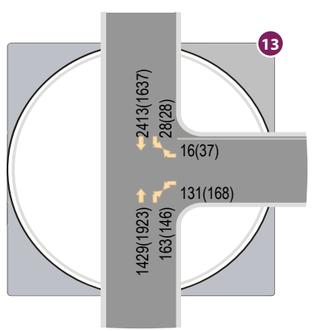
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd

LEGEND

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

XX,XXX Average Daily Traffic

NORTH

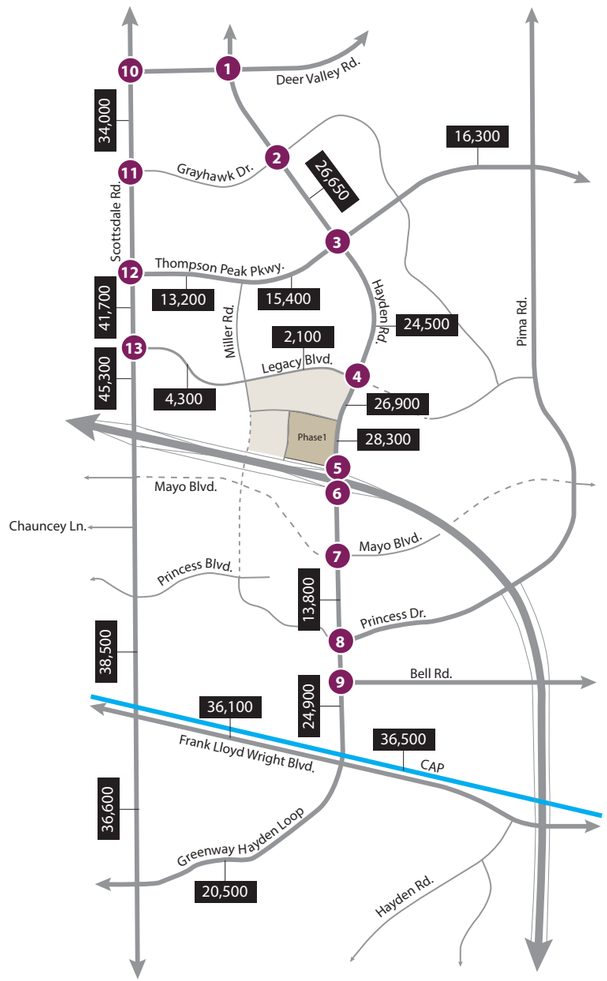
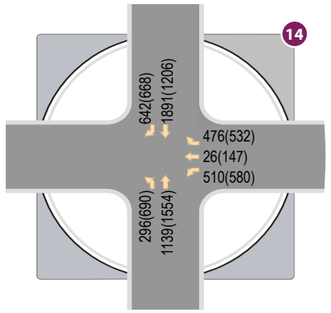
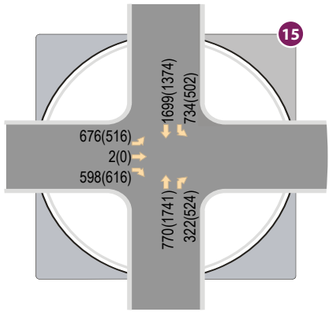


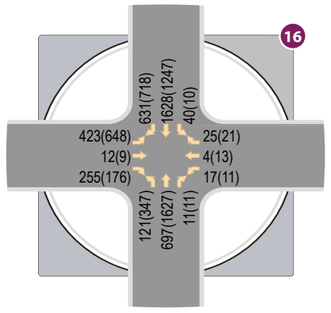
Figure 10A: 2020 Total Traffic Volumes



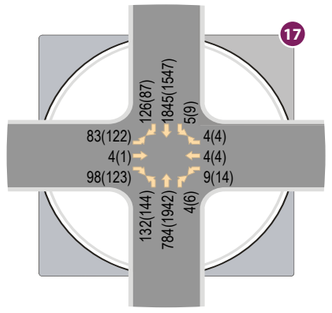
Scottsdale Rd & Loop 101 WB Ramps



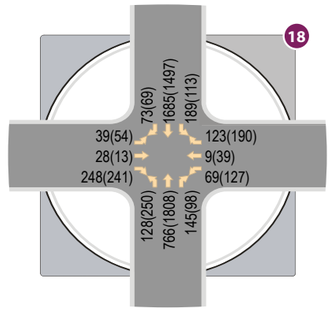
Scottsdale Rd & Loop 101 EB Ramps



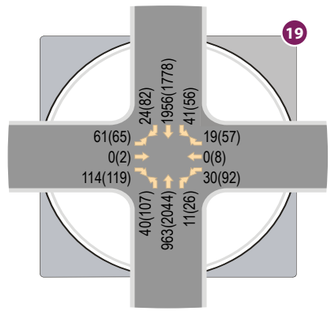
Scottsdale Rd & mayo Blvd



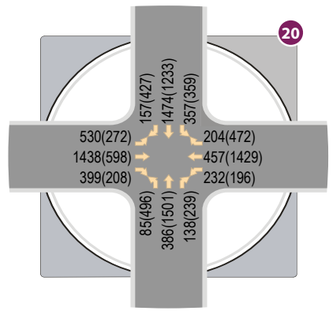
Scottsdale Rd & Chauncey Ln



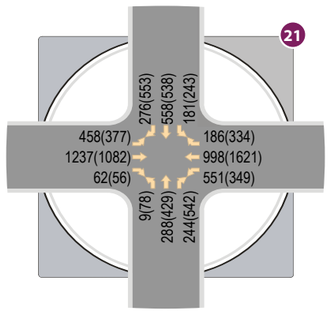
Scottsdale Rd & Peincess Blvd



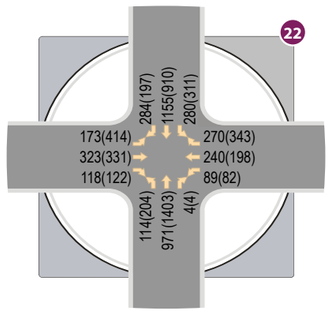
Scottsdale Rd & 17050 North



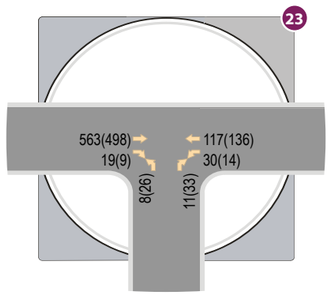
Scottsdale Rd & Frank Lloyd Wright Blvd



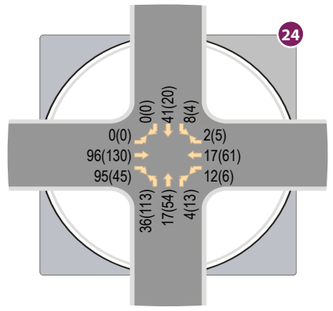
Greenway-Hayden & Frank Lloyd Wright Blvd



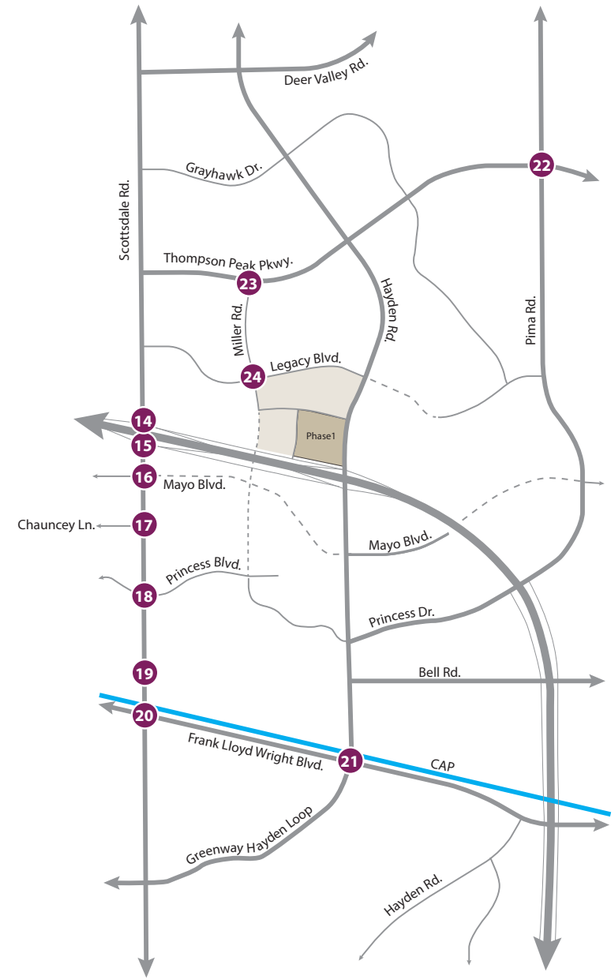
Pima Rd & Thompson Peak Pkwy



Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

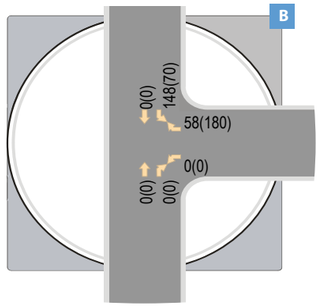


LEGEND

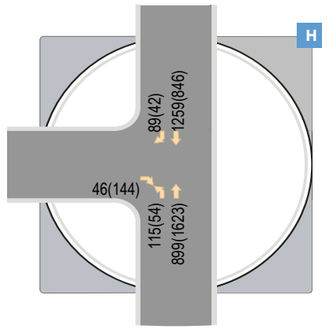
NORTH

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

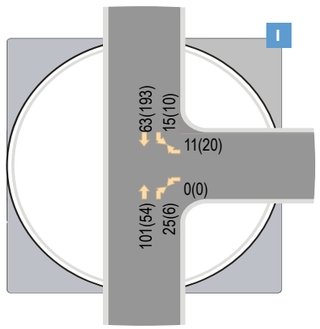
Figure 10B: 2020 Total Traffic Volumes



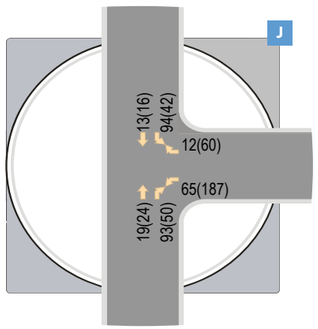
Miller Rd & Access B



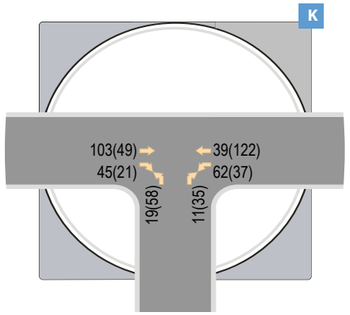
Hayden Rd & Access H



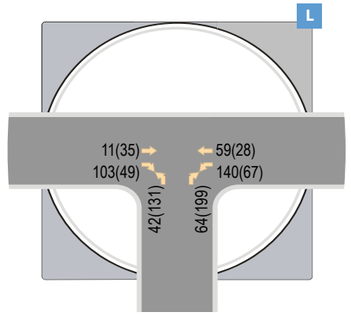
Claret Dr & Access I



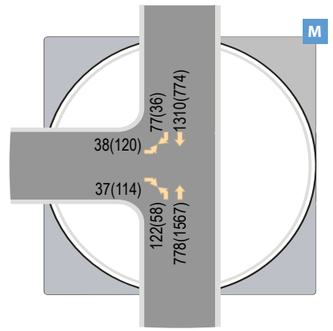
Claret Dr & Access J



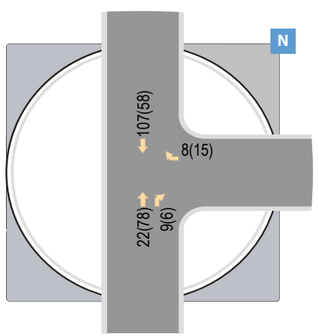
Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



Claret Dr. & Access N

LEGEND

NORTH

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

XX,XXX Average Daily Traffic

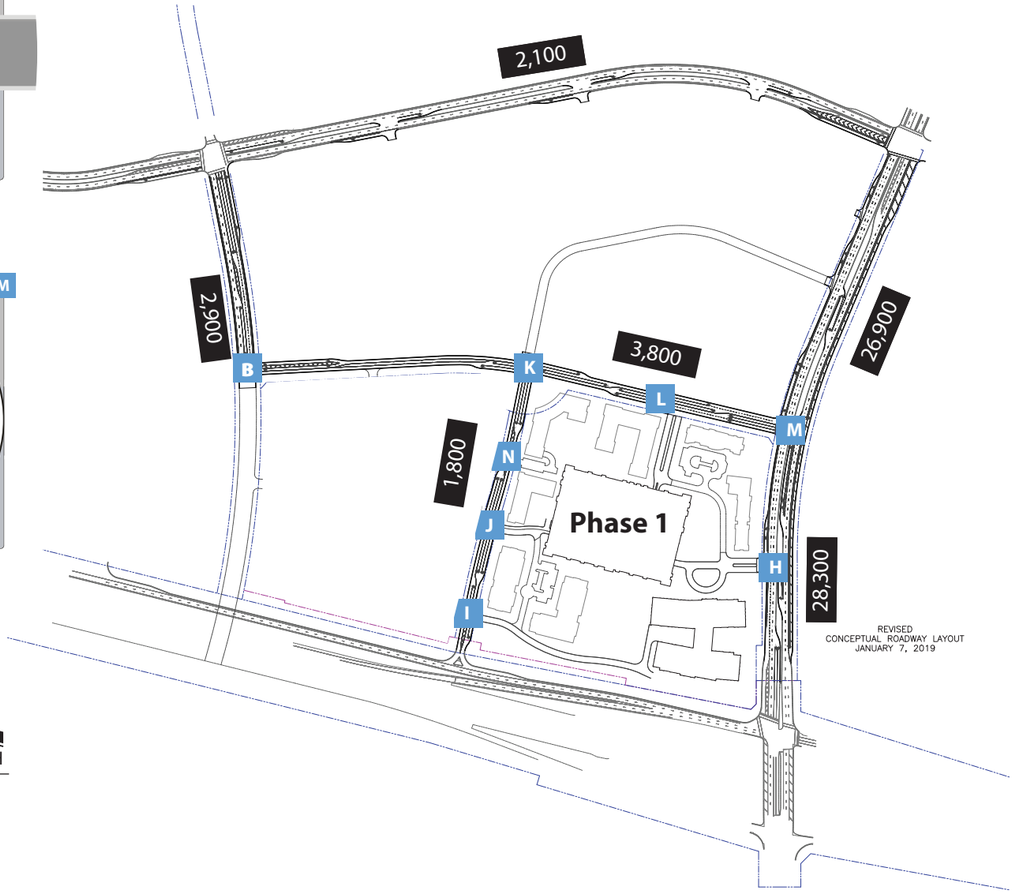
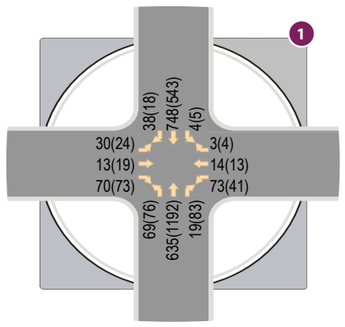
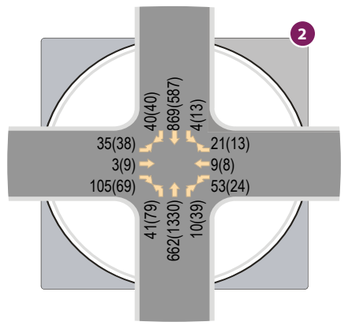


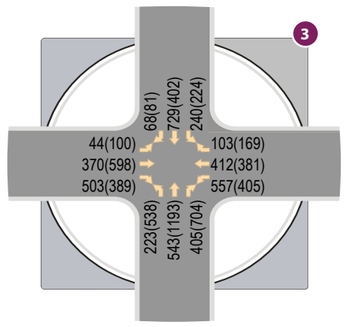
Figure 10C: 2020 Total Traffic Volumes



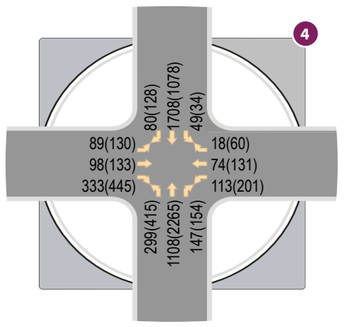
Hayden Rd & Deer Valley Rd



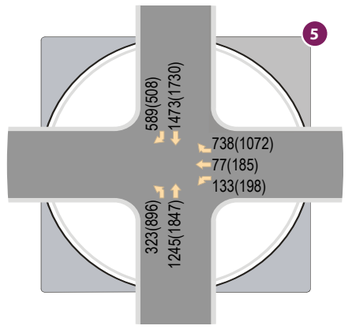
Hayden Rd & Grayhawk Dr



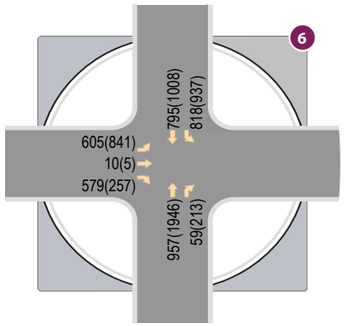
Hayden Rd & Thompson Peak Pkwy



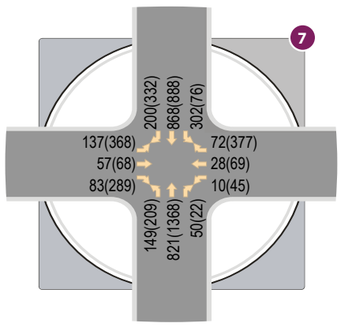
Hayden Rd & Legacy Blvd



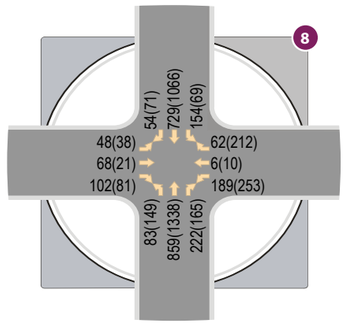
Hayden Rd & Loop 101 WB Ramps



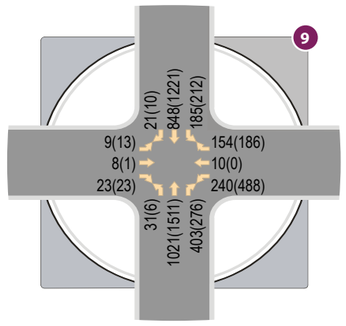
Hayden Rd & Loop 101 EB Ramps



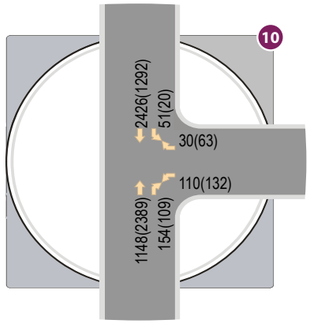
Hayden Rd & Mayo Blvd



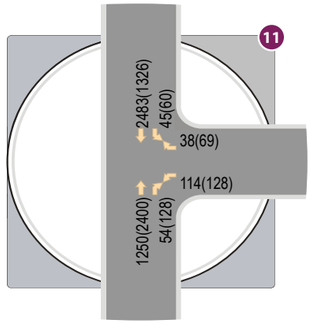
Hayden Rd & Princess Dr



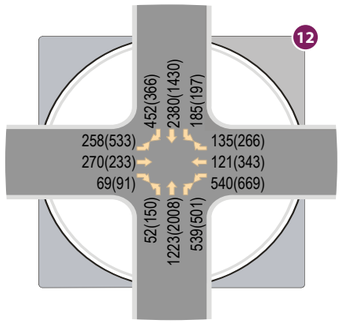
Hayden Rd & Bell Rd



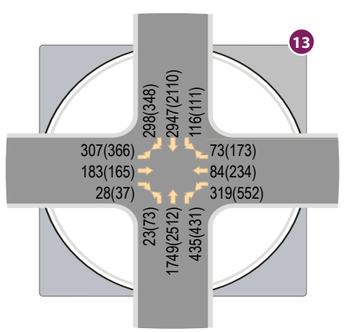
Scottsdale Rd & Deer Valley Rd



Scottsdale Rd & Grayhawk Dr



Scottsdale Rd & Thompson Peak Pkwy



Scottsdale Rd & Legacy Blvd

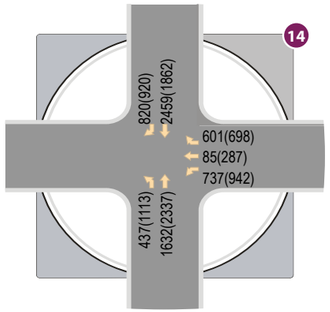
LEGEND

NORTH

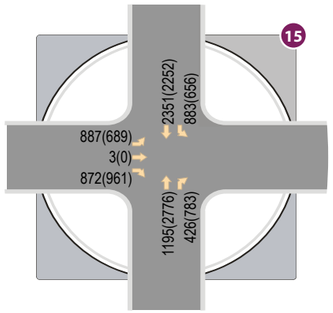
XX(XX) - AM(PM) Peak Hour Traffic Volumes

XX,XXX Average Daily Traffic

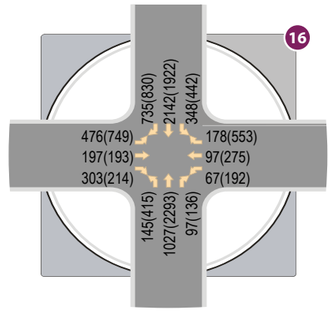
Figure 11A: 2030 Total Traffic Volumes



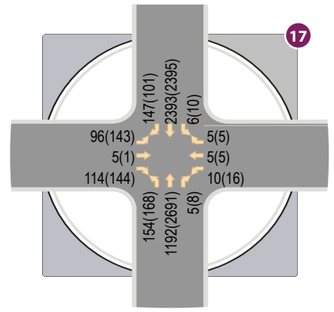
Scottsdale Rd & Loop 101 WB Ramps



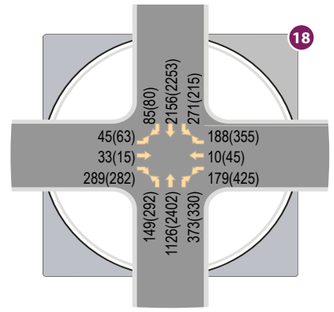
Scottsdale Rd & Loop 101 EB Ramps



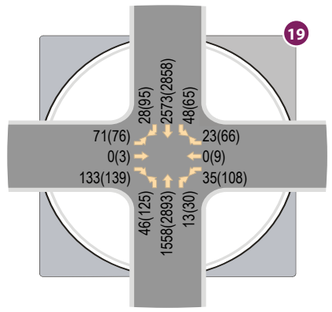
Scottsdale Rd & mayo Blvd



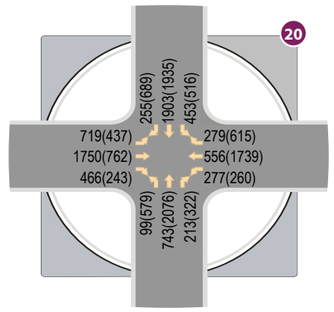
Scottsdale Rd & Chauncey Ln



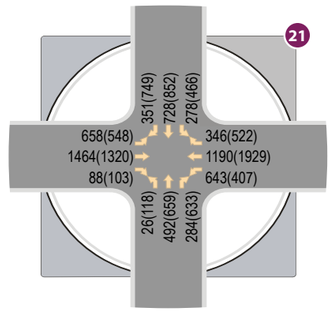
Scottsdale Rd & Peincess Blvd



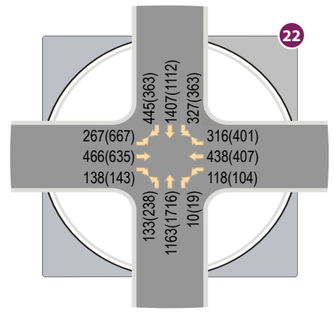
Scottsdale Rd & 17050 North



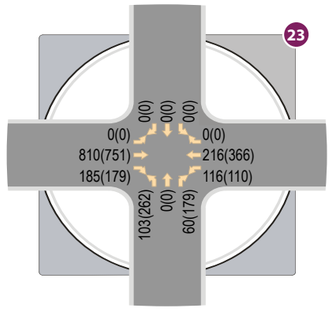
Scottsdale Rd & Frank Lloyd Wright Blvd



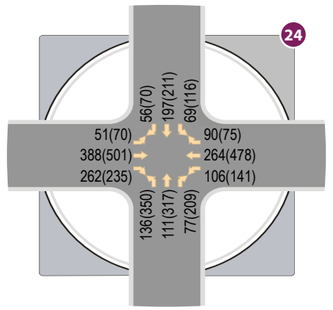
Greenway-Hayden & Frank Lloyd Wright Blvd



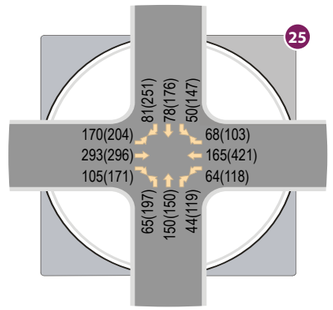
Pima Rd & Thompson Peak Pkwy



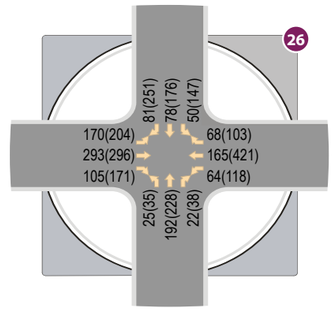
Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd



Miller Rd & Mayo Blvd



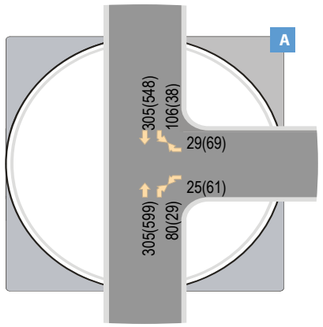
Miller Rd & Princess Dr

LEGEND

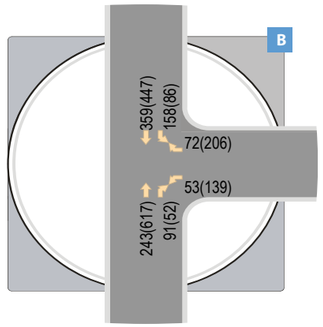
XX(XX) - AM(PM) Peak Hour Traffic Volumes

NORTH

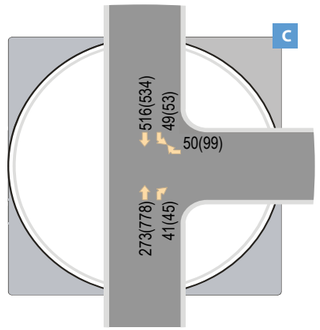
Figure 11B: 2030 Total Traffic Volumes



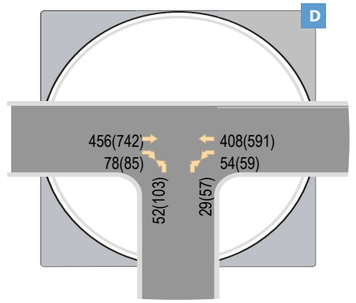
Miller Rd & Access A



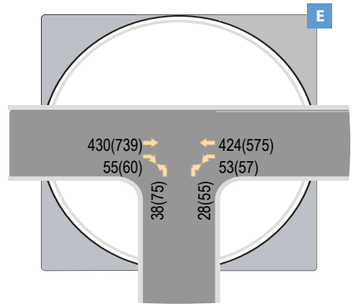
Miller Rd & Access B



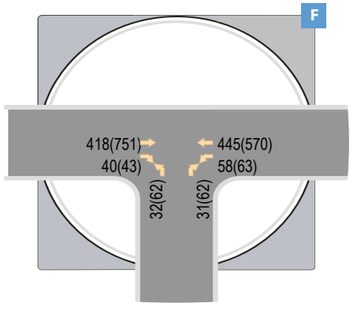
Miller Rd & Access C



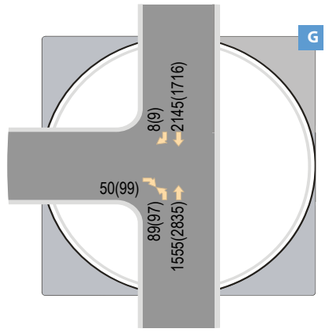
Access D & Legacy Blvd



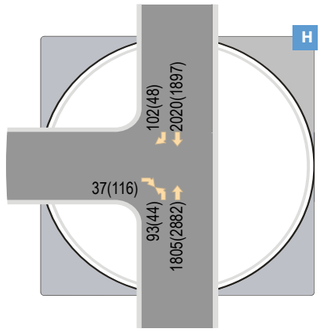
Access E & Legacy Blvd



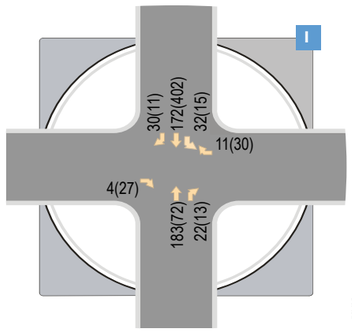
Access F & Legacy Blvd



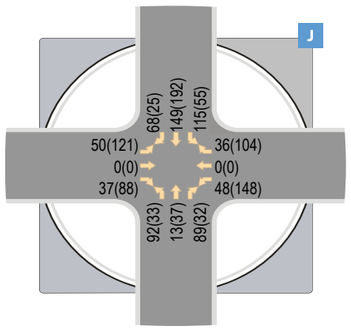
Hayden Rd & Access G



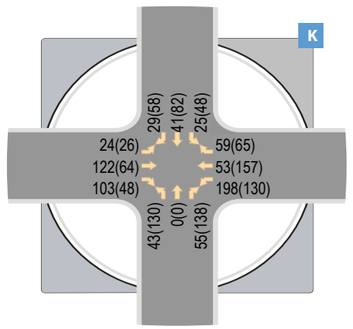
Hayden Rd & Access H



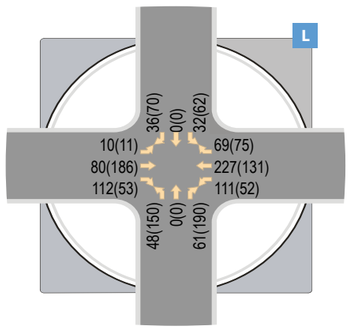
Claret Dr & Access I



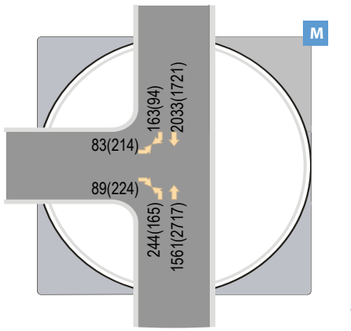
Claret Dr & Access J



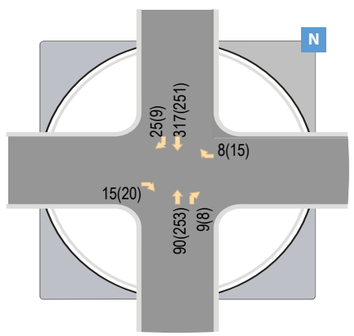
Claret Dr & Cavasson Blvd



Access L & Cavasson Blvd



Hayden Rd & Cavasson Blvd



Claret Dr. & Access N

O

Access “O” will be analyzed in more detail in future phased TIA.

LEGEND

NORTH

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

XX,XXX Average Daily Traffic

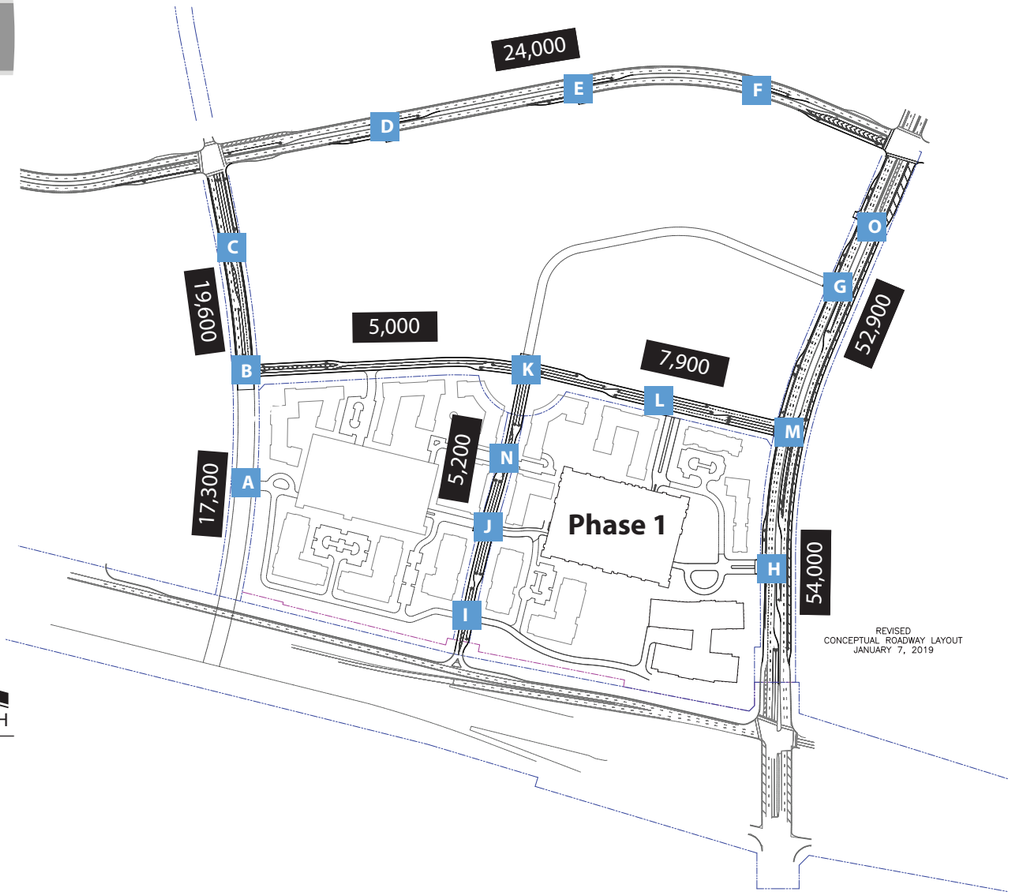


Figure 11C: 2030 Total Traffic Volumes

MILLER ROAD UNDERPASS

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

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

BIKE LANE AND MULTI-USE PATH CONSIDERATIONS

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

TRANSIT CONSIDERATIONS

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

INTERSECTION CAPACITY ANALYSIS

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

Opening Year 2020

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

Table 8 – 2020 Peak Hour Levels of Service

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

Table 8 – 2020 Peak Hour Levels of Service

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

Table 8 – 2020 Peak Hour Levels of Service

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

Table 8 – 2020 Peak Hour Levels of Service

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

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

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

The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased heavy delay by opening year 2020 with or without the proposed

Cavasson Phase I development during the study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030, scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended signalize timing be optimized as well as signal phasing. With signal timing and phasing optimization, the overall intersection delay is expected to improve 33.5-seconds in the AM, 40.0-seconds in the PM peak for the westbound ramps and 27.1-seconds in the AM, 28.2-seconds in the PM peak for the eastbound ramps with the proposed Phase I development.

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

The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience heavy delay in the PM peak by opening year 2020 with or without the proposed Cavasson Phase I development. Overall the projected intersection delay is expected to be 82.7-seconds in the PM peak hour under the total 2020 build condition. It is therefore recommended all right-turn lanes provide overlap phases as well as optimizing pedestrian signal timing in the westbound approach by opening year 2020. With these improvements, the overall delay at the intersection is projected to decrease from 82.7-seconds to 38.1-seconds in the PM peak hour with the proposed Phase I development.

The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience heavy delay by opening year 2020 with or without the proposed Phase I development. Under the No-Build 2020 scenario, this intersection is expected to experience heavy delays during the PM peak hour only. Overall, the projected intersection delay is expected to be 71.7-seconds in the PM peak hour with the proposed Cavasson Phase I development. It is recommended all right-turn lanes provide overlap phases as well as a dedicated southbound right-turn lane. With the recommended mitigation the overall intersection delay is projected to improve from 71.7-seconds to 55.5-seconds with the proposed Phase I development during the PM peak hour.

The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience heavy delays by opening year 2020 with or without the proposed Cavasson Phase I development. Under the No-Build 2020, scenario this intersection experiences heavy delay during the PM peak hour only. Overall, the projected 2020 Build, intersection delay is expected to be 71.7-seconds during the PM peak hour which includes the proposed Cavasson Phase I development. It is recommended signal timing be optimized and all right-turn lanes provided overlap phases. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 71.7-seconds to 53.9-seconds with the proposed Phase I development during the PM peak hour.

The proposed intersection of **Hayden Road and Cavasson Boulevard** is anticipated to be signalized upon completion of the Phase I development. It is recommended that additional pavement be provided for a future through lane east/west for connectivity to the east. By opening year 2020 a single 300-foot northbound left-turn lane is warranted, as well as a single 200-foot left-turn and right-turn lanes eastbound. Additional pavement will be provided and striped out for the proposed future ultimate lanes.

Horizon Year 2030

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

Table 9 – 2030 Peak Hour Levels of Service

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

Table 9 – 2030 Peak Hour Levels of Service

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

Table 9 – 2030 Peak Hour Levels of Service

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

Table 9 – 2030 Peak Hour Levels of Service

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

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

The intersection of **Hayden Road and Legacy Boulevard** is projected to experience delay during both AM and PM peak hours with or without the addition of Cavasson development by horizon year 2030. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will

be constructed to the east of Hayden Road and connect to Pima Road by horizon year 2030. Due to the projected heavy traffic volumes on Hayden Road by horizon year 2030 three (3) through lanes northbound and three (3) through lanes southbound are recommended as well as dual northbound left-turn lanes. To remain consistent with the four (4) lane cross section on Legacy Boulevard two (2) through lanes are recommended to be constructed in the eastbound and westbound approaches. All left-turn phases are recommended to be protected/permissive with the exception of the dual northbound left-turn lanes which will be required to be protected. With the recommended signal modifications, the intersection delay is expected to decrease to 24.0-seconds in the AM peak hour, and 22.7-seconds during the PM peak hour.

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

The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be optimized to achieve optimal levels of service for the intersection by horizon year 2030. Overall the projected intersection delay is expected to be around 97.1-seconds for the westbound ramps and 72.5-seconds for the eastbound ramps during the PM peak hour with the proposed Cavasson development.

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

The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be optimized to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 191.5-seconds for the westbound ramps and 85.2-seconds for the eastbound ramps in the PM peak hour with the Cavasson development.

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

The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection with the assumption that Thompson Peak Parkway will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. Under the No-Build 2030 scenario, this intersection experiences heavy delay in both study peak hours. Overall, the intersection delay is projected to be 140.3-seconds in the AM peak hour and 51.9-seconds in the PM peak hour under the 2030 No-Build scenario. With the addition of the Cavasson development, the intersection is expected to experience delays of 142.3-seconds in the AM peak hour, and 84.8-seconds in the PM peak hour. To help mitigate this intersection, it is recommended signal phasing and green times be optimized as well as add in overlap right-turn phasing. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay will be 66.3-seconds in the AM peak hour, and 62.8-seconds during the PM peak hour.

The intersection of **Scottsdale Road and Legacy Boulevard** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. This intersection experiences heavy delay under the 2030 No-Build condition for both study peak hours. Overall, the intersection delay under the 2030 No-Build condition is projected to be 47.2-seconds in the AM peak hour and 38.5-seconds in the PM peak hour. With the addition of the proposed Cavasson development, the intersection delay is expected to increase to 78.2-seonds in the AM peak hour, and 75.6-seconds in the PM peak hour. It is, recommended to optimize the signal timing and add in overlap phasing to all right-turn lanes. With the recommended mitigation the intersection delay is expected be 60.4-seconds in the AM peak hour, and 71.2-seconds in the PM peak hour.

The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. The heavy northbound and southbound movements conflict with the anticipated heavy eastbound movements. Signal optimization should occur with future signal progression plans for Scottsdale Road. It is therefore recommended this intersection be monitored for optimal signal timing and corridor progression due to the proximality of the existing Loop 101 traffic interchange.

The intersection of **Scottsdale Road and Princess Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during the PM peak hour. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.

The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed

Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.

The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.

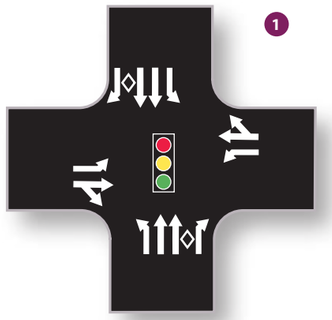
The intersection of **Pima Road and Thompson Peak Parkway** is projected to experience heavy delays by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.

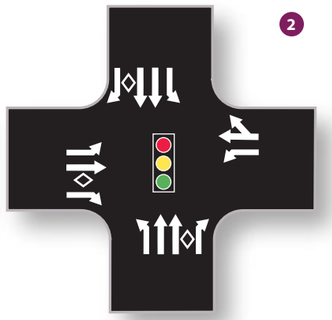
The intersection of **Miller Road and Legacy Boulevard** is projected to be signalized by study horizon year 2020. With future traffic anticipated by the Miller Road connection to the south and with additional traffic anticipated by currently unknown surrounding developments, it is recommended that dual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

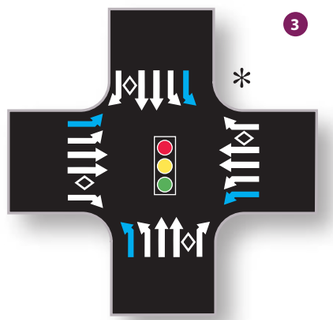
The proposed internal site intersection of **Claret Drive and Cavasson Boulevard** is anticipated to be a signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes should be provided in all approaches. Signal warrants will be evaluated with future phases of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

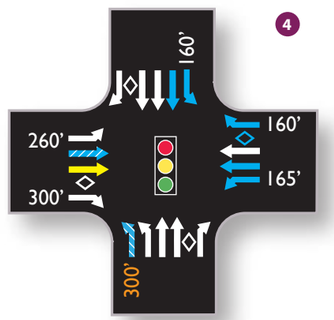
The proposed intersection of **Miller Road and Cavasson Boulevard** is anticipated to be signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes in all approaches are recommended. With the possible future connectivity to the west, it is recommended that additional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

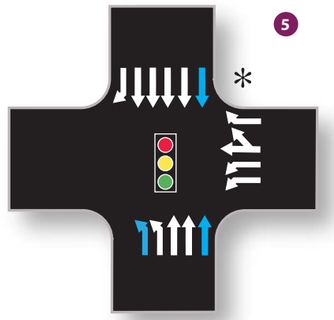
The proposed intersection of **Hayden Road and Cavasson Boulevard** is anticipated to be signalized upon completion of the Phase I development. It is recommended that right of way be provided for a future through lane east/west to provide connectivity to the east. By the opening year 2020, a single 300-foot northbound left-turn lane is warranted, as well as a single 200-foot left-turn and right-turn lanes eastbound. Additional right-of-way will be provided and striped out for the proposed future lanes required for an acceptable level of service.

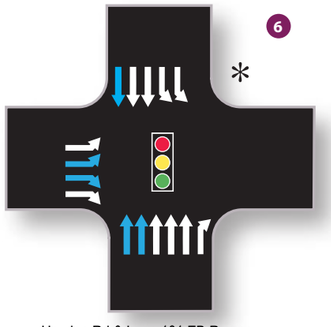


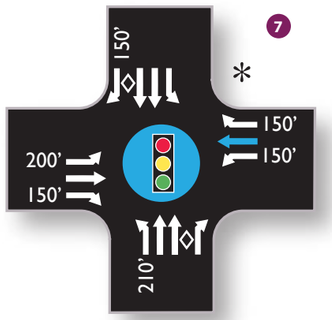


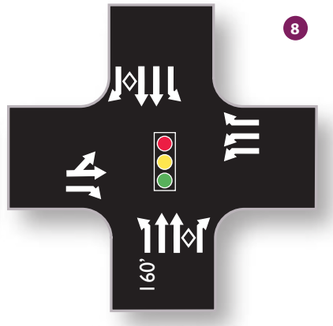


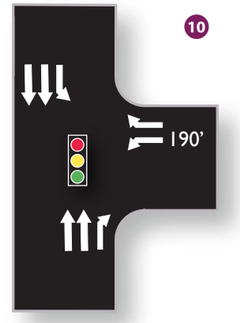


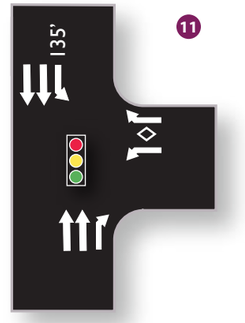


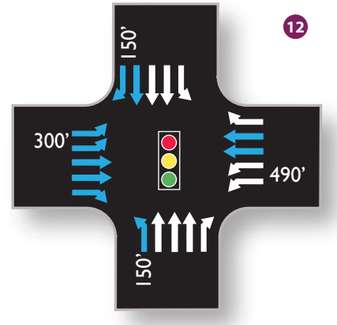


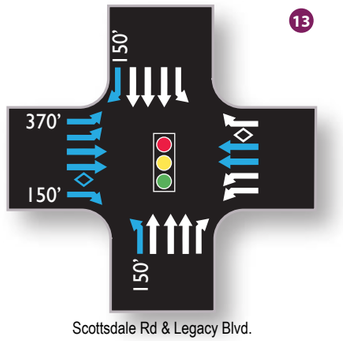


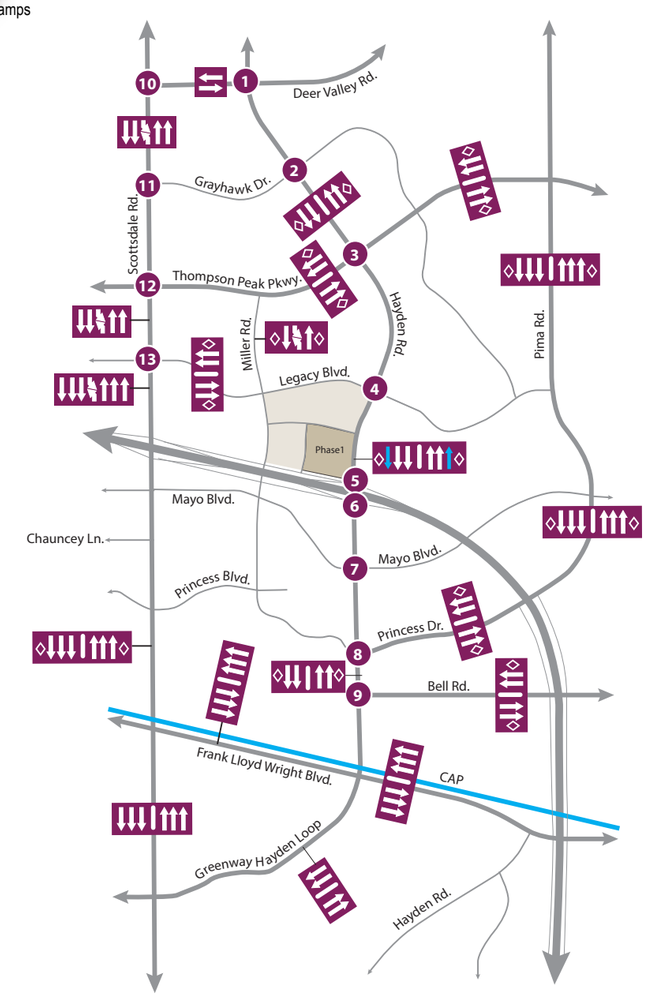










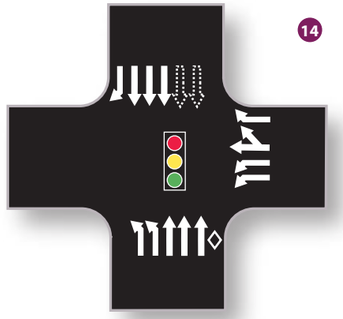


LEGEND

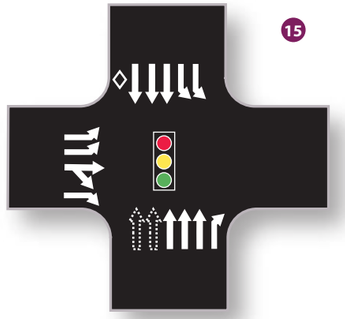
- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- NORTH
- Improvements by 2020
- Improvements by 2030
- Developers Responsibility
- Signal Warrants will be Analyzed in Future Phases
- XXX Total Queue by Developer
- XXX Total Extended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

* Signal Timing Modification

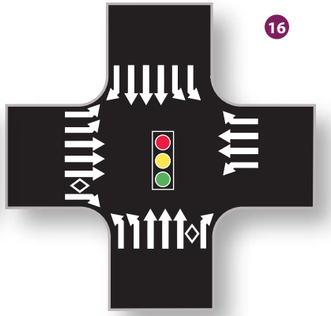
Figure 12A: Proposed Lane Configurations and Traffic Controls



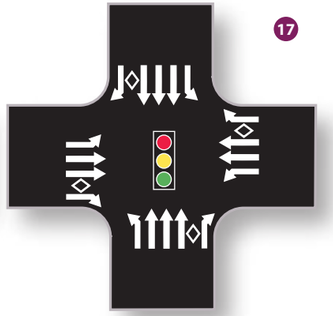
Scottsdale Rd & Loop 101 WB Ramps



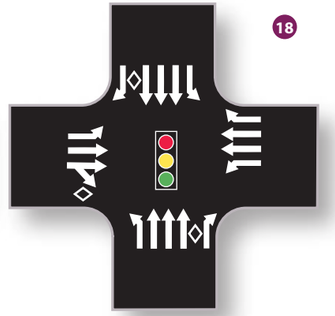
Scottsdale Rd & Loop 101 EB Ramps



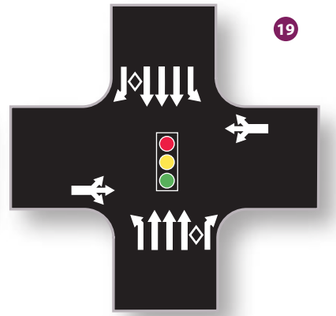
Scottsdale Rd & Mayo Blvd



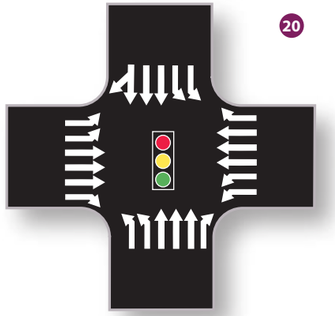
Scottsdale Rd & Chauncey Ln



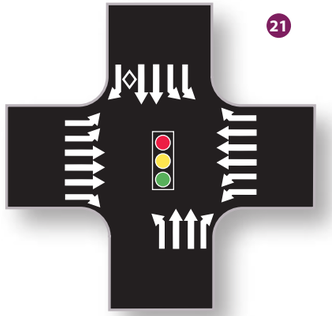
Scottsdale Rd & Princess Blvd



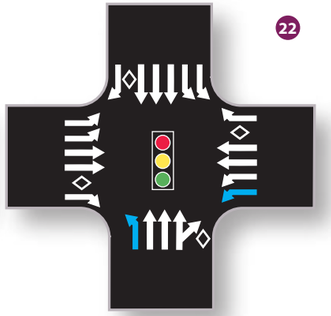
Scottsdale Rd & 17050 North



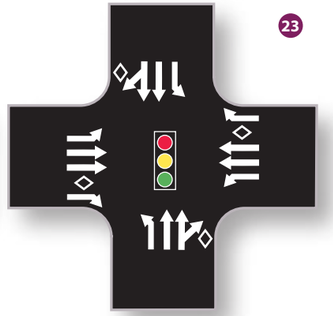
Scottsdale Rd & Frank Lloyd Wright Blvd



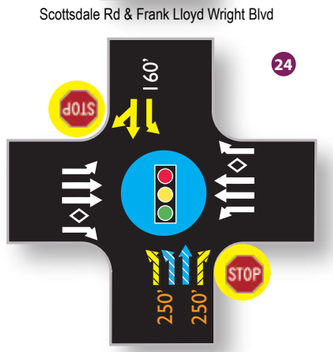
Greenway-Hayden & Frank Lloyd Wright Blvd



Pima Rd & Thompson Peak Pkwy

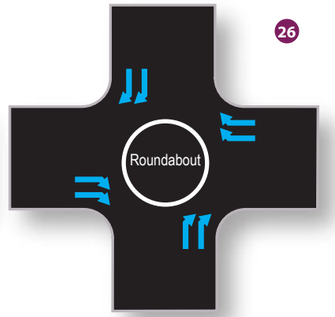


Miller Rd & Thompson Peak Pkwy



Miller Rd & Legacy Blvd

Miller Rd & Mayo Blvd.

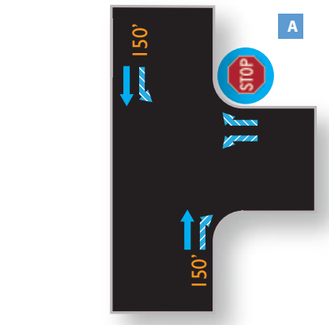


Miller Rd & Princess Dr

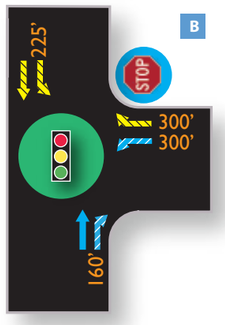
LEGEND

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

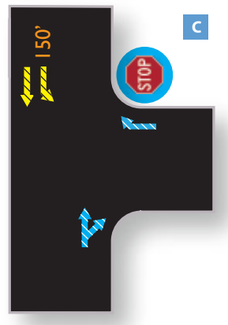
Figure 12B: Proposed Lane Configurations and Traffic Controls



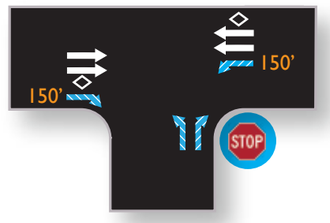
Miller Rd & Access A



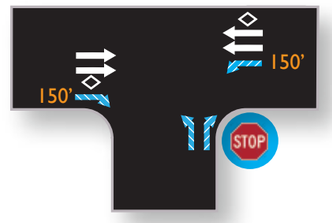
Miller Rd & Access B



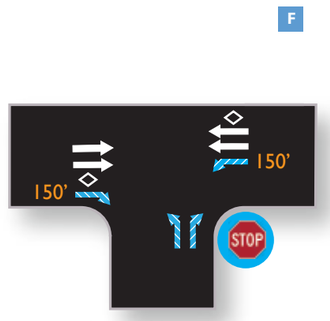
Miller Rd & Access C



Access D & Legacy Blvd



Access E & Legacy Blvd



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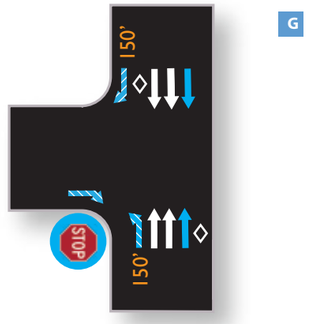
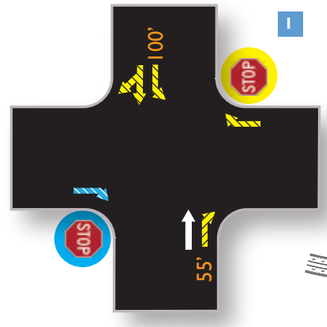
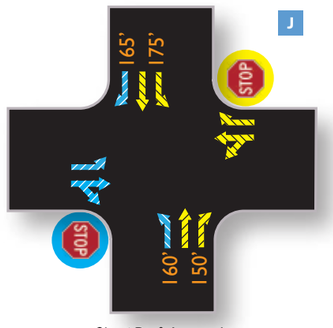


Hayden Rd & Access G

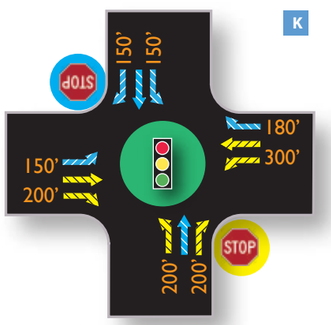
Hayden Rd & Access H



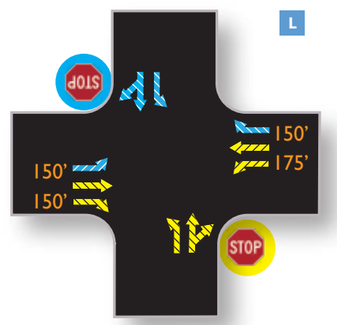
Claret Dr. & Access I



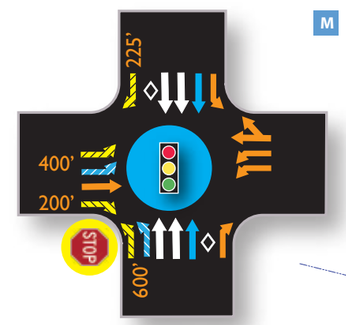
Claret Dr. & Access J



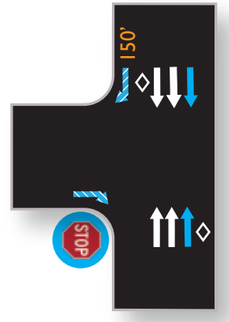
Claret Dr. & Cavasson Blvd.



Access L & Cavasson Blvd.



Hayden Rd & Cavasson Blvd.



* • Access "O" will be analyzed in more detail in future phased TIA.

LEGEND

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- NORTH
- Improvements by 2020
- Improvements by 2030
- Developers Responsibility
- Signal Warrants will be Analyzed in Future Phases
- Future Lane Improvements when State Lane to the East is Developed
- XXX Total Queue by Developer
- XXX Total Extended Queue by Others

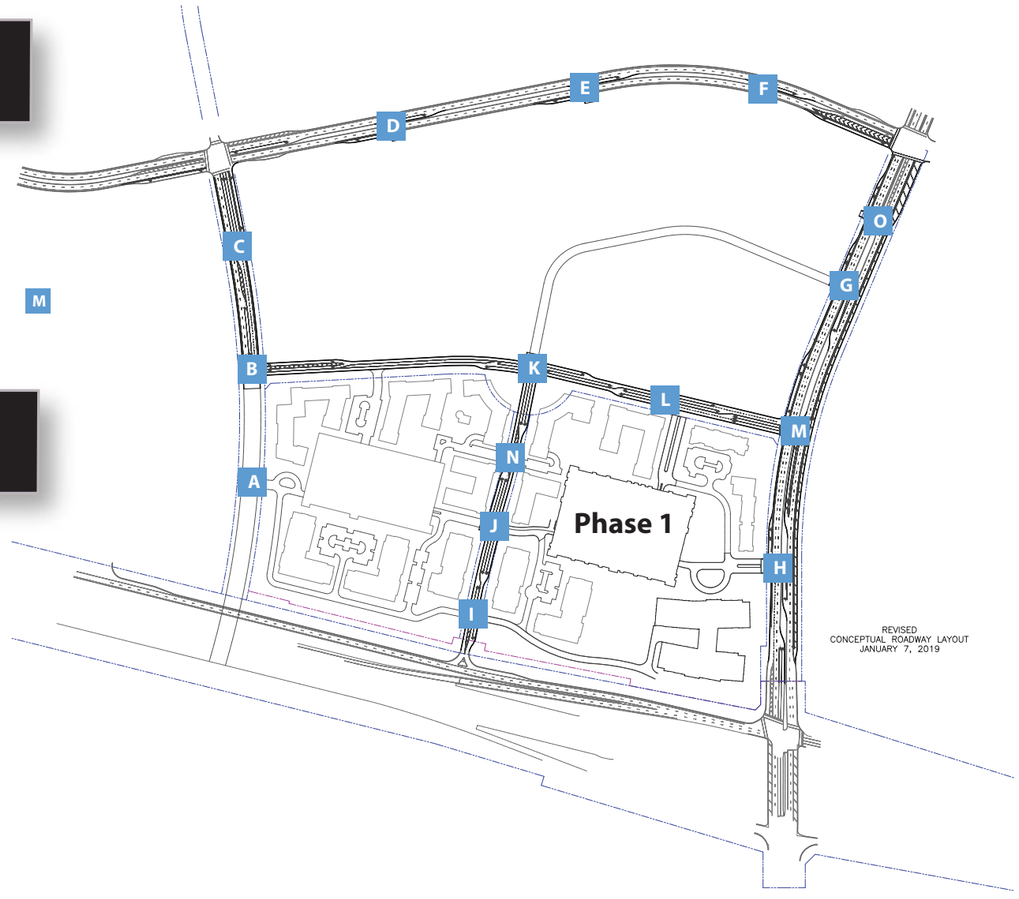


Figure 12C: Proposed Lane Configurations and Traffic Controls

QUEUING ANALYSIS

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

LEFT TURN STORAGE ANALYSIS

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

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

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

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

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

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

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

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

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

RIGHT TURN AUXILIARY LANES

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

DECELERATION LANES

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

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

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

Table 10 – Build-Out Turn Lane Length

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

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

ID	Intersection	Control	Movement/ Approach	2030 Queue Length (ft)				
				Existing	AASHTO/ ADOT	[4]Synchro	Minimum Rec Q	Proposed Developer Q
5	Hayden Rd. & Loop 101 WB Ramp	Signal	NB Left	[2] 275’	[2],[7]575’	[2] 421’	[2] [5] 275’	-‘
			WB Left	[2] 495’	[2], [7] 125’	[2] 164’	[2], [5] 495’	-‘
			SB Right	235’	[7] 750’	522’	525’	-‘
			WB Right	[2] 495’	[2], [7] 675’	[2] 276’	[2], [5] 495’	-‘
6	Hayden Rd. & Loop 101 EB Ramp	Signal	SB Left	[2] 275’	[2], [7] 600’	[2] 558’	[2] [5] 275’	-‘
			EB Left	[2] 430’	[2], [7] 550’	[2] 406’	[2], [5] 430’	-‘
			NB Right	260’	[7] 275’	50’	260’	-‘
			EB Right	[2] 430’	[2], [7] 375’	[2] 176’	[2], [5] 430’	-‘
7	Hayden Rd. & Mayo Blvd.	Signal	NB Left	-‘	275’	207’	210’	-‘
			SB Left	370’	400’	233’	[5] 370’	-‘
			EB Left	-‘	475’	210’	210’	-‘
			WB Left	-‘	75’	25’	150’	-‘
			NB Right	150’	75’	<25’	[5] 150’	-‘
			SB Right	-‘	425’	<25’	150’	-‘
			EB Right	-‘	375’	34’	150’	-‘
			WB Right	-‘	475’	31’	150’	-‘
8	Hayden Rd. & Princess Dr.	Signal	NB Left	150’	200'	156’	150’	-‘
			SB Left	250’	200'	106’	[5] 250’	-‘
			WB Left	150’	175'	147’	[5] 280’	-‘
			NB Right	235’	300'	42’	[5] 235’	-‘
			SB Right	255’	100'	<25’	[5] 255’	-‘
			EB Right	175’	150'	52’	[5] 175’	-‘
			WB Right	150’	275’	71’	[5] 150’	-‘
9	Hayden Rd. & Bell Rd.	Signal	NB Left	290’	50'	<25’	[5] 290’	-‘
			SB Left	140’	275'	386’	275’	-‘
			WB Left	[2] 140’	[2] 325'	[2] 276’	[2] 560’	-‘
			NB Right	300’	525'	46’	[5] 300’	-‘
			WB Right	140’	250’	63’	[5] 140’	-‘
10	Scottsdale Rd. & Deer Valley Rd.	Signal	SB Left	145’	75'	33’	[5] 145’	-‘
			WB Left	150’	175'	192’	195’	-‘
			NB Right	95’	200’	<25’	[5] 95’	-‘
			WB Right	155’	100’	90’	[5] 155’	-‘
11	Scottsdale Rd. & Grayhawk Dr.	Signal	SB Left	120’	100’	135’	150’	-‘
			WB Left	175’	175’	173’	[5] 175’	-‘
			NB Right	150’	175’	<25’	[5] 150’	-‘
			WB Right	175’	100’	96’	[5] 175’	-‘
12	Scottsdale Rd. & Thompson Peak Pkwy.	Signal	NB Left	-‘	200’	<25’	150’	-‘
			SB Left	200’	250’	115’	[5] 200’	-‘
			EB Left	-‘	[2] 350’	159’	[2] 320’	-‘
			WB Left	[2] 130’	[2] 425’	242’	[2], [5] 130’	-‘
			NB Right	520’	675’	425’	[5] 520’	-‘
			SB Right	-‘	575’	48’	150’	-‘
			EB Right	-‘	125’	-	150’	-‘
			WB Right	225’	350’	<25’	[5] 225’	-‘

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

ID	Intersection	Control	Movement/ Approach	2030 Queue Length (ft)				
				Existing	AASHTO/ ADOT	[4]Synchro	Minimum Rec Q	Proposed Developer Q
13	Scottsdale Rd. & Legacy Blvd.	Signal	NB Left	-‘	100’	<25’	150’	-‘
			SB Left	195’	150’	44’	[5] 195’	-‘
			EB Left	-‘	[2] 250’	181’	[2] 185’	-‘
			WB Left	[2] 310’	[2] 350’	215’	[2], [5] 310’	-‘
			NB Right	145’	550’	258’	260’	-‘
			SB Right	-‘	450’	39’	150’	-‘
			EB Right	-‘	50’	-	150’	-‘
			WB Right	130’	225’	-	[5] 130’	-‘
14	Scottsdale Rd. & Loop 101 WB Ramp	Signal	NB Left	[2]245’	[2], [7] 700’	[2] 573’	[2] 575’	-‘
			WB Left	[2]310’	[2], [7] 600’	[2] 534’	[2] 535’	-‘
			SB Right	400’	[7] 1,150’	1,164’	1,165’	-‘
			WB Right	[2]320’	[2], [7] 450’	[2] 182’	[2], [5] 320’	-‘
15	Scottsdale Rd. & Loop 101 EB Ramp	Signal	SB Left	[2]270’	[2], [7] 575’	[2] 595’	[2] 595’	-‘
			EB Left	[2]205’	[2], [7] 575’	[2] 544’	[2] 545’	-‘
			NB Right	135’	[7] 1,000’	327’	330’	-‘
			EB Right	[2]215’	[2], [7] 625’	[2] 390’	[2] 390’	-‘
16	Scottsdale Rd. & Mayo Blvd.	Signal	NB Left	[2] 240’	[2] 275’	106’	[2], [5] 240’	-‘
			SB Left	[2] 165’	[2] 300’	139’	[2], [5] 165’	-‘
			EB Left	[2] 325’	[2] 475’	354’	[2], [5] 325’	-‘
			WB Left	[2] 160’	[2] 125’	53’	[2], [5] 160’	-‘
			NB Right	155’	175’	96’	[5] 155’	-‘
			SB Right	240’	1050’	429’	[5] 240’	-‘
			EB Right	335’	400’	102’	[5] 335’	-‘
			WB Right	-‘	700’	106’	150‘	-‘
17	Scottsdale Rd. & Chauncey Ln.	Signal	NB Left	195’	225’	187’	[5] 195’	-‘
			SB Left	170’	25’	<25’	[5] 170’	-‘
			EB Left	160’	200’	142’	[5] 160’	-‘
			WB Left	160’	25’	26’	[5] 160’	-‘
			NB Right	125’	25’	<25’	[5] 125’	-‘
			SB Right	160’	200’	39’	[5] 160’	-‘
			EB Right	180’	200’	55’	[5] 180’	-‘
			WB Right	105’	25’	<25’	[5] 105’	-‘
18	Scottsdale Rd. & Princess Blvd.	Signal	NB Left	250’	375’	246’	[5] 250’	-‘
			SB Left	235’	350’	126’	[5] 235’	-‘
			EB Left	205’	100’	76’	[5] 205’	-‘
			WB Left	165’	550’	676’	350’	-‘
			NB Right	250’	475’	210’	[5] 250’	-‘
			SB Right	250’	125’	34’	[5] 250’	-‘
			WB Right	85’	450’	217’	220’	-‘
19	Scottsdale Rd. & 17050 North	Signal	NB Left	190’	175'	54’	[5] 190’	-‘
			SB Left	200’	100'	<25’	[5] 200’	-‘
			NB Right	135’	50'	<25’	[5] 135’	-‘
			SB Right	240’	125'	<25’	[5] 240’	-‘
20	Scottsdale Rd. & Frank Lloyd Wright Blvd.	Signal	NB Left	[2] 300’	[2] 375’	[2] 379’	[2], [5] 300’	-‘
			SB Left	[2] 565’	[2] 325’	[2] 720’	[2],[5] 565’	-‘
			EB Left	[2] 245’	[2] 450’	[2] 455’	[2], [5] 245’	-‘
			WB Left	[2] 270’	[2] 175’	[2] 143’	[2], [5] 270’	-‘
			NB Right	145’	425’	246’	[5] 145’	-‘
			EB Right	235’	600’	389’	[5] 235’	-‘
			WB Right	315’	775’	223’	[5] 315’	-‘

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

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

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

ID	Intersection	Control	Movement/ Approach	2030 Queue Length (ft)				
				Existing	AASHTO/ ADOT	[4]Synchro	Minimum Rec Q	Proposed Developer Q
H	Hayden Rd. & Access H	1-way stop (EB)	NB Left	-‘	100’	-‘	[1] 150’	[1], [8] 150‘
			SB Right	-‘	100’	-‘	[1] 150’	[1] 150‘
I	Claret Dr. & Access I	2-way stop (EB/WB)	SB Left	-‘	50’	-‘	[8] 100’	[8] 100‘
			NB Right	-‘	25’	-‘	[8] 55’	[8] 55’
J	Claret Dr. & Access J	2-way stop (EB/WB)	NB Left	-‘	100’	-‘	[1] 150’	160‘
			SB Left	-‘	100’	-‘	[1] 150’	175‘
			NB Right	-‘	100’	-‘	[1] 150’	[1] 150’
			SB Right	-‘	75’	-‘	[1] 150’	165‘
K	Access K & Cavasson Blvd.	Signal	NB Left	-‘	125’	70‘	[1] 150’	200’
			SB Left	-‘	50’	<25‘	[1] 150’	[1] 150’
			EB Left	-‘	25’	<25’	[1] 150’	[1] 150’
			WB Left	-‘	175’	38‘	[1] 150’	300’
			NB Right	-‘		28’	[1] 150’	200’
			SB Right	-‘		<25’	[1] 150’	[1] 150’
			EB Right	-‘		48’	[1] 150’	[1] 150’
			WB Right	-‘		<25’	[1] 150’	180’
L	Access L & Cavasson Blvd.	2-way stop (NB/SB)	EB Left	-‘	25’	-‘	[1] 150’	[1] 150‘
			WB Left	-‘	100’	-‘	[1] 150’	175‘
			EB Right	-‘	100’	-‘	[1] 150’	[1] 150‘
			WB Right	-‘	75’	-‘	[1] 150’	[1] 150‘
M	Hayden Rd. & Cavasson Blvd.	Signal	NB Left	-‘	325’	83’	[1] 150’	[2] 350’
			EB Left	-‘	275’	90’	[1] 150’	[2] 200’
			SB Right	-‘	225’	55’	[1] 150’	225’
			EB Right	-‘	300’	105’	[1] 150’	200’

(1) COS recommends 150’ of storage regardless of intersection control; a minimum of 100’ may be provided if 150’ of storage is not available.
(2) Dual turn lanes, queue reported is for each lane.
(3) Calculated per ADOT minimum/desired queue storage.
(4) Recommended Synchro 50th Percentile dual queue storage lengths.
(5) Existing queue storage recommended to remain.
(6) Recommended maximum length of 350’.
(7) ADOT calculated queue length. Reported value does not include breaking distance or 2/3 Gap/taper.
(8) Turn lane length restricted by presence of upstream intersection or utility conflict.

Storage lengths provided in **Table 10** are based on turn volumes for the 2030 study horizon year. Additional storage length calculations should be completed prior to a change in intersection stop control. Turn queue storage length calculations can be found in the **Appendix K**.

It is recommended all proposed site access driveways along Legacy Boulevard, Hayden Road, Miller Road, Cavasson Boulevard and Claret Drive provide a minimum of 150-foot turn lanes at intersections regardless of intersection control so long as they are not encumbered by upstream intersections or utility conflicts. Locations with restrictions or where additional storage beyond the calculations included in this report are discussed below.

Proposed ¾ site **Access G,** located just north of site Access M and south of Legacy Boulevard along Hayden Road, is recommended to provide a minimum 150-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane. An

upstream intersection restricts the ability to provide additional southbound right turn storage.

Proposed ¾ site **Access H** located just north of the Hayden Road/Loop 101 interchange along Hayden Road is recommended to provide a minimum 100-foot northbound left-turn lane as well as a 150-foot southbound dedicated right-turn lane. The presence of a storm drain inlet conflict restricts the ability to provide additional northbound left turn queue storage.

Proposed ¾ site **Access I**, located just north of the Loop 101 frontage road on Claret Drive is recommended to provide a 55-foot northbound right turn lane. This is restricted from further queue storage due to the proximity of the frontage road. A southbound left turn storage of 100 feet is recommended; this length is restricted by the need to provide a back to back left turn lane (northbound storage) into Access J.

Proposed main site **Access M** (Hayden Road/Cavasson Boulevard) is planned as a signalized intersection at the opening of the proposed Cavasson Phase I development. Access M is located between Legacy Boulevard and north of Access H along Hayden Road and is planned to provide 300-feet of queue for dual northbound left-turn lanes as well as 225-feet for a dedicated southbound right-turn lane. Internally, the development should provide a minimum of 200-feet of storage for the eastbound dual left-turn and a single right-turn lane. Additional pavement will be provided and striped out for the proposed future ultimate lane alignment for connectivity to the east.

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

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

Access A and **Access C** both are recommended to provide 100-foot southbound left-turn lanes and well as 100-foot northbound dedicated right-turn lanes. The presence of back to back turn lanes and likely retaining walls from the Miller Road underpass may restrict the ability to provide more storage at these locations.

The intersection of **Miller Road and Legacy Boulevard** is planned to be signalized upon buildout of the Cavasson development ultimately providing dual 250-foot northbound left-turn lanes as well as a dedicated northbound right-turn lane. Although the reported volumes documented within this report do not show a need for dual northbound left-turn lanes it is CivTech's understanding the planned area analyzed within this report does not include some portions of future development within the study area. As such, longer queues and dual lanes are recommended.

INTERNAL CIRCULATIONS AND ROADWAY CROSS SECTIONS

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

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

SIGHT DISTANCE ANALYSIS

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

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

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

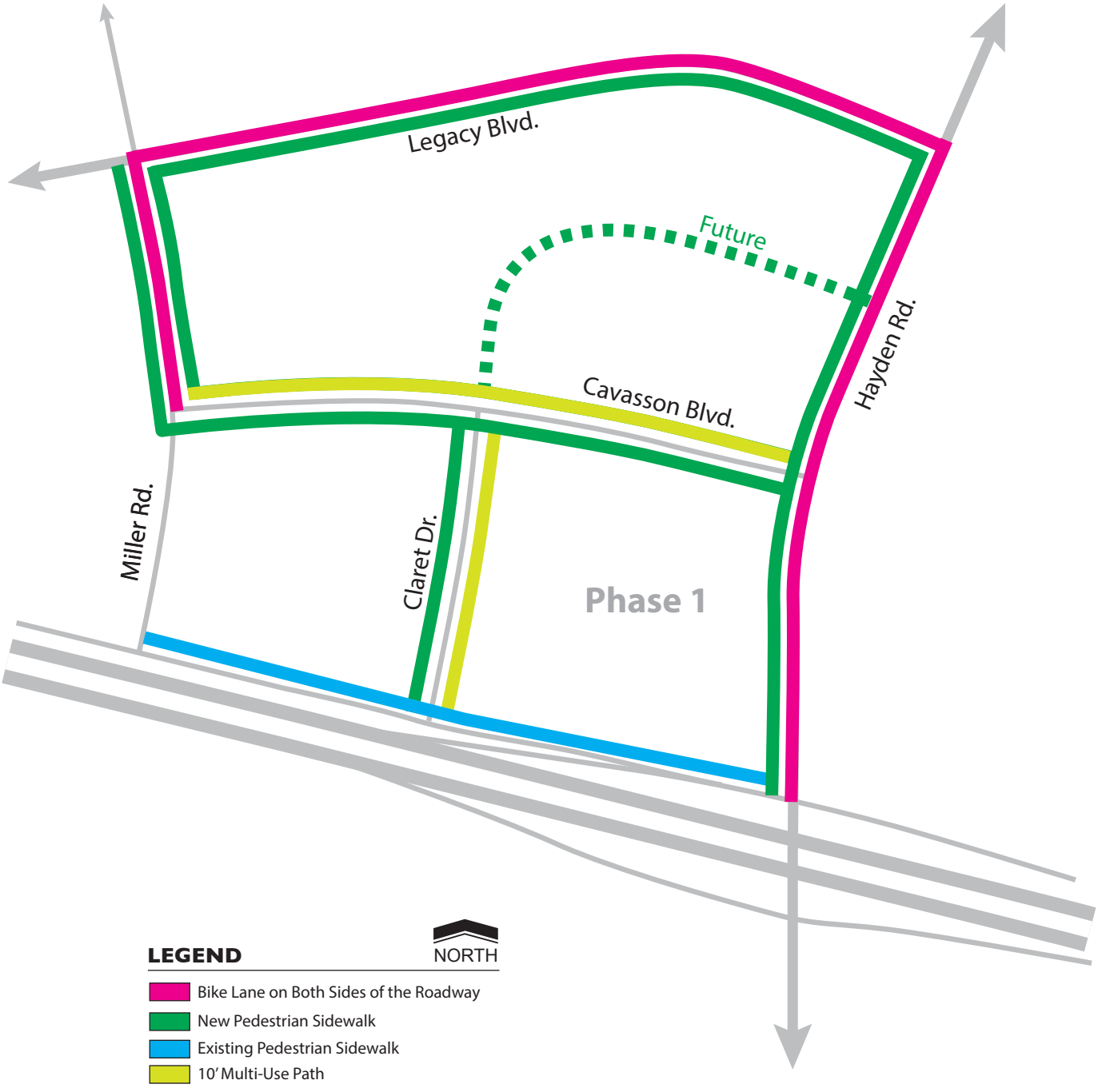
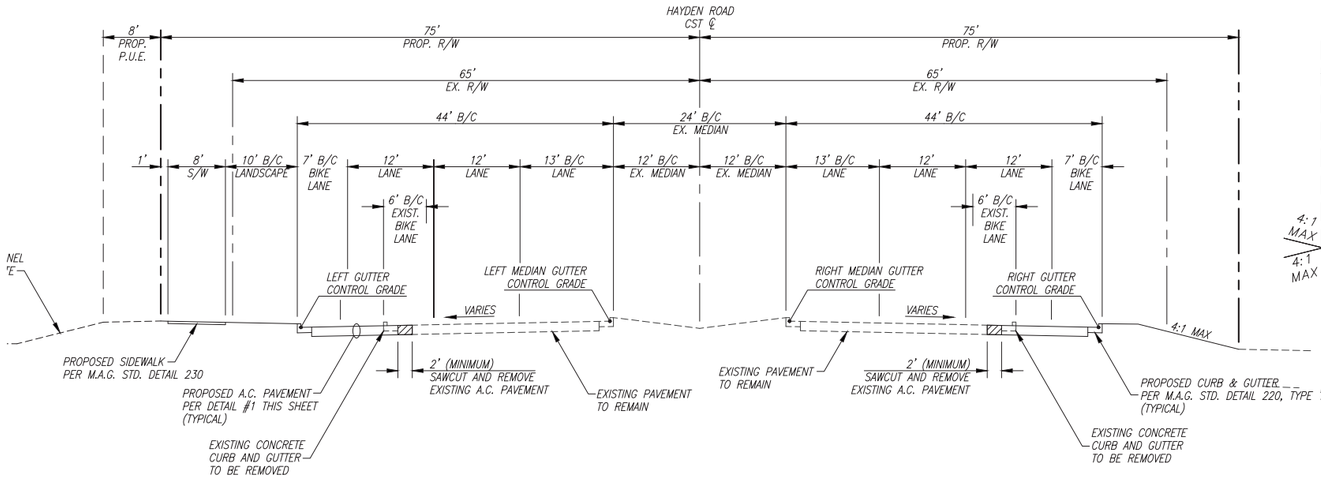


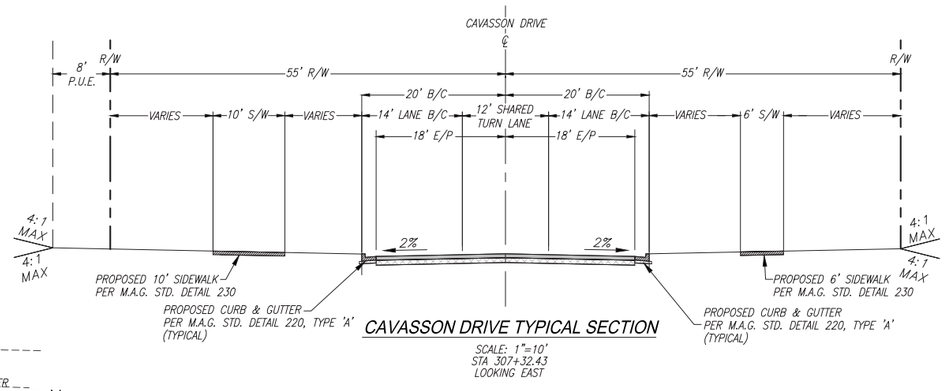
Figure 13: Pedestrian and Bike Routes



TYPICAL SECTION #1 (CROWN)

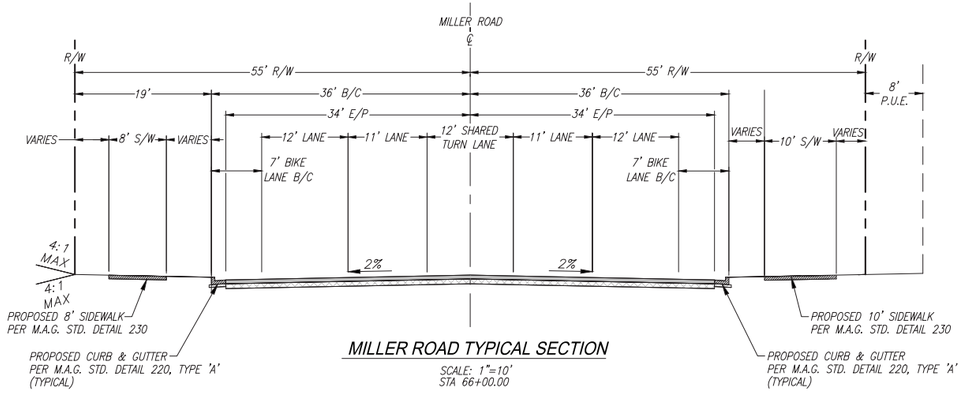
SCALE: 1"=10'

STA 87+66.15± TO STA 90+93.00±
STA 104+42.00± TO STA 111+61.39±



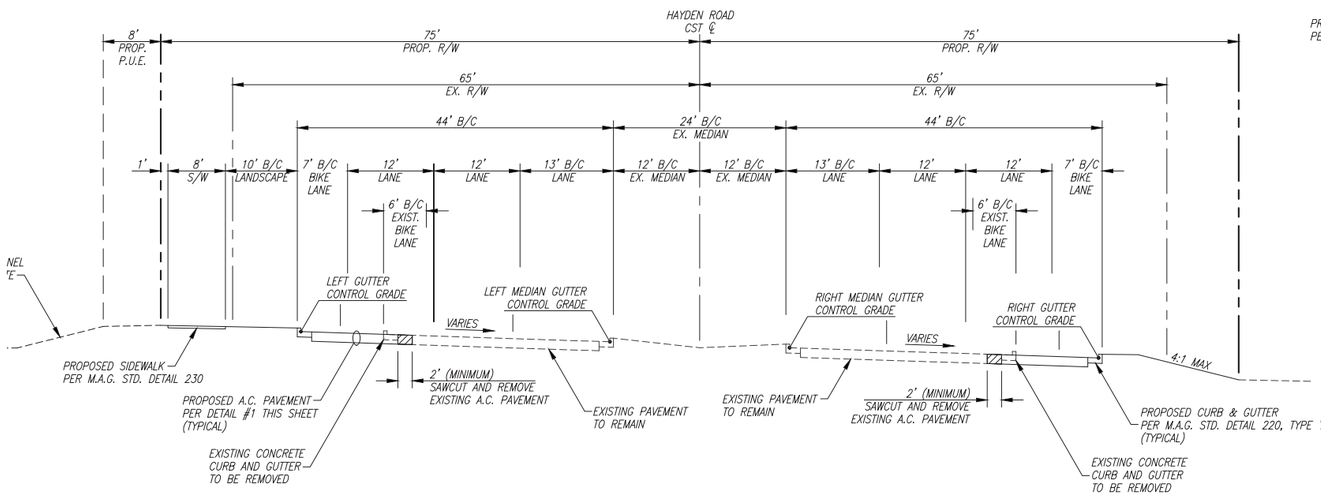
CAVASSON DRIVE TYPICAL SECTION

SCALE: 1"=10'
STA 307+32.43
LOOKING EAST



MILLER ROAD TYPICAL SECTION

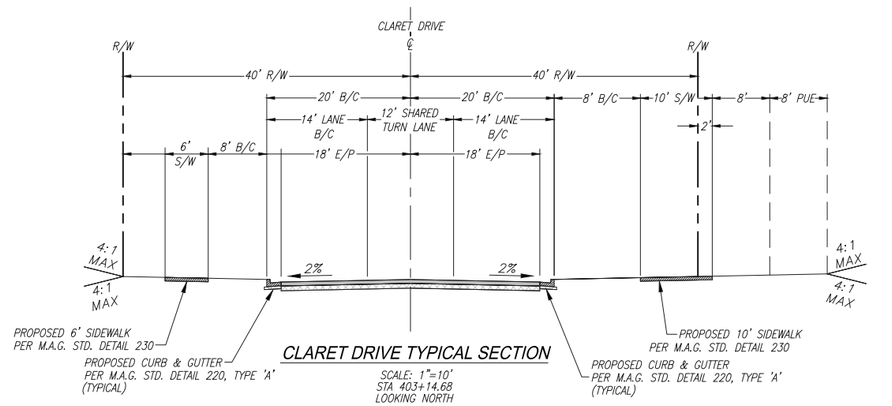
SCALE: 1"=10'
STA 66+00.00



TYPICAL SECTION #2 (SUPERELEVATION)

SCALE: 1"=10'

STA 90+93.00± TO STA 104+42.00±



CLARET DRIVE TYPICAL SECTION

SCALE: 1"=10'
STA 403+14.68
LOOKING NORTH

Figure 14: Typical Cross Sections

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions have been documented in this study:

General

- Phase I of the Cavasson Development is anticipated to generate 12,450 daily trips to the external roadway system, with 915 occurring during the AM peak hour and 1,070 occurring during the PM peak hour, by opening year 2020. It is anticipated the Miller Road underpass will not be constructed by opening year 2020.
- Phase I project specific improvements such half street improvements and all Phase I site driveways are anticipated to be fully constructed by the developer upon opening year 2020.
- Cavasson Boulevard and Claret Drive internal to the site are also anticipated to be full constructed by opening year 2020.
- Full buildout (Phase 1 and Phase 2) of the Cavasson Development is anticipated to generate a total of 34,984 daily trips to the external roadway system, with 2,562 occurring during the AM peak hour and 3,123 occurring during the PM peak hour.
- For study purposes it is anticipated the Miller Road underpass will be constructed and provide connection to the south of the Loop 101 by study horizon year 2030.
- Both Thompson Peak Parkway and Legacy Boulevard are also planned to provide connectivity to the west ultimately offering additional roadway connections between 56th Street/Scottsdale Road by horizon year 2030.
- Legacy Boulevard is also anticipated to connect through to the east from Hayden Road to Pima Road by horizon year 2030.
- The contractor should ensure that adequate sight distance is provided at all site access points to allow safe left and right turning movements from the development. It is recommended that sight triangles be designed at all site access driveways to provide the required sight distance shown in *Appendix 5-3B* within the *City of Scottsdale Design Standards and Policies Manual*. Excerpts from the *City of Scottsdale Design Standards and Policies Manual* and tables have been included in **Appendix K**.
- Typical sections provided for Hayden Road, Miller Road, Legacy Boulevard, Claret Drive and Cavasson Boulevard were approved by the City of Scottsdale Ordinance 4346 and Resolution 11147. Excerpts from the Ordinance and Resolution are provided in **Appendix M**.

Existing

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

- The intersection of **Hayden Road and Loop 101 Westbound Ramps** operate with unacceptable delays under existing conditions during the PM peak hour. These delays are primarily due to the heavy northbound left-turn volume onto the freeway and the right-turn volume egressing from the westbound Loop 101 off ramp. It is recommended these delays be mitigated by increasing the northbound left-turn phase and additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay is expected to decrease from 124-seconds to 81-seconds for the PM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation is expected to increase the delay at the signalized eastbound ramp from 43-seconds to 46-seconds in the PM peak hour. This 3-second increase is considered very minor considering the 43-second decrease in delay at the signalized westbound ramp.
- The intersection of **Hayden Road and Loop 101 Eastbound Ramps** operate with heavy delays under existing conditions during the AM peak hour. These delays are primarily due to the southbound left-turn volume onto the freeway and the right-turn volume egressing from the eastbound Loop 101 off ramp during the AM peak hour. It is recommended the eastbound phase be extended an additional 10-seconds. With the recommended signal timing mitigation, the overall intersection delay would decrease from 72-seconds to 65-seconds in the AM peak hour. The Hayden Road/Loop 101 Ramps function as a diamond traffic interchange with both signalized ramp interchanges functioning together as one. Any signal phasing mitigation at one ramp signal directly affects the other. Therefore, the recommended signal mitigation would also decrease the delay at the signalized westbound ramp from 25-seconds to 23-seconds in the AM peak hour.
- The intersection of **Scottsdale Road and Mayo Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the northbound/southbound through volume on Scottsdale road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 19-seconds to 28-seconds and the southbound left phase be extended from 11-seconds to 23-seconds. Also, adding overlaps for the northbound and southbound right turns will decrease the delay on those approaches. By applying these changes to the existing intersections, the delay is expected to decrease from 76-seconds to 55-seconds.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** operates with heavy delays under existing conditions during the PM peak hour. These delays are primarily due to the westbound left-turn volume on Frank Lloyd Wright Boulevard and the conflicting northbound left-turn volume on Scottsdale Road during the PM peak hour. It is recommended that the northbound left turn phase be extended from 9-seconds to 25-seconds, the southbound left turn phase be extended from 23-seconds to 26-seconds, and the northbound through phase be extended from 35-seconds to 41-seconds. With these changes made to the existing intersection, the delay is expected to decrease from 160-seconds to 85-seconds.

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

Opening Year 2020

- The results of the Synchro analysis summarized in **Table 9** indicate that all 2020 study intersections operate with an overall acceptable level of service during the AM and PM peak hours under the existing lane configurations and stop controls with the exception of the following locations:
- It should be noted the Scottsdale Road/Loop 101 Ramps functions as a diamond traffic interchange with both signalized intersections functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at the diamond interchange.
- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience increased heavy delay by opening year 2020 with or without the proposed Cavasson Phase I development during the study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030, scenario the recommended mitigation and reported delays herein are for the build scenario which includes the proposed Phase I development. It is recommended signalize timing be optimized as well as signal phasing. With signal timing and phasing optimization, the overall intersection delay is expected to improve 33.5-seconds in the AM, 40.0-seconds in the PM peak for the westbound ramps and 27.1-seconds in the AM, 28.2-seconds in the PM peak for the eastbound ramps with the proposed Phase I development.

  *It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*
- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience heavy delay in the PM peak by opening year 2020 with or without the proposed Cavasson Phase I development. Overall the projected intersection delay is expected to be 82.7-seconds in the PM peak hour under the total 2020 build condition. It is therefore recommended all right-turn lanes provide overlap phases as well as optimizing pedestrian signal timing in the westbound approach by opening year 2020. With these improvements, the overall delay at the intersection is projected to decrease from 82.7-seconds to 38.1-seconds in the PM peak hour with the proposed Phase I development.

- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience heavy delay by opening year 2020 with or without the proposed Phase I development. Under the No-Build 2020 scenario, this intersection is expected to experience heavy delays during the PM peak hour only. Overall, the projected intersection delay is expected to be 71.7-seconds in the PM peak hour with the proposed Cavasson Phase I development. It is recommended all right-turn lanes provide overlap phases as well as a dedicated southbound right-turn lane. With the recommended mitigation the overall intersection delay is projected to improve from 71.7-seconds to 55.5-seconds with the proposed Phase I development during the PM peak hour.
- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience heavy delays by opening year 2020 with or without the proposed Cavasson Phase I development. Under the No-Build 2020, scenario this intersection experiences heavy delay during the PM peak hour only. Overall, the projected 2020 Build, intersection delay is expected to be 71.7-seconds during the PM peak hour which includes the proposed Cavasson Phase I development. It is recommended signal timing be optimized and all right-turn lanes provided overlap phases. With the recommended mitigated signal timing, the overall intersection delay is projected to decrease from 71.7-seconds to 53.9-seconds with the proposed Phase I development during the PM peak hour.
- The proposed intersection of **Hayden Road and Cavasson Boulevard** is anticipated to be signalized upon completion of the Phase I development. It is recommended that right of way be provided for a future through lane east/west to provide connectivity to the east. By the opening year 2020, a single 300-foot northbound left-turn lane is warranted, as well as a single 200-foot left-turn and right-turn lanes eastbound. Additional right-of-way will be provided and striped out for the proposed future lanes required for an acceptable level of service.

- *Horizon Year 2030*

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

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

will be required to be protected. With the recommended signal modifications, the intersection delay is expected to decrease to 24.0-seconds in the AM peak hour, and 22.7-seconds during the PM peak hour.

- It should be noted the Hayden Road/Loop 101 Ramps and the Scottsdale Road/Loop 101 Ramps both function as diamond traffic interchanges with both signalized intersections at each interchange functioning together as one. Any signal phasing mitigation at one signal directly affects the other. All recommended signal mitigation herein considers the timing/delay for both signals at each diamond interchange.
- The intersection of **Hayden Road and the Loop 101 Ramps** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be optimized to achieve optimal levels of service for the intersection by horizon year 2030. Overall the projected intersection delay is expected to be around 97.1-seconds for the westbound ramps and 72.5-seconds for the eastbound ramps during the PM peak hour with the proposed Cavasson development.

  *It is recommended that any and all recommended improvements for the **Hayden Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*
- The intersection of **Scottsdale Road and the Loop 101 Ramps** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. Under the No-Build 2030 scenario, this intersection experiences increased delay in both study peak hours. Overall, the PM peak hour at both ramps signals experiences the most delay of the two study peak hours. Although the signalized interchange experiences increased delay in the No-Build 2030 scenario, the recommended mitigation and reported delays herein are for the build scenario which includes the Cavasson development. It is recommended the cycle length for both signalized ramps be optimized to achieve optimal levels of service for each approach. Overall the projected intersection delay is expected to be 191.5-seconds for the westbound ramps and 85.2-seconds for the eastbound ramps in the PM peak hour with the Cavasson development.

  *It is recommended that any and all recommended improvements for the **Scottsdale Road/Loop 101 Traffic Interchange** be evaluated by ADOT as part of their Loop 101 improvements.*
- The intersection of **Scottsdale Road and Thompson Peak Parkway** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection with the assumption that

Thompson Peak Parkway will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. Under the No-Build 2030 scenario, this intersection experiences heavy delay in both study peak hours. Overall, the intersection delay is projected to be 140.3-seconds in the AM peak hour and 51.9-seconds in the PM peak hour under the 2030 No-Build scenario. With the addition of the Cavasson development, the intersection is expected to experience delays of 142.3-seconds in the AM peak hour, and 84.8-seconds in the PM peak hour. To help mitigate this intersection, it is recommended signal phasing and green times be optimized as well as add in overlap right-turn phasing. Signal progression for the north/south through movements should be optimized as well. With the recommended mitigation, the overall intersection delay will be 66.3-seconds in the AM peak hour, and 62.8-seconds during the PM peak hour.

- The intersection of **Scottsdale Road and Legacy Boulevard** is projected to experience heavy delay by study horizon year 2030 with or without the proposed Cavasson development during both study peak hours. It should be noted this intersection was analyzed as a four-legged intersection by horizon year 2030. It is expected Legacy Boulevard will be constructed to the west of Scottsdale Road and connect to 56th Street by horizon year 2030. This intersection experiences heavy delay under the 2030 No-Build condition for both study peak hours. Overall, the intersection delay under the 2030 No-Build condition is projected to be 47.2-seconds in the AM peak hour and 38.5-seconds in the PM peak hour. With the addition of the proposed Cavasson development, the intersection delay is expected to increase to 78.2-seonds in the AM peak hour, and 75.6-seconds in the PM peak hour. It is, recommended to optimize the signal timing and add in overlap phasing to all right-turn lanes. With the recommended mitigation the intersection delay is expected be 60.4-seconds in the AM peak hour, and 71.2-seconds in the PM peak hour.
- The intersection of **Scottsdale Road and Mayo Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. The heavy northbound and southbound movements conflict with the anticipated heavy eastbound movements. Signal optimization should occur with future signal progression plans for Scottsdale Road. It is therefore recommended this intersection be monitored for optimal signal timing and corridor progression due to the proximality of the existing Loop 101 traffic interchange.
- The intersection of **Scottsdale Road and Princess Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development during the PM peak hour. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Scottsdale Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is

therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.

- The intersection of **Hayden Road and Frank Lloyd Wright Boulevard** is projected to experience increased delay by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Pima Road and Thompson Peak Parkway** is projected to experience heavy delays by study horizon year 2030 with or without the proposed Cavasson development. Even with signal optimization this intersection is expected to experience heavy delays during future study peak hours. It is therefore recommended this signal be monitored in the future for optimal signal timing and corridor progression.
- The intersection of **Miller Road and Legacy Boulevard** is projected to be signalized by study horizon year 2020. With future traffic anticipated by the Miller Road connection to the south and with additional traffic anticipated by currently unknown surrounding developments, it is recommended that dual northbound left-turn lanes be provided as well as a dedicated northbound right-turn lane by horizon year 2020.
- The proposed internal site intersection of **Claret Drive and Cavasson Boulevard** is anticipated to be a signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes should be provided in all approaches. Signal warrants will be evaluated with future phases of the Cavasson development.
- The proposed intersection of **Miller Road and Cavasson Boulevard** is anticipated to be signalized as the surrounding area develops. Exclusive left-turn lanes and dedicated right-turn lanes in all approaches are recommended. With the possible future connectivity to the west, it is recommended that additional right of way is provided for future through lanes eastbound and westbound. Signal warrants will be evaluated with future phases of the Cavasson development.
- The proposed intersection of **Hayden Road and Cavasson Boulevard** is anticipated to be signalized upon completion of the Phase I development. It is recommended that right of way be provided for a future through lane east/west to provide connectivity to the east. By the opening year 2020, a single 300-foot northbound left-turn lane is warranted, as well as a single 200-foot left-turn and right-turn lanes eastbound. Additional right-of-way will be provided and striped out for the proposed future lanes required for an acceptable level of service.

Queue Storage

- As shown in **Table 11**, the existing storage lengths at the existing intersections are not anticipated to accommodate the additional traffic generated in 2030. Additional storage length calculations should be completed prior to traffic signal installation, a change in intersection stop control or installation of raised medians.
- It is recommended all proposed site access driveways along Legacy Boulevard, Hayden Road, Miller Road, Cavasson Boulevard and Claret Drive provide a

minimum of 150-foot turn lanes at intersections regardless of intersection control so long as they are not encumbered by upstream intersections or utility conflicts. Locations with restrictions or where additional storage beyond the calculations included in this report are discussed below.

- Proposed ¾ site **Access G,** located just north of site Access M and south of Legacy Boulevard along Hayden Road, is recommended to provide a minimum 150-foot northbound left-turn lane as well as a 100-foot southbound dedicated right-turn lane. An upstream intersection restricts the ability to provide additional southbound right turn storage.
- Proposed ¾ site **Access H** located just north of the Hayden Road/Loop 101 interchange along Hayden Road is recommended to provide a minimum 100-foot northbound left-turn lane as well as a 150-foot southbound dedicated right-turn lane. The presence of a storm drain inlet conflict restricts the ability to provide additional northbound left turn queue storage.
- Proposed ¾ site **Access I**, located just north of the Loop 101 frontage road on Claret Drive is recommended to provide a 55-foot northbound right turn lane. This is restricted from further queue storage due to the proximity of the frontage road. A southbound left turn storage of 100 feet is recommended; this length is restricted by the need to provide a back to back left turn lane (northbound storage) into Access J.
- Proposed main site **Access M** (Hayden Road/Cavasson Boulevard) is planned as a signalized intersection at the opening of the proposed Cavasson Phase I development. Access M is located between Legacy Boulevard and north of Access H along Hayden Road and is planned to provide 300-feet of queue for dual northbound left-turn lanes as well as 225-feet for a dedicated southbound right-turn lane. Internally, the development should provide a minimum of 200-feet of storage for the eastbound dual left-turn and a single right-turn lane. Additional pavement will be provided and striped out for the proposed future ultimate lane alignment for connectivity to the east.
- **Access K** (Cavasson Boulevard/Claret Drive) is an internal signalized intersection with permitted phasing in all approaches. The provision of 150-foot southbound and eastbound left-turn lanes, a 300-foot westbound left-turn lane and a 200-foot northbound left-turn lane are recommended. It is also recommended that a 200-foot northbound right-turn lane, 180-foot westbound right-turn lane and 150-foot eastbound and southbound right-turn lane be provided by full build of the Cavasson development.
- **Access B** (Miller Road/Cavasson Boulevard) is a planned signalized intersection with permitted/protected phasing. A 300-foot westbound left-turn and right-turn lane, as well as a southbound 225-foot southbound left-turn lane are recommended. As the area is built out with connectivity to the south along Miller Road, it is recommended that the future queue length for the westbound and northbound left-turn lanes and northbound right-turn lane be constructed to provide a minimum storage of 150-feet.
- **Access A** and **Access C** both are recommended to provide 100-foot southbound left-turn lanes and well as 100-foot northbound dedicated right-turn lanes. The

presence of back to back turn lanes and likely retaining walls from the Miller Road underpass may restrict the ability to provide more storage at these locations.

- The intersection of **Miller Road and Legacy Boulevard** is planned to be signalized upon buildout of the Cavasson development ultimately providing dual 250-foot northbound left-turn lanes as well as a dedicated northbound right-turn lane. Although the reported volumes documented within this report do not show a need for dual northbound left-turn lanes it is CivTech's understanding the planned area analyzed within this report does not include some portions of future development within the study area. As such, longer queues and dual lanes are recommended.

Sight Distance

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

LIST OF REFERENCES

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

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

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

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

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

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

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

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

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

TECHNICAL APPENDICES

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

APPENDIX A

REVIEW COMMENTS (RESERVED)

Ruth Gutierrez

From: Ostler, Douglas <DOstler@Scottsdaleaz.gov>
Sent: Wednesday, March 27, 2019 6:30 PM
To: Michael S. Wolf; Ruth Gutierrez
Cc: Kercher, Phillip; Hayes, Eliana; Bloemberg, Greg
Subject: Nationwide/Cavasson

Michael and Ruth,
Thank you for meeting with us today. This email is a follow-up to our conversation as well as with my conversation with the traffic department. I believe I summarized all issues we spoke about and there is a change, a clarification and a confirmation that I added following further review. (see bike lanes, detached sidewalks and Traffic Impact and Analysis respectively).

Cross Sections
Cavasson Boulevard and Claret Drive,
Given their characteristics of a collector roadway, the proposed cross sections for Cavasson Boulevard and Claret Drive do not adequately facilitate the class of bicyclists that ride on roadways. Both roadways should conform to an appropriate typical cross section as provided in the DSPM. The developer may provide certain improved elements (such as multi-use paths and landscaping) but not eliminate standard elements (such as bike lanes) of cross sections used. Typical suburban minor collectors also include a landscaped median – sections on both roadways that currently show two-way left turn lanes will be required to provide raised medians where appropriate are required with future construction when driveway locations are finalized. Indicate so on cross sections. See *DSPM 5-3.105 B* and *Figure 5-3.13*

Hayden Road
Typical standard bike lane widths on arterial roads is 7' from back of curb to center of stripe. Reduce one of the through lanes by 1' to give to the bike lane – either from the middle through lane or, if appropriate, matching the transition to the Loop 101 interchange approaches. See *DSPM 5-3.101 B* and *Figure 5-3.2*

Miller Road
Our current standard cross section for suburban major arterial roads includes a raised median. Indicate in cross section that a raised median may be required with future construction when driveway locations are finalized. If a flush median is required per project stipulations, it is my preference to provide a portion of the extra width of a 72' (B/C to B/C) cross section to give bicyclists a 7' lane (B/C to center of stripe) instead of a 6' lane due to presence and/or proximity of elevation changes associated with the future underpass. See *DSPM 5-3.104 B Figure 5-3.9*

Detached Sidewalks (Cavasson Boulevard and Miller Road)
The detached sidewalks on Cavasson Boulevard and Miller Road appear to meander intentionally, regularly and substantively. "While meandering sidewalks have aesthetic appeal, they tend to negate an efficient and effective pedestrian travel environment. Meandering sidewalks should be limited to areas where latent demand is low or where topography or site conditions require deviation from a straight configuration." (*DSPM 5-8.200)* Also, detached sidewalks and paths should not come within 5' of the edge of roadway. See also *DSPM 5-8.202 A, Figure 5-7.5*, *Figure 5-7.6*

Future Access Conditions of Adjacent Parcel
The northbound left turn lanes on Scottsdale Road approaching Cavasson Boulevard provide much more storage than what is required based on the Traffic Impact and Mitigation Analysis (total provided: 700', total queue projected: 325') – this appears to prevent a future left turn lane for future development of the parcel to the east of Hayden Road. Review necessary storage for opening year (as a single lane is proposed with the second striped out in opening) and the horizon year and revise proposed conditions so as to not restrict access unnecessary.

The EB through lane on Cavasson Boulevard feeds into a left turn lane approaching Scottsdale Road. The through movement west of Scottsdale road should instead feed into the future through movement approaching Scottsdale Road. Also, review 2030 conditions projected in the TIMA and determine if 1 exclusive through lane and 1 exclusive right turn lane is appropriate.

Minimum Turn Lane Lengths

The standard turn lane length is 150' unless additional storage is required. In normal circumstances, a turn lane may be reduced down to a minimum of 100' if circumstance prevent practical construction of the 150' standard. If 150' is not practical, the turn lane should be maximized to what is practical, not immediately toggled from 150' to 100'. There are a number of instances on Hayden Road and on Legacy Road that indicate 100' turn lane lengths that appear to have more than 100' available and/or are not noted in the TIMA that standard lengths are not possible. Please review and correct where appropriate. See *DSPM 5-3.123 E*

Traffic Impact & Mitigation Analysis

Modifications to the TIMA should be made as necessary given the items above, plus any corrections necessary for LOS and queuing tables. A TIMA amendment may adequately address the changes so long as the above items are followed as expected.

Thanks!

Doug Ostler -- Traffic Engineer
Office: 480-312-7250
Direct: 480-312-7724
CITY OF SCOTTSDALE

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

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

Item	Location	Code	Review Comment	(Code) & Response
1.	Cross Sections	2	***Cavasson Boulevard and Claret Drive*:** Given their characteristics of a collector roadway, the proposed cross sections for Cavasson Boulevard and Claret Drive do not adequately facilitate the class of bicyclists that ride on roadways. Both roadways should conform to an appropriate typical cross section as provided in the DSPM. The developer may provide certain improved elements (such as multi-use paths and landscaping) but not eliminate standard elements (such as bike lanes) of cross sections used. Typical suburban minor collectors also include a landscaped median – sections on both roadways that currently show two-way left turn lanes will be required to provide raised medians where appropriate are required with future construction when driveway locations are finalized. Indicate so on cross sections. See DSPM 5-3.105 B and Figure 5-3.13	The cross sections shown for Cavasson Blvd. and Claret Drive are the cross sections that were agreed upon during the initial discussions and scoping meeting of the project during the summer of 2018. It was the city's suggestion to add the 10' multi-use paths on the north side of Cavasson and either the east or west side of Claret to provide a path for bikes. This was confirmed in the Oct. 2 meeting with Emily Appleton. This is not a typical suburban development. The density and scale are beyond those found in suburban developments. The street sections were developed to share the greatest amount of streetscape to the cyclists and pedestrians and to allow for access flexibility as the development evolves.
2.	Cross Sections	1	***Hayden Road*:** Typical standard bike lane widths on arterial roads is 7' from back of curb to center of stripe. Reduce one of the through lanes by 1' to give to the bike lane – either from the middle through lane or, if appropriate, matching the transition to the Loop 101 interchange approaches. See DSPM 5-3.101 B and Figure 5-3.2	Agreed. The Hayden Road Plans have been updated to show 7' bike lanes by reducing the center lane by 1'.
3.	Cross Sections	1	***Miller Road*:** Our current standard cross section for suburban major arterial roads includes a raised median. Indicate in cross section that a raised median may be required with future construction when driveway locations are finalized. If a flush median is required per project stipulations, it is my preference to provide a portion of the extra width of a 72' (B/C to B/C) cross section to give bicyclists a 7' lane (B/C to center of stripe) instead of a 6' lane due to presence and/or proximity of elevation changes associated with the future underpass. See DSPM 5-3.104 B Figure 5-3.9	Note has been added to the Miller Road plans that a raised median may be required or re-evaluated in the future. Additionally, bike lanes have been changed to be 7' bike lanes.

Reviewed Date: 03/27/2019
CivTech Received Date: 03/27/2019
CivTech Entered Date: 04/02/2019
CivTech Response Date: 04/04/2019

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

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

Item	Location	Code	Review Comment	(Code) & Response
4.	Detached Siewalks	2	***Cavasson Boulevard and Miller Road***: The detached sidewalks on Cavasson Boulevard and Miller Road appear to meander intentionally, regularly and substantively. "While meandering sidewalks have aesthetic appeal, they tend to negate an efficient and effective pedestrian travel environment. Meandering sidewalks should be limited to areas where latent demand is low or where topography or site conditions require deviation from a straight configuration." (DSPM 5-8.200) Also, detached sidewalks and paths should not come within 5' of the edge of roadway. See also DSPM 5-8.202 A, Figure 5-7.5, Figure 5-7.6	All sidewalks are a minimum of at least 5' from adjacent roadways, except at crossing ramps, where we need to tie back in. We can discuss the amount of meandering of the sidewalks before we submit construction plans for the roadways.
5.	Access M - Hayden Rd. & Cavasson Blvd.	1	***Future Access Conditions of Adacent Parcel***: The northbound left turn lanes on Hayden Road approaching Cavasson Boulevard provide much more storage than what is required based on the Traffic Impact and Mitigation Analysis (total provided: 700', total queue projected: 325') – this appears to prevent a future left turn lane for future development of the parcel to the east of Hayden Road. Review necessary storage for opening year (as a single lane is proposed with the second striped out in opening) and the horizon year and revise proposed conditions so as to not restrict access unnecessary.	Nortbound lanes have been reanalyzed and reduced to 300-feet per plane.
6.	Access M - Hayden Rd. & Cavasson Blvd.	1	***Future Access Conditions of Adacent Parcel***: The EB through lane on Cavasson Boulevard feeds into a left turn lane approaching Hayden Road. The through movement west of Hayden road should instead feed into the future through movement approaching Hayden Road. Also, review 2030 conditions projected in the TIMA and determine if 1 exclusive through lane and 1 exclusive right turn lane is appropriate.	Proposed lanes have ben revised to show ROW for EB thru lane with a dedicated right-turn lane in the interim and full build scenerio. The Thru lane will be provided once development to the east of Hayden is compelted.

Reviewed Date: 03/27/2019
CivTech Received Date: 03/27/2019
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Disposition Codes: (1) Will Comply (2) Will Evaluate (3) Delete Comment (4) Defer to Consultant/Owner

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

Item	Location	Code	Review Comment	(Code) & Response
7.	Minimum Turn Lane Lengths	1	The standard turn lane length is 150' unless additional storage is required. In normal circumstances, a turn lane may be reduced down to a minimum of 100' if circumstance prevent practical construction of the 150' standard. If 150' is not practical, the turn lane should be maximized to what is practical, not immediately toggled from 150' to 100'. There are a number of instances on Hayden Road and on Legacy Road that indicate 100' turn lane lengths that appear to have more than 100' available and/or are not noted in the TIMA that standard lengths are not possible. Please review and correct where appropriate. See DSPM 5-3.123 E	All proposed turn lanes have been revised to show a minimum 150-foot queue per City standards.
8.	Traffic Impact & Mitigation Analysis	1	Modifications to the TIMA should be made as necessary given the items above, plus any corrections necessary for LOS and queuing tables. A TIMA amendment may adequately address the changes so long as the above items are followed as expected.	Agreed

Reviewed Date: 03/27/2019
CivTech Received Date: 03/27/2019
CivTech Entered Date: 04/02/2019
CivTech Response Date: 04/04/2019

CITY OF SCOTTSDALE

February 8, 2019

Michael Wolf
Hubbard Engineering
1201 S. Alma School Rd Ste 12000
Mesa, AZ 85210

RE: 314-SA-2018
Crossroads Planning Unit V (Nationwide)

Mr. Wolf:

The Planning & Development Services Division has completed review of the above referenced development application resubmitted on 1/24/19. The following **2nd Review Comments** represent the review performed by our team and are intended to provide you with guidance for compliance with city codes, policies, and guidelines related to this application. **Please note: As of date of this letter, Water Resources has not completed review of the Water/Waste Water MP. Additional comments may be forthcoming.**

Significant Policy Related Issues

The following policy related issues have been identified in the second review of this application. Even though some of these issues may not be critical, they may affect the City Staff's decision pertaining to the application and should be addressed with the resubmittal. Please address the following:

Transportation:

1. Page 1, Paragraph 1 (4th paragraph): Land use sizes in sentence appear to reference added units and square footage with Phase II of the project, not totals at build-out. For clarity, please indicate the total units/square footage for the entire site in the executive summary.
2. Page 1, 1st and 4th bullets: Please verify trip generation and match with Tables 4 and 5 and associated narratives.
3. Page 9, Queue Storage 3rd bullet: 150' for northbound left is recommended here, 100' recommended on page 82. Additionally, there are variances within applicable text, Table 10, Figures 12A-12C, and/or conceptual roadway layout within Appendix K. Please verify recommendations for the turn lanes are recommended, the recommended lengths of turn lanes and which turn lanes the developer will be constructing/extending. If the recommendations differ from the conceptual roadway layout that is included in Appendix K, please add note either on or prior to the conceptual roadway layout indicating that the indicated lengths and lane configurations may not match what is recommended.

4. Figure 2B, Intersections 14 and 15: A bike lane is now indicated northbound approaching the westbound ramps, and southbound approaching the eastbound ramps (resolving a past comment); however, no bike lane is striped adjacent to right turn lanes at either intersection. Please verify and correct as needed.

5. Page 32, Access A, C and I: Access A and C are described here and depicted in Figure 12C as ¾-access driveways however volumes shown in Figures 7C and 11C and analysis reports in Appendix J suggest full access. Similarly, Access I is described as a ¾-access driveway in Phase I, though the west leg in Phase II is depicted as full access in Phase II Figures 7C and 11C and analysis reports in Appendix J. Please verify the proposed conditions and update text or volume projections and analysis.

6. Page 32, Access I: This driveway does not meet the COS DSPM standard distance of 330 feet from the intersection. Staff is concerned that full access on west leg requires a configuration of intersection that could allow drivers to perform restricted movements (see roadway layout included in Appendix K); particularly if/when the southbound queue on Claret Drive approaching the frontage road extends past Intersection I. AASHTO methodology, while potentially conservative in this instance, suggests 375' for the 429 vehicles projected to egress southbound at Intersection I during the peak hour. Intersection I appears to be roughly 200' to the north. Please move the access point a minimum of 250 feet from the intersection curb line at the frontage road.

7. Table 10: Several updates are requested/may be required for this table. Please consider the following:

    - For dual left turn lanes the existing AASHTO/ADOT and Synchro columns appear to be the length of each turn lane and the total queue storage for both turn lanes in the Minimum Recommended Queue and Proposed Developer Queue columns; however one footnote is used for both types. Consider using separate footnotes or presenting lengths in the same manner.

    - Table title includes "Turn Lane Length" yet ADOT calculations per footnote 7 reference queue length, not turn lane length. Consider calling out turn lane length in the future.

    - Proposed Developer Queue has some instances where a length is not provided for some movements that are not likely proposed by the developer (such as the westbound left turn lane at Intersection 4 – Hayden/Legacy). Please verify proposed conditions as well as consistency with Figures 12A-12C.

    - Scottsdale standard turn lane length is 150' with 100' minimum regardless of traffic control (see Section 5-3.206 of the DSPM). If 150' is adequate, please provide 15' where possible. If 150' is not possible or not proposed, please briefly indicate this and why by footnote or in narrative.

    - Footnote 4 may need to be revised. Projected queue percentiles may be helpful for decision making, though using a 50th percentile projected queue suggests that it is inadequate for roughly 50% of all cycles during peak hour.

8. Figure 13: This figure could be interpreted as providing a bike lane and sidewalk on only one side of indicated streets. Consider changing the items in the legend (i.e. "Bike Lane" to "Bike Lane on Both Sides of Roadway" or providing the color lines on both sides of the roadways. Additionally, the cross-sections in Figure 14 do not indicate bike lanes are provided on Cavasson Boulevard or Claret Drive. Similarly, Figure 14 provides one cross-section for Miller

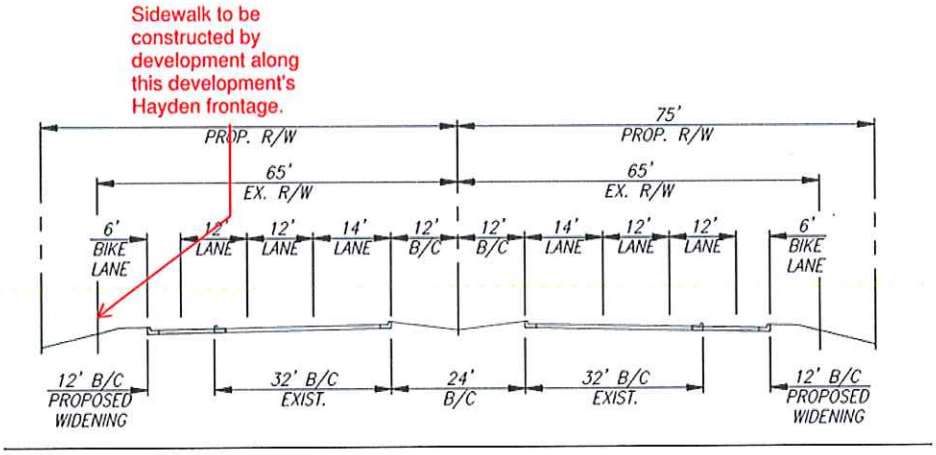
Road, suggesting bike lanes are provided along its entire length. Please verify proposed conditions and update as needed.

9. Figure 14: This figure includes what may be an outdated map. Some instances of called-out turn lane lengths, illustrated lane configurations and missing or additional driveways appear to differ from recommendations made elsewhere in the TIMA. Consider removing the map from the figure, updating the map to match recommendations or noting that it is a prior conceptual plan that does not indicate proposed conditions/recommendations.
10. Appendices: Please verify intended appendix contents are included. Irregularities were noted in Appendix I's mitigated scenarios for Intersections 5 and 6, Appendix J's total and total mitigated scenarios for Intersection 4 and Appendix K's synchro queuing report for the PM peak hour. Please revise tables and narratives as needed.

Engineering:

Transportation MP

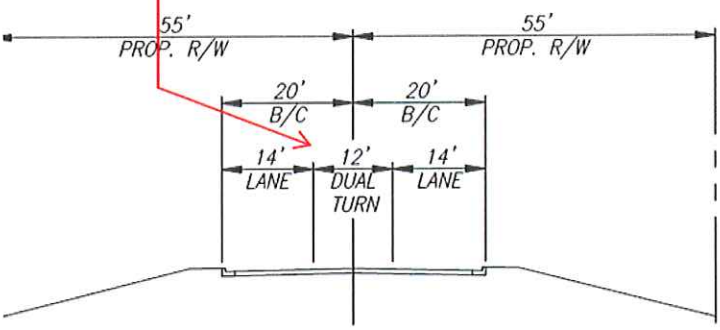
11. Hayden Road: should include a sidewalk constructed with the project. Please update the report accordingly.



13. Cavasson Boulevard: Should be consistent with the Major Collector cross-section, including bike lanes and sidewalk. Please update report accordingly.

Why isn't this median separated per Major collector standard cross-section. bike lanes + sidewalks required, update cross section accordingly.

ROPOSED ROADWAY SECTION
HAYDEN ROAD



PROPOSED ROADWAY SECTION
CAVASSON BOULEVARD

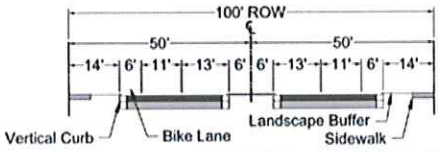
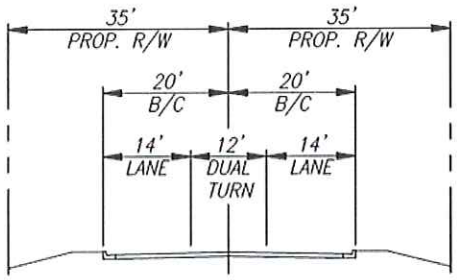


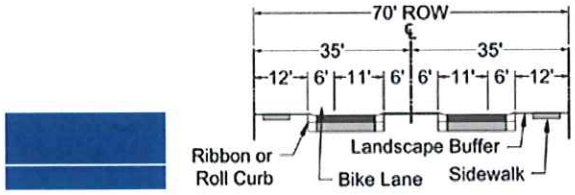
FIGURE 5-3.9 MAJOR COLLECTORS -- SUBURBAN CHARACTER

14. Claret Drive: Should be consistent with the Minor Collector cross-section, including bike lanes and sidewalks. Please update report accordingly.

Why isn't this median separated per Minor Collector standard cross-section. bike lane + sidewalks required, update cross-section accordingly.

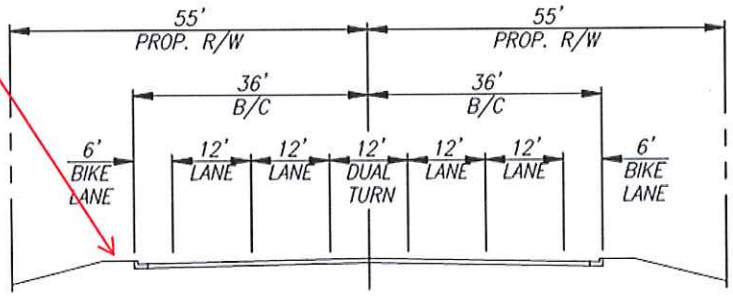


PROPOSED ROADWAY SECTION
CLARET DRIVE



15. Miller Road: Sidewalk required. Please update report accordingly.

sidewalk required, update cross section accordingly.



PROPOSED ROADWAY SECTION
MILLER ROAD

16. Figure 13: Pedestrian and Bike Routes should be updated with sidewalks along all adjacent and interior corridors. Additionally, trails through the development should also be addressed. Please update report accordingly.

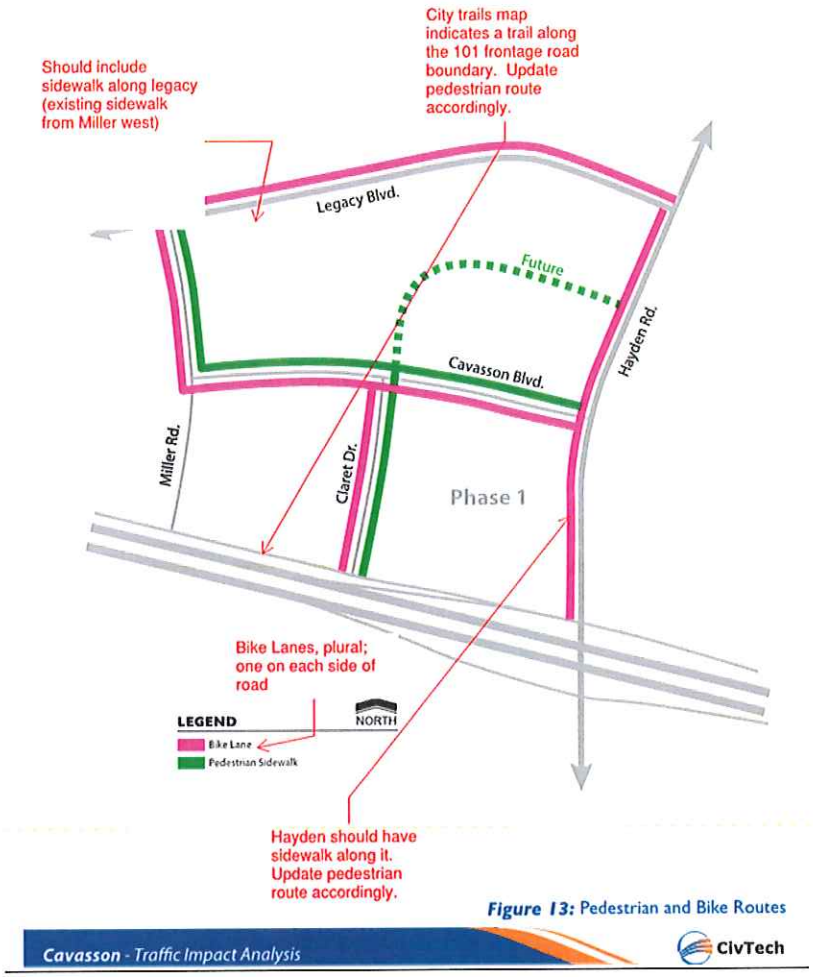


Figure 13: Pedestrian and Bike Routes

Water/Sewer MP

17. The depth to diameter ratio (d/D) for gravity pipes 12 inches in diameter or less shall not exceed 0.65 in the ultimate flow condition. This d/D ratio includes an allowance for system infiltration and inflow. For gravity drains greater than 12 inches in diameter, the d/D shall not exceed 0.70 for the ultimate peak flow condition. This also includes an allowance for system infiltration and inflow. Why is system be analyzed at a d/D of 0.9?? Please explain.

4.2 Flow Depth

As described in the City of Scottsdale's *Design Standards and Policies Manual* and the *City of Scottsdale Water Use Master Plan Update 2012*, it is common practice to adopt variable depth criteria for various pipe sizes, expressed as a ratio of maximum depth flow (d) to pipe diameter (D) (Ref. 1, p.515). New sewer lines with a diameter greater than 12-inch are not to exceed a ratio of 0.70 for the ultimate peak flow condition, as this allows for system infiltration and inflow. Analysis of existing lines will assume a maximum permissible ratio of 0.9. The design ratios (d/D) for each pipe section within the study area were calculated for future build-out conditions. A summary of these calculations can be found in **Appendix A**.

Please resubmit the revised application requirements and additional information identified in Attachment A, Resubmittal Checklist, and a written summary response addressing the comments/corrections identified above as soon as possible for further review. The City will then review the revisions to determine if a decision regarding the application may be made, or if additional modifications, corrections, or additional information is necessary.

PLEASE CALL 480-312-7000 TO SCHEDULE A RESUBMITTAL MEETING WITH ME PRIOR TO YOUR PLANNED RESUBMITTAL DATE. DO NOT DROP OFF ANY RESUBMITTAL MATERIAL WITHOUT A SCHEDULED MEETING. THIS WILL HELP MAKE SURE I'M AVAILABLE TO REVIEW YOUR RESUBMITTAL AND PREVENT ANY UNNECESSARY DELAYS. RESUBMITTAL MATERIAL THAT IS DROPPED OFF MAY NOT BE ACCEPTED AND RETURN TO THE APPLICANT.

The Planning & Development Services Division has had this application in review for 33 Staff Review Days since the application was determined to be administratively complete.

These **2nd Review Comments** are valid for a period of 180 days from the date on this letter. The Zoning Administrator may consider an application withdrawn if a revised submittal has not been received within 180 days of the date of this letter (Section 1.305. of the Zoning Ordinance).

If you have any questions, or need further assistance please contact me at 480-312-4306 or at gbloemberg@ScottsdaleAZ.gov.

Sincerely,

Greg Bloemberg
Senior Planner

cc: case file

ATTACHMENT A
Resubmittal Checklist

Case Number: **314-SA-2018**

Please provide the following documents, in the quantities indicated, with the resubmittal (all plans larger than 8 ½ x11 shall be folded):

Digital submittals shall include one copy of each item identified below.

☒ Other Supplemental Materials:
Revised Transportation MP

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

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

Item	Location	Code	Review Comment	Response
1.	Page 1	1	Paragraph 1 & 4th sentence – Land use sizes described in sentence appear to reference added units & square footage with Phase 2 of the project, not the totals of full build. For clarity, please indicate the total units/SF of the entire site within the executive summary.	Text has been updated to clarify full buildout of site will be upon completion of Phase 2. Total units and square footage of site have been provided within the Executive summary. We anticipate that we will come back with sub phase reviews in the future should the development parcels be further divided.
2.	Page 1	1	1st and 4th bullets – please verify trip generation and match with Tables 4 and 5 and associated narratives.	Executive summary updated to match Table 4 and Table 5 within the text.
3.	Page 9	1	Queue Storage 3rd bullet 150' for NB left is recommended here, 100' recommended on page 82. In addition, the reviewer noticed variances within applicable text, Table 10, Figures 12A-12C, and/or the conceptual roadway layout within Appendix K. Please verify recommendations for that turn lanes are recommended, the recommended lengths of the turn lanes, and which turn lanes the developer will be constructing/extending. If the recommendations differ from the conceptual roadway layout that is included in Appendix K, please add a note either on or prior to the conceptual roadway layout indicating that the indicated lengths and lane configurations may not match what is recommended.	All Text, analysis and figures will be updated to show consistent recommendations. Where possible, 150' was provided. In a few locations, where not feasible, 100' was recommended. Conflicts at these locations is now discussed within the TIMA.
4.	Figure 2B	1	Intersections 14 and 15 – a bike lane is now indicated NB approaching the WB ramps and SB approaching the EB ramps (resolving a past comment); however, no bike lane is striped adjacent to right turn lanes at either intersection. Please verify and correct if necessary.	There is an existing bike lane under the freeway bridge in both the SB/NB approaches. However, the NB approach to the EB ramps does not provide bike lane striping, but does provide sufficient pavement for a bike lane to be striped. The symbol on these approaches has been removed from the existing conditions graphic.
5.	Page 32	1	Access A, C and I – Access A and C are described here and depicted in Figure 12C as ¾-access driveways but volumes shown in Figures 7C and 11C and analysis reports in Appendix J suggest full access. Similarly, Access I is described as a ¾-access driveway in Phase 1, though the west leg in Phase 2 is depicted with full access in Phase 2 in Figures 7C and 11C and analysis reports in Appendix J. Please verify proposed conditions and update text or volume projections and analysis.	Traffic at Access C and Access I will be revised to reflect the 3/4 access. Access A is planned as a full access and has been noted to review the sight distance available for this movement once the design of the Miller Road underpass is complete.

Reviewed Date:
CivTech Received Date:
CivTech Entered Date:
CivTech Response Date:

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

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

Item	Location	Code	Review Comment	Response
6.	Page 32	1	Access I: This driveway does not meet the COS DSPM standard distance of 330-ft from an intersection. COS transportation staff are concerned that full access on west leg requires configuration of intersection that could allow drivers to perform restricted movements (see roadway layout included in Appendix K), particularly if/when the southbound queue on Claret Drive approaching the frontage road extends past Intersection I. AASHTO methodology, while potentially conservative in this instance, suggests 375' for the 429 vehicles projected egressing SB at Intersection I during the PM peak hour. Intersection I appears to be roughly 200' to the north. Please move the access point a minimum of 250-ft from the intersection curb line at the frontage road.	Access I has been reevaluated with restricted access RI/RO/LI only.
7.	Table 10		Several updates are requested/may be necessary for this table. Please consider the following:	
		1	a. For dual left turn lanes, the existing, AASHTO/ADOT and Synchro columns appear the length of each turn lane and the total queue storage for both turn lanes in the Minimum Recommended Queue and Proposed Developer Queue columns, but one footnote is used for both types. Consider using separate footnotes or presenting lengths in the same manner.	Footnotes have been updated however, the dimensions in the recommended and proposed column have also been updated to provide the queue for each lane so that the table remains consistent.
		1	b. Table title includes "Turn Lane Length" yet ADOT calculations per footnote 7 reference queue length, not turn lane length. Consider calling out turn lane length in the future.	The table title has been updated to reflect "Queue Length" since the City builds the queue as the required length assuming more braking is allowed in the through lane. The total storage length to be designed by the roadway engineer will need to be calculated to include braking distance.
		1	c. Proposed Developer Queue has some instances where a length is not provided but likely should be (such as at some site driveways) and lengths provided for some movements that are not likely proposed by the developer (such as the westbound left turn at intersection 4 – Hayden/Legacy). Please verify proposed conditions as well as consistency with Figures 12A-12C.	Text has been updated to reflect queue lengths for additional movements as well as to provide consistency.
		1	d. Scottsdale standard turn lane length is 150' with 100' minimum regardless of traffic control (See DS&PM 5-3.206). If 150' is adequate, please provide 150' where possible. If 150' is not possible or not proposed, please briefly indicate this and why by footnote or in narrative.	Recommended minimums have been updated, where possible, as well as the Queue storage foot note.

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

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

Item	Location	Code	Review Comment	Response
		1	e. Footnote 4 may need to be revised – projected queue percentiles may be helpful for decision making, though using a 50th percentile projected queue suggests that it is inadequate roughly 50% of all cycles during the peak hour.	Understood, projected queues will be reviewed and used to update footnote 4 if needed.

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

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

Item	Location	Code	Review Comment	Response
8.	Figure 13	1	This figure could be interpreted as providing a bike lane and sidewalk on only one side of indicated streets. Consider changing the items in the legend (i.e. "Bike Lane" to "Bike Lane on Both Sides of the Roadway" or providing the color lines on both sides of the roadways. Also, the cross sections in Figure 14 do not indicate bike lanes are provided on Cavasson Boulevard or Claret Drive. Similarly, Figure 14 provides 1 cross section for Miller Road (suggesting bike lanes are provided along its entire length). Please verify proposed conditions and make updates where applicable.	Figure 13 will be updated to clarify the locations of bike lanes and sidewalks. The cross sections and Figure 13 will be reviewed for consistency and revised as needed. There are three attachments now included in Appendix M addressing the cross sections: 4346 – Exhibit 1 shows a chart indicating that Internal Commercial Roads – Local Commercial should be 40' BC-BC. 11147 – Attachment No. 4 shows the classification of Cavasson as a Minor Collector and Claret as a Local Collector. 11147 – Exhibit A shows a section in Cavasson with a 20' dimension from centerline to BC (for total of 40' BC-BC, consistent with 4346 – Exhibit 1).
9.	Figure 14	1	This figure includes what may be an outdated map. Some instances of called-out turn lane lengths, illustrated lane configurations, and missing or additional driveways appear to differ from recommendations made elsewhere in the TIMA. Consider removing the map from the figure, updating the map to match recommendations, or noting that it is a prior conceptual plan that does not indicate proposed conditions/recommendations.	The map shown in Figure 14 has been updated to reflect the changes associated with these review comments. Queue lengths and lanes have been updated to show the proposed future needs and be consistent with the latest recommendations.
10.	Appendices	1	Please verify intended appendix contents are included. Irregularities were noted in Appendix I's mitigated scenarios for Intersections 5 & 6, Appendix J's total and total mitigated scenarios for Intersection 4 and Appendix K's synchro queueing report for the PM peak hour. Please revise tables and narratives as needed.	All appendix have been updated/revised based on updated analysis and revisions per city comments.
11.	Transportation Masterplan		Hayden Road: should include a sidewalk constructed with the project. Please update the report accordingly.	The report has been updated to include a sidewalk on the west side of Hayden Road along the frontage of the property.
13.	Transportation Masterplan		Cavasson Boulevard: Should be consistent with the Major Collector cross-section, including bike lanes and sidewalk. Please update report accordingly.	The report includes an updated typical section for Cavasson Boulevard. The section does not include bike lanes, includes sidewalk on the south side and a 10' multi-use path on the north side. Please see Appendix M for previous council resolutions in regard to this typical section.
14.	Transportation Masterplan		Claret Drive: Should be consistent with the Minor Collector cross-section, including bike lanes and sidewalks. Please update report accordingly.	The report include an updated typical section for Claret which includes sidewalk on the west side and a 10' multi-use path on the east side. No bike lanes are planned on Claret. Please see Appendix M for previous council resolutions in regard to this typical section.
15.	Transportation Masterplan		Miller Road: Sidewalk required. Please update report accordingly.	The report was updated to include sidewalk on both the east and west sides of Miller Road north of Cavasson Boulevard.

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

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

Item	Location	Code	Review Comment	Response
16.	Figure 13		Pedestrian and bike routes should be updated with sidewalks along all adjacent and interior corridors. Additionally, trails through the development should also be addressed, Please update report accordingly.	Figure 13 has been updated to reflect the latest typical sections shown for the project along with previous council resolution on the typical sections as shown in Appendix M. Sidewalk was added along Legacy and along the northern boundary of the Loop 101 frontage road. After several reviews of the Trails Map, no trails seem to be located within the Cavasson development boundaries.

Ruth Gutierrez

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

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks,
Dawn

Dawn Cartier, P.E., PTOE
President

CivTech

CivTech Inc.
10605 N. Hayden Road, Suite 140
Scottsdale, Arizona 85260

(480) 659-4250 phone
(480) 659-0566 fax
(602) 908-7400 cell

dcartier@civtech.com
www.civtech.com

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

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

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

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

Emily Appleton
Senior Traffic Engineer
City of Scottsdale
Office 480.312.7613

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

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

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

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

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

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

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

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

APPENDIX B

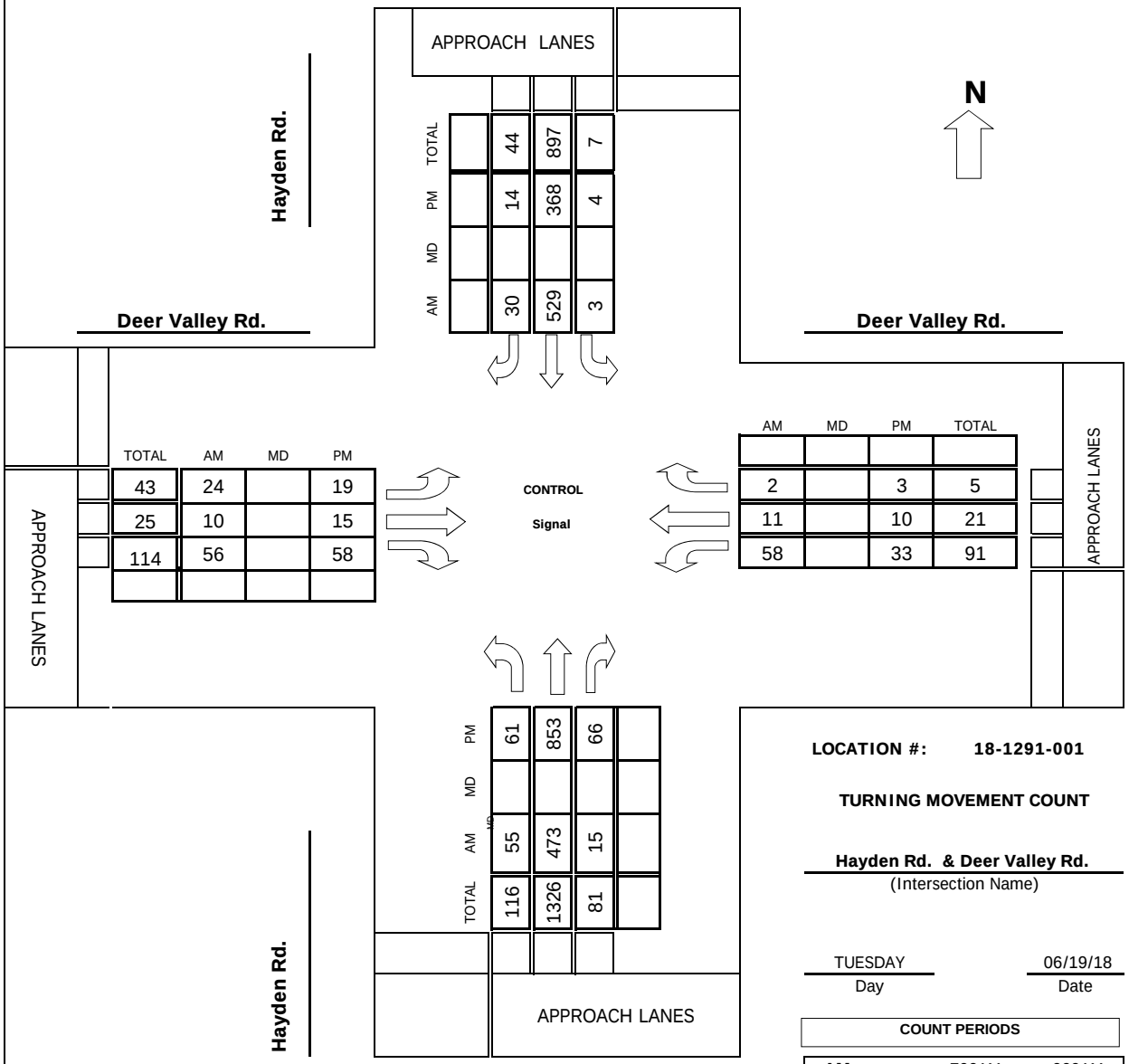
EXISTING TRAFFIC COUNTS

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-001

TMC SUMMARY OF Hayden Rd. & Deer Valley Rd.



LOCATION #: 18-1291-001

TURNING MOVEMENT COUNT

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

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

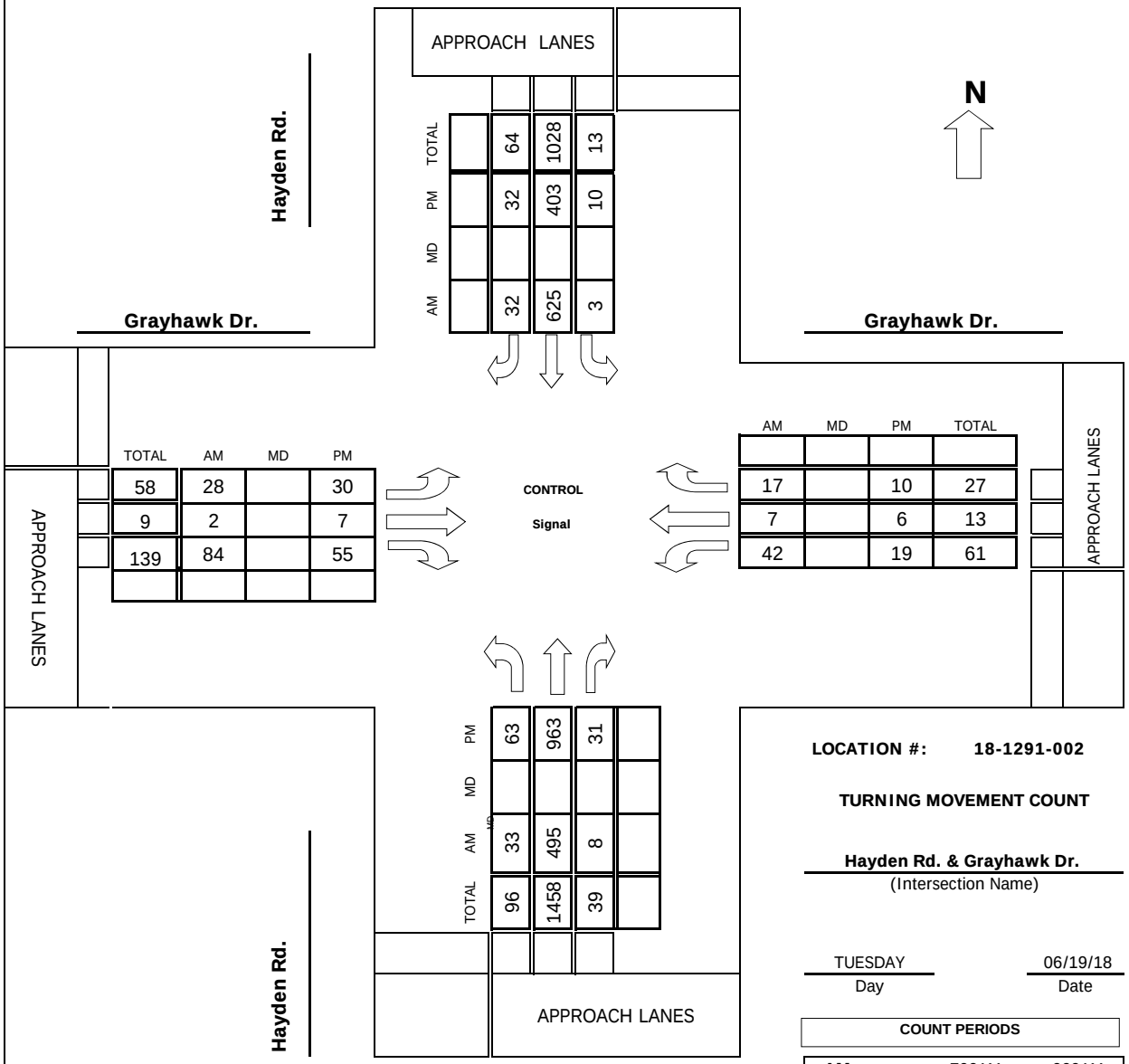
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-002

TMC SUMMARY OF Hayden Rd. & Grayhawk Dr.



LOCATION #: 18-1291-002

TURNING MOVEMENT COUNT

Hayden Rd. & Grayhawk Dr.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

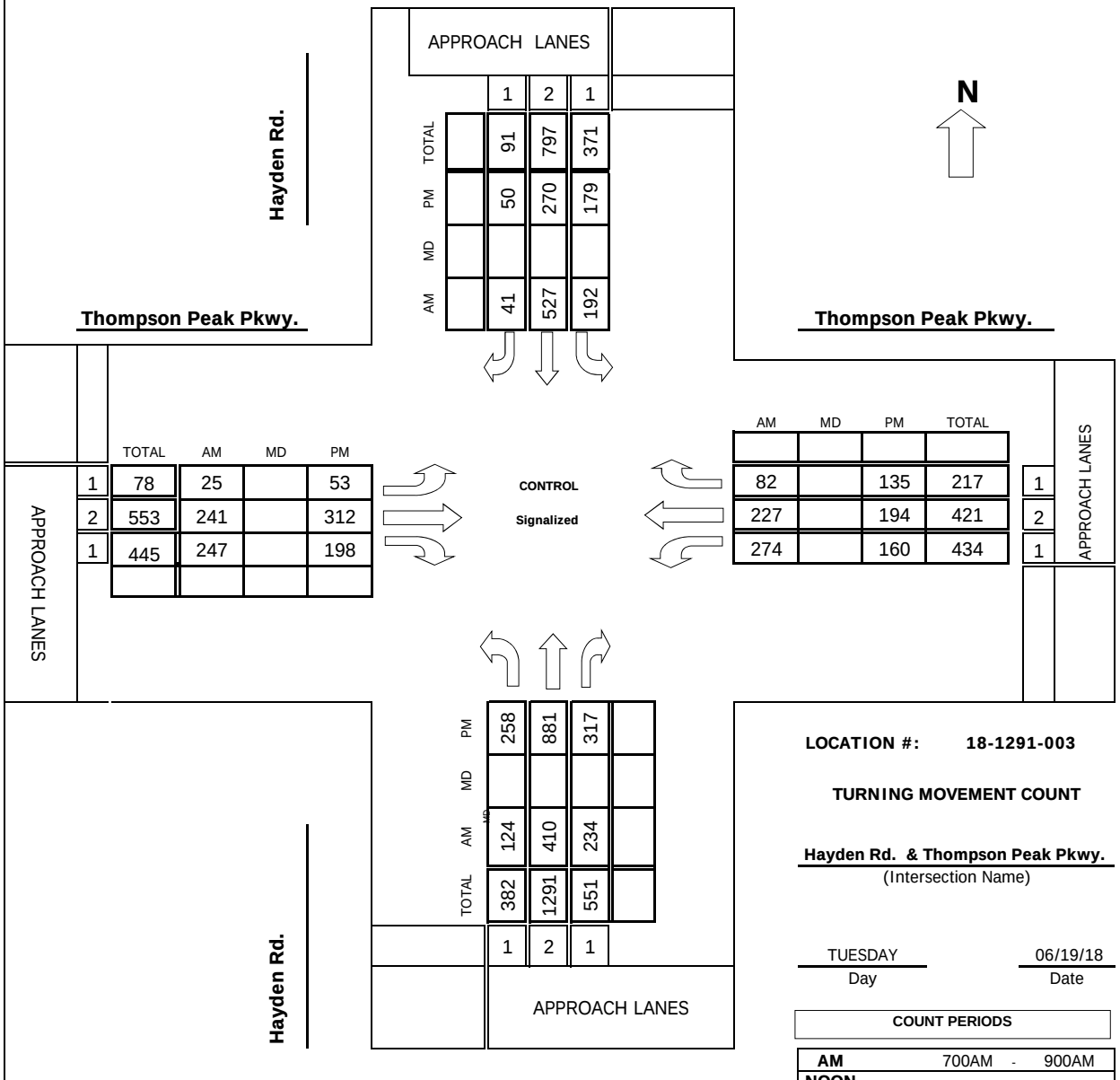
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-003

TMC SUMMARY OF Hayden Rd. & Thompson Peak Pkwy.



LOCATION #: 18-1291-003

TURNING MOVEMENT COUNT

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

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

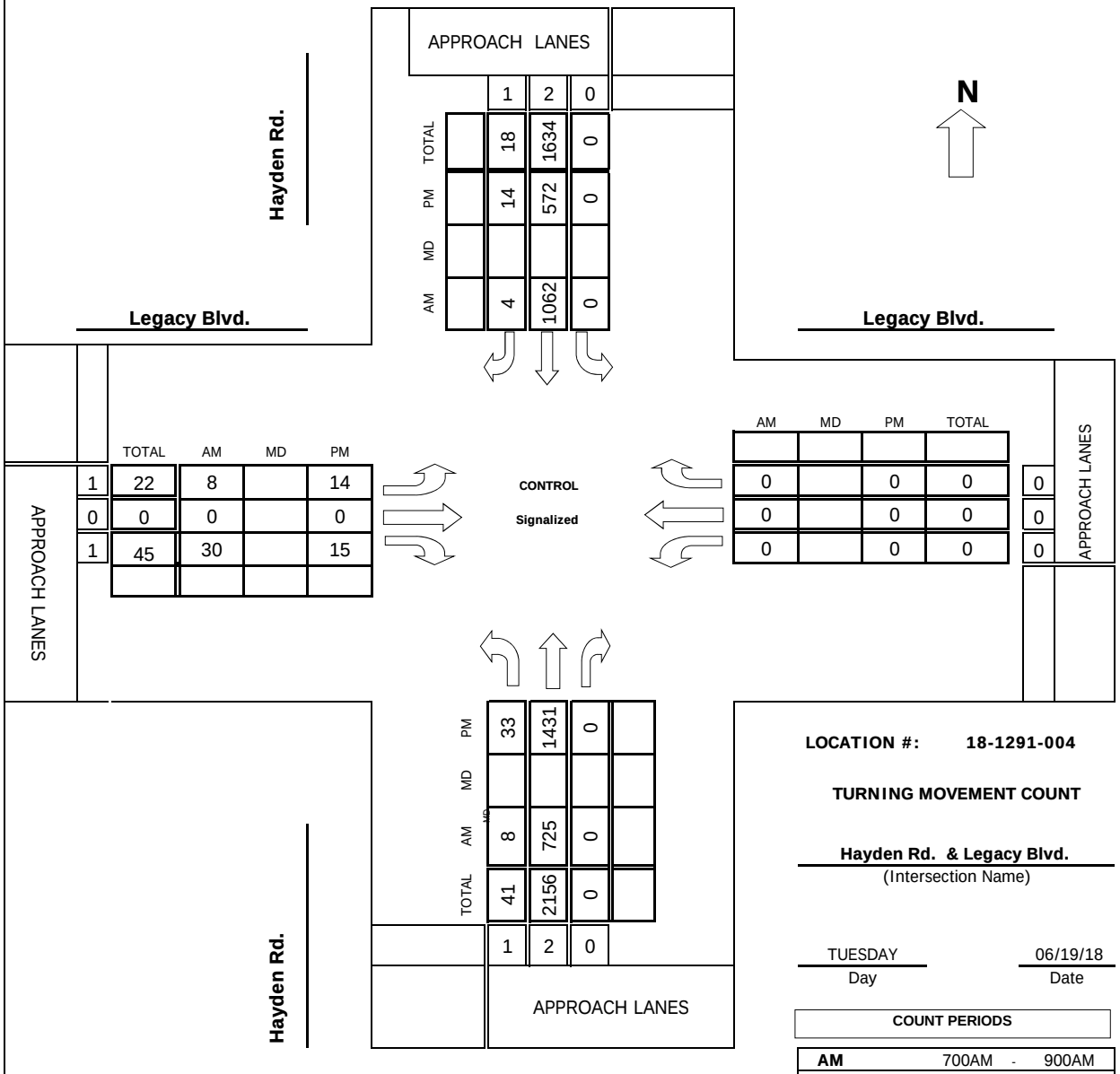
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-004

TMC SUMMARY OF Hayden Rd. & Legacy Blvd.



LOCATION #: 18-1291-004

TURNING MOVEMENT COUNT

Hayden Rd. & Legacy Blvd.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

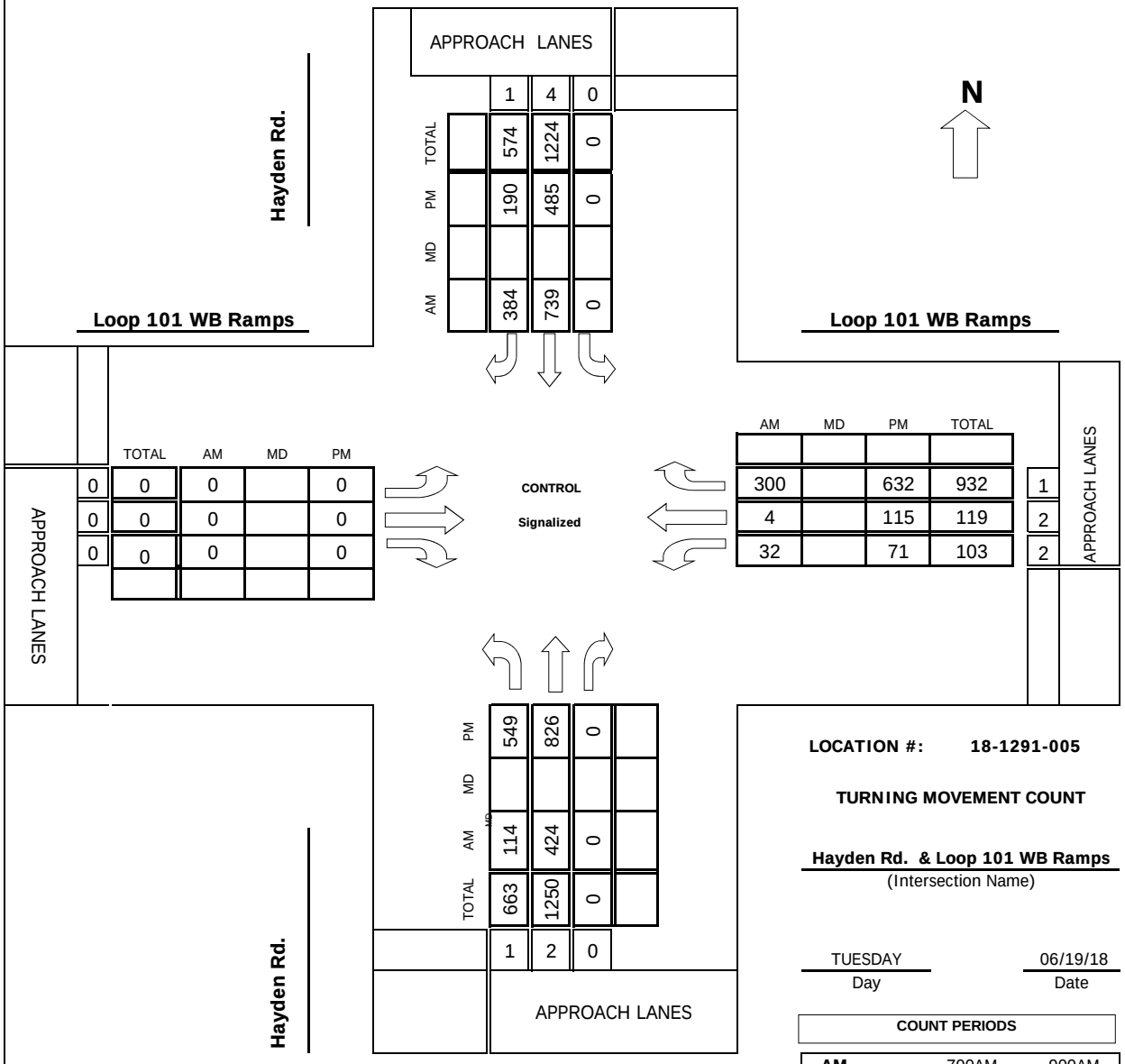
PM PEAK HOUR 500 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-005

TMC SUMMARY OF Hayden Rd. & Loop 101 WB Ramps



LOCATION #: 18-1291-005

TURNING MOVEMENT COUNT

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

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

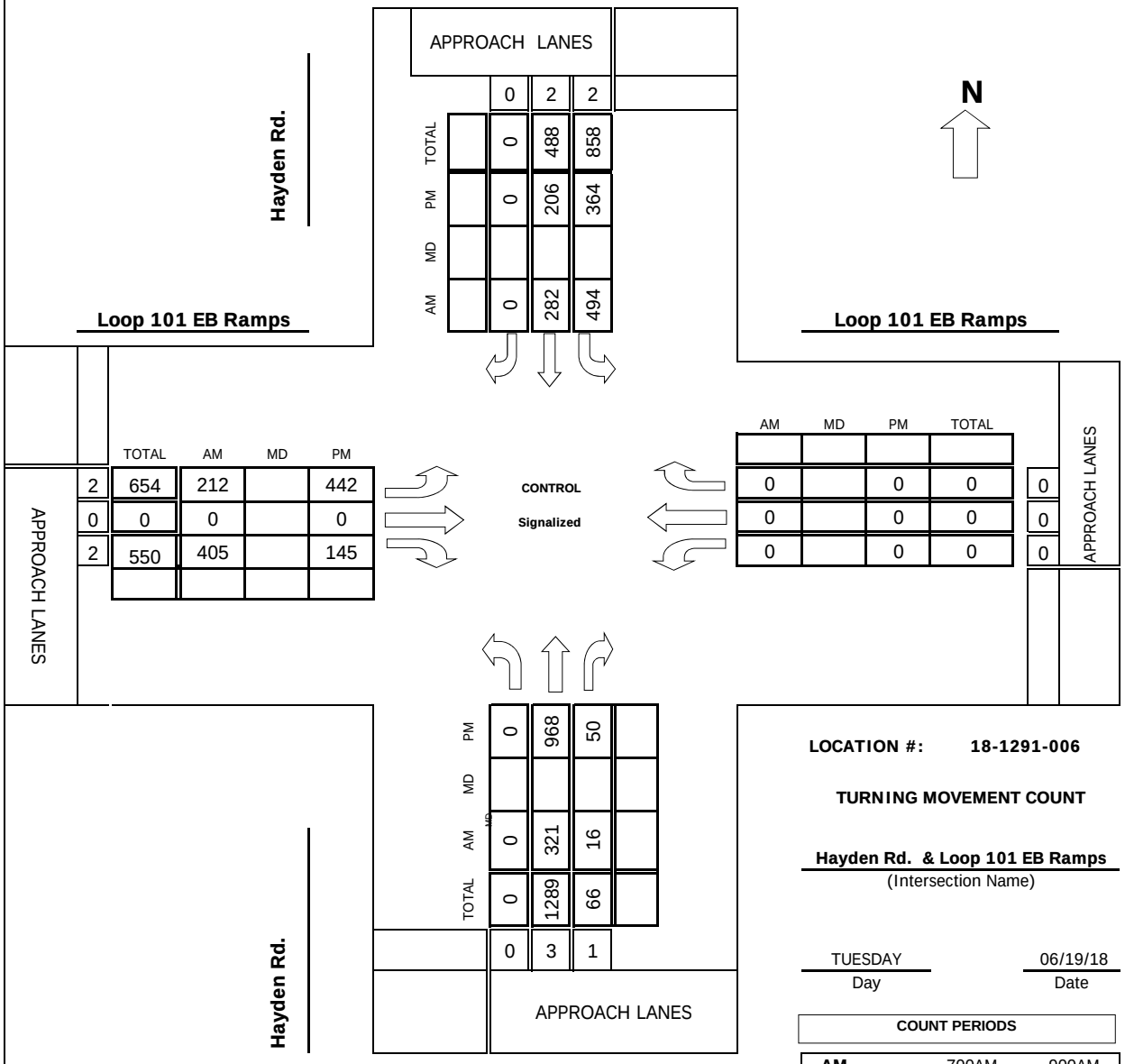
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-006

TMC SUMMARY OF Hayden Rd. & Loop 101 EB Ramps



LOCATION #: 18-1291-006

TURNING MOVEMENT COUNT

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

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

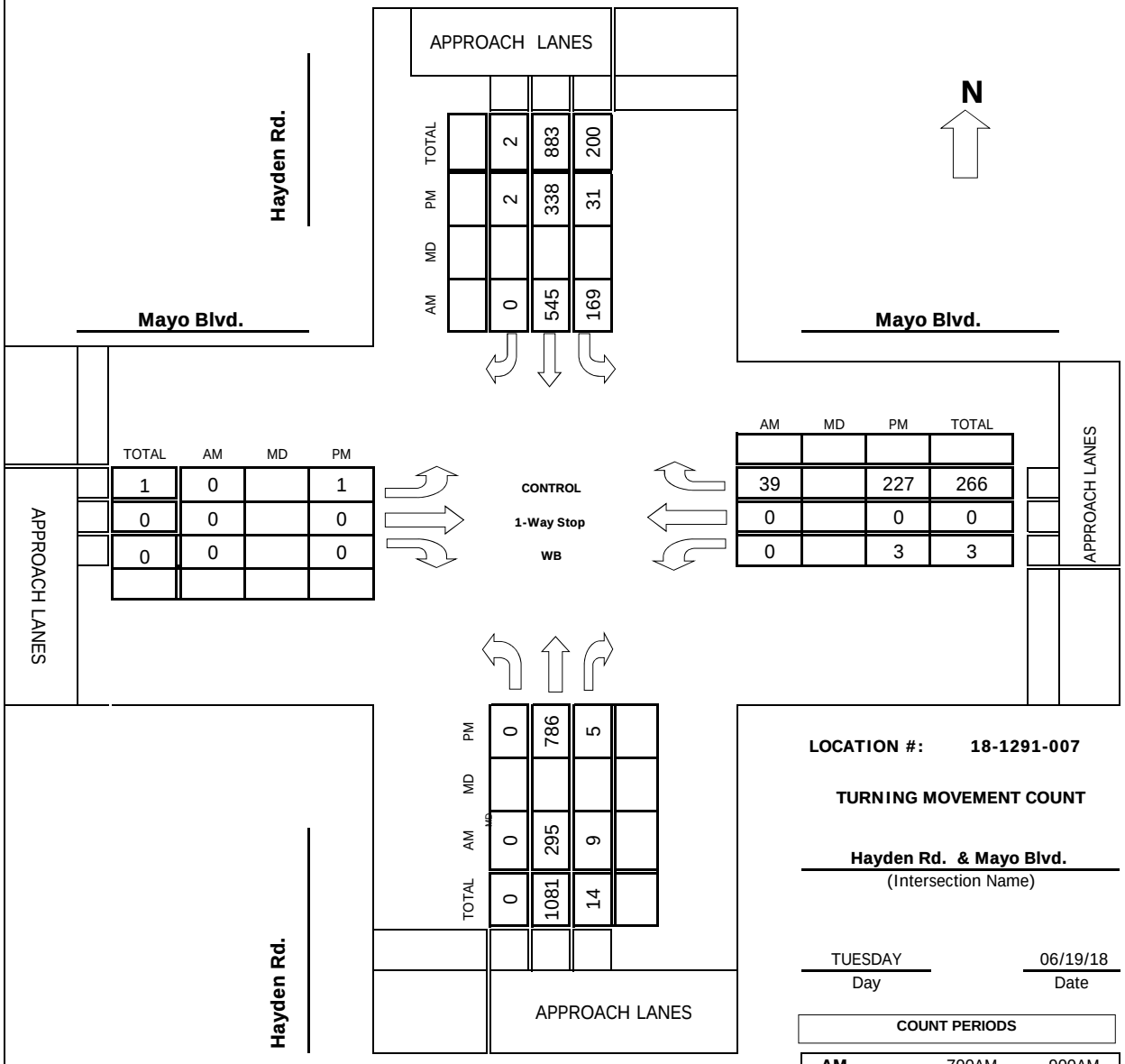
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-007

TMC SUMMARY OF Hayden Rd. & Mayo Blvd.



LOCATION #: 18-1291-007

TURNING MOVEMENT COUNT

Hayden Rd. & Mayo Blvd.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

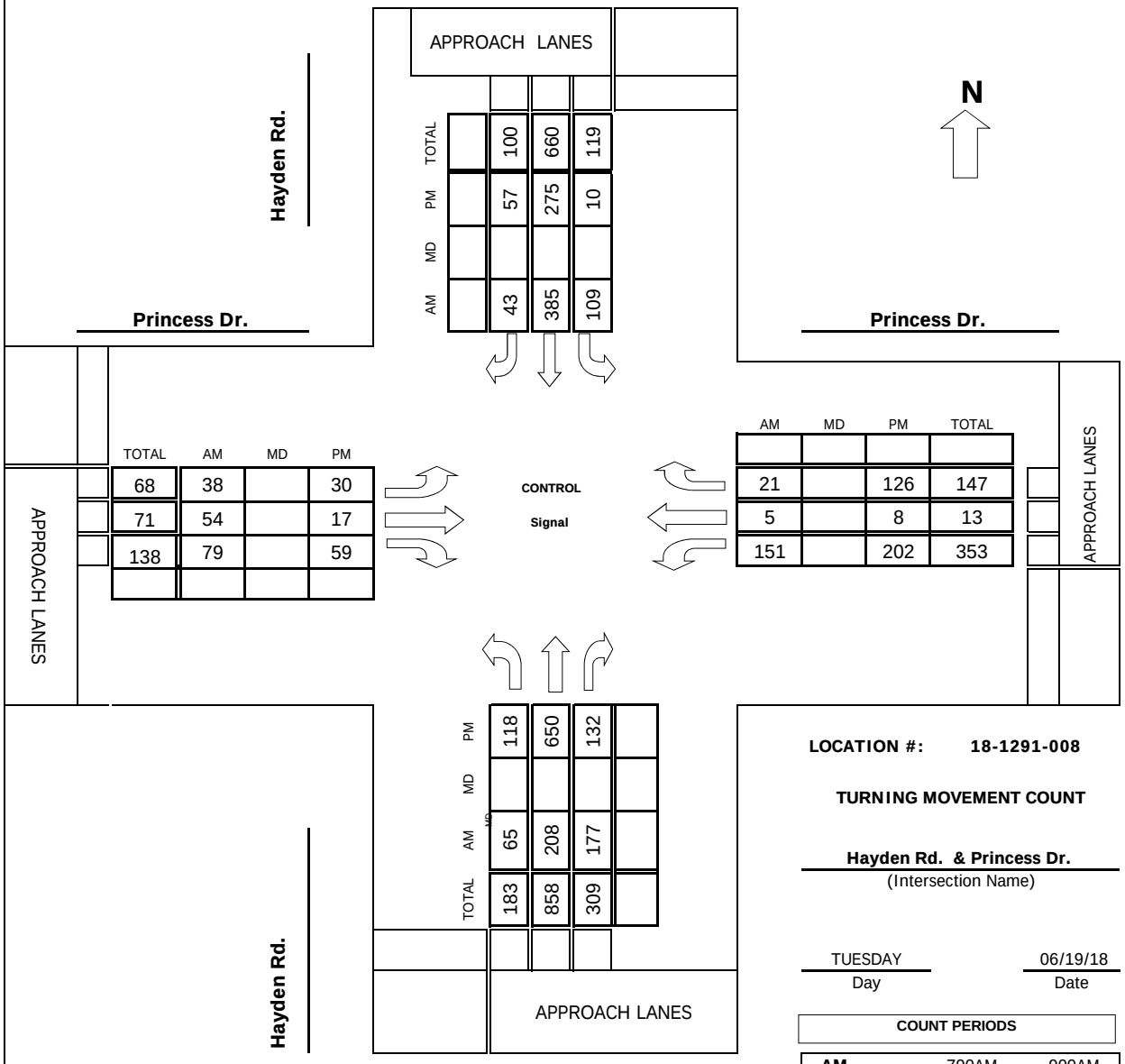
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-008

TMC SUMMARY OF Hayden Rd. & Princess Dr.



LOCATION #: 18-1291-008

TURNING MOVEMENT COUNT

Hayden Rd. & Princess Dr.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 745 AM

NOON PEAK HOUR

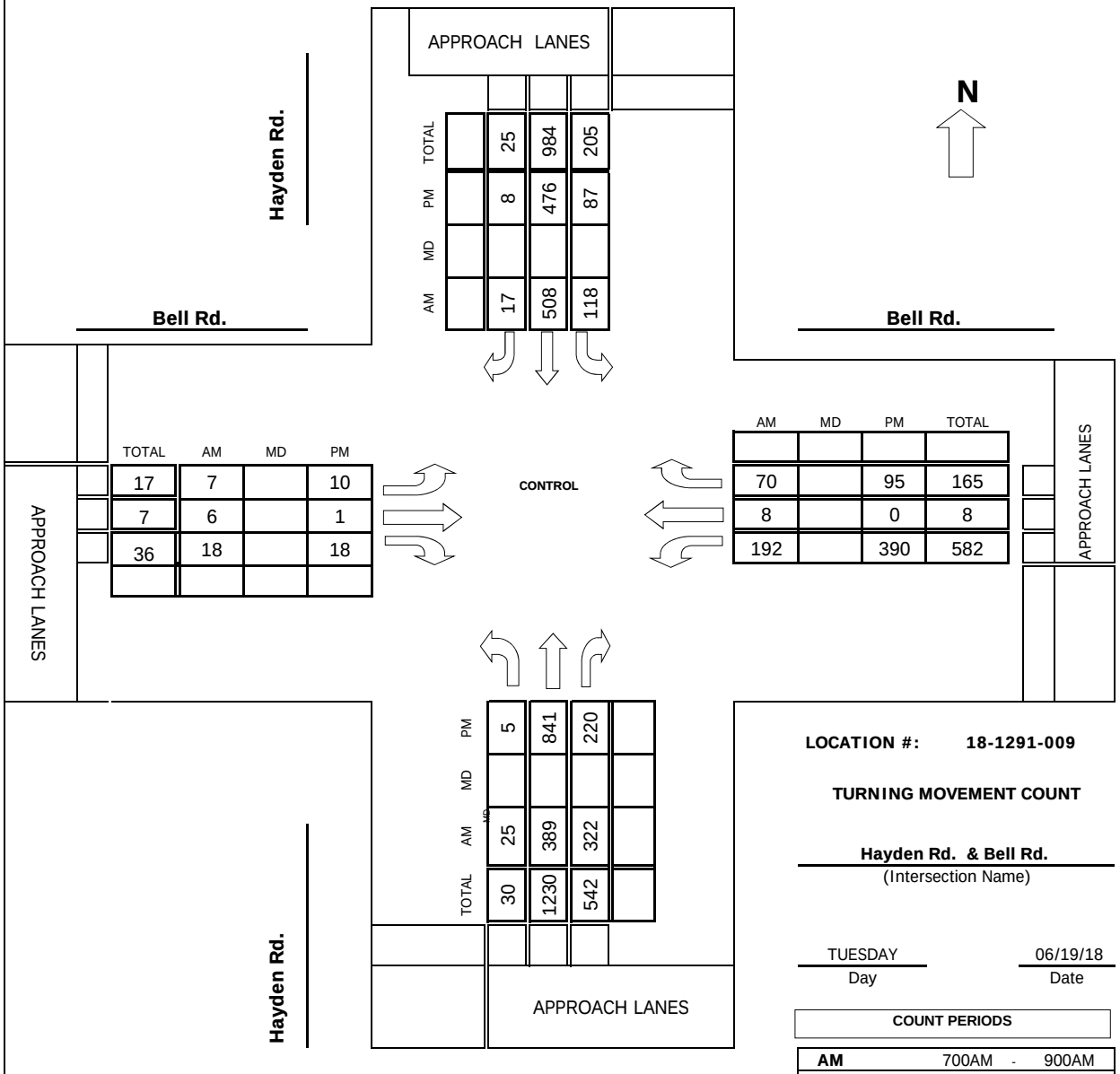
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-009

TMC SUMMARY OF Hayden Rd. & Bell Rd.



LOCATION #: 18-1291-009

TURNING MOVEMENT COUNT

Hayden Rd. & Bell Rd.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 730 AM

NOON PEAK HOUR

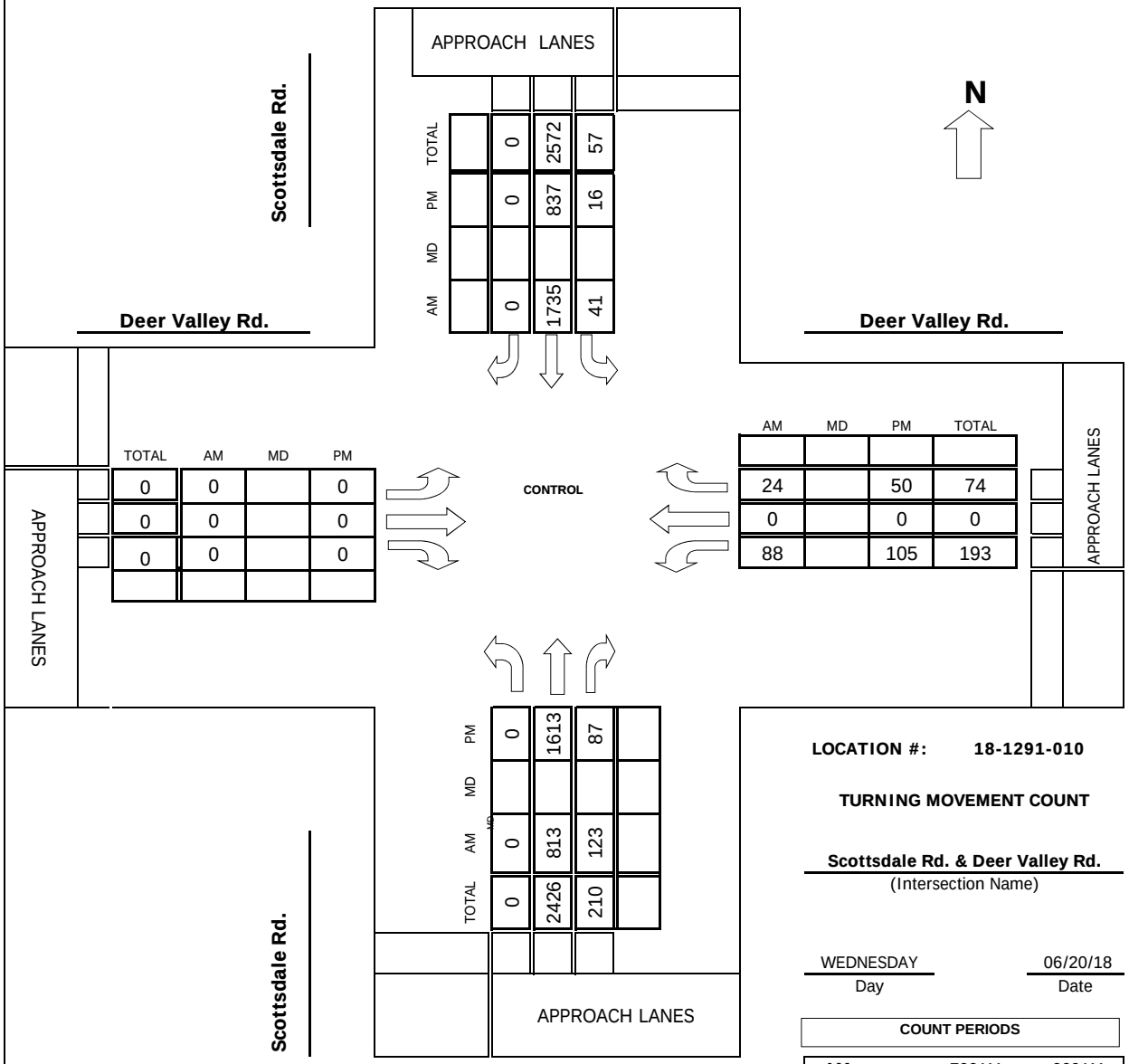
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-010

TMC SUMMARY OF Scottsdale Rd. & Deer Valley Rd.



LOCATION #: 18-1291-010

TURNING MOVEMENT COUNT

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

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

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

AM PEAK HOUR 715 AM

NOON PEAK HOUR

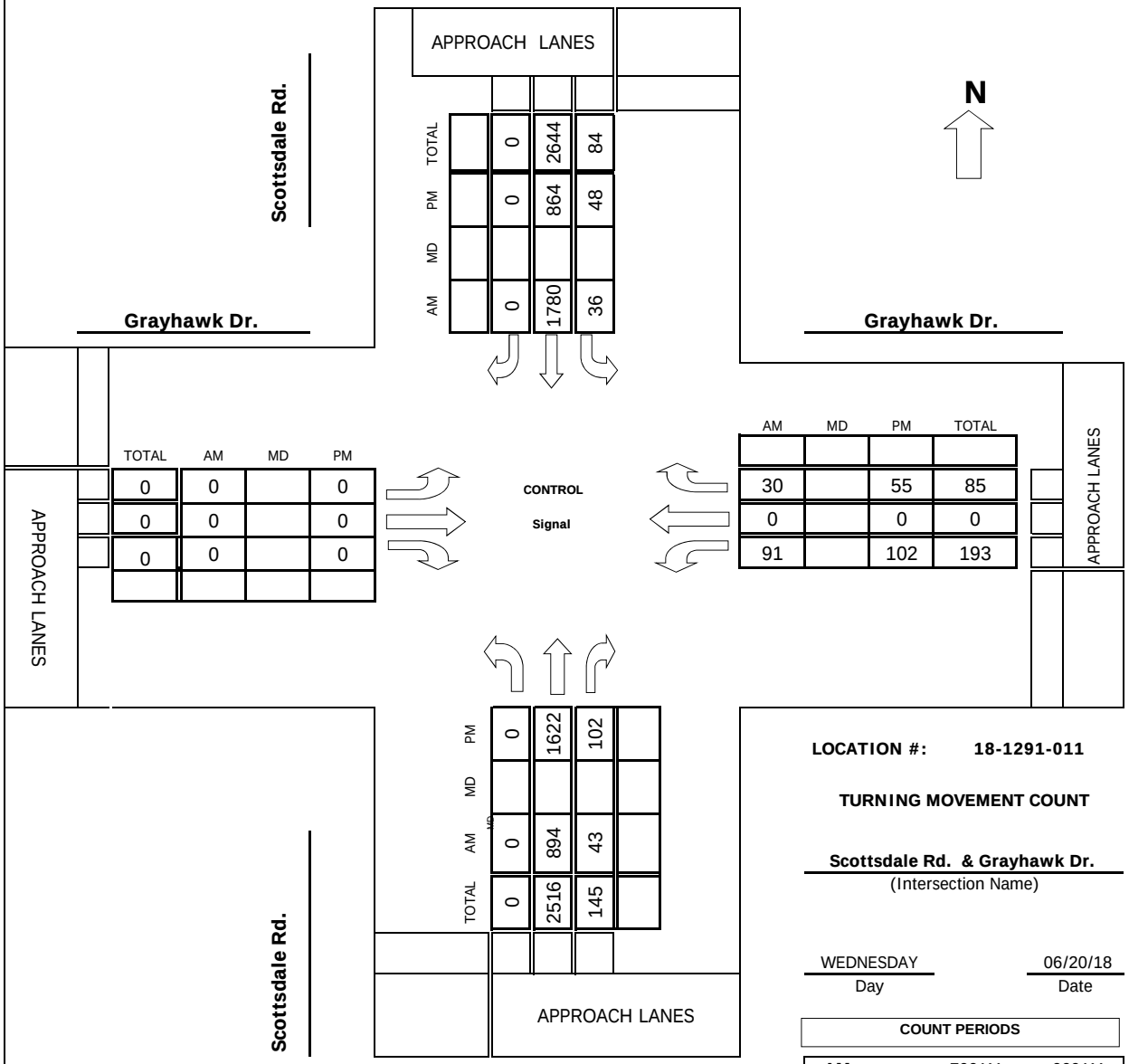
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-011

TMC SUMMARY OF Scottsdale Rd. & Grayhawk Dr.



LOCATION #: 18-1291-011

TURNING MOVEMENT COUNT

Scottsdale Rd. & Grayhawk Dr.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 715 AM

NOON PEAK HOUR

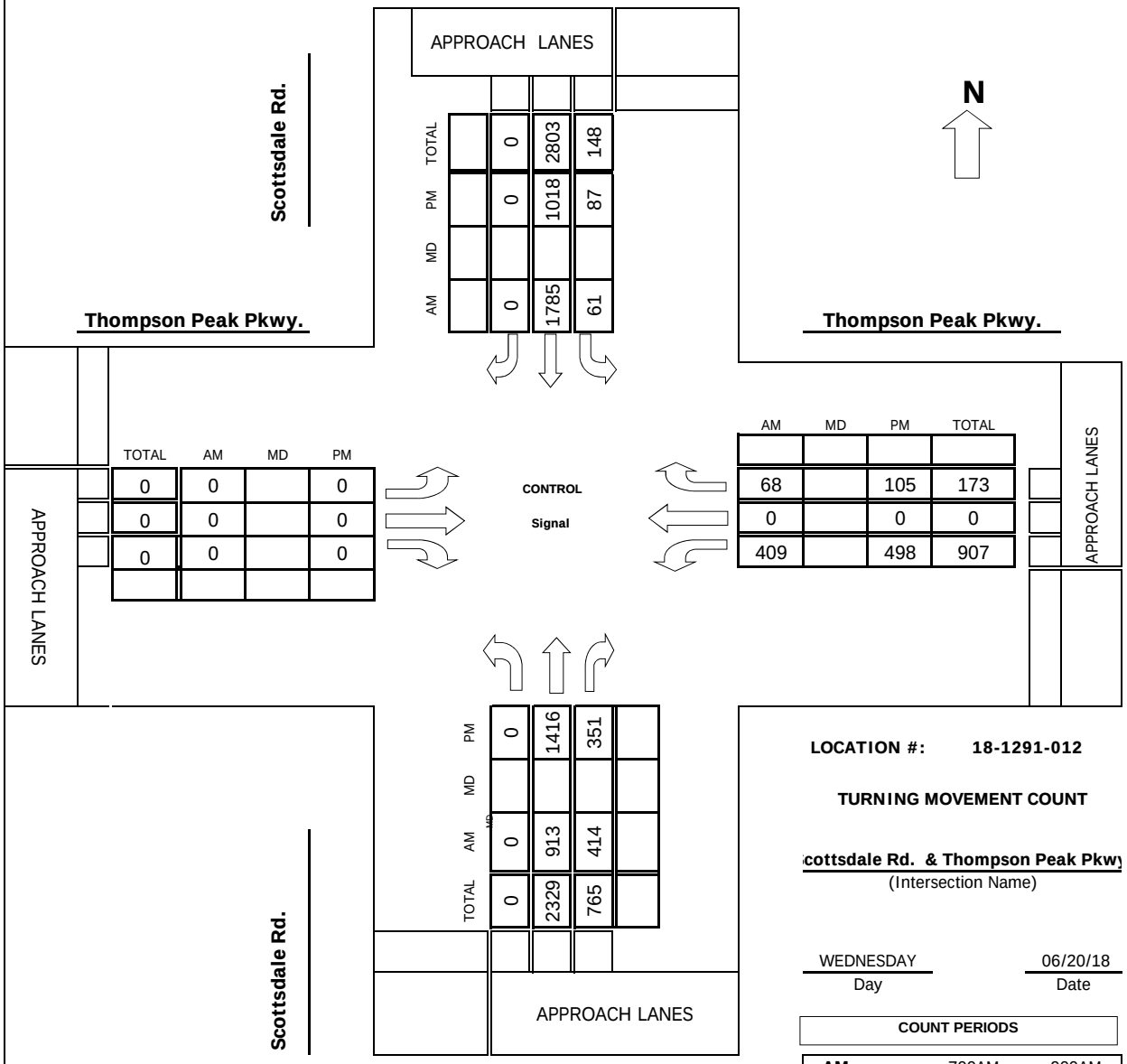
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-012

TMC SUMMARY OF Scottsdale Rd. & Thompson Peak Pkwy.



LOCATION #: 18-1291-012

TURNING MOVEMENT COUNT

cottsdale Rd. & Thompson Peak Pkwy
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 730 AM

NOON PEAK HOUR

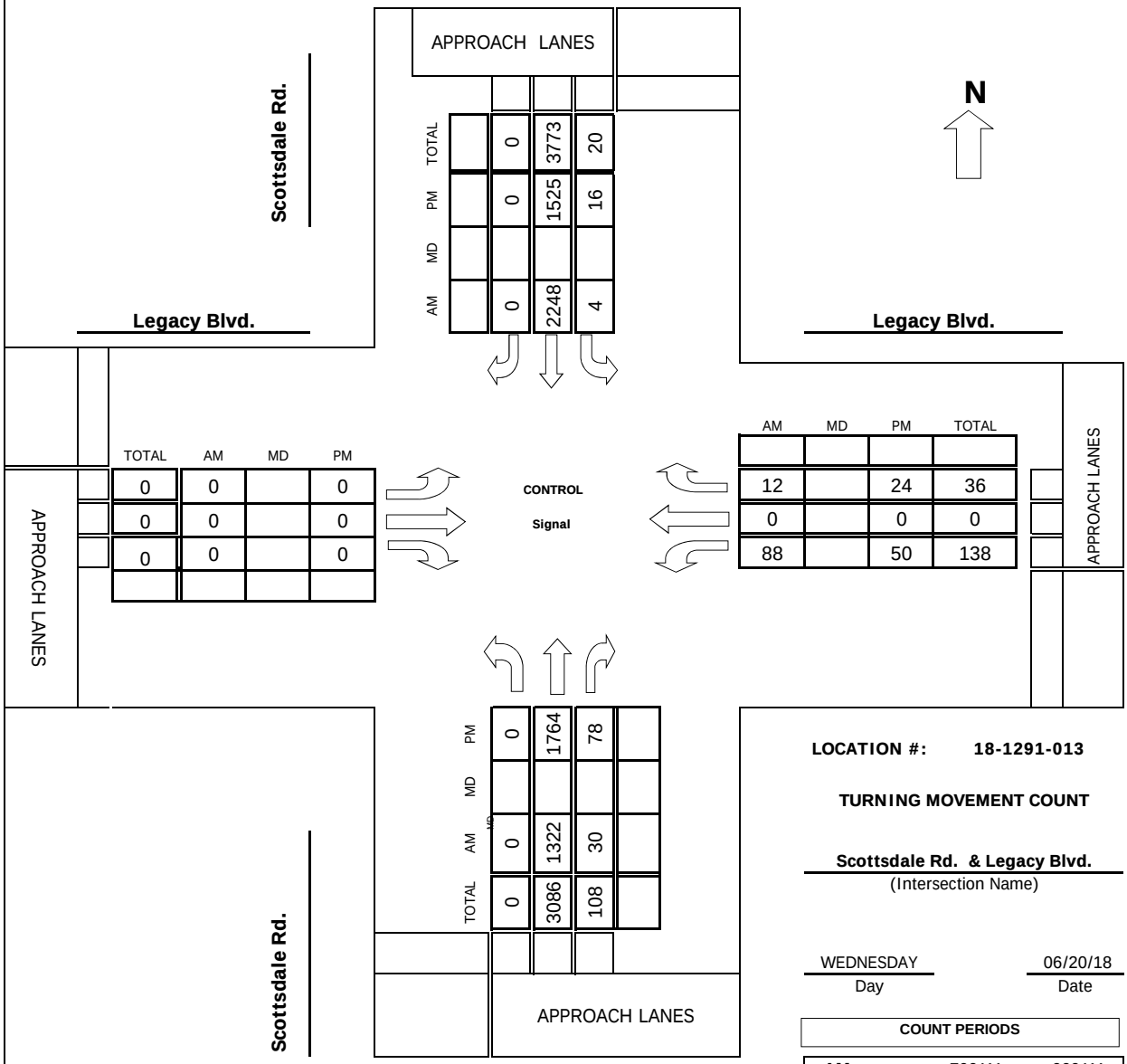
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-013

TMC SUMMARY OF Scottsdale Rd. & Legacy Blvd.



LOCATION #: 18-1291-013

TURNING MOVEMENT COUNT

Scottsdale Rd. & Legacy Blvd.
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 715 AM

NOON PEAK HOUR

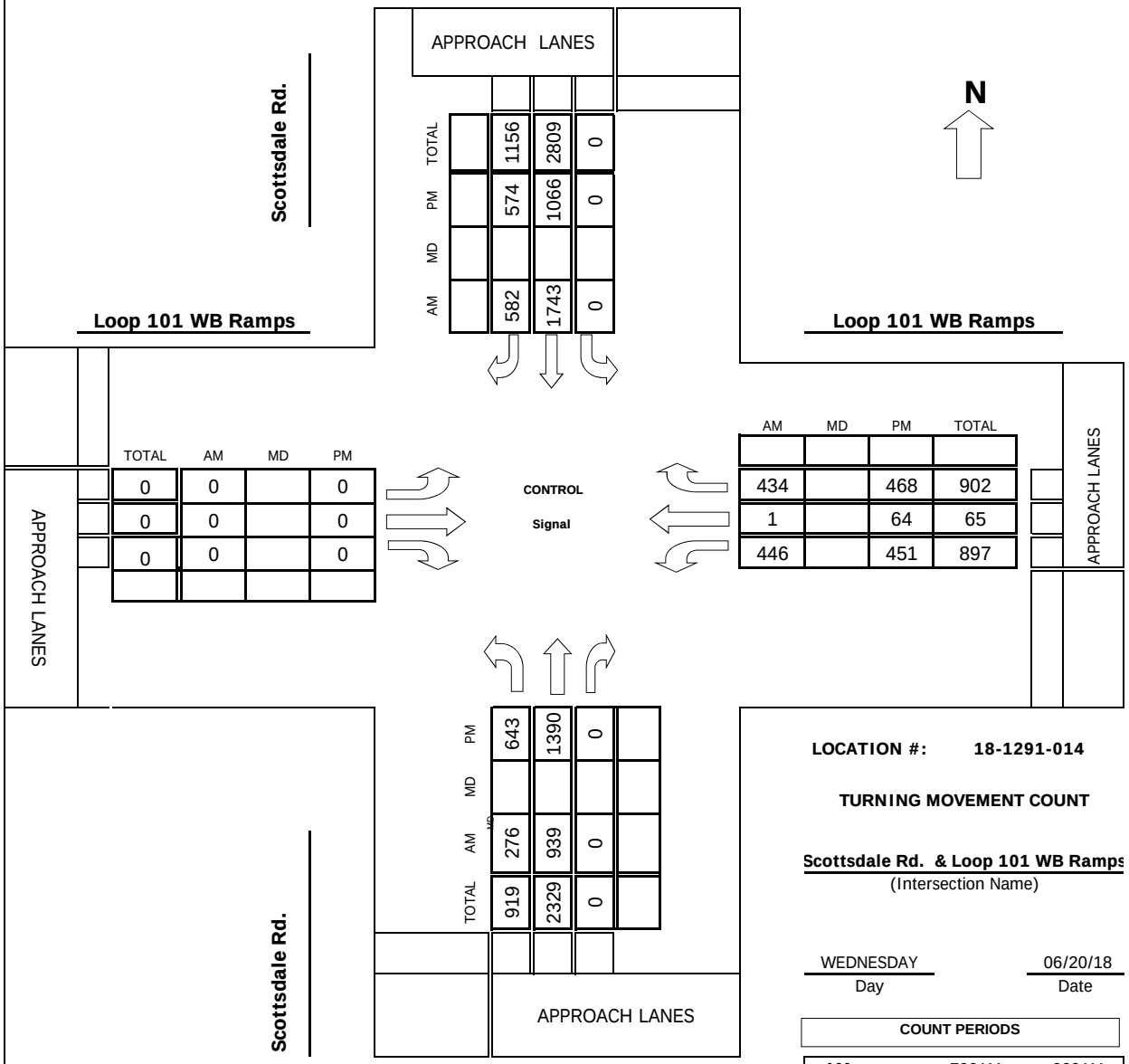
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-014

TMC SUMMARY OF Scottsdale Rd. & Loop 101 WB Ramps



LOCATION #: 18-1291-014

TURNING MOVEMENT COUNT

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

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

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

AM PEAK HOUR 730 AM

NOON PEAK HOUR

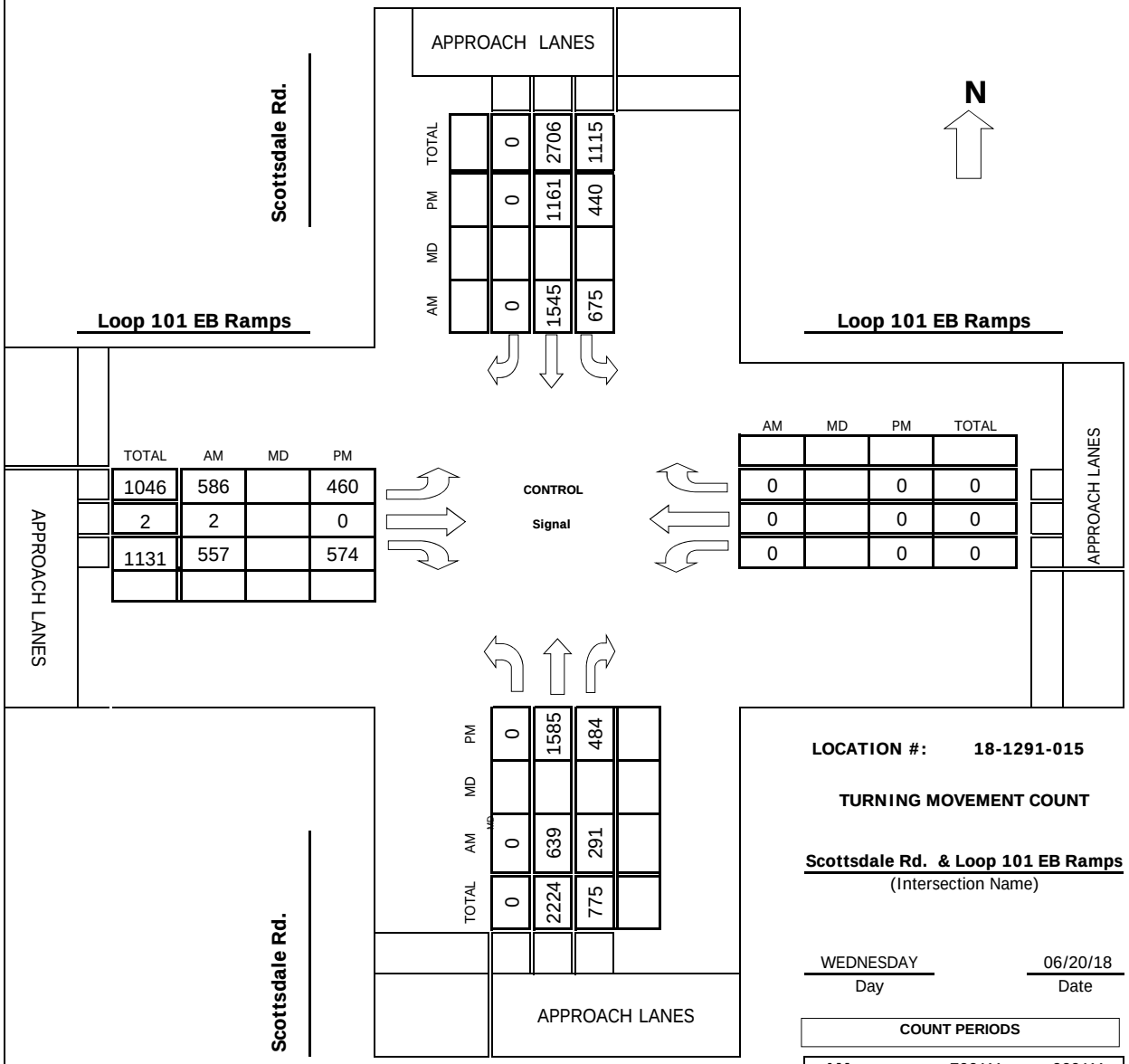
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-015

TMC SUMMARY OF Scottsdale Rd. & Loop 101 EB Ramps



LOCATION #: 18-1291-015

TURNING MOVEMENT COUNT

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

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

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

AM PEAK HOUR 730 AM

NOON PEAK HOUR

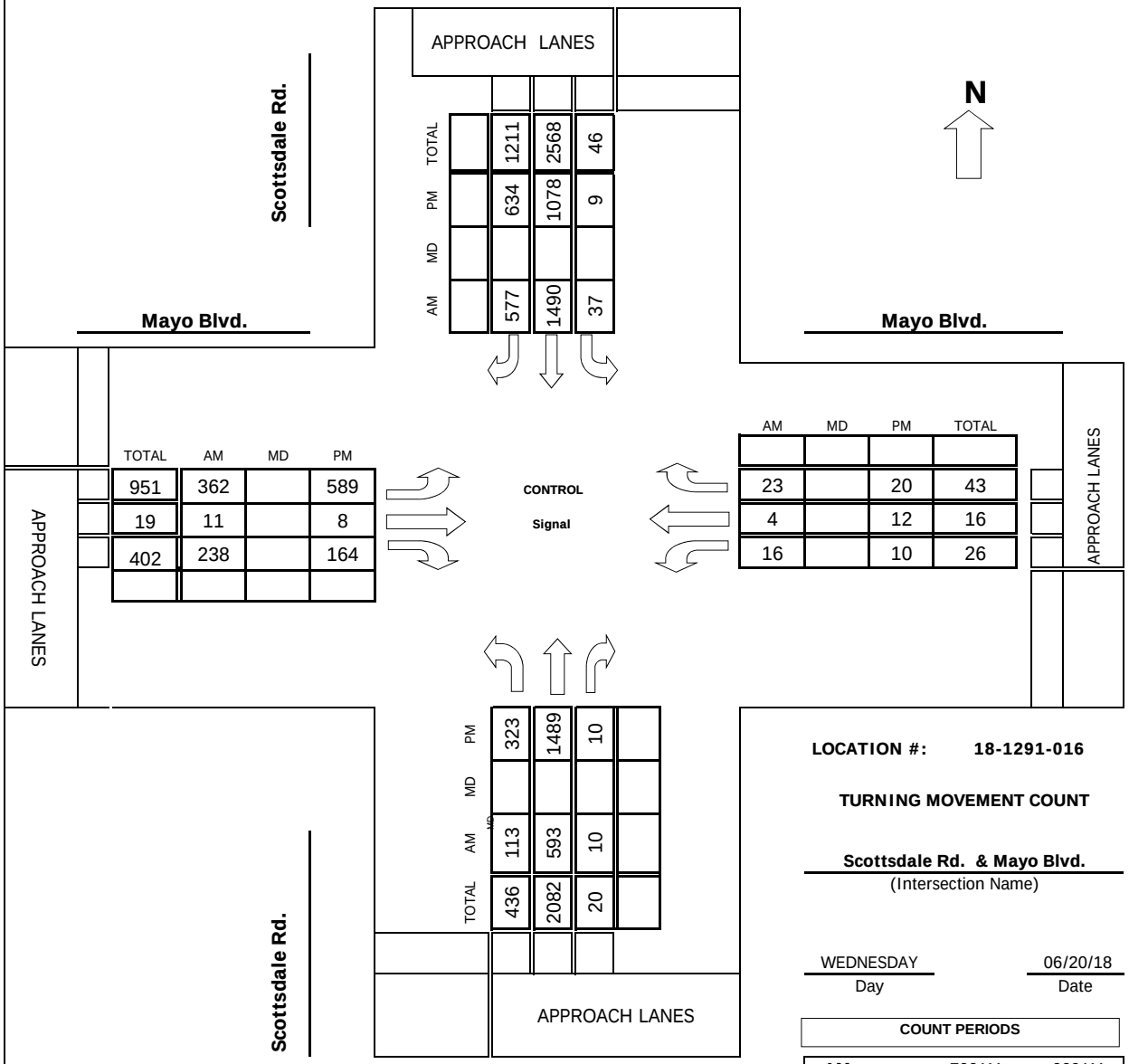
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-016

TMC SUMMARY OF Scottsdale Rd. & Mayo Blvd.



LOCATION #: 18-1291-016

TURNING MOVEMENT COUNT

Scottsdale Rd. & Mayo Blvd.
(Intersection Name)

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

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

AM PEAK HOUR 745 AM

NOON PEAK HOUR

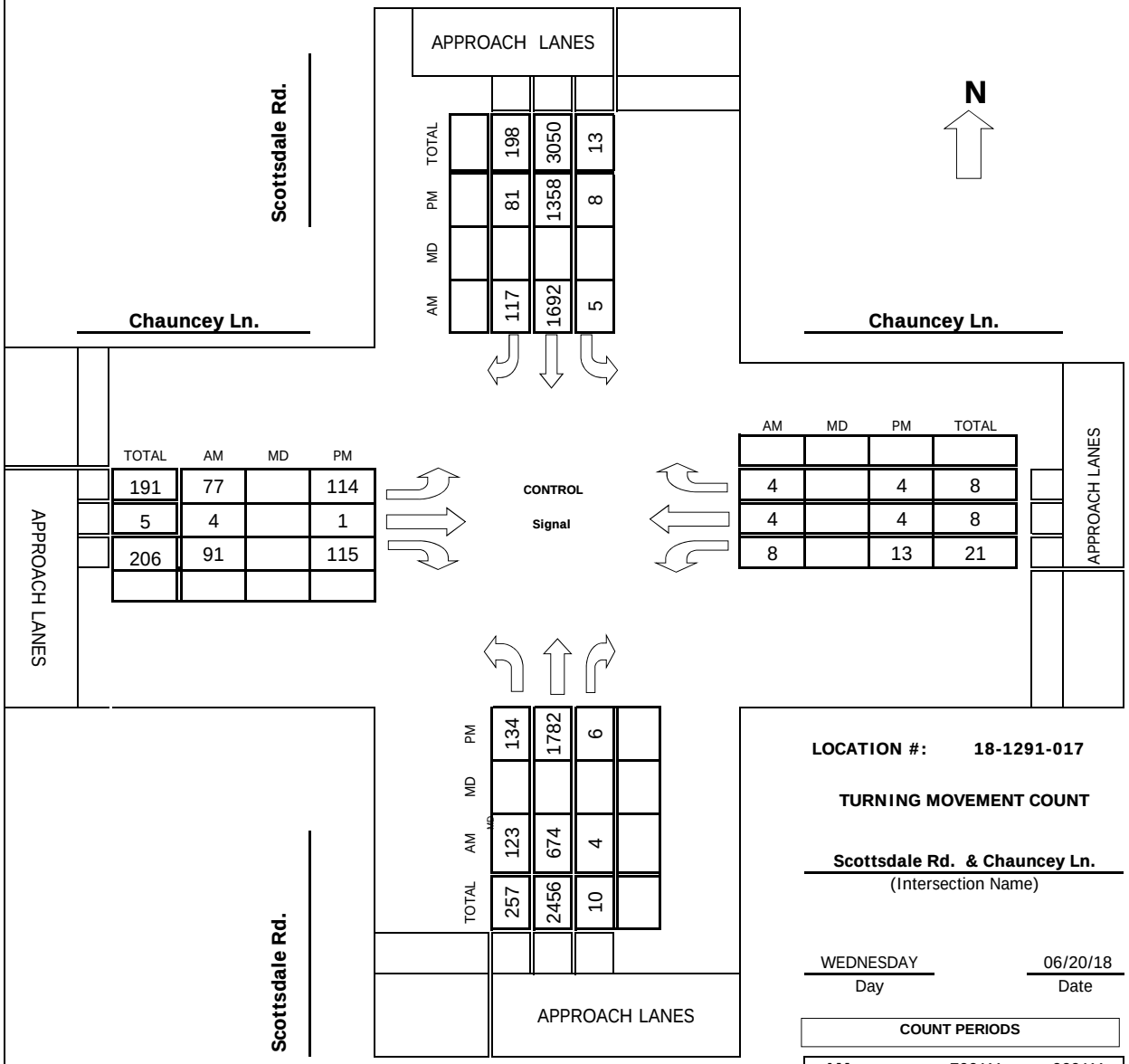
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-017

TMC SUMMARY OF Scottsdale Rd. & Chauncey Ln.



LOCATION #: 18-1291-017

TURNING MOVEMENT COUNT

Scottsdale Rd. & Chauncey Ln.
(Intersection Name)

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

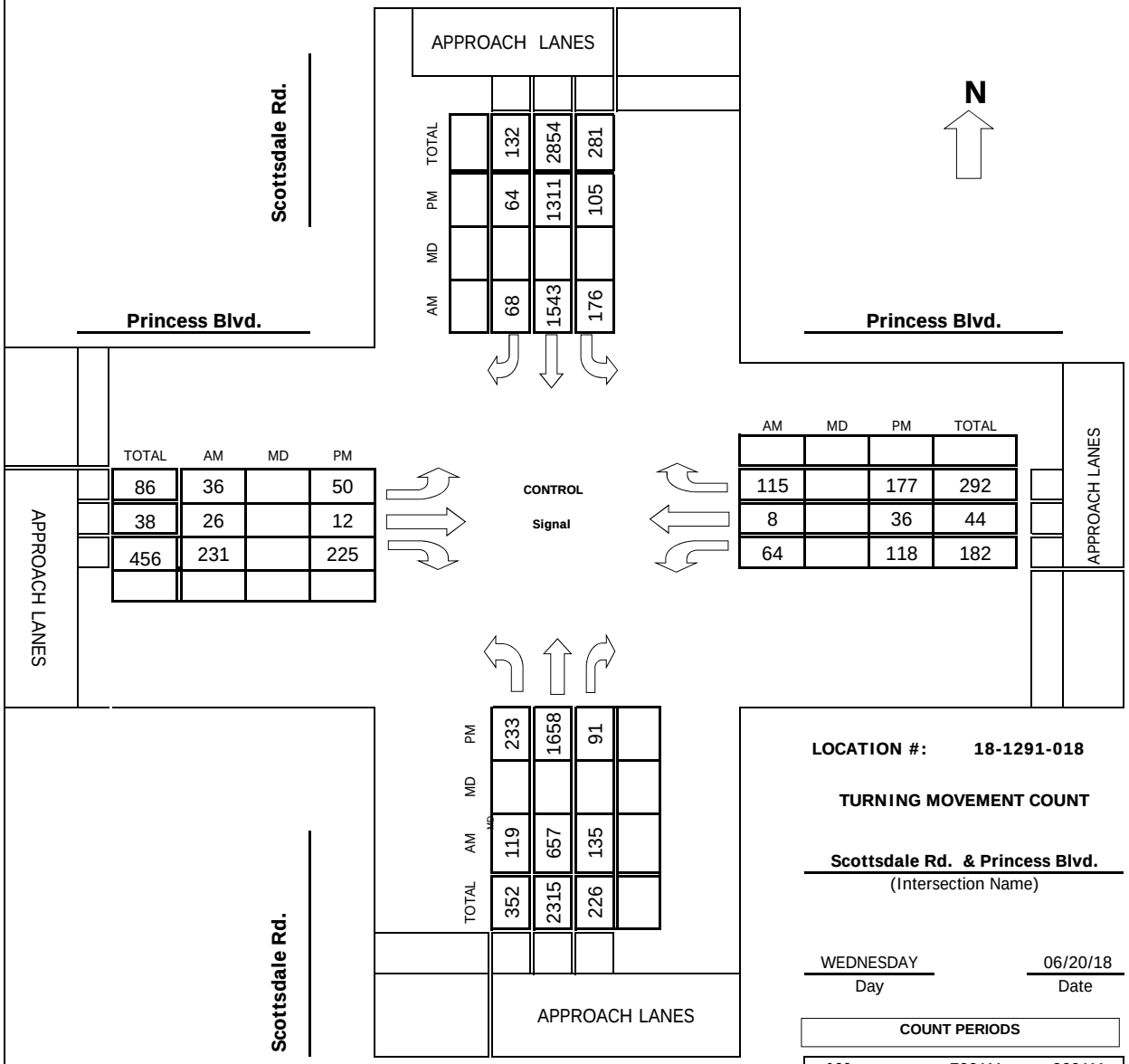
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-018

TMC SUMMARY OF Scottsdale Rd. & Princess Blvd.



LOCATION #: 18-1291-018

TURNING MOVEMENT COUNT

Scottsdale Rd. & Princess Blvd.
(Intersection Name)

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

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

AM PEAK HOUR 745 AM

NOON PEAK HOUR

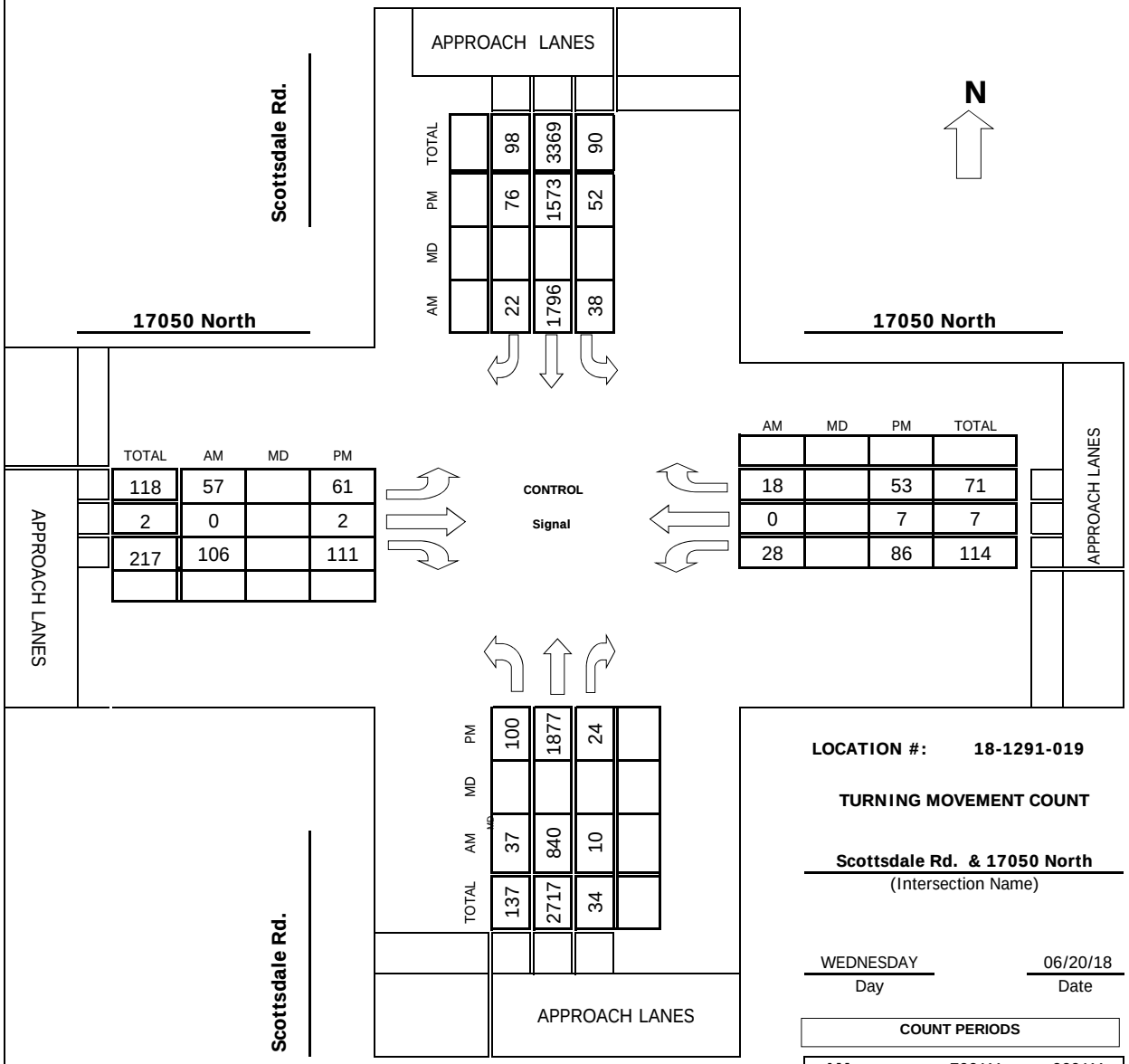
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-019

TMC SUMMARY OF Scottsdale Rd. & 17050 North



LOCATION #: 18-1291-019

TURNING MOVEMENT COUNT

Scottsdale Rd. & 17050 North
(Intersection Name)

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

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

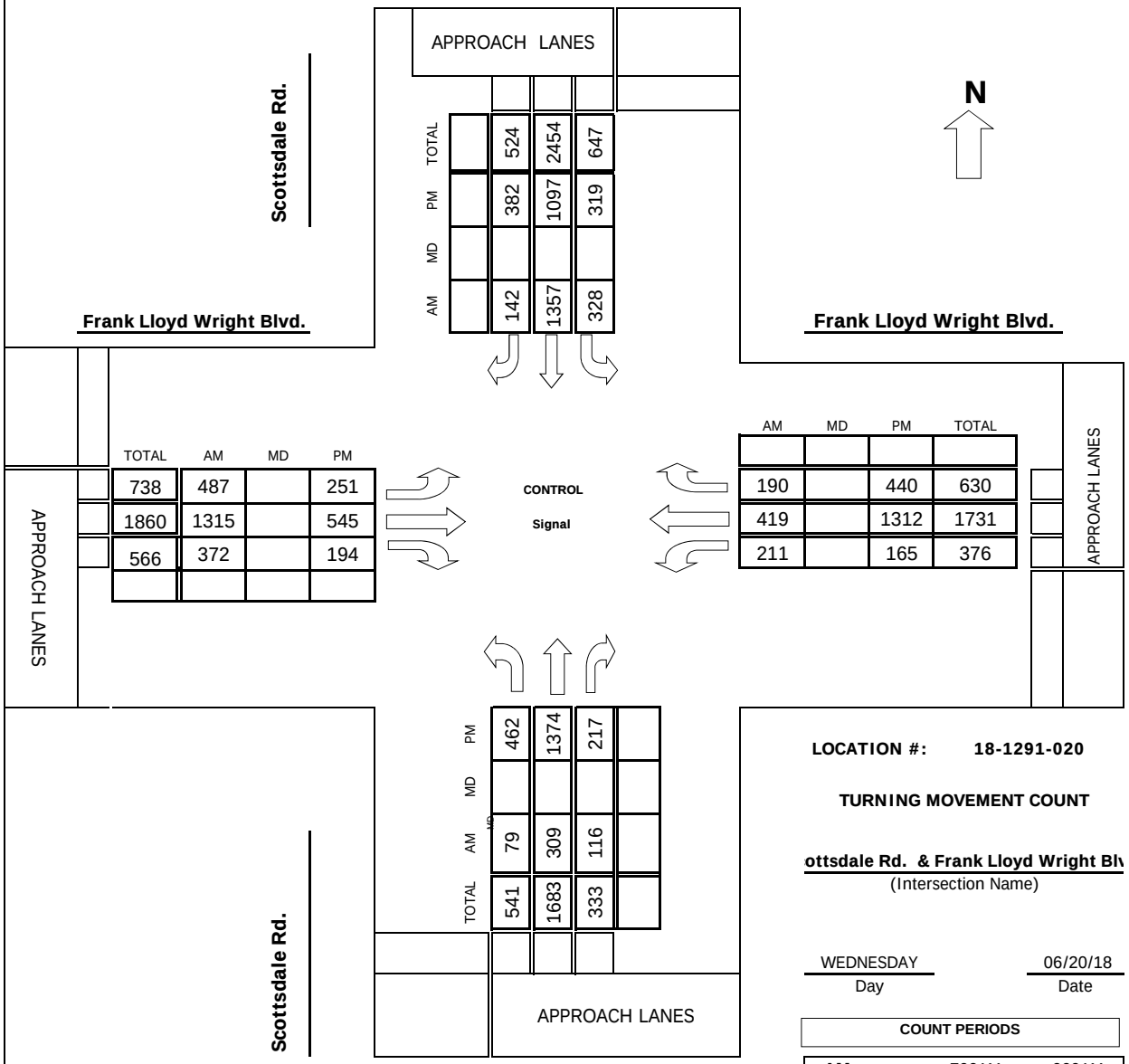
PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-020

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



LOCATION #: 18-1291-020

TURNING MOVEMENT COUNT

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

WEDNESDAY — Day
06/20/18 — Date

COUNT PERIODS

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

AM PEAK HOUR 730 AM

NOON PEAK HOUR

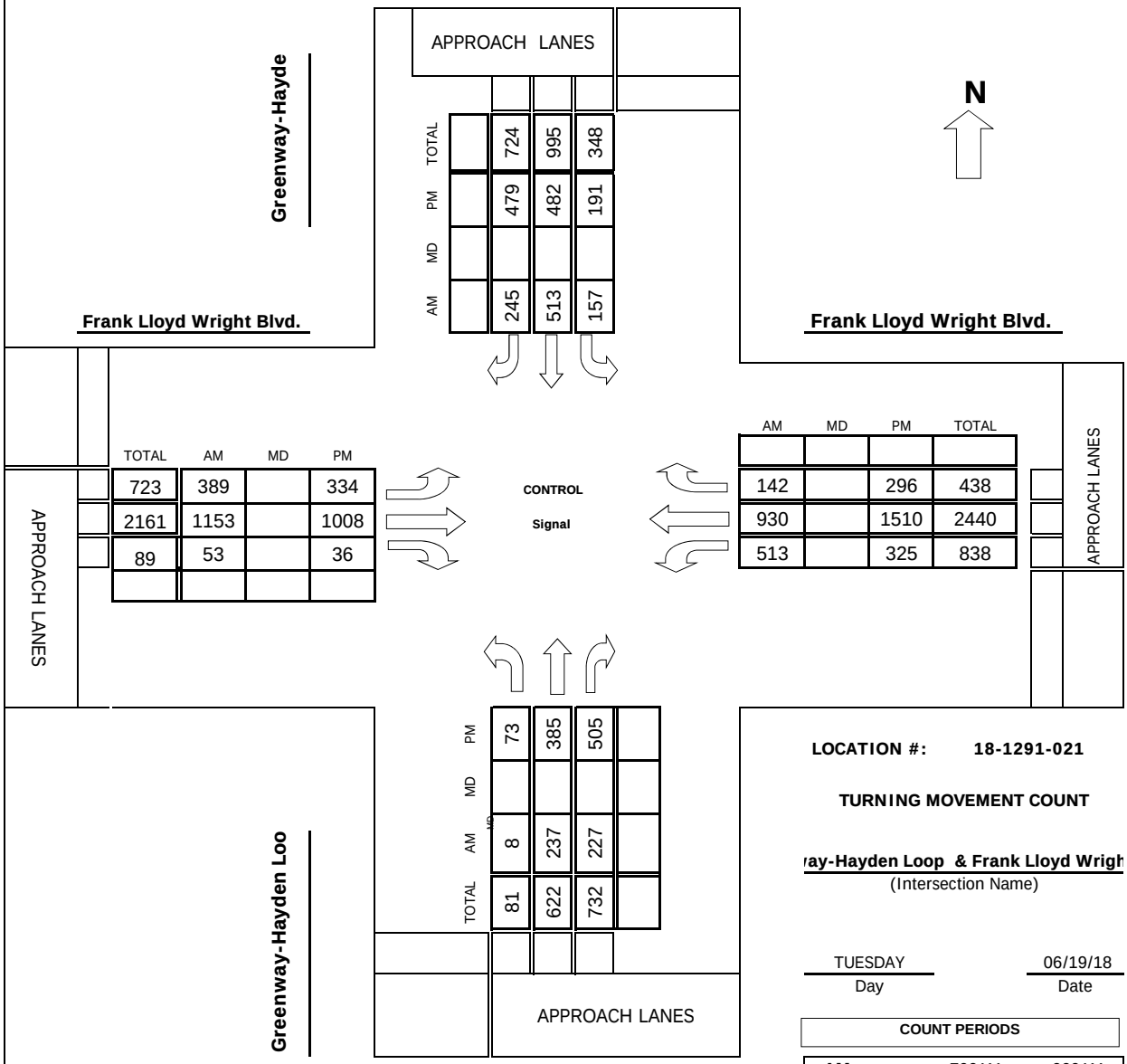
PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-021

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



LOCATION #: 18-1291-021

TURNING MOVEMENT COUNT

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

TUESDAY — Day
06/19/18 — Date

COUNT PERIODS

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

AM PEAK HOUR 730 AM

NOON PEAK HOUR

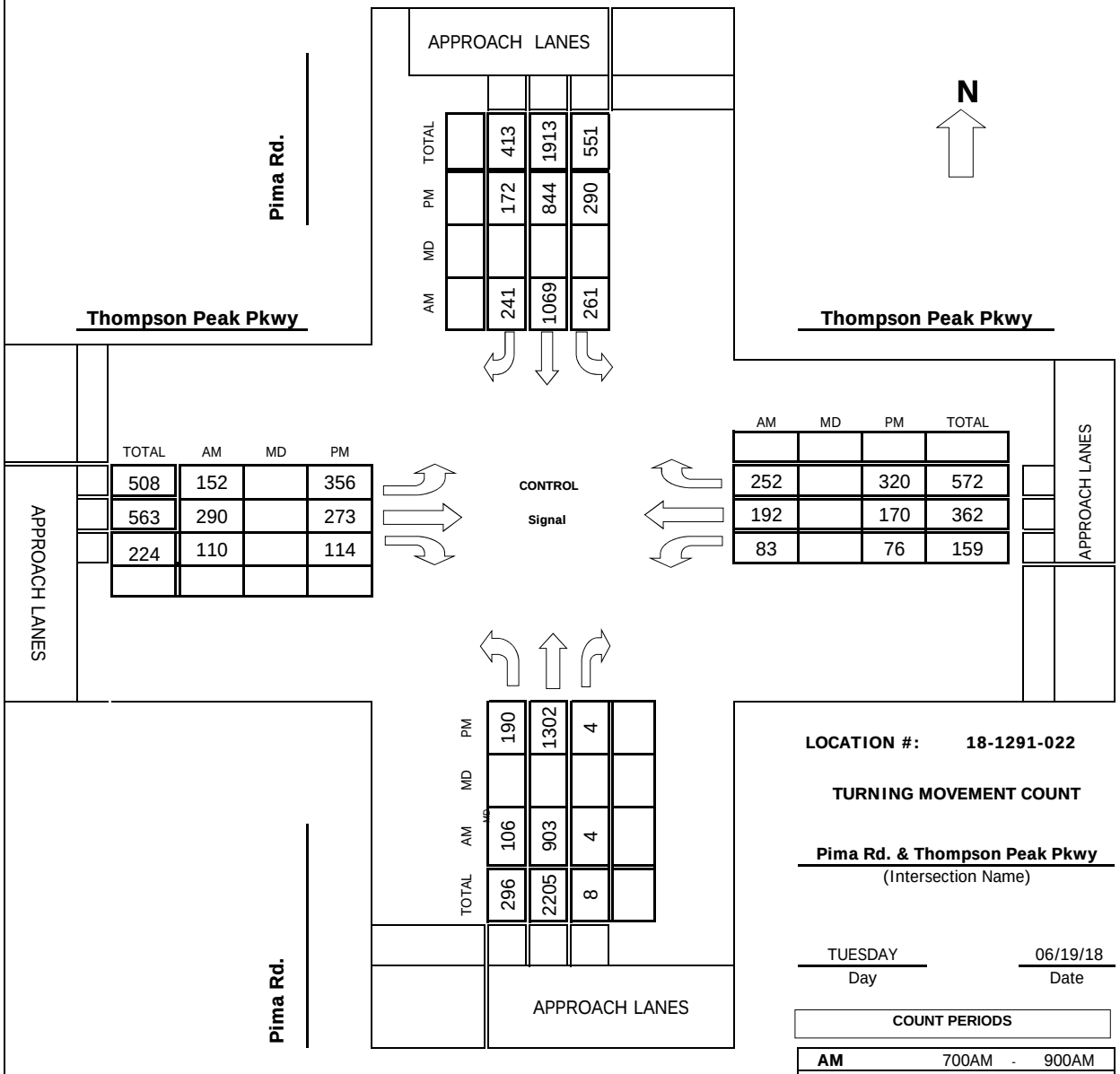
PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 18-1291-022

TMC SUMMARY OF Pima Rd. & Thompson Peak Pkwy



LOCATION #: 18-1291-022

TURNING MOVEMENT COUNT

Pima Rd. & Thompson Peak Pkwy
(Intersection Name)

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

COUNT PERIODS

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

AM PEAK HOUR 800 AM

NOON PEAK HOUR

PM PEAK HOUR 430 PM

APPENDIX C

EXISTING SIGNAL TIMING SHEETS

FRANK LLOYD WRIGHT & GREENWAY-HAYDEN

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

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

DATE DESIGNED: 4/29/2016

SYSTEM #	SECTION #
208	1618

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

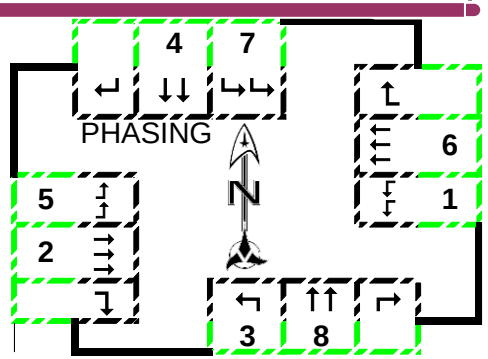
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

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

FRANK LLOYD WRIGHT & GREENWAY-HAYDEN

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 208

SECTION # 1618

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

R1	8 ↑	7 ↳	6 ←	5 ↴
R2	4 ↓	3 ↰	2 →	1 ↱

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

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

PLAN # 1

DATE EFFECTIVE 9/23/2014

OPERATIVE TIMES 0630-0900

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

RING 1: 1 2 3 4 — RING 2: 5 6 7 8

TARGET 120

ACTUAL CYCLE 120

RING 1

RING 2

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

RING 1: 1 2 3 4 — RING 2: 5 6 7 8

TARGET 120

ACTUAL CYCLE 120

RING 1

RING 2

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

RING 1: 1 2 3 4 — RING 2: 5 6 7 8

TARGET 120

ACTUAL CYCLE 120

RING 1

RING 2

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

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

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET	HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS
1	NB	40	1
2	SB	40	2
3	NS	40	3
4	EB	20	4
5	WB	50	5
6	EW	40	6

FRANK LLOYD WRIGHT & GREENWAY-HAYDEN

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

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

SYSTEM # 208

SECTION # 1618

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

SEQUENCE

R1	8 ↑	7 ↦	6 ←	5 ↴
R2	4 ↓	3 ↤	2 →	1 ↱

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

N/S

MOVEMENTS: WBL EBT NBL SBT EBL WBT SBL NBT

PLAN # 7

DATE EFFECTIVE 9/23/2014

OPERATIVE TIMES 1530-1830

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

120

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

120

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

120

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

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

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

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

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

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

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	19	21	STANDARD	10/19/2010
YELLOW	4.1	4.3	3.0	SYSTEM # 223
ALL-RED	1.9	3.7	1.0	SECTION # 101

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

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

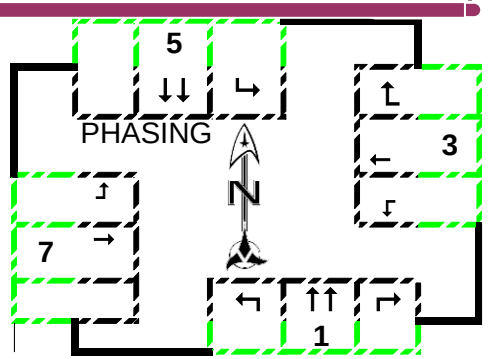
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

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

ONLY VALID WHEN STAMPED

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

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 223

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 3
ACTION PLAN #

SEQUENCE

R1	1 ↑			3 ←
R2	5 ↓		7 →	

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

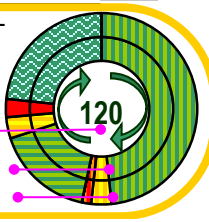
PLAN # 1

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES 0630-0900

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

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



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

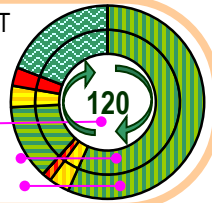
PLAN # 2

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

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

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



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

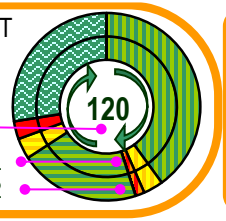
PLAN # 3

DATE EFFECTIVE 10/19/2010

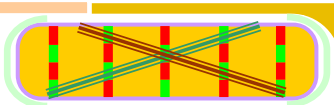
OPERATIVE TIMES

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

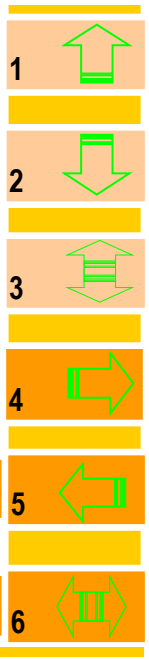
RING 1 | RING 2 | TARGET 120 | ACTUAL CYCLE | RING 1 | RING 2



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



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



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

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 223

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 3

ACTION PLAN

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

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

N/S

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES 1530-1830

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

120

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

PLAN # 8

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

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

120

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

PLAN # 9

DATE EFFECTIVE 10/19/2010

OPERATIVE TIMES

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

120

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

PROGRESSION VALUES

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

HAYDEN RD. & DEER VALLEY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

DATE DESIGNED: 8/31/2010

SYSTEM # 285 | SECTION # 101

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

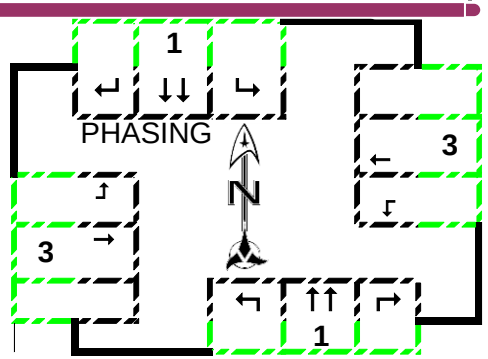
TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

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

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

HAYDEN RD. & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 285

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | 3 ↔
R2

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

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

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

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

HAYDEN RD. & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 285

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN
MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

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

0

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

0

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

0

HAYDEN RD. & GRAYHAWK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	16	28	STANDARD	8/31/2010
YELLOW	4.5	3.6	3.0	SYSTEM # 268 / SECTION # 101
ALL-RED	1.5	4.4	1.0	

COMMUNICATIONS — I.P. ADDRESS
MM-1-5-1 172.17. 12.68

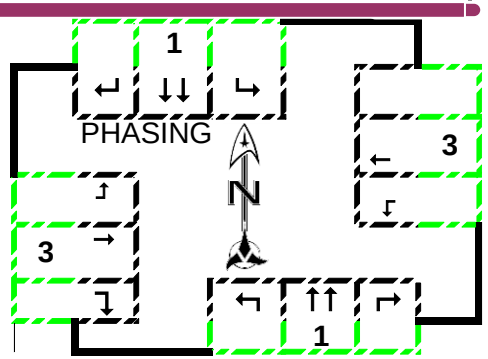
TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

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

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

HAYDEN RD. & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 268

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

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

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

HAYDEN RD. & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 268

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

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

0

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

0

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

0

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

HAYDEN & 101 FREEWAY

BASIC TIMING PLANS

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

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

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

RECOMMENDED CLEARANCES

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

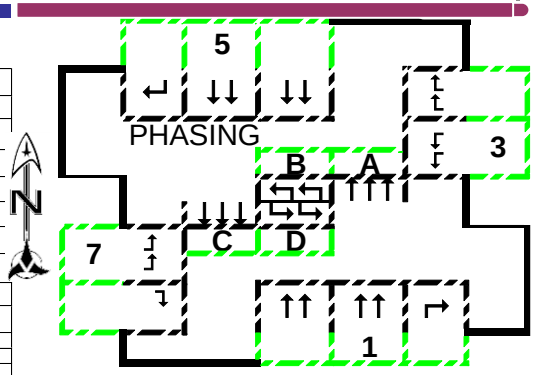
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

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

ONLY VALID WHEN STAMPED

HAYDEN & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 255

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 4

ACTION PLAN #

SEQUENCE

R1	2 ↳	1 ↑		3 ←
R2	5 ↓	6 ↰	7 →	

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

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

N/S

PLAN # 1

DATE EFFECTIVE 12/23/2005

OPERATIVE TIMES 0630-0900

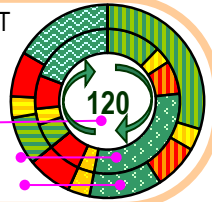
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	24	47	23	26	47	24	26	23	120
COORD		X			X				ACTUAL CYCLE
RECALLS (V, P, Mx)		M			M				
GREEN	18	32	16	26	32	18	10	23	RING 1 / RING 2

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

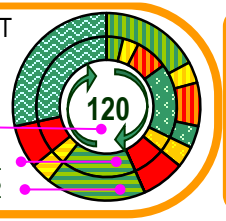


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

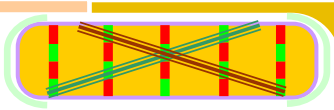
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	18	34	34	34	34	18	34	34	120
COORD		X			X				ACTUAL CYCLE
RECALLS (V, P, Mx)		M			M				
GREEN	12	19	27	34	19	12	18	34	RING 1 / RING 2



MM-3-2

AVAILABLE COORDINATOR PATTERN #s

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



PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

HAYDEN & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 255

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 13

ACTION PLAN

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

SEQUENCE				
R1	1 ↑	2 ↳	3 ←	
R2	6 ↰	5 ↓		7 →

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 12/23/2005

OPERATIVE TIMES 1530-1830

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

120

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

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

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	39	20	29	32	20	39	32	29	120
COORD	x					x			ACTUAL CYCLE
RECALLS (V, P, Mx)	v	v			v	v			
GREEN	24	14	13	32	14	24	25	29	RING 1 / RING 2

120

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

HAYDEN RD. & LEGACY BLVD

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	25	25	STANDARD	8/31/2010
YELLOW	4.8	4.8	3.0	SYSTEM # 293 / SECTION # 101
ALL-RED	2.2	2.2	1.0	

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

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

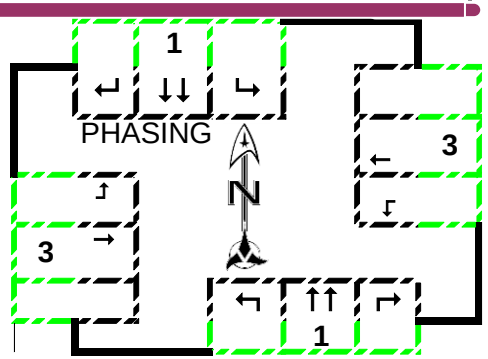
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

HAYDEN RD. & LEGACY BLVD

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 293

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | | 3 ↔ |
R2: | | | |

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES 0630-0900

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

0

PLAN # 2

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

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

0

PLAN # 3

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

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

0

HAYDEN RD. & LEGACY BLVD

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 293

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

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

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES 1530-1830

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

0

PLAN # 8

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

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

0

PLAN # 9

DATE EFFECTIVE 8/31/2010

OPERATIVE TIMES

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

0

HAYDEN RD. & PRINCESS DR.

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	20	22	STANDARD	8/30/2010
YELLOW	4	4	3.0	SYSTEM # 265
ALL-RED	2	3	1.0	SECTION # 101

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

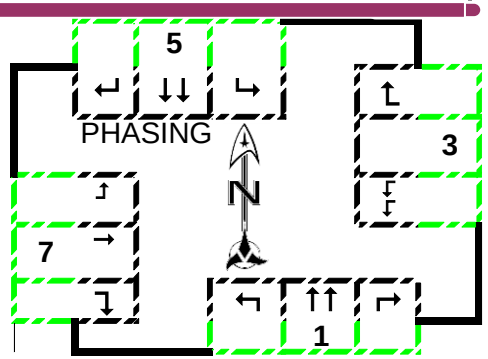
TIMING #1 | TIMING #2 | TIMING #3 | TIMING #4
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

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

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

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

ONLY VALID WHEN STAMPED

HAYDEN RD. & PRINCESS DR.

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 265

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 3

ACTION PLAN #

SEQUENCE

R1	1 ↑			3 ←
R2	5 ↓		7 →	

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

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

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

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

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

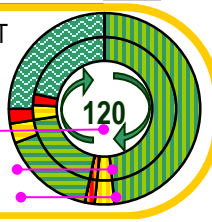
MOVEMENTS: NBT / WBTL / SBT / EBTL

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

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

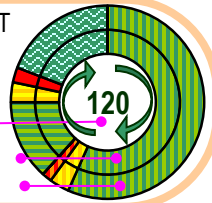


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

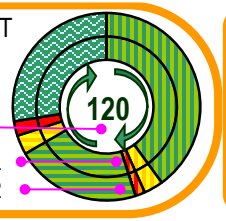


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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



HAYDEN RD. & PRINCESS DR.

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 265

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 3
ACTION PLAN

SEQUENCE

R1	1 ↑			3 ←
R2	5 ↓		7 →	

MOVEMENTS NBT WBTL SBT EBTL

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

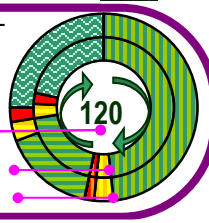
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

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



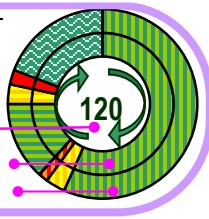
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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



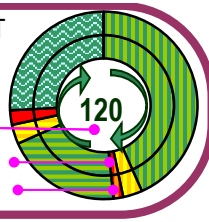
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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



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

HAYDEN & THOMPSON PEAK PKWY

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

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

DATE DESIGNED: 1/13/2011

SYSTEM #: 227 SECTION #: 101

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

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

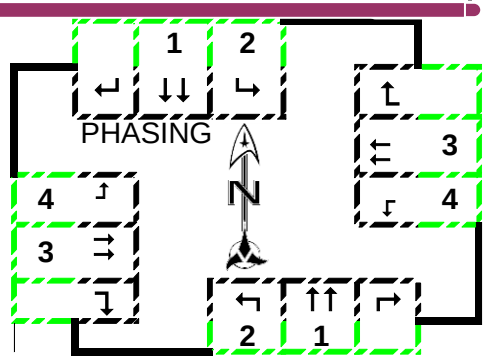
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

NORMALLY RUNS IN FREE

ONLY VALID WHEN STAMPED

HAYDEN & THOMPSON PEAK PKWY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 227

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

	1	2	3	4
R1	1	2	3	4
R2				

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

N/S

MOVEMENTS NST NSL EWT EWL

PLAN # 1

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	46	19	36	19	0	0	0	0	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx) X									
RECALLS (V, P, Mx) P									
GREEN	39	15	29	15	0	0	0	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	56	22	26	16	0	0	0	0	120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx) X									
RECALLS (V, P, Mx) P									
GREEN	49	18	19	12	0	0	0	0	RING 1
									RING 2

PLAN # 3

DATE EFFECTIVE 3/30/2009

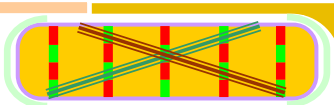
OPERATIVE TIMES

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

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

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



PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET	HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS
1	NB	0	1
2	SB	0	2
3	NS	0	3
4	EB	0	4
5	WB	0	5
6	EW	0	6

HAYDEN & THOMPSON PEAK PKWY

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

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

SYSTEM # 227

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

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

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	46	19	36	19	0	0	0	0	120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	39	15	29	15	0	0	0	0	RING 1
									RING 2

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

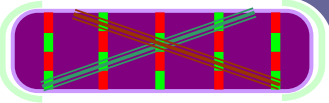
MM-3-2

AVAILABLE COORDINATOR PATTERN #s

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

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

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



PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

PIMA & THOMPSON PEAK PKWY.

BASIC TIMING PLANS

CITY OF SCOTTSDALE

RECOMMENDED CLEARANCES

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

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

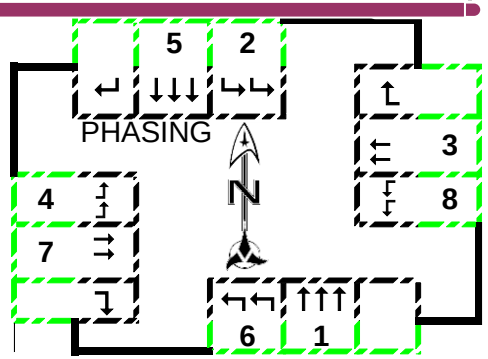
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9	10	11	12	13	14	15	16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

PIMA & THOMPSON PEAK PKWY.

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 207

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

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

N/S

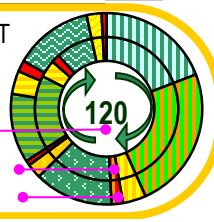
MOVEMENTS: NBT | SBL | WBT | EBL | SBT | NBL | EBT | WBL

PLAN # 1

DATE EFFECTIVE 12/11/2003

OPERATIVE TIMES 0630-0900

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

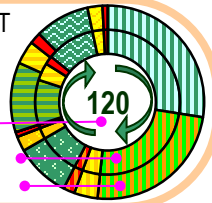


PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

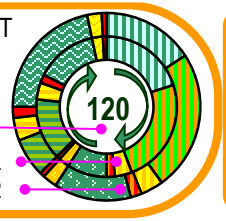


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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



MM-3-2 AVAILABLE COORDINATOR PATTERN #s

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

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

PIMA & THOMPSON PEAK PKWY.

COORDINATOR PATTERNS

CITY OF SCOTTSDALE

CLEARANCES

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

SYSTEM # 207

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

SEQUENCE

R1	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

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

N/S

MOVEMENTS: NBT SBL WBT EBL SBT NBL EBT WBL

PLAN # 7

DATE EFFECTIVE 8/28/2001

OPERATIVE TIMES 1530-1830

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

120

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

120

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

120

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & N. 17050

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

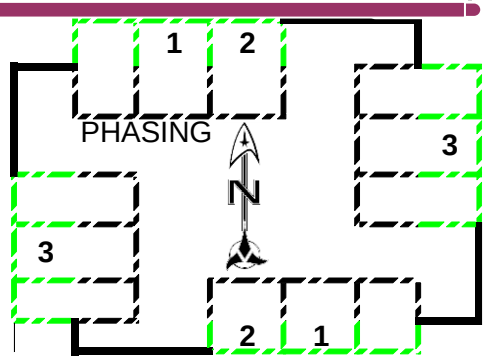
REDS

VOL DENSITY

MM-2-8
RECALLS

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

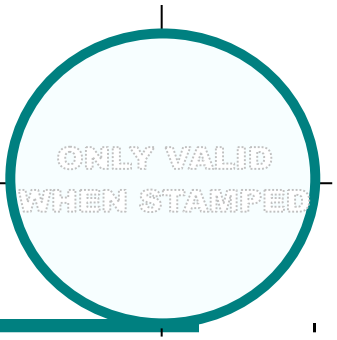
9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES



SCOTTSDALE & N. 17050

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 229

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST NSL EWT

SEQUENCE

	1	2	3	
R1	1 ↕	2 ↰↳	3 ↔	
R2				

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

N/S

PLAN # 1

DATE EFFECTIVE 4/4/1900

OPERATIVE TIMES 0630-0900

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

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

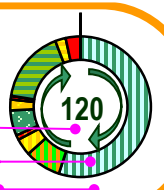
	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	94	11	15	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	88	7	8	0	0	0	0	0	RING 1
									RING 2

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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



MM-3-2

AVAILABLE COORDINATOR PATTERN #s

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

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & N. 17050

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 229

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

MOVEMENTS NST NSL EWT

SEQUENCE

R1	1 ↕	2 ↰↳	3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

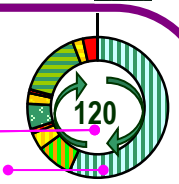
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 4/4/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	84	11	25	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	78	7	18	0	0	0	0	0	RING 1 / RING 2



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

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	92	11	17	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	86	7	10	0	0	0	0	0	RING 1 / RING 2

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

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	77	11	32	0					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	71	7	25	0	0	0	0	0	RING 1 / RING 2

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

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

SCOTTSDALE & CHAUNCEY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	23	28	STANDARD	2/10/2010
YELLOW	4.9	3.9	3.0	SYSTEM # 289 / SECTION # 724
ALL-RED	2.1	3.1	1.0	

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

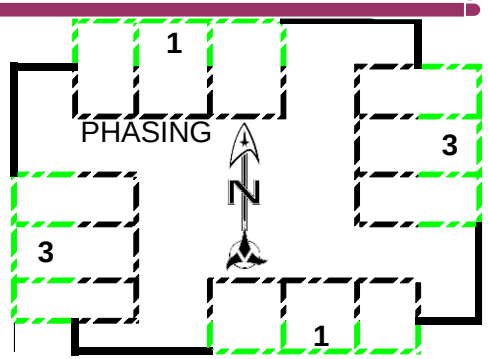
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & CHAUNCEY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 289

SECTION # 724

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

PLAN # 1

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 0630-0900

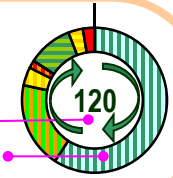
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	99		21						120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)	X P								
GREEN	92	0	14	0	0	0	0	0	RING 1
									RING 2

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

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

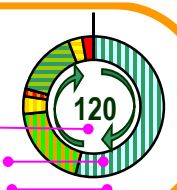


PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

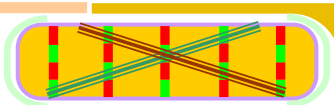
	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	95		25						120
COORD									ACTUAL CYCLE
RECALLS (V, P, Mx)	X P								
GREEN	88	0	18	0	0	0	0	0	RING 1
									RING 2



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	1	NB	25
2	2	SB	25
3	3	NS	25
4	4	EB	25
5	5	WB	25
6	6	EW	25

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & CHAUNCEY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 289

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 1

ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

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

120

AVAILABLE PATTERNS: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

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

120

AVAILABLE PATTERNS: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

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

120

AVAILABLE PATTERNS: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE & DEER VALLEY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	12	12	STANDARD	11/20/2012
YELLOW	4.8	4.2	3.0	SYSTEM # 276 / SECTION # 101
ALL-RED	1.2	1.8	1.0	

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

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

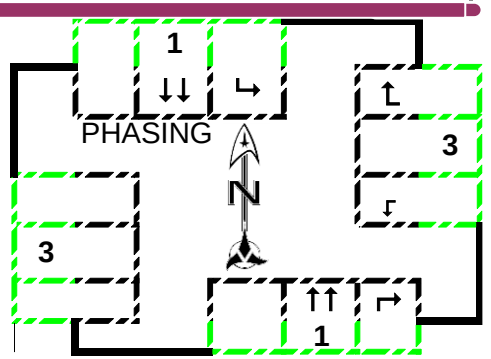
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 276

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

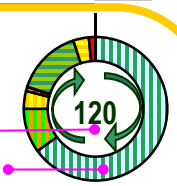
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 0630-0900

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



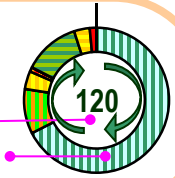
1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

PLAN # 2

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

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



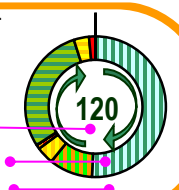
2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

PLAN # 3

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

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



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

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

SCOTTSDALE & DEER VALLEY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 276

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

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

120

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

PLAN # 8

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

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

120

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

PLAN # 9

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES

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

120

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

SCOTTSDALE & FRANK LLOYD WRIGHT

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

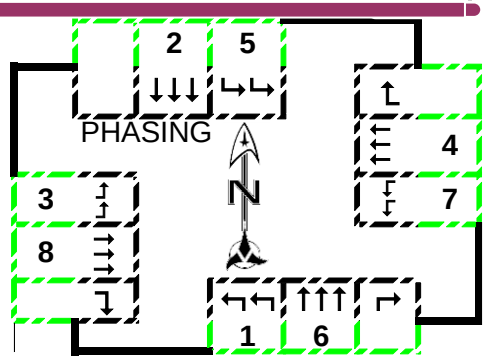
REDS

VOL DENSITY

MM-2-8 RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

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

ONLY VALID WHEN STAMPED

SCOTTSDALE & FRANK LLOYD WRIGHT

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 162

SECTION # 1617

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

R1	6 ↑	5 ↳	4 ←	3 ↴
R2	2 ↓	1 ↰	8 →	7 ↱

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

N/S

PLAN # 1

DATE EFFECTIVE 11/18/2013

OPERATIVE TIMES 0630-0900

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

RING 1: 1 2 3 4 — RING 2: 5 6 7 8 — TARGET 120 — ACTUAL CYCLE 120 — RING 1 — RING 2

PLAN # 2

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

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

RING 1: 1 2 3 4 — RING 2: 5 6 7 8 — TARGET 120 — ACTUAL CYCLE 120 — RING 1 — RING 2

PLAN # 3

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

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

RING 1: 1 2 3 4 — RING 2: 5 6 7 8 — TARGET 120 — ACTUAL CYCLE 120 — RING 1 — RING 2

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

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

PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

SCOTTSDALE & FRANK LLOYD WRIGHT

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 162

SECTION # 1617

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

SEQUENCE				
R1	6 ↑	5 ↦	4 ←	3 ↴
R2	2 ↓	1 ↤	8 →	7 ↱

MOVEMENTS	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT

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	10
2	SB	67
3	NS	67
4	EB	67
5	WB	67
6	EW	67

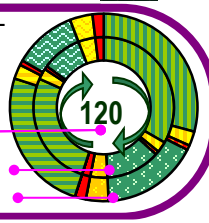
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 9/4/2013

OPERATIVE TIMES 1530-1830

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



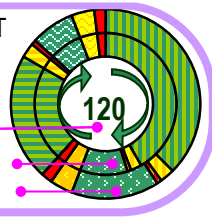
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

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



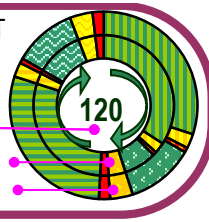
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 8/30/2013

OPERATIVE TIMES

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



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

SCOTTSDALE & GRAYHAWK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

DATE DESIGNED: 12/3/2012

SYSTEM # 217 | SECTION # 101

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

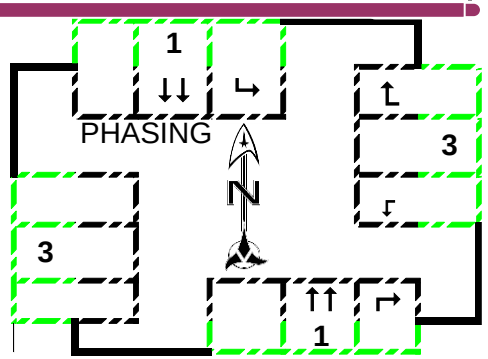
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 217

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

MOVEMENTS NST EWT

SEQUENCE

R1: 1 ↕ | 3 ↔
R2

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES 0630-0900

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

120

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

PLAN # 2

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

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

120

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

PLAN # 3

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

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

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	HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS
1	NB	90	1
2	SB	90	2
3	NS	90	3
4	EB	90	4
5	WB	90	5
6	EW	90	6

SCOTTSDALE & GRAYHAWK

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 217

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

MOVEMENTS NST EWT

SEQUENCE

R1	1 ↕		3 ↔	
R2				

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES 1530-1830

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

120

AVAILABLE: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

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

120

AVAILABLE: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 2/20/2001

OPERATIVE TIMES

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

120

AVAILABLE: 9 1, 9 2, 9 3, 9 4, 9 5, 9 6

SCOTTSDALE & 101 FREEWAY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

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

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

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

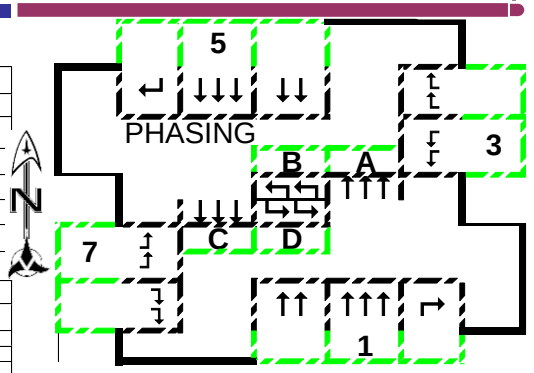
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

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

ONLY VALID WHEN STAMPED

SCOTTSDALE & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 254

SECTION # 101

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 1

ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↳	3 ←	4 ↴
R2	5 ↓	6 ↰	7 →	8 ↱

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

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

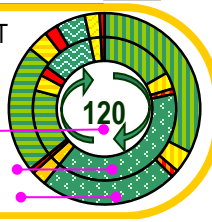
N/S

PLAN # 1

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES 0630-0900

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

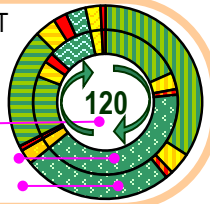


PLAN # 2

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

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

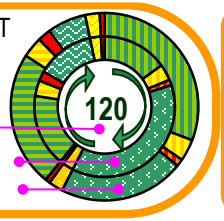


PLAN # 3

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

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



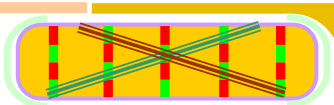
MM-3-2

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

1 2 3 4 5 6

SCOTTSDALE & 101 FREEWAY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 254

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

SEQUENCE

R1	1 ↑	2 ↦	3 ←	4 ↴
R2	5 ↓	6 ↤	7 →	8 ↱

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

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

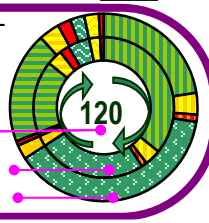
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES 1530-1830

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



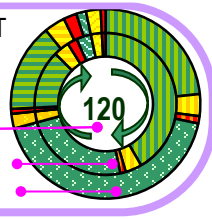
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

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



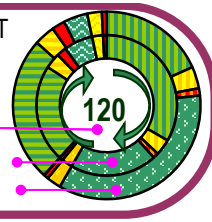
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 10/25/2010

OPERATIVE TIMES

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



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

SCOTTSDALE & LEGACY

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

DATE DESIGNED: 2/10/2010

SYSTEM #: 291 SECTION #: 101

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

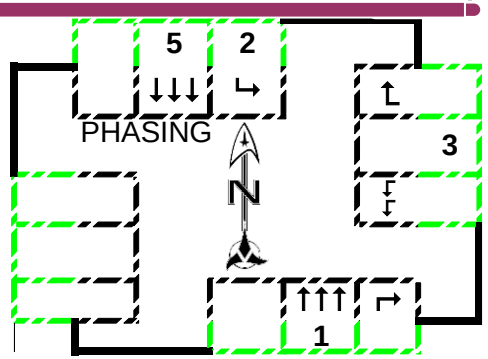
REDS

VOL DENSITY

MM-2-8
RECALLS

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

9 10 11 12 13 14 15 16



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

SPLIT PLAN MAXIMUMS

NOTES

ONLY VALID WHEN STAMPED

SCOTTSDALE & LEGACY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 291

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↪	3 ←	
R2	5 ↓			

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

N/S

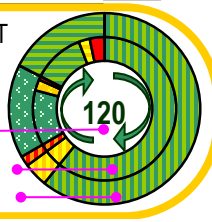
MOVEMENTS: NBT NSL EWT SBT

PLAN # 1

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES 0630-0900

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

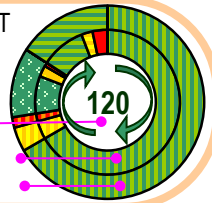


PLAN # 2

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES

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

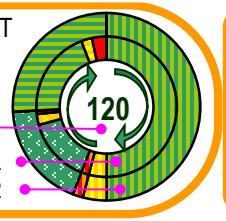


PLAN # 3

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES

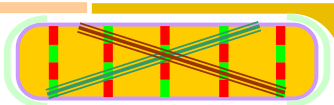
	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	67	22	31	0	67	22	31	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	M				M				
GREEN	60	18	24	0	60	22	31	0	RING 1
									RING 2



MM-3-2

AVAILABLE COORDINATOR PATTERN #s

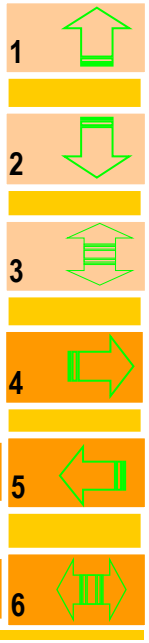
1 1	2 1	3 1
1 2	2 2	3 2
1 3	2 3	3 3
1 4	2 4	3 4
1 5	2 5	3 5
1 6	2 6	3 6



PROGRESSION VALUES

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

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS



SCOTTSDALE & LEGACY

COORDINATOR PATTERNS

CLEARANCES

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

SYSTEM # 291

SECTION # 101

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

SEQUENCE

R1	1 ↑	2 ↪	3 ←	
R2	5 ↓			

MOVEMENTS NBT NSL EWT SBT

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

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

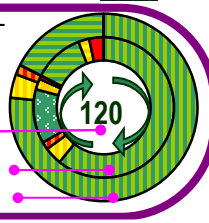
HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS

PLAN # 7

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES 1530-1830

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



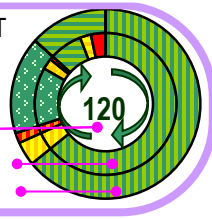
AVAILABLE COORDINATOR PATTERN #s: 7 1, 7 2, 7 3, 7 4, 7 5, 7 6

PLAN # 8

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES

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



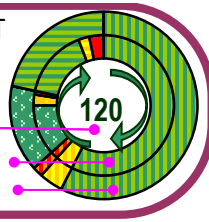
AVAILABLE COORDINATOR PATTERN #s: 8 1, 8 2, 8 3, 8 4, 8 5, 8 6

PLAN # 9

DATE EFFECTIVE 1/22/2010

OPERATIVE TIMES

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



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

SCOTTSDALE RD & MAYO BLVD

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

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

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

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1 TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

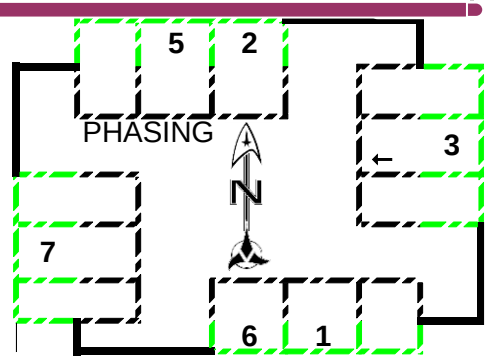
REDS

VOL DENSITY

MM-2-8 RECALLS

PHASE	1	2	3		5	6	7	
MOVEMENT	NBT	SBL	WBT		SBT	NBL	EBT	
NOTES								
MIN GRN	20	5	4		20	5	10	
BK MGRN								
CS MGRN								
DLY GRN								
WALK	7	0	7		7	0	7	
WALK2								
WLK MAX								
PED CLR/FDW	26		30		26		30	
PD CLR2								
PC MAX								
PED CO								
VEH EXT		2	2			2	2	
VH EXT2								
MAX 1	60	25	15		50	25	35	
MAX 2	70	35	40		70	35	50	
MAX 3								
DYM MAX								
DYM STP								
YELLOW	4.8	3	3.9		4.8	3	3.9	
RED CLR	2.2	1	3.1		2.2	1	3.1	
RED MAX								
RED RVT	2		2		2		2	
ACT B4								
SEC/ACT								
MAX INT								
TIME B4								
CARS WT								
STPTDUC								
TTREDUC								
MIN GAP								
LOCK DET								
VEH RECALL								
PED RECALL	X				X			
MAX RECALL								
SOFT RECALL								
NO REST								
ADD INIT CAL								

9 10 11 12 13 14 15 16

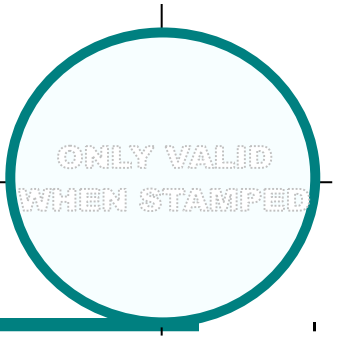


1	2	3	4	5	6	7	8
57	21	15	41	49	25	34	22
66	33	40	53	66	33	46	47

SPLIT PLAN MAXIMUMS

NOTES

PHASE 3 & 7 EXCLUSIVE, SET UP ON BARRIER PAGE. PH3 LEADS



SCOTTSDALE RD & MAYO BLVD

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	26	0	30	0	26	0	30	0
YELLOW	4.8	3.0	3.9	0.0	4.8	3.0	3.9	0.0
ALL RED	2.2	1.0	3.1	0.0	2.2	1.0	3.1	0.0

SYSTEM # 215

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 9

ACTION PLAN #

SEQUENCE

R1	1 ↑	2 ↳	3 ←	
R2	5 ↓	6 ↰		7 →

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 0630-0900

MOVEMENTS	NBT	SBL	WBT	SBT	NBL	EBT
RING 1 PHASE	1	2	3	4		
SPLIT	52	18	15	35		
COORD	X					
RECALLS (V, P, Mx)	P					
GREEN	45	14	8	35		
RING 2 PHASE					5	6	7	8
SPLIT					56	14	35	15
COORD					X			
RECALLS (V, P, Mx)					P			
GREEN					49	10	28	15

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

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	SBT	NBL	EBT
RING 1 PHASE	1	2	3	4		
SPLIT	50	25	14	31		
COORD	X					
RECALLS (V, P, Mx)	P					
GREEN	43	21	7	31		
RING 2 PHASE					5	6	7	8
SPLIT					54	21	31	14
COORD					X			
RECALLS (V, P, Mx)					P			
GREEN					47	17	24	14

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

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	SBT	NBL	EBT
RING 1 PHASE	1	2	3	4		
SPLIT	41	16	22	41		
COORD	X					
RECALLS (V, P, Mx)	P					
GREEN	34	12	15	41		
RING 2 PHASE					5	6	7	8
SPLIT					45	12	41	22
COORD					X			
RECALLS (V, P, Mx)					P			
GREEN					38	8	34	22

TARGET 120; ACTUAL CYCLE 120; RING 1; RING 2

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	98
2	SB	98
3	NS	98
4	EB	98
5	WB	98
6	EW	98

SCOTTSDALE RD & MAYO BLVD

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	26	0	30	0	26	0	30	0
YELLOW	4.8	3.0	3.9	0.0	4.8	3.0	3.9	0.0
ALL RED	2.2	1.0	3.1	0.0	2.2	1.0	3.1	0.0

SYSTEM # 215

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1

SEQUENCE 9

ACTION PLAN

R1	1 ↑	2 ↦	3 ←	
R2	5 ↓	6 ↤		7 →

MOVEMENTS: NBT SBL WBT | SBT NBL EBT

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

N/S

MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PLAN # 7

DATE EFFECTIVE 8/30/2001

OPERATIVE TIMES 1530-1830

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	60	15	16	29	48	27	29	16
COORD	X				X			
RECALLS (V, P, Mx)	P				P			
GREEN	53	11	9	29	41	23	22	16

TARGET 120 — ACTUAL CYCLE: RING 1, RING 2

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

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	64	17	14	25	52	29	25	14
COORD	X				X			
RECALLS (V, P, Mx)	P				P			
GREEN	57	13	7	25	45	25	18	14

TARGET 120 — ACTUAL CYCLE: RING 1, RING 2

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

PLAN # 9

DATE EFFECTIVE

OPERATIVE TIMES

RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8
SPLIT	55	14	19	32	43	26	32	19
COORD	X				X			
RECALLS (V, P, Mx)	P				P			
GREEN	48	10	12	32	36	22	25	19

TARGET 120 — ACTUAL CYCLE: RING 1, RING 2

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

PROGRESSION VALUES

DIR CODE	COORD DIR	B.O.G. OFFSET	HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS
1	NB	98	1
2	SB	98	2
3	NS	98	3
4	EB	98	4
5	WB	98	5
6	EW	98	6

SCOTTSDALE & PRINCESS

BASIC TIMING PLANS

RECOMMENDED CLEARANCES

	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	17	28	STANDARD	2/10/2010
YELLOW	4.4	2.9	3.0	SYSTEM # 163 / SECTION # 724
ALL-RED	1.6	4.1	1.0	

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 11.63

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

CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1
TIMING PLAN #1

GREENS

PEDESTRIAN

MAXIMUMS

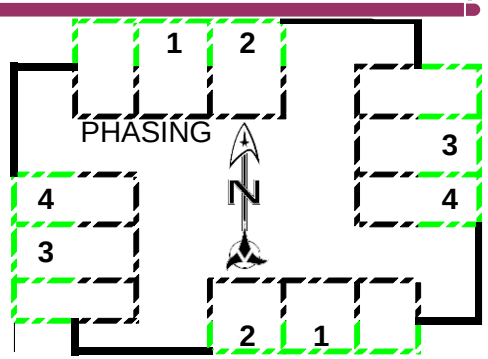
REDS

VOL DENSITY

MM-2-8
RECALLS

PHASE	1	2	3	4
MOVEMENT	NST	NSL	EWT	EWL
NOTES		p&P		p&P
MIN GRN	20	4	6	4
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		7	
WALK2				
WLK MAX				
PED CLR/FDW	17		28	
PD CLR2				
PC MAX				
PED CO				
VEH EXT	0	1	2	1
VH EXT2				
MAX 1	65	20	25	15
MAX 2	70	35	40	35
MAX 3				
DYM MAX				
DYM STP				
YELLOW	4.4	3	2.9	3
RED CLR	1.6	1	4.1	1
RED MAX				
RED RVT	2		2	
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL				
PED RECALL	X			
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

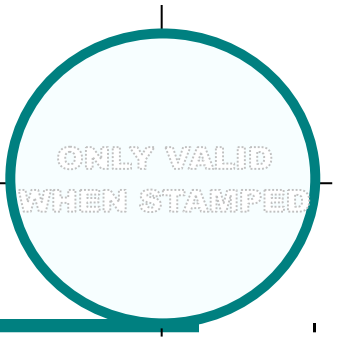
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
63	16	22	14	0	0	0	0
63	35	35	35	0	0	0	0

SPLIT PLAN MAXIMUMS

NOTES



SCOTTSDALE & PRINCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	28	0	0	0	0	0
YELLOW	4.4	3.0	2.9	3.0	0.0	0.0	0.0	0.0
ALL RED	1.6	1.0	4.1	1.0	0.0	0.0	0.0	0.0

SYSTEM # 163

SECTION # 724

MORNING | EVENING | N/S EX

MID-DAY | MIDNIGHT | E/W EX

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1

SEQUENCE # 1

ACTION PLAN #

MOVEMENTS NST NSL EWT EWL

SEQUENCE

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

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	25
2	SB	25
3	NS	25
4	EB	25
5	WB	25
6	EW	25

HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	67	18	20	15					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	61	14	13	11	0	0	0	0	RING 1
									RING 2

PLAN # 2

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	69	20	19	12					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	63	16	12	8	0	0	0	0	RING 1
									RING 2

PLAN # 3

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	65	14	27	14					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	59	10	20	10	0	0	0	0	RING 1
									RING 2

SCOTTSDALE & PRINCESS

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	17	0	28	0	0	0	0	0
YELLOW	4.4	3.0	2.9	3.0	0.0	0.0	0.0	0.0
ALL RED	1.6	1.0	4.1	1.0	0.0	0.0	0.0	0.0

SYSTEM # 163

SECTION # 724

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

SEQUENCE: R1: 1 ↕ | 2 ↰↳ | 3 ↔ | 4 ↴↱ ; R2:

MOVEMENTS: NST NSL EWT EWL

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

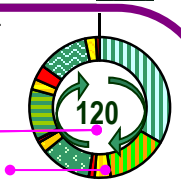
N/S: WALK & GREEN; FDW & GREEN; GREEN w/o WALK; LEFT

PLAN # 7

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	63	18	21	18					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	57	14	14	14	0	0	0	0	RING 1 / RING 2

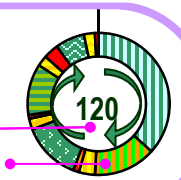


PLAN # 8

DATE EFFECTIVE 2/10/2010

OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	67	20	21	12					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	61	16	14	8	0	0	0	0	RING 1 / RING 2

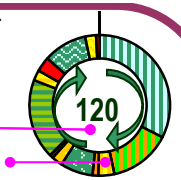


PLAN # 9

DATE EFFECTIVE 2/10/2010

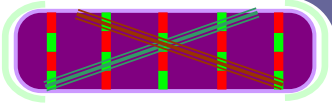
OPERATIVE TIMES

	RING 1				RING 2				
PHASE	1	2	3	4	5	6	7	8	TARGET
SPLIT	62	13	29	16					120
COORD	X								ACTUAL CYCLE
RECALLS (V, P, Mx)	P								
GREEN	56	9	22	12	0	0	0	0	RING 1 / RING 2



MM-3-2 AVAILABLE COORDINATOR PATTERN #s

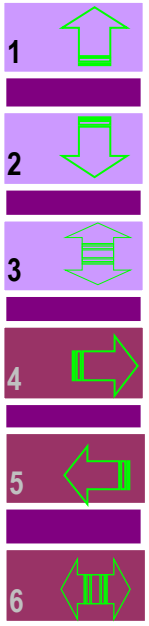
7 1	7 2	7 3	7 4	7 5	7 6	8 1	8 2	8 3	8 4	8 5	8 6
9 1	9 2	9 3	9 4	9 5	9 6						



PROGRESSION VALUES

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

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS



SCOTTSDALE & THOMPSON PEAK

BASIC TIMING PLANS

RECOMMENDED CLEARANCES	N/S	E/W	LEFT TURN	DATE DESIGNED
F.D.W.	32	30	STANDARD	2/11/2010
YELLOW	5.3	4.6	3.0	SYSTEM # 216 / SECTION # 724
ALL-RED	2.7	2.4	1.0	

COMMUNICATIONS MM-1-5-1 — I.P. ADDRESS 172.17. 12.16

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

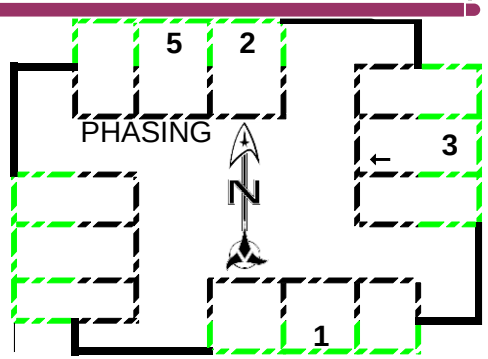
CLEARANCE | SEQUENCE | PATTERNS | HISTORY

MM-2-1 TIMING PLAN #1

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

PHASE	1	2	3	5
MOVEMENT	NBT	NSL	EWT	SBT
NOTES		PROT		
MIN GRN	20	5	6	20
BK MGRN				
CS MGRN				
DLY GRN				
WALK	7		7	7
WALK2				
WLK MAX				
PED CLR/FDW	32		30	32
PD CLR2				
PC MAX				
PED CO				
VEH EXT		3	2	
VH EXT2				
MAX 1	70	25	40	70
MAX 2	80	30	60	80
MAX 3				
DYM MAX				
DYM STP				
YELLOW	5.3	3	4.6	5.3
RED CLR	2.7	1	2.4	2.7
RED MAX				
RED RVT	2		2	2
ACT B4				
SEC/ACT				
MAX INT				
TIME B4				
CARS WT				
STPTDUC				
TTREDUC				
MIN GAP				
LOCK DET				
VEH RECALL				
PED RECALL	X			X
MAX RECALL				
SOFT RECALL				
NO REST				
ADD INIT CAL				

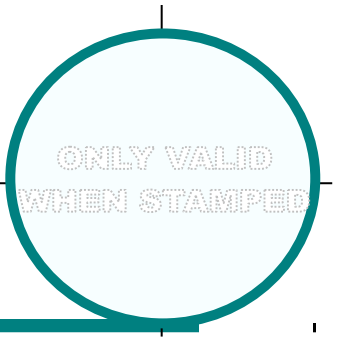
9 10 11 12 13 14 15 16



1	2	3	4	5	6	7	8
67	21	40	0	67	25	47	0
77	26	58	0	77	30	65	0

SPLIT PLAN MAXIMUMS

NOTES



SCOTTSDALE & THOMPSON PEAK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	32	0	30	0	32	0	0	0
YELLOW	5.3	3.0	4.6	0.0	5.3	0.0	0.0	0.0
ALL RED	2.7	1.0	2.4	0.0	2.7	0.0	0.0	0.0

SYSTEM # 216

SECTION # 724

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 MORNING SPLIT PATTERNS

TIMING PLAN # 1
SEQUENCE # 1
ACTION PLAN #

R1	1 ↑	2 ↳	3 ←
R2	5 ↓		

SEQUENCE

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

N/S

MOVEMENTS: NBT NSL EWT SBT

MM-3-2

AVAILABLE COORDINATOR PATTERN #s

PROGRESSION VALUES

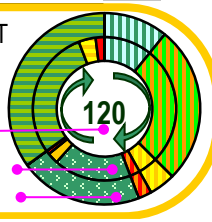
HYPERLINKS TO MORNING TIME-SPACE DIAGRAMS

PLAN # 1

DATE EFFECTIVE #N/A

OPERATIVE TIMES 0630-0900

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	53	25	42	0	53	25	42	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	45	21	35	0	45	25	42	0	RING 1 / RING 2



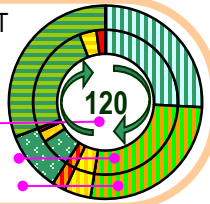
AVAILABLE COORDINATOR PATTERN #s: 1 1 | 1 2 | 1 3 | 1 4 | 1 5 | 1 6

PLAN # 2

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	71	12	37	0	71	12	37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	63	8	30	0	63	12	37	0	RING 1 / RING 2



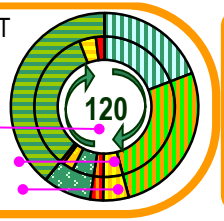
AVAILABLE COORDINATOR PATTERN #s: 2 1 | 2 2 | 2 3 | 2 4 | 2 5 | 2 6

PLAN # 3

DATE EFFECTIVE 3/30/2009

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	63	10	47	0	63	10	47	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	55	6	40	0	55	10	47	0	RING 1 / RING 2



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	40
2	SB	40
3	NS	40
4	EB	40
5	WB	40
6	EW	40

SCOTTSDALE & THOMPSON PEAK

COORDINATOR PATTERNS

CLEARANCES

	PH1	2	3	4	5	6	7	8
FDW	32	0	30	0	32	0	0	0
YELLOW	5.3	3.0	4.6	0.0	5.3	0.0	0.0	0.0
ALL RED	2.7	1.0	2.4	0.0	2.7	0.0	0.0	0.0

SYSTEM # 216

SECTION # 724

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

CLEARANCE | BASIC TIME | SEQUENCE | HISTORY

MM-3-3 EVENING SPLIT PATTERNS

TIMING PLAN 1
SEQUENCE 1
ACTION PLAN

R1	1 ↑	2 ↪	3 ←	
R2	5 ↓			

MOVEMENTS NBT NSL EWT SBT

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

N/S

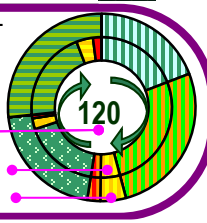
MM-3-2 AVAILABLE COORDINATOR PATTERN #s

PLAN # 7

DATE EFFECTIVE 1/0/1900

OPERATIVE TIMES 1530-1830

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	63	25	32	0	63	25	32	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	55	21	25	0	55	25	32	0	RING 1 / RING 2



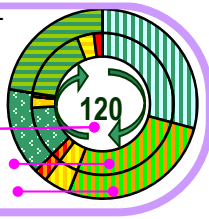
7 1 | 7 2 | 7 3 | 7 4 | 7 5 | 7 6

PLAN # 8

DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	75	18	27	0	75	18	27	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	67	14	20	0	67	18	27	0	RING 1 / RING 2



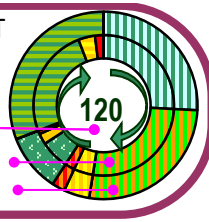
8 1 | 8 2 | 8 3 | 8 4 | 8 5 | 8 6

PLAN # 9

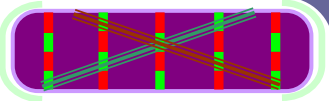
DATE EFFECTIVE

OPERATIVE TIMES

	RING 1				RING 2				TARGET
PHASE	1	2	3	4	5	6	7	8	
SPLIT	71	12	37	0	71	12	37	0	120
COORD	X				X				ACTUAL CYCLE
RECALLS (V, P, Mx)	P				P				
GREEN	63	8	30	0	63	12	37	0	RING 1 / RING 2



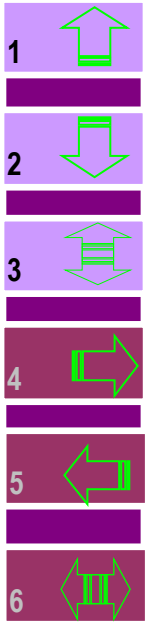
9 1 | 9 2 | 9 3 | 9 4 | 9 5 | 9 6



PROGRESSION VALUES

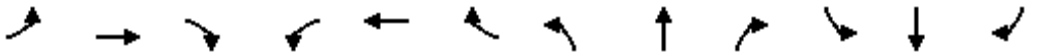
DIR CODE	COORD DIR	B.O.G. OFFSET
1	NB	40
2	SB	40
3	NS	40
4	EB	40
5	WB	40
6	EW	40

HYPERLINKS TO EVENING TIME-SPACE DIAGRAMS



APPENDIX D

EXISTING PEAK HOUR ANALYSIS



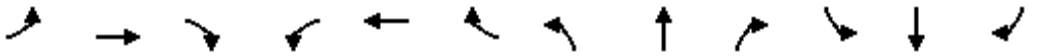
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	10	58	60	11	2	57	487	15	3	545	31
Future Volume (vph)	25	10	58	60	11	2	57	487	15	3	545	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1624		1770	1823		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.37	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	1394	1624		1319	1823		698	3539	1583	770	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	11	64	67	12	2	63	541	17	3	606	34
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	9	0	0	18
Lane Group Flow (vph)	28	37	0	67	13	0	63	541	8	3	606	16
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	649		527	729		323	1639	733	356	1639	733
v/s Ratio Prot		0.02			0.01			0.15			c0.17	
v/s Ratio Perm	0.02			c0.05			0.09		0.00	0.00		0.01
v/c Ratio	0.05	0.06		0.13	0.02		0.20	0.33	0.01	0.01	0.37	0.02
Uniform Delay, d1	17.5	17.5		18.0	17.2		15.0	16.2	13.8	13.7	16.5	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.5	0.0		1.3	0.5	0.0	0.0	0.6	0.1
Delay (s)	17.6	17.7		18.5	17.3		16.4	16.7	13.8	13.8	17.2	13.9
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		17.6			18.3			16.6			17.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



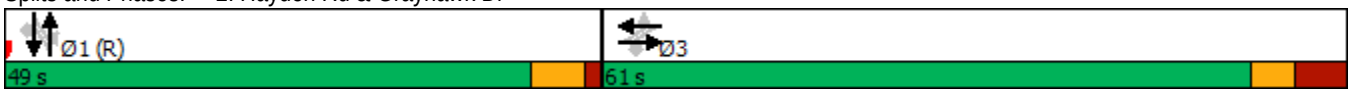
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	2	87	43	7	18	34	510	8	3	644	33
Future Volume (vph)	29	2	87	43	7	18	34	510	8	3	644	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1663		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.28	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1377	1863	1583	1409	1663		514	3539	1583	679	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	2	97	48	8	20	38	567	9	3	716	37
RTOR Reduction (vph)	0	0	50	0	10	0	0	0	5	0	0	23
Lane Group Flow (vph)	32	2	47	48	18	0	38	567	4	3	716	14
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	663	897	762	678	801		200	1383	618	265	1383	618
v/s Ratio Prot		0.00			0.01			0.16			c0.20	
v/s Ratio Perm	0.02		0.03	c0.03			0.07		0.00	0.00		0.01
v/c Ratio	0.05	0.00	0.06	0.07	0.02		0.19	0.41	0.01	0.01	0.52	0.02
Uniform Delay, d1	15.1	14.8	15.2	15.3	14.9		22.0	24.3	20.5	20.5	25.6	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.2	0.1		2.1	0.9	0.0	0.1	1.4	0.1
Delay (s)	15.3	14.8	15.4	15.5	15.0		24.1	25.2	20.5	20.6	27.0	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.3			15.3			25.1			26.6	
Approach LOS		B			B			C			C	

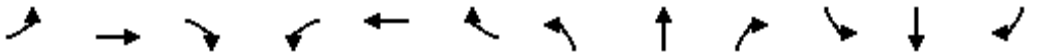
Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	248	254	282	234	84	128	422	241	198	543	42
Future Volume (vph)	26	248	254	282	234	84	128	422	241	198	543	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.59	1.00	1.00	0.33	1.00	1.00	0.39	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1101	3539	1583	620	3539	1583	735	3539	1583	700	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	276	282	313	260	93	142	469	268	220	603	47
RTOR Reduction (vph)	0	0	241	0	0	69	0	0	153	0	0	25
Lane Group Flow (vph)	29	276	41	313	260	24	142	469	115	220	603	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.0	17.5	17.5	40.3	31.3	31.3	61.1	51.3	51.3	69.3	56.4	56.4
Effective Green, g (s)	22.0	17.5	17.5	40.3	31.3	31.3	61.1	51.3	51.3	69.3	56.4	56.4
Actuated g/C Ratio	0.18	0.15	0.15	0.34	0.26	0.26	0.51	0.43	0.43	0.58	0.47	0.47
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	516	230	393	923	412	458	1512	676	519	1663	744
v/s Ratio Prot	0.00	0.08		c0.13	0.07		0.03	0.13		c0.05	c0.17	
v/s Ratio Perm	0.02		0.03	c0.14		0.02	0.13		0.07	c0.20		0.01
v/c Ratio	0.13	0.53	0.18	0.80	0.28	0.06	0.31	0.31	0.17	0.42	0.36	0.03
Uniform Delay, d1	40.7	47.5	44.9	32.6	35.4	33.3	15.8	22.7	21.2	13.1	20.3	17.1
Progression Factor	1.04	0.97	1.36	1.14	1.11	2.36	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.0	0.3	10.5	0.2	0.1	0.4	0.5	0.5	0.6	0.6	0.1
Delay (s)	42.5	47.2	61.4	47.7	39.4	78.6	16.2	23.2	21.7	13.7	20.9	17.2
Level of Service	D	D	E	D	D	E	B	C	C	B	C	B
Approach Delay (s)		53.8			48.8			21.6			18.9	
Approach LOS		D			D			C			B	

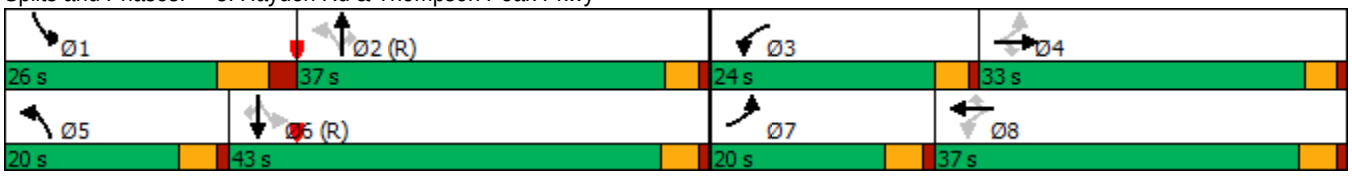
Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

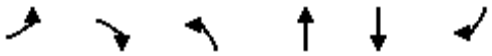
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

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

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	31	8	747	1094	4
Future Volume (vph)	8	31	8	747	1094	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	416	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	34	9	830	1216	4
RTOR Reduction (vph)	0	33	0	0	0	0
Lane Group Flow (vph)	9	1	9	830	1216	4
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				1	1	
Permitted Phases	3	3	1			1
Actuated Green, G (s)	4.2	4.2	91.8	91.8	91.8	91.8
Effective Green, g (s)	4.2	4.2	91.8	91.8	91.8	91.8
Actuated g/C Ratio	0.04	0.04	0.83	0.83	0.83	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	67	60	347	2953	2953	1321
v/s Ratio Prot				0.23	c0.34	
v/s Ratio Perm	c0.01	0.00	0.02			0.00
v/c Ratio	0.13	0.02	0.03	0.28	0.41	0.00
Uniform Delay, d1	51.1	50.9	1.5	2.0	2.3	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	0.1	0.2	0.4	0.0
Delay (s)	52.1	51.1	1.7	2.2	2.7	1.5
Level of Service	D	D	A	A	A	A
Approach Delay (s)	51.3			2.2	2.7	
Approach LOS	D			A	A	

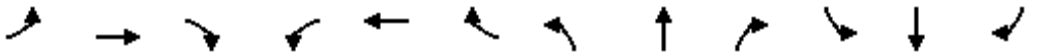
Intersection Summary			
HCM 2000 Control Delay	3.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	40
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	33	4	309	117	437	0	0	761	396
Future Volume (vph)	0	0	0	33	4	309	117	437	0	0	761	396
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1510	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1510	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	37	4	343	130	486	0	0	846	440
RTOR Reduction (vph)	0	0	0	0	139	139	0	0	0	0	0	238
Lane Group Flow (vph)	0	0	0	37	37	32	130	486	0	0	846	202
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				22.8	22.8	22.8	22.1	24.6			55.1	55.1
Effective Green, g (s)				22.8	22.8	22.8	22.1	24.6			55.1	55.1
Actuated g/C Ratio				0.19	0.19	0.19	0.18	0.21			0.46	0.46
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				652	286	285	325	725			2942	726
v/s Ratio Prot					c0.02		c0.07	c0.14			c0.13	
v/s Ratio Perm				0.01		0.02						0.13
v/c Ratio				0.06	0.13	0.11	0.40	0.67			0.29	0.28
Uniform Delay, d1				39.8	40.3	40.2	43.1	44.0			20.2	20.1
Progression Factor				1.00	1.00	1.00	1.34	0.28			1.00	1.00
Incremental Delay, d2				0.0	0.2	0.2	3.5	2.3			0.2	1.0
Delay (s)				39.8	40.6	40.4	61.2	14.5			20.5	21.1
Level of Service				D	D	D	E	B			C	C
Approach Delay (s)		0.0			40.4			24.3			20.7	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

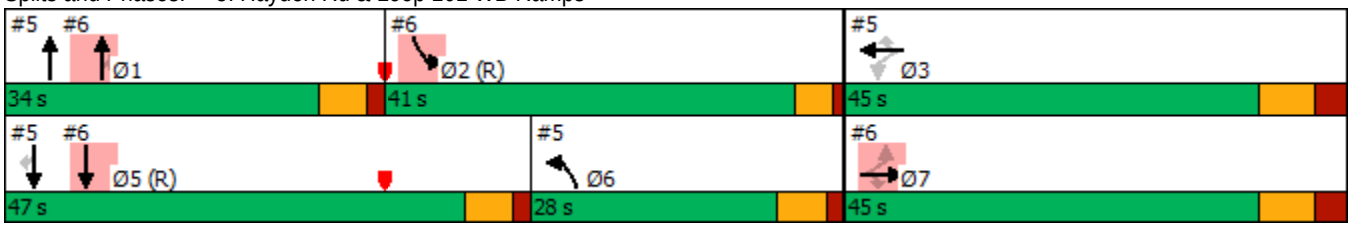
c Critical Lane Group

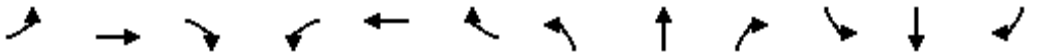
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	0	417	0	0	0	0	331	16	509	290	0
Future Volume (vph)	218	0	417	0	0	0	0	331	16	509	290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1459	1504					5085	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1459	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	242	0	463	0	0	0	0	368	18	566	322	0
RTOR Reduction (vph)	0	180	195	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	218	66	46	0	0	0	0	368	4	566	322	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	22.8	22.8	22.8					24.6	24.6	54.1	55.1	
Effective Green, g (s)	22.8	22.8	22.8					24.6	24.6	54.1	55.1	
Actuated g/C Ratio	0.19	0.19	0.19					0.21	0.21	0.45	0.46	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	319	277	285					1042	324	1547	1624	
v/s Ratio Prot								c0.07		c0.16	0.09	
v/s Ratio Perm	c0.13	0.05	0.03						0.00			
v/c Ratio	0.68	0.24	0.16					0.35	0.01	0.37	0.20	
Uniform Delay, d1	45.2	41.2	40.6					40.9	38.0	21.7	19.3	
Progression Factor	1.34	4.22	5.73					1.07	1.00	0.81	0.29	
Incremental Delay, d2	4.1	0.3	0.2					0.2	0.0	0.7	0.3	
Delay (s)	64.6	174.1	232.7					44.0	38.0	18.1	6.0	
Level of Service	E	F	F					D	D	B	A	
Approach Delay (s)		160.3			0.0			43.7			13.7	
Approach LOS		F			A			D			B	

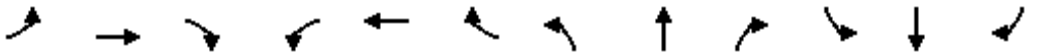
Intersection Summary			
HCM 2000 Control Delay	71.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	40	304	9	174	561
Future Volume (Veh/h)	0	40	304	9	174	561
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	44	338	10	193	623
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.99					
vC, conflicting volume	1036	169			348	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010	169			348	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			84	
cM capacity (veh/h)	196	845			1208	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	44	169	169	10	193	312	312
Volume Left	0	0	0	0	193	0	0
Volume Right	44	0	0	10	0	0	0
cSH	845	1700	1700	1700	1208	1700	1700
Volume to Capacity	0.05	0.10	0.10	0.01	0.16	0.18	0.18
Queue Length 95th (ft)	4	0	0	0	14	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	8.5	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.5	0.0			2.0		
Approach LOS	A						

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	56	81	156	0	22	67	214	182	112	397	44
Future Volume (vph)	39	56	81	156	0	22	67	214	182	112	397	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.49	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	919	3539	1583	1125	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	62	90	173	0	24	74	238	202	124	441	49
RTOR Reduction (vph)	0	0	81	0	0	22	0	0	74	0	0	18
Lane Group Flow (vph)	0	105	9	173	0	2	74	238	128	124	441	31
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		12.4	12.4	11.4		11.4	76.2	76.2	76.2	76.2	76.2	76.2
Effective Green, g (s)		12.4	12.4	11.4		11.4	76.2	76.2	76.2	76.2	76.2	76.2
Actuated g/C Ratio		0.10	0.10	0.10		0.10	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		188	163	326		150	583	2247	1005	714	2247	1005
v/s Ratio Prot		c0.06		c0.05				0.07			c0.12	
v/s Ratio Perm			0.01			0.00	0.08		0.08	0.11		0.02
v/c Ratio		0.56	0.06	0.53		0.02	0.13	0.11	0.13	0.17	0.20	0.03
Uniform Delay, d1		51.2	48.5	51.8		49.2	8.7	8.6	8.7	9.0	9.1	8.2
Progression Factor		0.98	1.44	1.00		1.00	1.37	1.44	3.66	1.02	1.03	1.00
Incremental Delay, d2		3.5	0.1	1.7		0.0	0.4	0.1	0.3	0.5	0.2	0.1
Delay (s)		53.7	69.8	53.4		49.3	12.4	12.5	32.1	9.7	9.6	8.2
Level of Service		D	E	D		D	B	B	C	A	A	A
Approach Delay (s)		61.1			52.9			20.2			9.5	
Approach LOS		E			D			C			A	

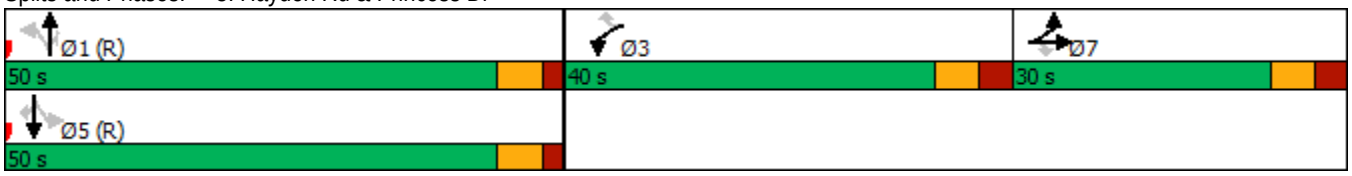
Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

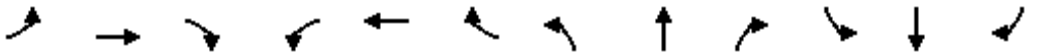
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	6	19	198	8	72	26	401	332	122	523	18
Future Volume (vph)	7	6	19	198	8	72	26	401	332	122	523	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3194		1681	1692	1583	1770	3539	1583	1770	3522	
Flt Permitted		0.87		0.73	0.72	1.00	0.42	1.00	1.00	0.49	1.00	
Satd. Flow (perm)		2815		1296	1266	1583	779	3539	1583	920	3522	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	7	21	220	9	80	29	446	369	136	581	20
RTOR Reduction (vph)	0	20	0	0	0	67	0	0	105	0	1	0
Lane Group Flow (vph)	0	16	0	114	115	13	29	446	264	136	600	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.1		20.2	20.2	20.2	85.8	85.8	85.8	85.8	85.8	
Effective Green, g (s)		4.1		20.2	20.2	20.2	85.8	85.8	85.8	85.8	85.8	
Actuated g/C Ratio		0.03		0.17	0.17	0.17	0.71	0.71	0.71	0.71	0.71	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		96		244	241	266	556	2530	1131	657	2518	
v/s Ratio Prot				0.03	c0.03			0.13			c0.17	
v/s Ratio Perm		0.01		0.05	c0.05	0.01	0.04		0.17	0.15		
v/c Ratio		0.16		0.47	0.48	0.05	0.05	0.18	0.23	0.21	0.24	
Uniform Delay, d1		56.3		45.5	45.1	41.9	5.1	5.6	5.8	5.7	5.9	
Progression Factor		1.00		1.00	1.00	1.00	1.45	1.11	5.80	1.26	1.29	
Incremental Delay, d2		0.8		1.4	1.5	0.1	0.2	0.1	0.4	0.7	0.2	
Delay (s)		57.1		46.9	46.6	41.9	7.5	6.3	34.3	7.9	7.8	
Level of Service		E		D	D	D	A	A	C	A	A	
Approach Delay (s)		57.1			45.5			18.6			7.8	
Approach LOS		E			D			B			A	

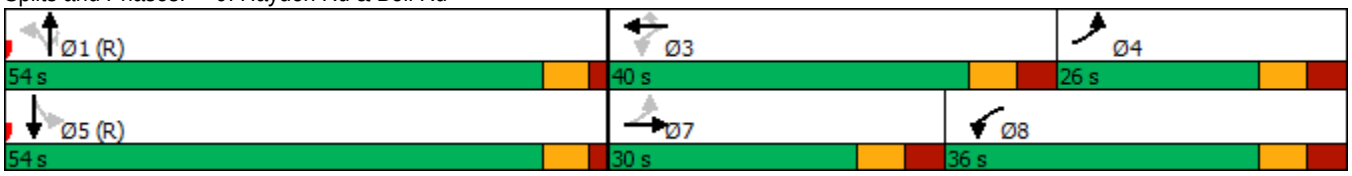
Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	25	837	127	42	1787
Future Volume (vph)	91	25	837	127	42	1787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.30	1.00
Satd. Flow (perm)	1770	1583	3539	1583	555	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	28	930	141	47	1986
RTOR Reduction (vph)	0	25	0	28	0	0
Lane Group Flow (vph)	101	3	930	113	47	1986
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	11.8	11.8	96.2	96.2	96.2	96.2
Effective Green, g (s)	11.8	11.8	96.2	96.2	96.2	96.2
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	174	155	2837	1269	444	2837
v/s Ratio Prot	c0.06		0.26			c0.56
v/s Ratio Perm		0.00		0.07	0.08	
v/c Ratio	0.58	0.02	0.33	0.09	0.11	0.70
Uniform Delay, d1	51.7	48.9	3.2	2.5	2.6	5.4
Progression Factor	1.00	1.00	0.58	0.43	1.00	1.00
Incremental Delay, d2	4.9	0.0	0.3	0.1	0.5	1.5
Delay (s)	56.6	48.9	2.1	1.2	3.1	6.8
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.9		2.0			6.8
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	31	921	44	37	1833
Future Volume (vph)	94	31	921	44	37	1833
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.27	1.00
Satd. Flow (perm)	1770	1583	3539	1583	498	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	34	1023	49	41	2037
RTOR Reduction (vph)	0	31	0	10	0	0
Lane Group Flow (vph)	104	3	1023	39	41	2037
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.3	12.3	95.7	95.7	95.7	95.7
Effective Green, g (s)	12.3	12.3	95.7	95.7	95.7	95.7
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	162	2822	1262	397	2822
v/s Ratio Prot	c0.06		0.29			c0.58
v/s Ratio Perm		0.00		0.02	0.08	
v/c Ratio	0.57	0.02	0.36	0.03	0.10	0.72
Uniform Delay, d1	51.4	48.4	3.5	2.5	2.7	5.8
Progression Factor	1.00	1.00	1.44	2.88	1.28	1.12
Incremental Delay, d2	4.4	0.1	0.3	0.0	0.4	1.2
Delay (s)	55.7	48.5	5.3	7.3	3.8	7.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	53.9		5.4			7.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	421	70	940	426	63	1839
Future Volume (vph)	421	70	940	426	63	1839
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	468	78	1044	473	70	2043
RTOR Reduction (vph)	0	64	0	259	0	0
Lane Group Flow (vph)	468	14	1044	214	70	2043
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	21.7	21.7	54.3	54.3	25.0	83.3
Effective Green, g (s)	21.7	21.7	54.3	54.3	25.0	83.3
Actuated g/C Ratio	0.18	0.18	0.45	0.45	0.21	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	620	286	1601	716	368	2456
v/s Ratio Prot	c0.14		0.29		0.04	c0.58
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.75	0.05	0.65	0.30	0.19	0.83
Uniform Delay, d1	46.6	40.6	25.5	20.8	39.2	13.3
Progression Factor	0.83	0.63	1.01	3.44	1.02	1.08
Incremental Delay, d2	5.2	0.1	1.7	0.8	0.8	2.4
Delay (s)	43.8	25.6	27.5	72.5	40.8	16.8
Level of Service	D	C	C	E	D	B
Approach Delay (s)	41.2		41.5			17.6
Approach LOS	D		D			B

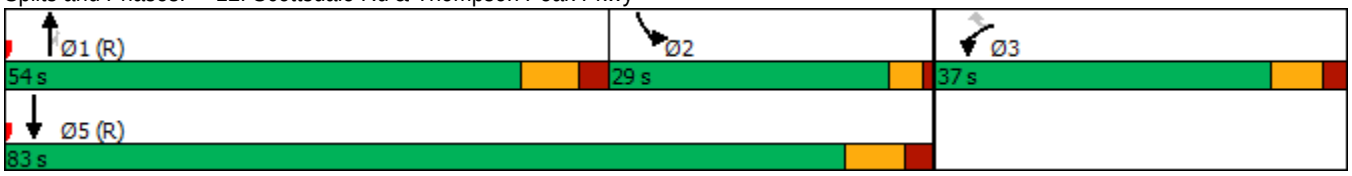
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	12	1362	31	4	2315
Future Volume (vph)	91	12	1362	31	4	2315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	13	1513	34	4	2572
RTOR Reduction (vph)	0	12	0	6	0	0
Lane Group Flow (vph)	101	1	1513	28	4	2572
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	8.9	8.9	83.1	83.1	10.0	97.1
Effective Green, g (s)	8.9	8.9	83.1	83.1	10.0	97.1
Actuated g/C Ratio	0.07	0.07	0.69	0.69	0.08	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	117	2450	1096	147	2863
v/s Ratio Prot	c0.03		0.43		0.00	c0.73
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.40	0.01	0.62	0.03	0.03	0.90
Uniform Delay, d1	53.0	51.5	9.9	5.8	50.5	8.0
Progression Factor	1.00	1.00	1.99	1.81	1.03	0.83
Incremental Delay, d2	1.0	0.0	1.0	0.0	0.2	3.3
Delay (s)	54.0	51.5	20.7	10.5	52.2	9.9
Level of Service	D	D	C	B	D	A
Approach Delay (s)	53.7		20.5			10.0
Approach LOS	D		C			A

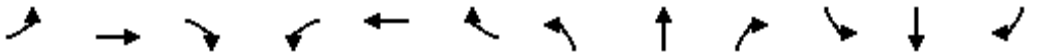
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	459	1	447	284	967	0	0	1795	599
Future Volume (vph)	0	0	0	459	1	447	284	967	0	0	1795	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1505	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1505	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	510	1	497	316	1074	0	0	1994	666
RTOR Reduction (vph)	0	0	0	0	183	183	0	0	0	0	0	381
Lane Group Flow (vph)	0	0	0	510	67	65	316	1074	0	0	1994	285
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				31.6	31.6	31.6	20.0	41.4			51.4	51.4
Effective Green, g (s)				31.6	31.6	31.6	20.0	41.4			51.4	51.4
Actuated g/C Ratio				0.26	0.26	0.26	0.17	0.34			0.43	0.43
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				904	396	396	572	1754			3231	678
v/s Ratio Prot					0.04		c0.09	0.21			c0.26	
v/s Ratio Perm				c0.15		0.04						0.18
v/c Ratio				0.56	0.17	0.16	0.55	0.61			0.62	0.42
Uniform Delay, d1				38.2	34.1	34.0	45.9	32.6			26.7	23.9
Progression Factor				1.01	1.42	1.43	1.31	0.48			1.13	3.01
Incremental Delay, d2				0.8	0.2	0.2	3.4	1.4			0.4	0.9
Delay (s)				39.4	48.6	48.7	63.5	17.0			30.5	72.9
Level of Service				D	D	D	E	B			C	E
Approach Delay (s)		0.0			44.0			27.6			41.1	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

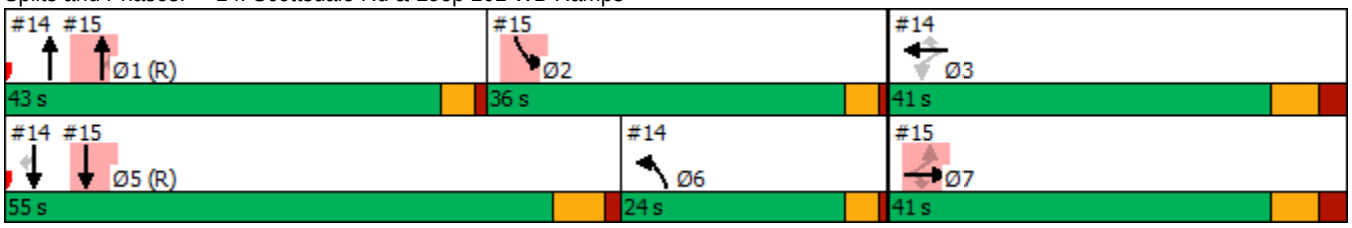
c Critical Lane Group

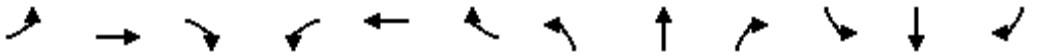
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

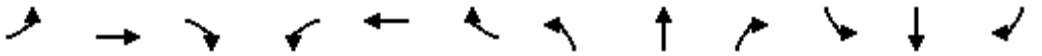




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	604	2	574	0	0	0	0	658	300	695	1591	0
Future Volume (vph)	604	2	574	0	0	0	0	658	300	695	1591	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	671	2	638	0	0	0	0	731	333	772	1768	0
RTOR Reduction (vph)	0	235	235	0	0	0	0	0	218	0	0	0
Lane Group Flow (vph)	671	86	84	0	0	0	0	731	115	772	1768	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	31.6	31.6	31.6					41.4	41.4	32.0	51.4	
Effective Green, g (s)	31.6	31.6	31.6					41.4	41.4	32.0	51.4	
Actuated g/C Ratio	0.26	0.26	0.26					0.34	0.34	0.27	0.43	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	904	396	396					2602	546	915	2178	
v/s Ratio Prot		0.06						0.10		c0.22	c0.35	
v/s Ratio Perm	c0.20		0.06						0.07			
v/c Ratio	0.74	0.22	0.21					0.28	0.21	0.84	0.81	
Uniform Delay, d1	40.5	34.5	34.5					28.5	27.8	41.6	30.1	
Progression Factor	1.00	1.00	1.00					1.51	7.85	0.93	0.43	
Incremental Delay, d2	3.3	0.3	0.3					0.3	0.8	7.8	2.8	
Delay (s)	43.8	34.8	34.8					43.4	218.7	46.4	15.8	
Level of Service	D	C	C					D	F	D	B	
Approach Delay (s)		39.4			0.0			98.3			25.1	
Approach LOS		D			A			F			C	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	11	245	16	4	24	116	611	10	38	1535	594
Future Volume (vph)	373	11	245	16	4	24	116	611	10	38	1535	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3077		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3077		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	414	12	272	18	4	27	129	679	11	42	1706	660
RTOR Reduction (vph)	0	0	153	0	29	0	0	0	9	0	0	323
Lane Group Flow (vph)	414	12	119	18	2	0	129	679	2	42	1706	337
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	27.3	31.2	31.2	4.3	8.2		10.7	23.8	23.8	35.3	48.7	48.7
Effective Green, g (s)	27.3	31.2	31.2	4.3	8.2		10.7	23.8	23.8	35.3	48.7	48.7
Actuated g/C Ratio	0.23	0.26	0.26	0.04	0.07		0.09	0.20	0.20	0.29	0.41	0.41
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	781	1322	411	123	210		306	1008	313	1009	2063	642
v/s Ratio Prot	c0.12	0.00		0.01	0.00		c0.04	0.13		0.01	c0.34	
v/s Ratio Perm			c0.08						0.00			0.21
v/c Ratio	0.53	0.01	0.29	0.15	0.01		0.42	0.67	0.01	0.04	0.83	0.53
Uniform Delay, d1	40.7	32.9	35.5	56.1	52.1		51.7	44.5	38.6	30.3	31.9	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.98	1.06	1.00	1.39	1.08	3.04
Incremental Delay, d2	0.7	0.0	0.4	0.6	0.0		4.2	1.8	0.0	0.1	1.9	0.5
Delay (s)	41.4	32.9	35.9	56.6	52.1		55.1	48.9	38.6	42.1	36.3	82.2
Level of Service	D	C	D	E	D		E	D	D	D	D	F
Approach Delay (s)		39.1			53.8			49.7			49.0	
Approach LOS		D			D			D			D	

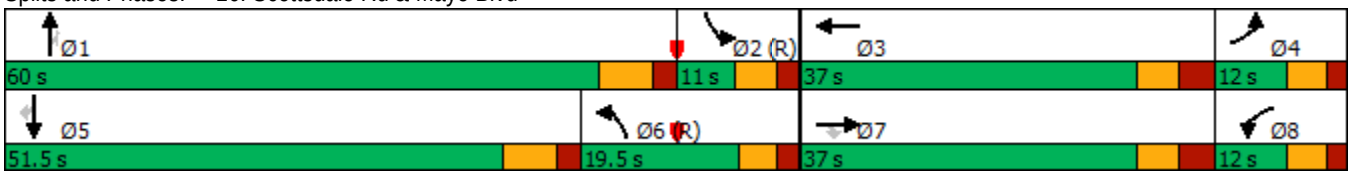
Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

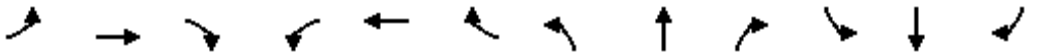
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	4	94	8	4	4	127	694	4	5	1743	121
Future Volume (vph)	79	4	94	8	4	4	127	694	4	5	1743	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.40	1.00	1.00	0.91	1.00	1.00	0.06	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	753	3539	1583	1693	3539	1583	113	5085	1583	648	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	88	4	104	9	4	4	141	771	4	6	1937	134
RTOR Reduction (vph)	0	0	92	0	0	4	0	0	1	0	0	55
Lane Group Flow (vph)	88	4	12	9	4	0	141	771	3	6	1937	79
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.7	13.8	13.8	5.8	4.4	4.4	85.3	78.6	78.6	71.8	70.6	70.6
Effective Green, g (s)	20.7	13.8	13.8	5.8	4.4	4.4	85.3	78.6	78.6	71.8	70.6	70.6
Actuated g/C Ratio	0.17	0.12	0.12	0.05	0.04	0.04	0.71	0.65	0.65	0.60	0.59	0.59
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	406	182	82	129	58	207	3330	1036	398	2991	931
v/s Ratio Prot	c0.04	0.00		0.00	0.00		c0.05	0.15		0.00	0.38	
v/s Ratio Perm	c0.03		0.01	0.00		0.00	c0.43		0.00	0.01		0.05
v/c Ratio	0.40	0.01	0.07	0.11	0.03	0.00	0.68	0.23	0.00	0.02	0.65	0.08
Uniform Delay, d1	43.4	47.0	47.4	54.6	55.7	55.7	22.9	8.4	7.2	9.7	16.4	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.36	1.00	0.48	0.58	0.73
Incremental Delay, d2	1.2	0.0	0.2	0.6	0.1	0.0	8.7	0.2	0.0	0.0	0.7	0.1
Delay (s)	44.5	47.1	47.5	55.2	55.8	55.7	33.3	11.6	7.2	4.6	10.2	7.9
Level of Service	D	D	D	E	E	E	C	B	A	A	B	A
Approach Delay (s)		46.2			55.5			14.9			10.0	
Approach LOS		D			E			B			B	

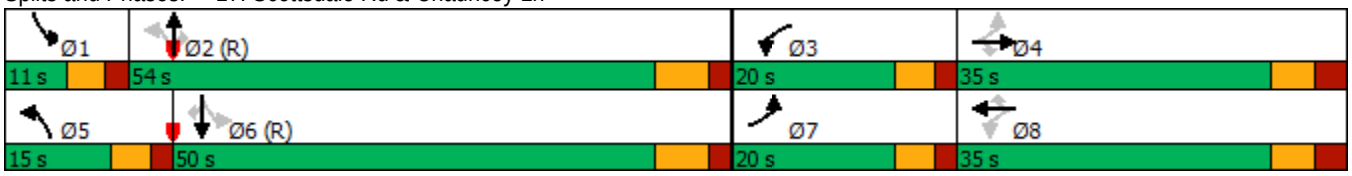
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

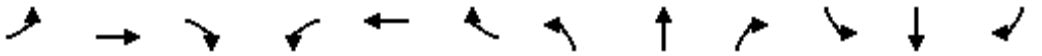
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	27	238	66	8	118	123	677	139	181	1589	70
Future Volume (vph)	37	27	238	66	8	118	123	677	139	181	1589	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.41	1.00	1.00	0.08	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1400	3063		769	3539	1583	156	5085	1583	632	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	30	264	73	9	131	137	752	154	201	1766	78
RTOR Reduction (vph)	0	222	0	0	0	118	0	0	64	0	0	32
Lane Group Flow (vph)	41	72	0	73	9	13	137	752	90	201	1766	46
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	15.9	11.5		15.9	11.5	11.5	83.1	70.1	70.1	83.1	70.1	70.1
Effective Green, g (s)	15.9	11.5		15.9	11.5	11.5	83.1	70.1	70.1	83.1	70.1	70.1
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.58	0.58	0.69	0.58	0.58
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	293		138	339	151	282	2970	924	560	2970	924
v/s Ratio Prot	0.01	0.02		c0.02	0.00		c0.05	0.15		0.04	c0.35	
v/s Ratio Perm	0.02			c0.05		0.01	0.28		0.06	0.21		0.03
v/c Ratio	0.21	0.25		0.53	0.03	0.08	0.49	0.25	0.10	0.36	0.59	0.05
Uniform Delay, d1	46.5	50.2		51.5	49.2	49.4	26.7	12.2	11.0	9.5	15.9	10.7
Progression Factor	1.00	1.00		1.01	1.01	1.37	0.37	1.41	3.21	0.51	0.70	4.63
Incremental Delay, d2	0.5	0.4		3.6	0.0	0.2	5.7	0.2	0.2	1.5	0.7	0.1
Delay (s)	47.0	50.7		55.5	49.7	67.9	15.6	17.4	35.5	6.3	11.9	49.6
Level of Service	D	D		E	D	E	B	B	D	A	B	D
Approach Delay (s)		50.2			62.9			19.8			12.8	
Approach LOS		D			E			B			B	

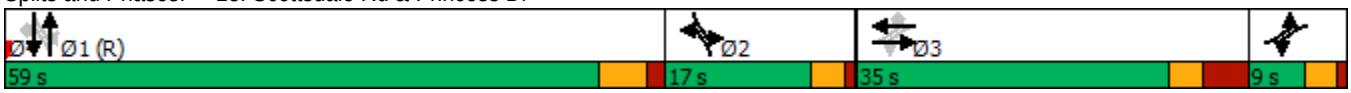
Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

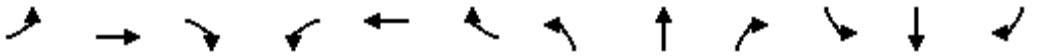
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	0	109	29	0	19	38	865	10	39	1850	23
Future Volume (vph)	59	0	109	29	0	19	38	865	10	39	1850	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1671			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.59		0.06	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)		1465			1043		121	5085	1583	509	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	66	0	121	32	0	21	42	961	11	43	2056	26
RTOR Reduction (vph)	0	63	0	0	46	0	0	0	4	0	0	8
Lane Group Flow (vph)	0	124	0	0	7	0	42	961	7	43	2056	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.1			16.1		86.9	80.9	80.9	86.9	80.9	80.9
Effective Green, g (s)		16.1			16.1		86.9	80.9	80.9	86.9	80.9	80.9
Actuated g/C Ratio		0.13			0.13		0.72	0.67	0.67	0.72	0.67	0.67
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		196			139		170	3428	1067	431	3428	1067
v/s Ratio Prot							c0.01	0.19		0.00	c0.40	
v/s Ratio Perm		c0.08			0.01		0.17		0.00	0.07		0.01
v/c Ratio		0.63			0.05		0.25	0.28	0.01	0.10	0.60	0.02
Uniform Delay, d1		49.1			45.3		17.0	7.9	6.4	6.1	10.7	6.4
Progression Factor		1.00			1.00		1.66	1.11	1.00	1.27	1.42	1.00
Incremental Delay, d2		6.5			0.2		2.8	0.2	0.0	0.4	0.7	0.0
Delay (s)		55.6			45.4		31.1	8.9	6.4	8.1	15.9	6.5
Level of Service		E			D		C	A	A	A	B	A
Approach Delay (s)		55.6			45.4			9.8			15.6	
Approach LOS		E			D			A			B	

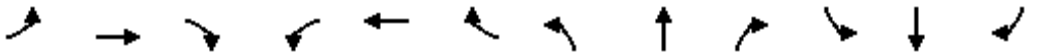
Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	1354	383	217	432	196	81	318	119	338	1398	146
Future Volume (vph)	502	1354	383	217	432	196	81	318	119	338	1398	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	558	1504	426	241	480	218	90	353	132	376	1553	162
RTOR Reduction (vph)	0	0	97	0	0	66	0	0	99	0	10	0
Lane Group Flow (vph)	558	1504	329	241	480	152	90	353	33	376	1705	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	20.9	40.1	40.1	10.9	30.1	47.4	5.0	29.7	29.7	17.3	42.0	
Effective Green, g (s)	20.9	40.1	40.1	10.9	30.1	47.4	5.0	29.7	29.7	17.3	42.0	
Actuated g/C Ratio	0.17	0.33	0.33	0.09	0.25	0.39	0.04	0.25	0.25	0.14	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	597	1699	528	311	1275	625	143	1258	391	494	1754	
v/s Ratio Prot	c0.16	c0.30		0.07	0.09	0.04	0.03	0.07		c0.11	c0.34	
v/s Ratio Perm			0.21			0.06			0.02			
v/c Ratio	0.93	0.89	0.62	0.77	0.38	0.24	0.63	0.28	0.08	0.76	0.97	
Uniform Delay, d1	48.9	37.8	33.6	53.4	37.2	24.3	56.6	36.5	34.7	49.4	38.4	
Progression Factor	1.00	1.00	1.00	0.95	1.89	0.47	1.00	1.00	1.00	0.91	0.84	
Incremental Delay, d2	21.9	7.2	5.5	10.1	0.7	0.2	8.4	0.6	0.4	5.6	13.8	
Delay (s)	70.8	44.9	39.1	60.7	71.1	11.5	65.0	37.1	35.1	50.5	46.0	
Level of Service	E	D	D	E	E	B	E	D	D	D	D	
Approach Delay (s)		49.7			54.6			41.0			46.8	
Approach LOS		D			D			D			D	

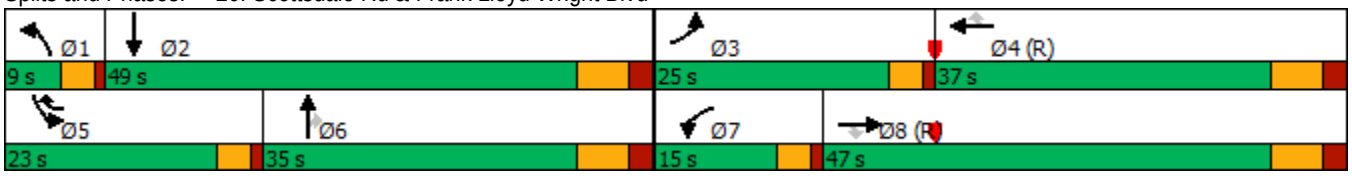
Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

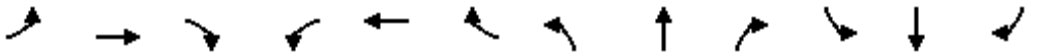
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

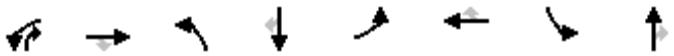




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	1188	55	528	958	146	8	244	234	162	528	252
Future Volume (vph)	401	1188	55	528	958	146	8	244	234	162	528	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	446	1320	61	587	1064	162	9	271	260	180	587	280
RTOR Reduction (vph)	0	0	39	0	0	105	0	0	65	0	0	211
Lane Group Flow (vph)	446	1320	22	587	1064	57	9	271	195	180	587	69
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.6	42.4	42.4	20.6	42.4	42.4	0.6	21.0	41.6	8.0	28.4	28.4
Effective Green, g (s)	20.6	42.4	42.4	20.6	42.4	42.4	0.6	21.0	41.6	8.0	28.4	28.4
Actuated g/C Ratio	0.17	0.35	0.35	0.17	0.35	0.35	0.00	0.18	0.35	0.07	0.24	0.24
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	589	1796	559	589	1796	559	8	619	641	228	837	374
v/s Ratio Prot	0.13	c0.26		c0.17	0.21		0.01	0.08	0.05	c0.05	c0.17	
v/s Ratio Perm			0.01			0.04			0.07			0.04
v/c Ratio	0.76	0.73	0.04	1.00	0.59	0.10	1.12	0.44	0.30	0.79	0.70	0.19
Uniform Delay, d1	47.3	33.9	25.4	49.7	31.7	26.0	59.7	44.2	28.6	55.2	41.9	36.6
Progression Factor	1.12	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.95	2.12
Incremental Delay, d2	3.2	1.5	0.1	36.0	1.4	0.4	366.8	0.5	0.3	16.3	2.7	0.2
Delay (s)	56.4	30.3	25.5	85.6	33.2	26.4	426.5	44.7	28.9	66.5	42.3	77.6
Level of Service	E	C	C	F	C	C	F	D	C	E	D	E
Approach Delay (s)		36.5			49.6			43.5			55.9	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

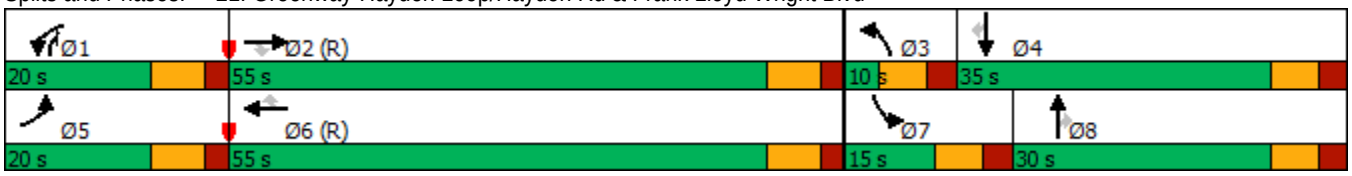
c Critical Lane Group

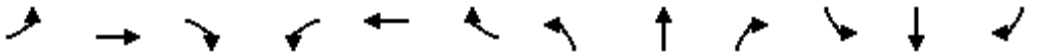


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	299	113	85	198	260	109	930	4	269	1101	248
Future Volume (vph)	157	299	113	85	198	260	109	930	4	269	1101	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	174	332	126	94	220	289	121	1033	4	299	1223	276
RTOR Reduction (vph)	0	0	55	0	0	53	0	0	0	0	0	116
Lane Group Flow (vph)	174	332	71	94	220	236	121	1037	0	299	1223	160
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	11.6	16.6	29.6	10.3	15.3	33.3	13.0	53.1		18.0	58.1	69.7
Effective Green, g (s)	11.6	16.6	29.6	10.3	15.3	33.3	13.0	53.1		18.0	58.1	69.7
Actuated g/C Ratio	0.10	0.14	0.25	0.09	0.13	0.28	0.11	0.44		0.15	0.48	0.58
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	489	443	294	451	492	371	2248		514	2461	972
v/s Ratio Prot	c0.05	c0.09	0.02	0.03	0.06	0.07	0.04	0.20		c0.09	c0.24	0.02
v/s Ratio Perm			0.03			0.08						0.09
v/c Ratio	0.53	0.68	0.16	0.32	0.49	0.48	0.33	0.46		0.58	0.50	0.16
Uniform Delay, d1	51.6	49.2	35.5	51.6	48.7	36.1	49.5	23.4		47.5	21.0	11.7
Progression Factor	1.07	1.38	2.34	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	3.6	0.2	0.6	0.8	0.7	2.3	0.7		4.8	0.7	0.1
Delay (s)	56.9	71.3	83.1	52.2	49.5	36.9	51.8	24.1		52.2	21.7	11.7
Level of Service	E	E	F	D	D	D	D	C		D	C	B
Approach Delay (s)		69.7			43.9			27.0			25.3	
Approach LOS		E			D			C			C	

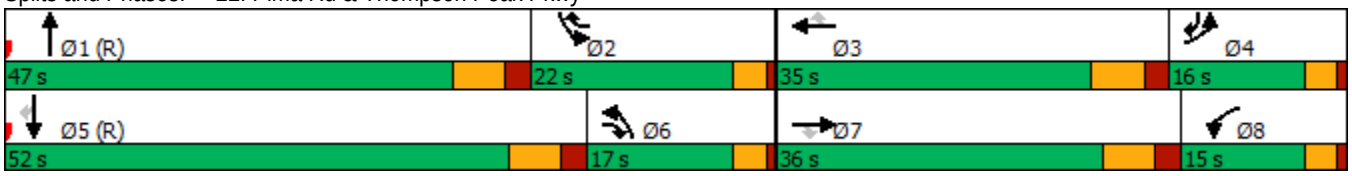
Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

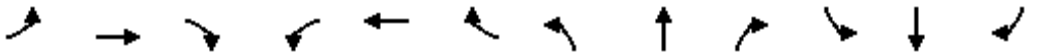
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





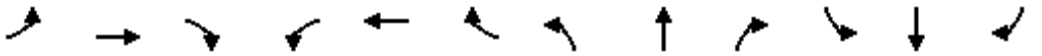
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	15	60	34	10	3	70	879	68	4	379	14
Future Volume (vph)	20	15	60	34	10	3	70	879	68	4	379	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1640		1770	1803		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.49	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1394	1640		1308	1803		918	3539	1583	367	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	17	67	38	11	3	78	977	76	4	421	16
RTOR Reduction (vph)	0	40	0	0	2	0	0	0	28	0	0	9
Lane Group Flow (vph)	22	44	0	38	12	0	78	977	48	4	421	7
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Effective Green, g (s)	38.0	38.0		38.0	38.0		44.0	44.0	44.0	44.0	44.0	44.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	557	656		523	721		425	1639	733	169	1639	733
v/s Ratio Prot		0.03			0.01			c0.28			0.12	
v/s Ratio Perm	0.02			c0.03			0.08		0.03	0.01		0.00
v/c Ratio	0.04	0.07		0.07	0.02		0.18	0.60	0.07	0.02	0.26	0.01
Uniform Delay, d1	17.4	17.6		17.6	17.2		15.0	18.9	14.1	13.8	15.5	13.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.3	0.0		0.9	1.6	0.2	0.3	0.4	0.0
Delay (s)	17.5	17.8		17.9	17.3		15.9	20.5	14.3	14.1	15.9	13.8
Level of Service	B	B		B	B		B	C	B	B	B	B
Approach Delay (s)		17.7			17.7			19.8			15.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	50	45
Maximum Split (%)	52.6%	47.4%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	50
End Time (s)	50	0
Yield/Force Off (s)	44	88
Yield/Force Off 170(s)	40	84
Local Start Time (s)	0	50
Local Yield (s)	44	88
Local Yield 170(s)	40	84

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



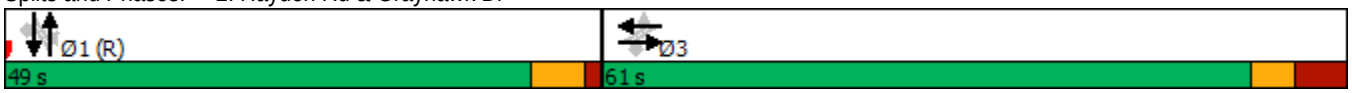
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	7	57	20	6	10	65	992	32	10	415	33
Future Volume (vph)	31	7	57	20	6	10	65	992	32	10	415	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1692		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.44	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1389	1863	1583	1402	1692		813	3539	1583	192	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	8	63	22	7	11	72	1102	36	11	461	37
RTOR Reduction (vph)	0	0	33	0	6	0	0	0	22	0	0	23
Lane Group Flow (vph)	34	8	30	22	12	0	72	1102	14	11	461	14
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	53.0	53.0	53.0	53.0		43.0	43.0	43.0	43.0	43.0	43.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	669	897	762	675	815		317	1383	618	75	1383	618
v/s Ratio Prot		0.00			0.01			c0.31			0.13	
v/s Ratio Perm	c0.02		0.02	0.02			0.09		0.01	0.06		0.01
v/c Ratio	0.05	0.01	0.04	0.03	0.02		0.23	0.80	0.02	0.15	0.33	0.02
Uniform Delay, d1	15.1	14.8	15.1	15.0	14.9		22.4	29.6	20.6	21.6	23.5	20.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	0.1	0.0		1.7	4.8	0.1	4.1	0.6	0.1
Delay (s)	15.3	14.8	15.2	15.1	14.9		24.1	34.5	20.7	25.7	24.1	20.7
Level of Service	B	B	B	B	B		C	C	C	C	C	C
Approach Delay (s)		15.2			15.0			33.5			23.9	
Approach LOS		B			B			C			C	

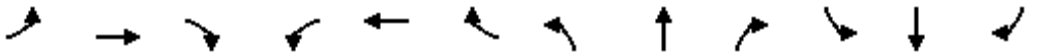
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	49	61
Maximum Split (%)	44.5%	55.5%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	49
End Time (s)	49	0
Yield/Force Off (s)	43	102
Yield/Force Off 170(s)	36	94
Local Start Time (s)	0	49
Local Yield (s)	43	102
Local Yield 170(s)	36	94

Intersection Summary	
Cycle Length	110
Control Type	Pretimed
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	321	204	165	200	139	266	907	327	184	278	52
Future Volume (vph)	55	321	204	165	200	139	266	907	327	184	278	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.61	1.00	1.00	0.26	1.00	1.00	0.56	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	1142	3539	1583	492	3539	1583	1050	3539	1583	260	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	61	357	227	183	222	154	296	1008	363	204	309	58
RTOR Reduction (vph)	0	0	190	0	0	120	0	0	153	0	0	32
Lane Group Flow (vph)	61	357	37	183	222	34	296	1008	210	204	309	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	26.6	19.5	19.5	38.1	26.5	26.5	66.4	51.4	51.4	68.4	53.4	53.4
Effective Green, g (s)	26.6	19.5	19.5	38.1	26.5	26.5	66.4	51.4	51.4	68.4	53.4	53.4
Actuated g/C Ratio	0.22	0.16	0.16	0.32	0.22	0.22	0.55	0.43	0.43	0.57	0.44	0.44
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	290	575	257	317	781	349	671	1515	678	336	1574	704
v/s Ratio Prot	0.01	0.10		c0.07	0.06		0.06	c0.28		c0.08	0.09	
v/s Ratio Perm	0.03		0.02	c0.11		0.02	0.19		0.13	0.27		0.02
v/c Ratio	0.21	0.62	0.14	0.58	0.28	0.10	0.44	0.67	0.31	0.61	0.20	0.04
Uniform Delay, d1	37.6	46.8	43.1	31.9	38.9	37.2	14.4	27.4	22.6	17.5	20.3	18.8
Progression Factor	1.17	1.10	1.76	1.22	1.19	4.18	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.0	0.2	2.4	0.2	0.1	0.5	2.3	1.2	3.1	0.3	0.1
Delay (s)	44.5	53.4	76.0	41.2	46.3	155.6	14.8	29.7	23.8	20.6	20.5	18.9
Level of Service	D	D	E	D	D	F	B	C	C	C	C	B
Approach Delay (s)		60.5			74.8			25.8			20.4	
Approach LOS		E			E			C			C	

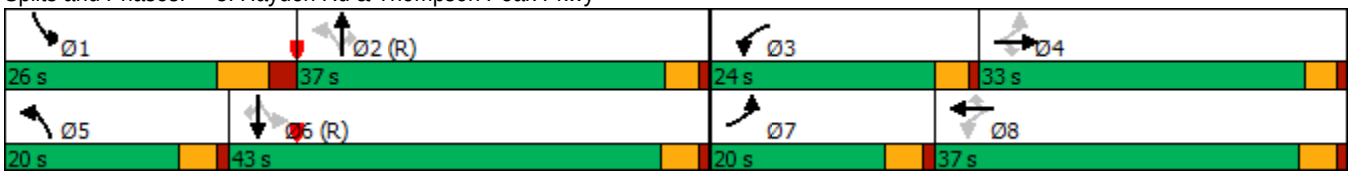
Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

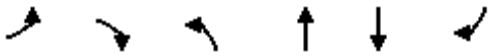
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	37	24	33	20	43	20	37
Maximum Split (%)	21.7%	30.8%	20.0%	27.5%	16.7%	35.8%	16.7%	30.8%
Minimum Split (s)	8	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	1	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	94	0	37	61	94	114	37	57
End Time (s)	0	37	61	94	114	37	57	94
Yield/Force Off (s)	113	33	57	90	109.5	32.5	52.5	89.5
Yield/Force Off 170(s)	113	9	57	69	109.5	8.5	52.5	68.5
Local Start Time (s)	94	0	37	61	94	114	37	57
Local Yield (s)	113	33	57	90	109.5	32.5	52.5	89.5
Local Yield 170(s)	113	9	57	69	109.5	8.5	52.5	68.5

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

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	15	34	1474	589	14
Future Volume (vph)	14	15	34	1474	589	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.40	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	751	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	17	38	1638	654	16
RTOR Reduction (vph)	0	16	0	0	0	3
Lane Group Flow (vph)	16	1	38	1638	654	13
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				1	1	
Permitted Phases	3	3	1			1
Actuated Green, G (s)	4.4	4.4	91.6	91.6	91.6	91.6
Effective Green, g (s)	4.4	4.4	91.6	91.6	91.6	91.6
Actuated g/C Ratio	0.04	0.04	0.83	0.83	0.83	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	70	63	625	2947	2947	1318
v/s Ratio Prot				c0.46	0.18	
v/s Ratio Perm	c0.01	0.00	0.05			0.01
v/c Ratio	0.23	0.01	0.06	0.56	0.22	0.01
Uniform Delay, d1	51.2	50.7	1.6	2.9	1.9	1.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.1	0.2	0.8	0.2	0.0
Delay (s)	52.8	50.8	1.8	3.6	2.1	1.6
Level of Service	D	D	A	A	A	A
Approach Delay (s)	51.8			3.6	2.1	
Approach LOS	D			A	A	

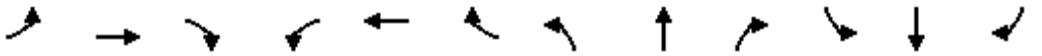
Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	50
Maximum Split (%)	54.5%	45.5%
Minimum Split (s)	50	40
Yellow Time (s)	4.8	4.8
All-Red Time (s)	2.2	2.2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	15	10
Flash Dont Walk (s)	10	15
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	53	103
Yield/Force Off 170(s)	43	88
Local Start Time (s)	0	60
Local Yield (s)	53	103
Local Yield 170(s)	43	88

Intersection Summary	
Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	73	118	651	565	851	0	0	500	196
Future Volume (vph)	0	0	0	73	118	651	565	851	0	0	500	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1584	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1584	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	81	131	723	628	946	0	0	556	218
RTOR Reduction (vph)	0	0	0	0	74	306	0	0	0	0	0	135
Lane Group Flow (vph)	0	0	0	81	361	113	628	946	0	0	556	83
Turn Type				Perm	NA	Perm	custom	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3	6					5
Actuated Green, G (s)				32.4	32.4	32.4	22.0	32.6			45.6	45.6
Effective Green, g (s)				32.4	32.4	32.4	22.0	32.6			45.6	45.6
Actuated g/C Ratio				0.27	0.27	0.27	0.18	0.27			0.38	0.38
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				926	427	406	324	961			2435	601
v/s Ratio Prot					c0.23		c0.35	c0.27			c0.09	
v/s Ratio Perm				0.02		0.08						0.05
v/c Ratio				0.09	0.85	0.28	1.94	0.98			0.23	0.14
Uniform Delay, d1				32.7	41.4	34.6	49.0	43.4			25.3	24.3
Progression Factor				1.00	1.00	1.00	1.02	0.65			1.00	1.00
Incremental Delay, d2				0.0	14.3	0.4	430.1	20.5			0.2	0.5
Delay (s)				32.8	55.7	35.0	480.1	48.7			25.5	24.8
Level of Service				C	E	C	F	D			C	C
Approach Delay (s)		0.0			44.4			220.8			25.3	
Approach LOS		A			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	124.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

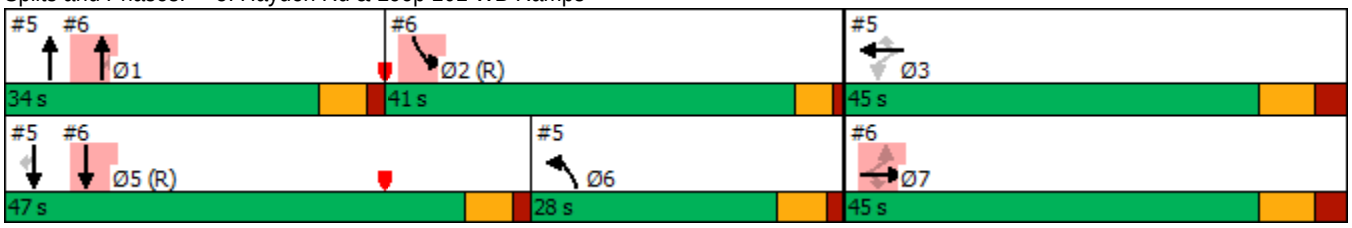
c Critical Lane Group

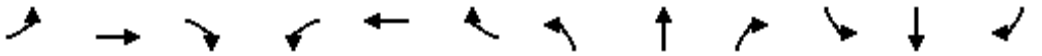
Phase Number	1	2	3	5	6	7
Node Number	5	6	5	5	5	6
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	C-Max	Max	None
Maximum Split (s)	34	41	45	47	28	45
Maximum Split (%)	28.3%	34.2%	37.5%	39.2%	23.3%	37.5%
Minimum Split (s)	21	9.5	41	21	12	41
Yellow Time (s)	4.4	3.5	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	5	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	5		7	5		7
Flash Dont Walk (s)	10		26	10		26
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	86	0	41	86	13	41
End Time (s)	0	41	86	13	41	86
Yield/Force Off (s)	114	36.5	78	7	35	78
Yield/Force Off 170(s)	104	36.5	52	117	35	52
Local Start Time (s)	86	0	41	86	13	41
Local Yield (s)	114	36.5	78	7	35	78
Local Yield 170(s)	104	36.5	52	117	35	52

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	100	

Offset: 0 (0%), Referenced to phase 2:SBL and 5:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	455	0	149	0	0	0	0	997	52	375	212	0
Future Volume (vph)	455	0	149	0	0	0	0	997	52	375	212	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1604	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1604	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	506	0	166	0	0	0	0	1108	58	417	236	0
RTOR Reduction (vph)	0	99	109	0	0	0	0	0	42	0	0	0
Lane Group Flow (vph)	263	161	40	0	0	0	0	1108	16	417	236	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	32.4	32.4	32.4					32.6	32.6	36.5	45.6	
Effective Green, g (s)	32.4	32.4	32.4					32.6	32.6	36.5	45.6	
Actuated g/C Ratio	0.27	0.27	0.27					0.27	0.27	0.30	0.38	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	453	433	406					1381	430	1044	1344	
v/s Ratio Prot								c0.22		c0.12	0.07	
v/s Ratio Perm	c0.16	0.10	0.03						0.01			
v/c Ratio	0.58	0.37	0.10					0.80	0.04	0.40	0.18	
Uniform Delay, d1	37.9	35.5	32.9					40.7	32.1	33.1	24.7	
Progression Factor	1.30	1.79	3.34					0.91	1.00	0.90	0.35	
Incremental Delay, d2	1.5	0.4	0.1					3.4	0.0	1.1	0.3	
Delay (s)	50.8	64.1	109.8					40.4	32.2	30.9	9.0	
Level of Service	D	E	F					D	C	C	A	
Approach Delay (s)		69.0			0.0			40.0			23.0	
Approach LOS		E			A			D			C	

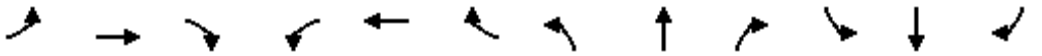
Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	234	810	5	32	348
Future Volume (Veh/h)	3	234	810	5	32	348
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	260	900	6	36	387
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.98					
vC, conflicting volume	1166	450			906	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	450			906	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	53			95	
cM capacity (veh/h)	184	556			747	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	263	450	450	6	36	194	194
Volume Left	3	0	0	0	36	0	0
Volume Right	260	0	0	6	0	0	0
cSH	544	1700	1700	1700	747	1700	1700
Volume to Capacity	0.48	0.26	0.26	0.00	0.05	0.11	0.11
Queue Length 95th (ft)	65	0	0	0	4	0	0
Control Delay (s)	17.7	0.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	17.7	0.0			0.9		
Approach LOS	C						

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	18	61	208	0	130	122	670	136	10	283	59
Future Volume (vph)	31	18	61	208	0	130	122	670	136	10	283	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1806	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.56	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)		1806	1583	3433		1583	1045	3539	1583	636	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	20	68	231	0	144	136	744	151	11	314	66
RTOR Reduction (vph)	0	0	63	0	0	128	0	0	53	0	0	23
Lane Group Flow (vph)	0	54	5	231	0	16	136	744	98	11	314	43
Turn Type	Split	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	7		3				1			5	
Permitted Phases			7			3	1		1	5		5
Actuated Green, G (s)		9.0	9.0	13.4		13.4	77.6	77.6	77.6	77.6	77.6	77.6
Effective Green, g (s)		9.0	9.0	13.4		13.4	77.6	77.6	77.6	77.6	77.6	77.6
Actuated g/C Ratio		0.08	0.08	0.11		0.11	0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		135	118	383		176	675	2288	1023	411	2288	1023
v/s Ratio Prot		c0.03		c0.07				c0.21			0.09	
v/s Ratio Perm			0.00			0.01	0.13		0.06	0.02		0.03
v/c Ratio		0.40	0.04	0.60		0.09	0.20	0.33	0.10	0.03	0.14	0.04
Uniform Delay, d1		52.9	51.5	50.8		47.8	8.6	9.5	8.0	7.6	8.2	7.7
Progression Factor		1.31	3.34	1.00		1.00	1.22	1.18	2.29	1.82	1.66	7.75
Incremental Delay, d2		1.9	0.1	2.7		0.2	0.6	0.4	0.2	0.1	0.1	0.1
Delay (s)		71.4	172.0	53.4		48.1	11.1	11.6	18.5	14.0	13.8	59.8
Level of Service		E	F	D		D	B	B	B	B	B	E
Approach Delay (s)		127.5			51.4			12.5			21.5	
Approach LOS		F			D			B			C	

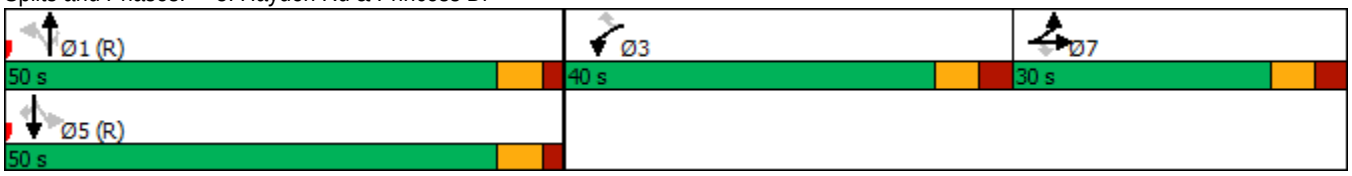
Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

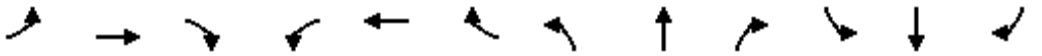
c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBTL	WBL	SBTL	EBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	50	40	50	30
Maximum Split (%)	41.7%	33.3%	41.7%	25.0%
Minimum Split (s)	50	40	50	30
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	3	2	3
Minimum Initial (s)	10	8	10	6
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	50	0	90
End Time (s)	50	90	50	0
Yield/Force Off (s)	44	83	44	113
Yield/Force Off 170(s)	33	72	33	102
Local Start Time (s)	0	50	0	90
Local Yield (s)	44	83	44	113
Local Yield 170(s)	33	72	33	102

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	19	402	0	98	5	866	227	90	490	8
Future Volume (vph)	10	1	19	402	0	98	5	866	227	90	490	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3531	
Flt Permitted		0.87		0.73	0.73	1.00	0.43	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		2775		1300	1300	1583	806	3539	1583	478	3531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	1	21	447	0	109	6	962	252	100	544	9
RTOR Reduction (vph)	0	20	0	0	0	83	0	0	89	0	1	0
Lane Group Flow (vph)	0	13	0	223	224	26	6	962	163	100	552	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	4	7		8	3			1			5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		4.0		28.5	28.5	28.5	77.5	77.5	77.5	77.5	77.5	
Effective Green, g (s)		4.0		28.5	28.5	28.5	77.5	77.5	77.5	77.5	77.5	
Actuated g/C Ratio		0.03		0.24	0.24	0.24	0.65	0.65	0.65	0.65	0.65	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		92		361	361	375	520	2285	1022	308	2280	
v/s Ratio Prot				0.08	c0.09			c0.27			0.16	
v/s Ratio Perm		0.00		0.06	c0.06	0.02	0.01		0.10	0.21		
v/c Ratio		0.14		0.62	0.62	0.07	0.01	0.42	0.16	0.32	0.24	
Uniform Delay, d1		56.3		40.2	40.9	35.5	7.6	10.3	8.4	9.5	8.9	
Progression Factor		1.00		1.00	1.00	1.00	1.49	1.26	3.41	1.38	1.44	
Incremental Delay, d2		0.7		3.1	3.3	0.1	0.0	0.4	0.2	2.8	0.3	
Delay (s)		57.0		43.4	44.2	35.5	11.3	13.4	28.8	15.9	13.1	
Level of Service		E		D	D	D	B	B	C	B	B	
Approach Delay (s)		57.0			42.2			16.6			13.5	
Approach LOS		E			D			B			B	

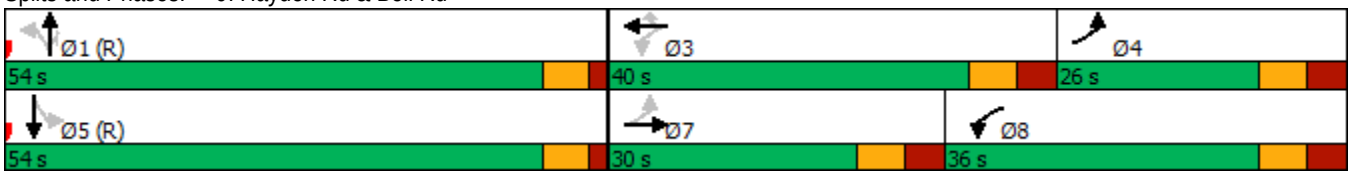
Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBTL	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	40	26	54	30	36
Maximum Split (%)	45.0%	33.3%	21.7%	45.0%	25.0%	30.0%
Minimum Split (s)	50	40	26	50	30	26
Yellow Time (s)	4.1	4.3	4.3	4.1	4.3	4.3
All-Red Time (s)	1.9	3.7	3.7	1.9	3.7	3.7
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	54	94	0	54	84
End Time (s)	54	94	0	54	84	0
Yield/Force Off (s)	48	86	112	48	76	112
Yield/Force Off 170(s)	37	75	112	37	65	112
Local Start Time (s)	0	54	94	0	54	84
Local Yield (s)	48	86	112	48	76	112
Local Yield 170(s)	37	75	112	37	65	112

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 0 (0%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	108	52	1661	90	16	862
Future Volume (vph)	108	52	1661	90	16	862
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.09	1.00
Satd. Flow (perm)	1770	1583	3539	1583	172	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	58	1846	100	18	958
RTOR Reduction (vph)	0	39	0	14	0	0
Lane Group Flow (vph)	120	19	1846	86	18	958
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	136	2813
v/s Ratio Prot	c0.07		c0.52			0.27
v/s Ratio Perm		0.01		0.05	0.10	
v/c Ratio	0.65	0.11	0.66	0.07	0.13	0.34
Uniform Delay, d1	51.6	48.6	5.3	2.7	2.8	3.5
Progression Factor	1.00	1.00	0.70	0.41	1.00	1.00
Incremental Delay, d2	7.6	0.3	0.9	0.1	2.0	0.3
Delay (s)	59.2	48.9	4.6	1.2	4.8	3.8
Level of Service	E	D	A	A	A	A
Approach Delay (s)	55.8		4.5			3.8
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	99	21
Maximum Split (%)	82.5%	17.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	99
End Time (s)	99	0
Yield/Force Off (s)	93	114
Yield/Force Off 170(s)	87	110
Local Start Time (s)	0	99
Local Yield (s)	93	114
Local Yield 170(s)	87	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	57	1671	105	49	890
Future Volume (vph)	105	57	1671	105	49	890
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.09	1.00
Satd. Flow (perm)	1770	1583	3539	1583	168	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	117	63	1857	117	54	989
RTOR Reduction (vph)	0	36	0	22	0	0
Lane Group Flow (vph)	117	27	1857	95	54	989
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.0	13.0	95.0	95.0	95.0	95.0
Effective Green, g (s)	13.0	13.0	95.0	95.0	95.0	95.0
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	191	171	2801	1253	133	2801
v/s Ratio Prot	c0.07		c0.52			0.28
v/s Ratio Perm		0.02		0.06	0.32	
v/c Ratio	0.61	0.16	0.66	0.08	0.41	0.35
Uniform Delay, d1	51.1	48.5	5.5	2.8	3.8	3.6
Progression Factor	1.00	1.00	2.19	3.61	1.02	0.85
Incremental Delay, d2	5.7	0.4	0.5	0.0	8.5	0.3
Delay (s)	56.8	49.0	12.5	10.1	12.4	3.4
Level of Service	E	D	B	B	B	A
Approach Delay (s)	54.1		12.4			3.9
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	97
End Time (s)	97	0
Yield/Force Off (s)	91	114
Yield/Force Off 170(s)	79	103
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	513	108	1458	362	90	1049
Future Volume (vph)	513	108	1458	362	90	1049
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	570	120	1620	402	100	1166
RTOR Reduction (vph)	0	95	0	231	0	0
Lane Group Flow (vph)	570	25	1620	171	100	1166
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.1	25.1	50.9	50.9	25.0	79.9
Effective Green, g (s)	25.1	25.1	50.9	50.9	25.0	79.9
Actuated g/C Ratio	0.21	0.21	0.42	0.42	0.21	0.67
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	718	331	1501	671	368	2356
v/s Ratio Prot	c0.17		c0.46		0.06	c0.33
v/s Ratio Perm		0.02		0.11		
v/c Ratio	0.79	0.08	1.08	0.25	0.27	0.49
Uniform Delay, d1	45.0	38.1	34.5	22.3	39.9	10.0
Progression Factor	1.02	1.52	1.14	3.76	0.89	0.76
Incremental Delay, d2	5.9	0.1	43.7	0.6	1.7	0.7
Delay (s)	51.7	58.1	83.1	84.5	37.4	8.3
Level of Service	D	E	F	F	D	A
Approach Delay (s)	52.8		83.4			10.6
Approach LOS	D		F			B

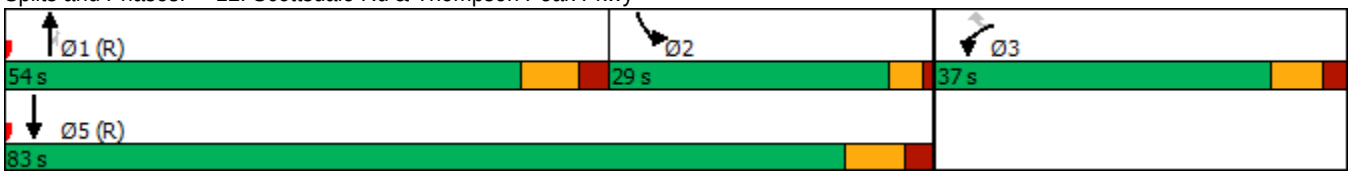
Intersection Summary			
HCM 2000 Control Delay	54.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	54	29	37	83
Maximum Split (%)	45.0%	24.2%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	54	83	0
End Time (s)	54	83	0	83
Yield/Force Off (s)	46	79	113	75
Yield/Force Off 170(s)	21	79	90	50
Local Start Time (s)	0	54	83	0
Local Yield (s)	46	79	113	75
Local Yield 170(s)	21	79	90	50

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	52	25	1817	80	16	1571
Future Volume (vph)	52	25	1817	80	16	1571
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	28	2019	89	18	1746
RTOR Reduction (vph)	0	27	0	11	0	0
Lane Group Flow (vph)	58	1	2019	78	18	1746
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	6.3	6.3	85.7	85.7	10.0	99.7
Effective Green, g (s)	6.3	6.3	85.7	85.7	10.0	99.7
Actuated g/C Ratio	0.05	0.05	0.71	0.71	0.08	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	180	83	2527	1130	147	2940
v/s Ratio Prot	c0.02		c0.57		0.01	c0.49
v/s Ratio Perm		0.00		0.05		
v/c Ratio	0.32	0.02	0.80	0.07	0.12	0.59
Uniform Delay, d1	54.8	53.9	11.4	5.2	50.9	3.4
Progression Factor	1.00	1.00	2.00	2.21	0.92	0.38
Incremental Delay, d2	1.0	0.1	1.7	0.1	1.4	0.8
Delay (s)	55.8	54.0	24.5	11.5	48.6	2.0
Level of Service	E	D	C	B	D	A
Approach Delay (s)	55.2		24.0			2.5
Approach LOS	E		C			A

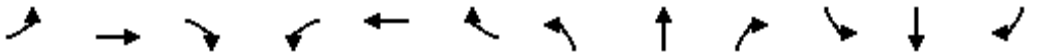
Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	71	14	35	85
Maximum Split (%)	59.2%	11.7%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	71	85	0
End Time (s)	71	85	0	85
Yield/Force Off (s)	64	81	113	78
Yield/Force Off 170(s)	48	81	92	62
Local Start Time (s)	0	71	85	0
Local Yield (s)	64	81	113	78
Local Yield 170(s)	48	81	92	62

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	465	66	482	662	1432	0	0	1098	591
Future Volume (vph)	0	0	0	465	66	482	662	1432	0	0	1098	591
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1567	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1567	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	517	73	536	736	1591	0	0	1220	657
RTOR Reduction (vph)	0	0	0	0	103	229	0	0	0	0	0	270
Lane Group Flow (vph)	0	0	0	517	206	71	736	1591	0	0	1220	387
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				28.5	28.5	28.5	20.0	44.5			54.5	54.5
Effective Green, g (s)				28.5	28.5	28.5	20.0	44.5			54.5	54.5
Actuated g/C Ratio				0.24	0.24	0.24	0.17	0.37			0.45	0.45
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				815	372	357	572	1885			3426	718
v/s Ratio Prot					0.13		c0.21	c0.31			0.16	
v/s Ratio Perm				c0.15		0.05						c0.24
v/c Ratio				0.63	0.55	0.20	1.29	0.84			0.36	0.54
Uniform Delay, d1				41.1	40.2	36.6	50.0	34.6			21.3	23.7
Progression Factor				0.70	0.61	2.25	1.08	0.29			1.24	2.03
Incremental Delay, d2				0.1	0.2	0.0	139.2	3.8			0.2	2.5
Delay (s)				29.0	24.8	82.3	193.1	13.7			26.6	50.5
Level of Service				C	C	F	F	B			C	D
Approach Delay (s)		0.0			42.0			70.4			35.0	
Approach LOS		A			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

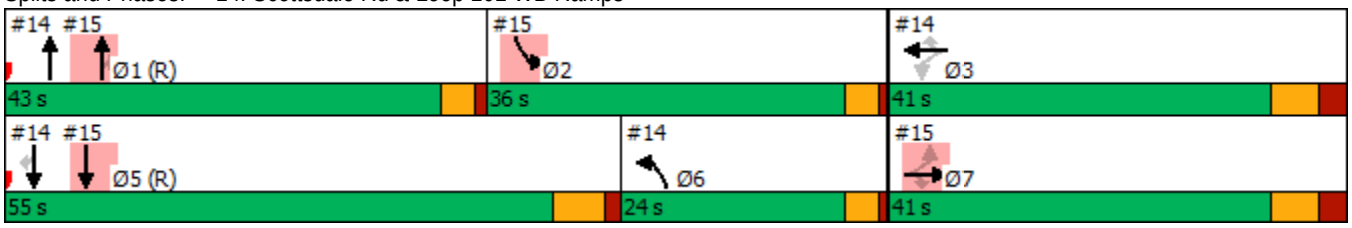
c Critical Lane Group

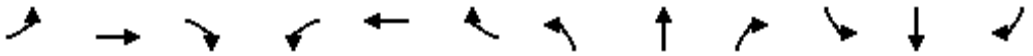
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	43	36	41	55	24	41
Maximum Split (%)	35.8%	30.0%	34.2%	45.8%	20.0%	34.2%
Minimum Split (s)	5	9	21	20	9	41
Yellow Time (s)	3	3	4.3	4.5	3	4.3
All-Red Time (s)	1	1	2.7	1.5	1	2.7
Minimum Initial (s)	1	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			6	6		6
Flash Dont Walk (s)			8	8		28
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	43	79	0	55	79
End Time (s)	43	79	0	55	79	0
Yield/Force Off (s)	39	75	113	49	75	113
Yield/Force Off 170(s)	39	75	105	41	75	85
Local Start Time (s)	0	43	79	0	55	79
Local Yield (s)	39	75	113	49	75	113
Local Yield 170(s)	39	75	105	41	75	85

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	90	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

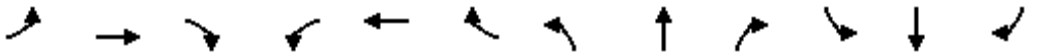




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	474	0	591	0	0	0	0	1633	499	453	1196	0
Future Volume (vph)	474	0	591	0	0	0	0	1633	499	453	1196	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	527	0	657	0	0	0	0	1814	554	503	1329	0
RTOR Reduction (vph)	0	251	250	0	0	0	0	0	221	0	0	0
Lane Group Flow (vph)	527	78	78	0	0	0	0	1814	333	503	1329	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	28.5	28.5	28.5					44.5	44.5	32.0	54.5	
Effective Green, g (s)	28.5	28.5	28.5					44.5	44.5	32.0	54.5	
Actuated g/C Ratio	0.24	0.24	0.24					0.37	0.37	0.27	0.45	
Clearance Time (s)	7.0	7.0	7.0					4.0	4.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	815	357	357					2797	587	915	2309	
v/s Ratio Prot		0.05						c0.24		c0.15	0.26	
v/s Ratio Perm	c0.15		0.05						0.21			
v/c Ratio	0.65	0.22	0.22					0.65	0.57	0.55	0.58	
Uniform Delay, d1	41.2	36.8	36.8					31.3	30.1	37.8	24.2	
Progression Factor	1.00	1.00	1.00					1.13	1.82	1.12	0.45	
Incremental Delay, d2	1.8	0.3	0.3					0.8	2.5	2.2	1.0	
Delay (s)	43.0	37.1	37.1					36.0	57.3	44.7	11.9	
Level of Service	D	D	D					D	E	D	B	
Approach Delay (s)		39.7			0.0			41.0			21.0	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	607	8	169	10	12	21	333	1534	10	9	1110	653
Future Volume (vph)	607	8	169	10	12	21	333	1534	10	9	1110	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3200		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3200		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	674	9	188	11	13	23	370	1704	11	10	1233	726
RTOR Reduction (vph)	0	0	126	0	21	0	0	0	6	0	0	464
Lane Group Flow (vph)	674	9	62	11	15	0	370	1704	5	10	1233	262
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	32.4	39.6	39.6	1.3	8.5		10.7	51.5	51.5	2.2	43.3	43.3
Effective Green, g (s)	32.4	39.6	39.6	1.3	8.5		10.7	51.5	51.5	2.2	43.3	43.3
Actuated g/C Ratio	0.27	0.33	0.33	0.01	0.07		0.09	0.43	0.43	0.02	0.36	0.36
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0		5.5	7.0	7.0	5.9	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	926	1678	522	37	226		306	2182	679	62	1834	571
v/s Ratio Prot	c0.20	0.00		0.00	0.00		c0.11	c0.34		0.00	0.24	
v/s Ratio Perm			c0.04						0.00			0.17
v/c Ratio	0.73	0.01	0.12	0.30	0.06		1.21	0.78	0.01	0.16	0.67	0.46
Uniform Delay, d1	39.8	27.0	28.0	58.9	52.0		54.6	29.4	19.6	58.0	32.4	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.86	1.08	1.00	1.33	1.17	8.13
Incremental Delay, d2	2.9	0.0	0.1	4.5	0.1		117.0	1.6	0.0	4.7	0.8	0.5
Delay (s)	42.7	27.0	28.1	63.4	52.2		164.1	33.3	19.6	81.6	38.8	239.2
Level of Service	D	C	C	E	D		F	C	B	F	D	F
Approach Delay (s)		39.4			54.8			56.4			112.9	
Approach LOS		D			D			E			F	

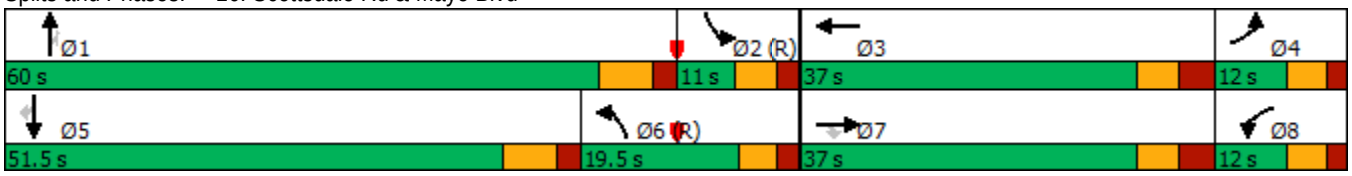
Intersection Summary			
HCM 2000 Control Delay	75.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

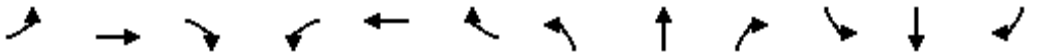
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	60	11	37	12	51.5	19.5	37	12
Maximum Split (%)	50.0%	9.2%	30.8%	10.0%	42.9%	16.3%	30.8%	10.0%
Minimum Split (s)	60	10.9	37	10.5	33.1	10.5	37	10.5
Yellow Time (s)	4.8	3.9	3.9	3.5	4.9	3.5	3.9	3.5
All-Red Time (s)	2.2	2	3.1	2	2.2	2	3.1	2
Minimum Initial (s)	20	5	4	5	20	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	0	11	48	60	111.5	11	48
End Time (s)	0	11	48	60	111.5	11	48	60
Yield/Force Off (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Yield/Force Off 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5
Local Start Time (s)	60	0	11	48	60	111.5	11	48
Local Yield (s)	113	5.1	41	54.5	104.4	5.5	41	54.5
Local Yield 170(s)	94	5.1	18	54.5	85.4	5.5	18	54.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 0 (0%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1	118	13	4	4	138	1835	6	8	1399	83
Future Volume (vph)	117	1	118	13	4	4	138	1835	6	8	1399	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.41	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	768	3539	1583	1774	3539	1583	192	5085	1583	129	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	1	131	14	4	4	153	2039	7	9	1554	92
RTOR Reduction (vph)	0	0	114	0	0	4	0	0	3	0	0	41
Lane Group Flow (vph)	130	1	17	14	4	0	153	2039	4	9	1554	51
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.0	15.6	15.6	7.1	4.2	4.2	82.0	75.2	75.2	67.6	66.3	66.3
Effective Green, g (s)	24.0	15.6	15.6	7.1	4.2	4.2	82.0	75.2	75.2	67.6	66.3	66.3
Actuated g/C Ratio	0.20	0.13	0.13	0.06	0.04	0.04	0.68	0.63	0.63	0.56	0.55	0.55
Clearance Time (s)	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0	5.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	460	205	104	123	55	265	3186	992	90	2809	874
v/s Ratio Prot	c0.06	0.00		0.00	0.00		c0.05	c0.40		0.00	0.31	
v/s Ratio Perm	c0.04		0.01	0.00		0.00	0.34		0.00	0.06		0.03
v/c Ratio	0.48	0.00	0.08	0.13	0.03	0.00	0.58	0.64	0.00	0.10	0.55	0.06
Uniform Delay, d1	41.6	45.4	45.9	53.5	55.9	55.9	11.5	14.0	8.4	12.6	17.3	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	2.05	1.54	1.00	0.64	0.66	2.47
Incremental Delay, d2	1.3	0.0	0.2	0.6	0.1	0.0	2.4	0.8	0.0	0.4	0.7	0.1
Delay (s)	42.9	45.4	46.1	54.1	56.0	55.9	26.0	22.3	8.4	8.5	12.2	30.7
Level of Service	D	D	D	D	E	E	C	C	A	A	B	C
Approach Delay (s)		44.5			54.8			22.5			13.2	
Approach LOS		D			D			C			B	

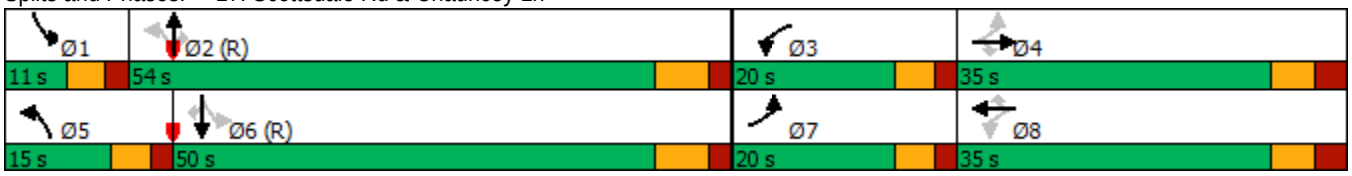
Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

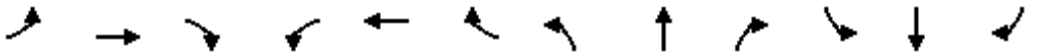
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	11	54	20	35	15	50	20	35
Maximum Split (%)	9.2%	45.0%	16.7%	29.2%	12.5%	41.7%	16.7%	29.2%
Minimum Split (s)	10.5	30	10.5	35	10.5	30	10.5	35
Yellow Time (s)	3.5	4.9	3.5	3.9	3.5	4.9	3.5	3.9
All-Red Time (s)	2	2.1	2	3.1	2	2.1	2	3.1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		21		16		21
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	116	50	70	105	0	50	70
End Time (s)	116	50	70	105	0	50	70	105
Yield/Force Off (s)	110.5	43	64.5	98	114.5	43	64.5	98
Yield/Force Off 170(s)	110.5	27	64.5	77	114.5	27	64.5	77
Local Start Time (s)	105	116	50	70	105	0	50	70
Local Yield (s)	110.5	43	64.5	98	114.5	43	64.5	98
Local Yield 170(s)	110.5	27	64.5	77	114.5	27	64.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	12	232	122	37	182	240	1708	94	108	1350	66
Future Volume (vph)	52	12	232	122	37	182	240	1708	94	108	1350	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3034		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.47	1.00	1.00	0.12	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1358	3034		871	3539	1583	225	5085	1583	118	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	13	258	136	41	202	267	1898	104	120	1500	73
RTOR Reduction (vph)	0	211	0	0	0	182	0	0	46	0	0	32
Lane Group Flow (vph)	58	60	0	136	41	20	267	1898	58	120	1500	41
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	18.6	11.6		18.6	11.6	11.6	80.4	67.4	67.4	80.4	67.4	67.4
Effective Green, g (s)	18.6	11.6		18.6	11.6	11.6	80.4	67.4	67.4	80.4	67.4	67.4
Actuated g/C Ratio	0.16	0.10		0.16	0.10	0.10	0.67	0.56	0.56	0.67	0.56	0.56
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	293		187	342	153	318	2856	889	258	2856	889
v/s Ratio Prot	0.01	0.02		c0.04	0.01		c0.09	0.37		0.05	0.29	
v/s Ratio Perm	0.02			c0.07		0.01	c0.47		0.04	0.26		0.03
v/c Ratio	0.25	0.20		0.73	0.12	0.13	0.84	0.66	0.07	0.47	0.53	0.05
Uniform Delay, d1	44.8	49.9		49.4	49.5	49.6	27.4	18.4	12.0	30.4	16.4	11.8
Progression Factor	1.00	1.00		1.01	1.00	1.32	0.72	1.52	4.39	0.69	0.73	5.64
Incremental Delay, d2	0.6	0.3		13.2	0.2	0.4	17.8	0.9	0.1	5.3	0.6	0.1
Delay (s)	45.3	50.3		62.8	49.5	66.0	37.7	29.0	52.6	26.4	12.5	66.9
Level of Service	D	D		E	D	E	D	C	D	C	B	E
Approach Delay (s)		49.4			63.1			31.1			15.9	
Approach LOS		D			E			C			B	

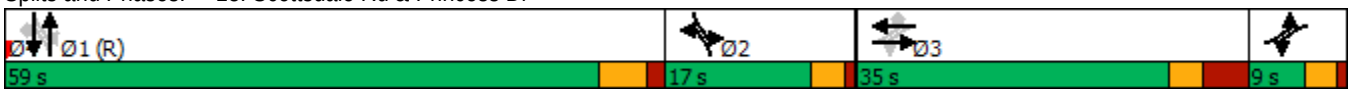
Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

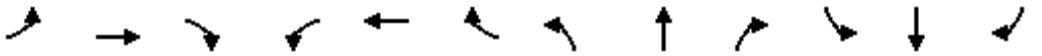
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	26	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	20	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	59	76	111
End Time (s)	59	76	111	0
Yield/Force Off (s)	53	72	104	116
Yield/Force Off 170(s)	43	72	83	116
Local Start Time (s)	0	59	76	111
Local Yield (s)	53	72	104	116
Local Yield 170(s)	43	72	83	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	2	114	89	7	55	103	1933	25	54	1620	78
Future Volume (vph)	63	2	114	89	7	55	103	1933	25	54	1620	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.62		0.09	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1387			1095		164	5085	1583	97	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	2	127	99	8	61	114	2148	28	60	1800	87
RTOR Reduction (vph)	0	59	0	0	19	0	0	0	10	0	0	31
Lane Group Flow (vph)	0	140	0	0	149	0	114	2148	18	60	1800	56
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.4			20.4		82.6	76.6	76.6	82.6	76.6	76.6
Effective Green, g (s)		20.4			20.4		82.6	76.6	76.6	82.6	76.6	76.6
Actuated g/C Ratio		0.17			0.17		0.69	0.64	0.64	0.69	0.64	0.64
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		235			186		193	3245	1010	150	3245	1010
v/s Ratio Prot							c0.03	c0.42		0.02	0.35	
v/s Ratio Perm		0.10			c0.14		0.38		0.01	0.25		0.04
v/c Ratio		0.60			0.80		0.59	0.66	0.02	0.40	0.55	0.05
Uniform Delay, d1		46.0			47.8		27.1	13.6	7.9	29.1	12.2	8.1
Progression Factor		1.00			1.00		1.90	1.78	1.00	0.75	1.32	2.67
Incremental Delay, d2		4.0			21.3		1.2	0.1	0.0	6.9	0.6	0.1
Delay (s)		50.0			69.2		52.7	24.3	7.9	28.6	16.6	21.8
Level of Service		D			E		D	C	A	C	B	C
Approach Delay (s)		50.0			69.2			25.5			17.2	
Approach LOS		D			E			C			B	

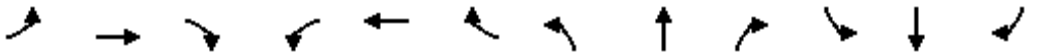
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	10	37
Maximum Split (%)	60.8%	8.3%	30.8%
Minimum Split (s)	26	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	20	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	73	83
End Time (s)	73	83	0
Yield/Force Off (s)	67	79	113
Yield/Force Off 170(s)	64	79	92
Local Start Time (s)	0	73	83
Local Yield (s)	67	79	113
Local Yield 170(s)	64	79	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	561	200	170	1351	453	476	1415	224	329	1130	393
Future Volume (vph)	259	561	200	170	1351	453	476	1415	224	329	1130	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	288	623	222	189	1501	503	529	1572	249	366	1256	437
RTOR Reduction (vph)	0	0	96	0	0	61	0	0	137	0	52	0
Lane Group Flow (vph)	288	623	126	189	1501	442	529	1572	112	366	1641	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	15.3	40.6	40.6	10.4	35.7	53.1	5.0	29.6	29.6	17.4	42.0	
Effective Green, g (s)	15.3	40.6	40.6	10.4	35.7	53.1	5.0	29.6	29.6	17.4	42.0	
Actuated g/C Ratio	0.13	0.34	0.34	0.09	0.30	0.44	0.04	0.25	0.25	0.14	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	437	1720	535	297	1512	700	143	1254	390	497	1710	
v/s Ratio Prot	c0.08	0.12		0.06	c0.30	0.09	c0.15	c0.31		0.11	c0.34	
v/s Ratio Perm			0.08			0.19			0.07			
v/c Ratio	0.66	0.36	0.24	0.64	0.99	0.63	3.70	1.25	0.29	0.74	0.96	
Uniform Delay, d1	49.9	29.9	28.5	53.0	42.0	25.9	57.5	45.2	36.6	49.1	38.2	
Progression Factor	1.00	1.00	1.00	0.91	1.62	1.20	1.00	1.00	1.00	0.87	0.91	
Incremental Delay, d2	3.6	0.6	1.0	1.7	12.5	0.7	1231.7	120.8	1.8	4.8	12.6	
Delay (s)	53.4	30.5	29.6	49.7	80.5	31.6	1289.2	166.0	38.5	47.7	47.2	
Level of Service	D	C	C	D	F	C	F	F	D	D	D	
Approach Delay (s)		36.2			66.6			405.3			47.3	
Approach LOS		D			E			F			D	

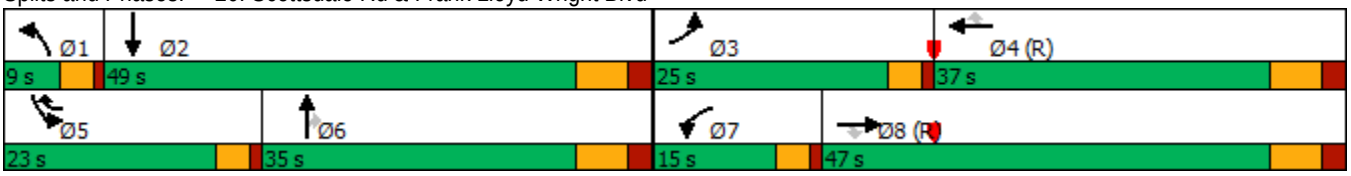
Intersection Summary			
HCM 2000 Control Delay	159.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

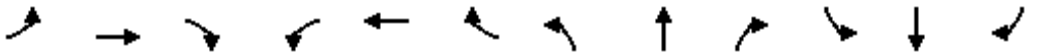
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	9	49	25	37	23	35	15	47
Maximum Split (%)	7.5%	40.8%	20.8%	30.8%	19.2%	29.2%	12.5%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	40
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	46	95	0	37	60	95	110
End Time (s)	46	95	0	37	60	95	110	37
Yield/Force Off (s)	42	88	116	30	56	88	106	30
Yield/Force Off 170(s)	42	67	116	8	56	67	106	8
Local Start Time (s)	37	46	95	0	37	60	95	110
Local Yield (s)	42	88	116	30	56	88	106	30
Local Yield 170(s)	42	67	116	8	56	67	106	8

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	135
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	1038	37	335	1555	305	75	397	520	197	496	493
Future Volume (vph)	344	1038	37	335	1555	305	75	397	520	197	496	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	382	1153	41	372	1728	339	83	441	578	219	551	548
RTOR Reduction (vph)	0	0	25	0	0	98	0	0	70	0	0	172
Lane Group Flow (vph)	382	1153	16	372	1728	241	83	441	508	219	551	376
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Effective Green, g (s)	13.0	48.0	48.0	13.0	48.0	48.0	3.0	23.0	36.0	8.0	28.0	28.0
Actuated g/C Ratio	0.11	0.40	0.40	0.11	0.40	0.40	0.02	0.19	0.30	0.07	0.23	0.23
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	2034	633	371	2034	633	44	678	567	228	825	369
v/s Ratio Prot	0.11	0.23		0.11	c0.34		0.05	0.12	c0.10	c0.06	0.16	
v/s Ratio Perm			0.01			0.15			0.22			c0.24
v/c Ratio	1.03	0.57	0.03	1.00	0.85	0.38	1.89	0.65	0.90	0.96	0.67	1.02
Uniform Delay, d1	53.5	27.9	21.8	53.5	32.7	25.5	58.5	44.8	40.2	55.8	41.8	46.0
Progression Factor	1.03	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	1.11	1.28
Incremental Delay, d2	53.2	1.1	0.1	47.4	4.7	1.7	472.4	2.2	16.6	47.7	2.0	51.4
Delay (s)	108.5	26.3	21.9	100.9	37.4	27.2	530.9	47.0	56.8	94.2	48.3	110.5
Level of Service	F	C	C	F	D	C	F	D	E	F	D	F
Approach Delay (s)		46.1			45.7			88.6			81.8	
Approach LOS		D			D			F			F	

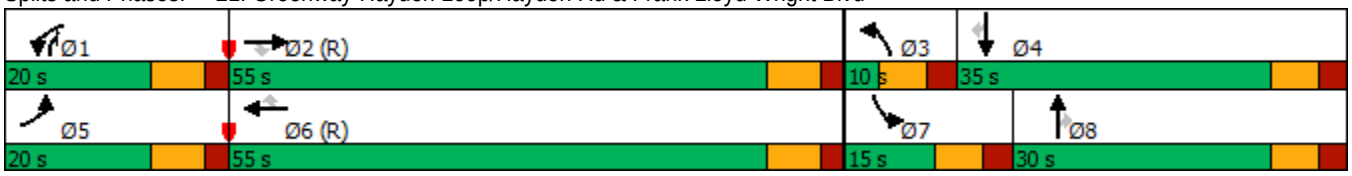
Intersection Summary			
HCM 2000 Control Delay	60.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

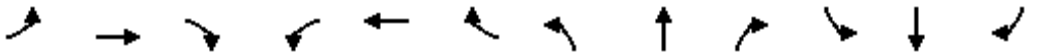
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	55	10	35	20	55	15	30
Maximum Split (%)	16.7%	45.8%	8.3%	29.2%	16.7%	45.8%	12.5%	25.0%
Minimum Split (s)	30	60	20	45	30	60	25	40
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	0	55	65	100	0	55	70
End Time (s)	0	55	65	100	0	55	70	100
Yield/Force Off (s)	113	48	58	93	113	48	63	93
Yield/Force Off 170(s)	113	31	58	69	113	31	63	69
Local Start Time (s)	100	0	55	65	100	0	55	70
Local Yield (s)	113	48	58	93	113	48	63	93
Local Yield 170(s)	113	31	58	69	113	31	63	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	155
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway-Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	281	117	78	175	330	196	1341	4	299	869	177
Future Volume (vph)	367	281	117	78	175	330	196	1341	4	299	869	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	408	312	130	87	194	367	218	1490	4	332	966	197
RTOR Reduction (vph)	0	0	72	0	0	53	0	0	0	0	0	82
Lane Group Flow (vph)	408	312	58	87	194	314	218	1494	0	332	966	115
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	22.1	15.5	28.5	21.4	14.8	32.8	13.0	43.1		18.0	48.1	70.2
Effective Green, g (s)	22.1	15.5	28.5	21.4	14.8	32.8	13.0	43.1		18.0	48.1	70.2
Actuated g/C Ratio	0.18	0.13	0.24	0.18	0.12	0.27	0.11	0.36		0.15	0.40	0.59
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	632	457	428	612	436	485	371	1825		514	2038	978
v/s Ratio Prot	c0.12	0.09	0.01	0.03	0.05	c0.10	0.06	c0.29		0.10	0.19	0.02
v/s Ratio Perm			0.02			0.10						0.05
v/c Ratio	0.65	0.68	0.13	0.14	0.44	0.65	0.59	0.82		0.65	0.47	0.12
Uniform Delay, d1	45.3	49.9	36.0	41.6	48.8	38.5	50.9	34.9		48.0	26.6	11.1
Progression Factor	0.80	1.38	2.75	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	3.8	0.1	0.1	0.7	3.0	6.7	4.2		6.2	0.8	0.1
Delay (s)	38.3	72.5	99.3	41.7	49.5	41.5	57.6	39.1		54.2	27.4	11.2
Level of Service	D	E	F	D	D	D	E	D		D	C	B
Approach Delay (s)		60.2			43.9			41.5			31.2	
Approach LOS		E			D			D			C	

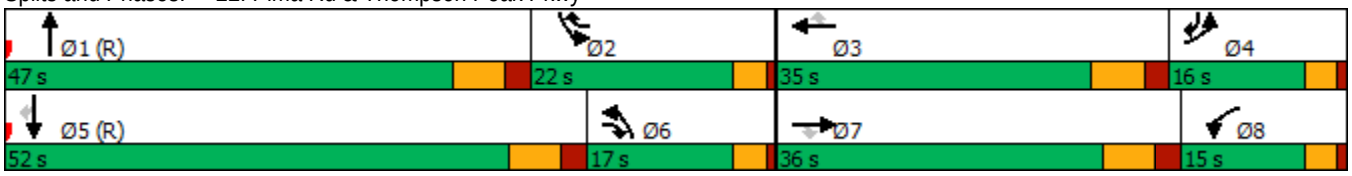
Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	22	35	16	52	17	36	15
Maximum Split (%)	39.2%	18.3%	29.2%	13.3%	43.3%	14.2%	30.0%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	20	6	10	6	20	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	119	21	56	72	4	21	57
End Time (s)	119	21	56	72	4	21	57	72
Yield/Force Off (s)	112	17	49	68	117	17	50	68
Yield/Force Off 170(s)	90	17	28	68	95	17	29	68
Local Start Time (s)	0	47	69	104	0	52	69	105
Local Yield (s)	40	65	97	116	45	65	98	116
Local Yield 170(s)	18	65	76	116	23	65	77	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 72 (60%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy



APPENDIX E

CAVASSON TRIP GENERATION

Land Use Types and Size

Parcel	LUC	Setting/Location	Proposed Use	Amount	Units	ITE LUC	ITE Land Use Name
			Phase 1				
	310	General	Hotel or motel	135	Rooms	310	Hotel
	220	General	Apartments	350	Dwelling Units	220	Multifamily Housing (Low-Rise)
	820	General	Shopping Center	11.000	KSF	820	Shopping Center
	930	General	Fast Casual Restaurant	6.000	KSF	930	Fast Casual Restaurant
	710	General	General Office Building	740.000	KSF	710	General Office Building
			Phase 2				
	310	General	Hotel or motel	265	Rooms	310	Hotel
	220	General	Apartments	1,250	Dwelling Units	220	Multifamily Housing (Low-Rise)
	820	General	Shopping Center	183.000	KSF	820	Shopping Center
	710	General	General Office Building	1060.000	KSF	710	General Office Building
	930	General	Fast Casual Restaurant	6.000	KSF	930	Fast Casual Restaurant

-Abbreviations: ITE = Institute of Transportation Engineers, LUC = land use code, SF = square feet, KSF = 1,000 square feet, DU = Dwelling Units, Keys = keyed gu

Weighted Average Rate or Fitted Curve Equation Used in Analysis?

Parcel	Proposed Use	ADT	Rate	Trips	AM	Rate	Trips	PM	Rate	Trips
Phase 1										
	Hotel or motel	T=11.29(X)-426.97	8.36	1,128	T=0.50(X)-5.34	0.49	66	T=0.75(X)-26.02	0.68	92
	Apartments	T=7.56*X-40.86	7.53	2,636	LN(T=0.95*LN(X)-0.51	0.42	147	LN(T)=0.89*LN(X)-0.02	0.44	154
	Shopping Center	LN(T)=0.68*LN(X)+5.57	48.16	530	T=0.5(X)+151.78	1.26	14	LN(T)=0.74*LN(X)+2.89	4.54	50
	Fast Casual Restaurant	Weighted Average	315.17	1,892	Weighted Average	2.07	12	Weighted Average	14.13	85
	General Office Building	LN(T)=0.97*LN(X)+2.50	9.73	7,200	T=0.94(X)+26.94	0.95	703	LN(T)=0.95*LN(X)+0.36	0.99	733
Phase 2										
	Hotel or motel	Weighted Average	8.36	2,216	T=0.50(X)-5.34	0.49	130	T=0.75(X)-26.02	0.68	180
	Apartments	T=7.56*X-40.86	7.53	9,412	LN(T=0.95*LN(X)-0.51	0.42	525	LN(T)=0.89*LN(X)-0.02	0.44	550
	Shopping Center	LN(T)=0.68*LN(X)+5.57	48.16	8,814	T=0.5(X)+151.78	1.26	231	LN(T)=0.74*LN(X)+2.89	4.54	831
	General Office Building	LN(T)=0.97*LN(X)+2.50	9.73	10,314	T=0.94(X)+26.94	0.95	1,007	LN(T)=0.95*LN(X)+0.36	0.99	1,049
	Fast Casual Restaurant	Weighted Average	315.17	1,892	Weighted Average	2.07	12	Weighted Average	14.13	85

Notes: -ITE methodology per the *Trip Generation Handbook* is the basis for deciding which rate/equation to use. Exceptions are highlighted.

Base Trips

Parcel	Proposed Use	ADT % In	ADT In	ADT Out	ADT Total	AM % In	AM In	AM Out	AM Total	PM % In	PM In	PM Out	PM Total
	Hotel or motel	50%	564	564	1,128	59%	39	27	66	51%	47	45	92
	Apartments	50%	1,318	1,318	2,636	23%	34	113	147	63%	97	57	154
	Shopping Center	50%	265	265	530	57%	8	6	14	52%	26	24	50
	Fast Casual Restaurant	50%	946	946	1,892	67%	8	4	12	55%	47	38	85
	General Office Building	50%	3,600	3,600	7,200	86%	605	98	703	16%	117	616	733
	Hotel or motel	50%	1,108	1,108	2,216	59%	77	53	130	51%	92	88	180
	Apartments	50%	4,706	4,706	9,412	23%	121	404	525	63%	347	203	550
	Shopping Center	50%	4,407	4,407	8,814	57%	132	99	231	52%	432	399	831
	General Office Building	50%	5,157	5,157	10,314	86%	866	141	1,007	16%	168	881	1,049
	Fast Casual Restaurant	50%	946	946	1,892	67%	8	4	12	55%	47	38	85
	Totals		**23,017**	**23,017**	**46,034**		**1,898**	**949**	**2,847**		**1,420**	**2,389**	**3,809**

Notes:

-Per ITE's *Trip Generation Handbook, 3rd edition*, the rates in the *Trip Generation Manual* represent base trip generation rates for "low-density, single-use, suburba
little or no transit service, limited bicycle access, and little or no convenient pedestrian access" and that the "analyst needs to adjust the baseline vehicle trip genera
development is an infill site, mixed-use development, transit-friendly development, is located within an urban core area or near a school, and/or other conditions.

-The base trips projected for the site are displayed in the table above. The following pages, if any, present appropriate adjustments to the base volumes and/or sepa

Adjustments for Internal Trips

Parcel	Proposed Use	ADT	ADT In	ADT Out	ADT Total	AM	AM In	AM Out	AM Total	PM	PM In	PM Out	PM Total
	Hotel or motel	7%	37	37	74	3%	1	1	2	4%	2	1	3
	Apartments	7%	86	86	172	3%	1	3	4	4%	4	2	6
	Shopping Center	7%	17	17	34	3%	0	0	0	4%	1	1	2
	Fast Casual Restaurant	7%	61	61	122	3%	0	0	0	4%	2	1	3
	General Office Building	7%	234	234	468	3%	16	2	18	4%	4	23	27
	Hotel or motel	24%	266	266	532	10%	7	5	12	18%	17	15	32
	Apartments	24%	1,129	1,129	2,258	10%	12	38	50	18%	62	37	99
	Shopping Center	24%	1,058	1,058	2,116	10%	13	9	22	18%	78	72	150
	General Office Building	24%	1,238	1,238	2,476	10%	83	14	97	18%	30	159	189
	Fast Casual Restaurant	24%	227	227	454	10%	1	0	1	18%	8	7	15
	Totals		**4,353**	**4,353**	**8,706**		**134**	**72**	**206**		**208**	**318**	**526**

External Vehicular Trips

Parcel	Proposed Use	ADT In	ADT Out	ADT Total	AM In	AM Out	AM Total	PM In	PM Out	PM Total
	Hotel or motel	527	527	1,054	38	26	64	45	44	89
	Apartments	1,232	1,232	2,464	33	110	143	93	55	148
	Shopping Center	248	248	496	8	6	14	25	23	48
	Fast Casual Restaurant	885	885	1,770	8	4	12	45	37	82
	General Office Building	3,366	3,366	6,732	589	96	685	113	593	706
	Hotel or motel	842	842	1,684	70	48	118	75	73	148
	Apartments	3,577	3,577	7,154	109	366	475	285	166	451
	Shopping Center	3,349	3,349	6,698	119	90	209	354	327	681
	General Office Building	3,919	3,919	7,838	783	127	910	138	722	860
	Fast Casual Restaurant	719	719	1,438	7	4	11	39	31	70
	Totals	**18,664**	**18,664**	**37,328**	**1,764**	**877**	**2,641**	**1,212**	**2,071**	**3,283**

Phase	ADT	AM in	AM out	PM in	PM out
1	12,516	676	242	321	752
2	24,812	1,088	635	891	1,319
Totals	**37,328**	**1,764**	**877**	**1,212**	**2,071**
Differences (check)	0	0	0	0	0

APPENDIX F

INTERNAL CAPTURE

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period: AM X PM ____ Daily ____

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT					
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total
Enter	33	36	3	601	673
Exit	110	27	4	92	233
Total	143	63	7	693	906
Single Use Trip Gen Estim	147	66	14	703	930

Internal Capture: 2.58%

Print Date = 08/10/18
Print Time = 5:34 PM

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period:
AM _____ PM X Daily _____

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT						
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total	
Enter	87	46	17	115	265	
Exit	52	44	20	610	726	
Total	139	90	37	725	991	
Single Use Trip Gen Estim	154	92	50	733	1,029	Internal Capture 3.69%

Print Date = 08/10/18
Print Time = 5:34 PM

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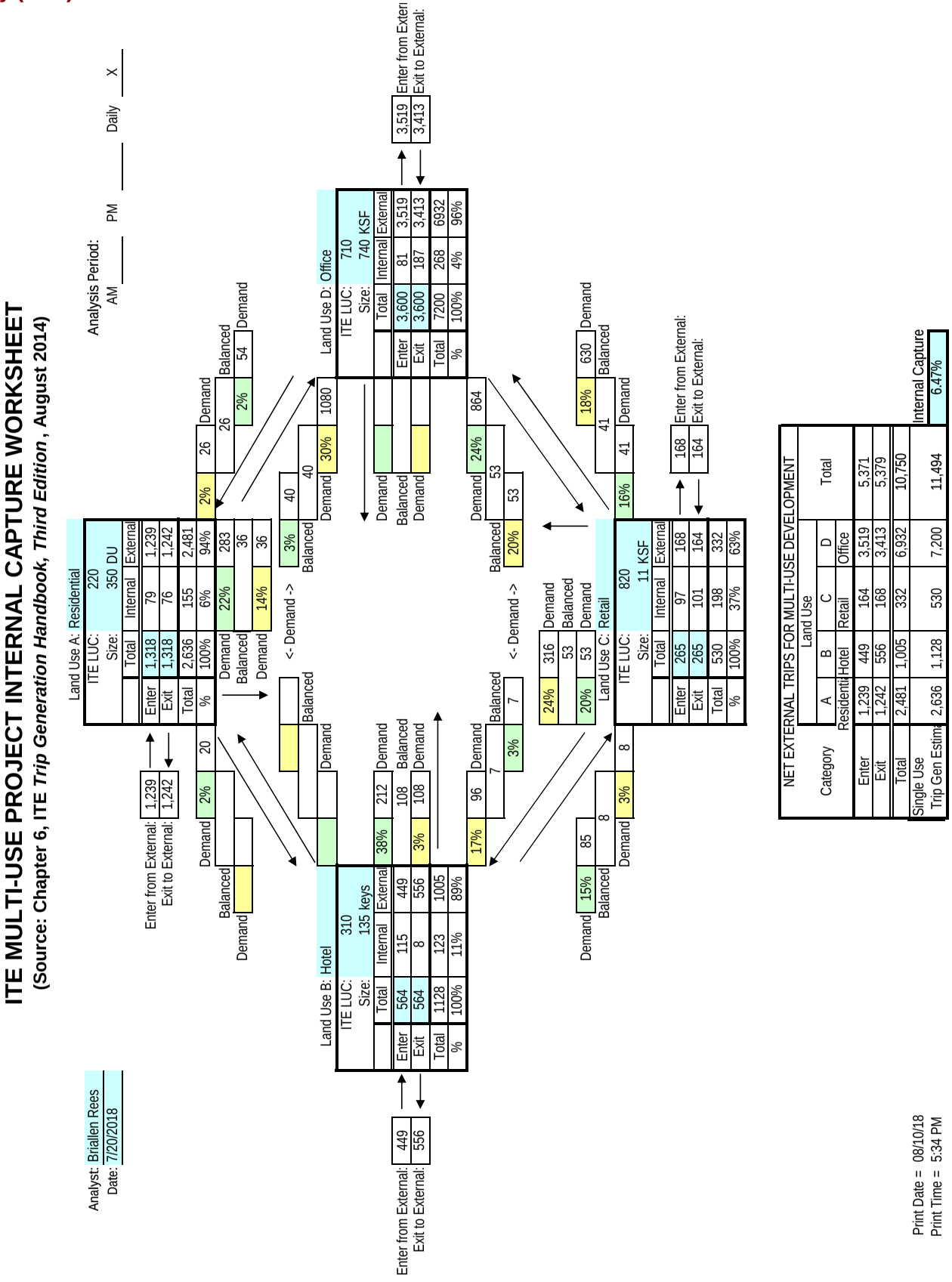

Land Use A: Residential	Total	Internal	External
Enter	1,318	79	1,239
Exit	1,318	76	1,242
Total	2,636	155	2,481
%	100%	6%	94%

Land Use B: Hotel	Total	Internal	External
Enter	564	115	449
Exit	564	8	556
Total	1128	123	1005
%	100%	11%	89%

Land Use C: Retail	Total	Internal	External
Enter	265	97	168
Exit	265	101	164
Total	530	198	332
%	100%	37%	63%

Land Use D: Office	Total	Internal	External
Enter	3,600	81	3,519
Exit	3,600	187	3,413
Total	7200	268	6932
%	100%	4%	96%

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT

Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total
Enter	1,239	449	164	3,519	5,371
Exit	1,242	556	168	3,413	5,379
Total	2,481	1,005	332	6,932	10,750
Single Use Trip Gen Estim	2,636	1,128	530	7,200	11,494

Internal Capture 6.47%

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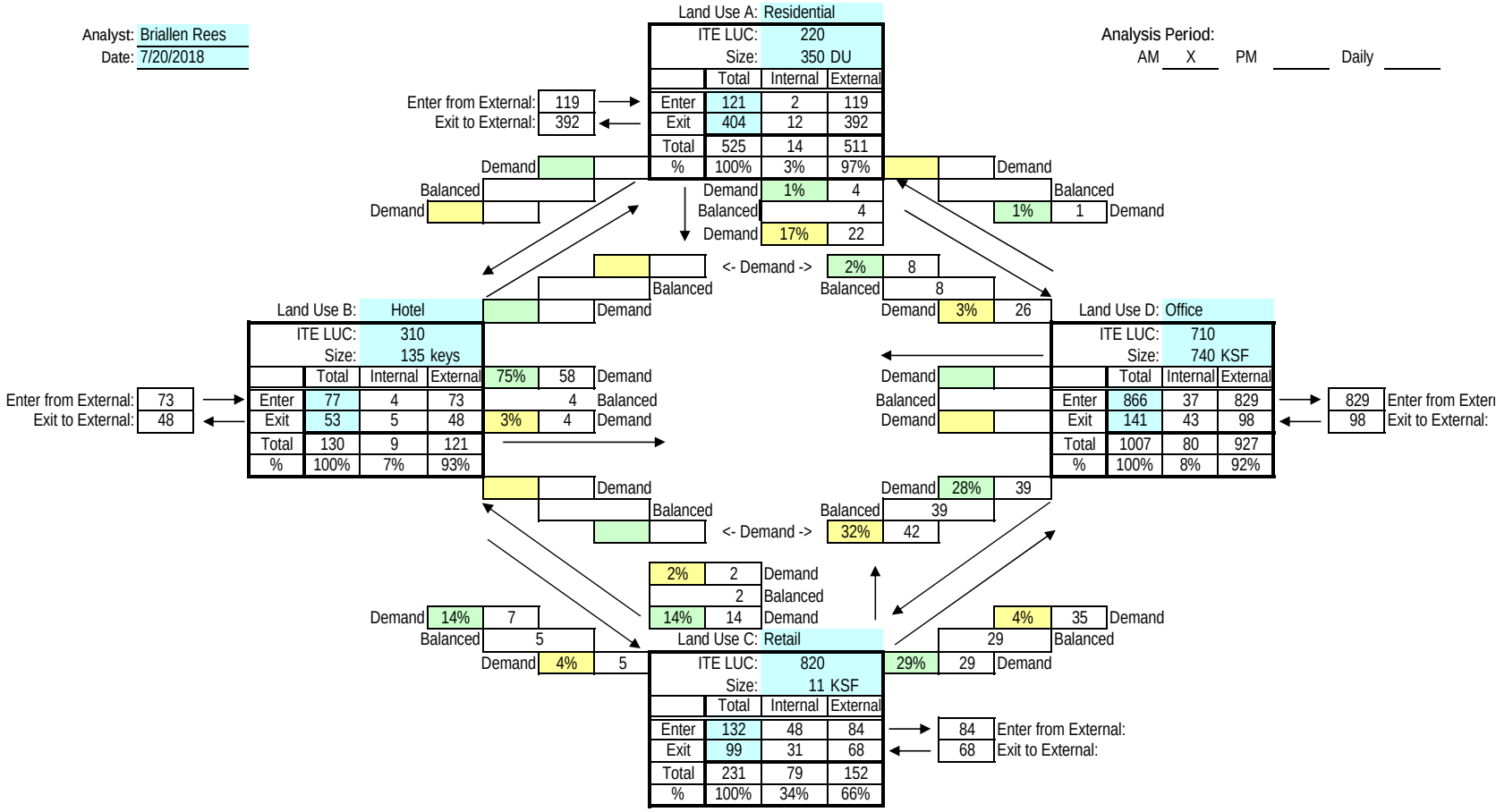
ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period: AM X PM ____ Daily ____



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT						
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total	
Enter	119	73	68	829	1,089	
Exit	392	48	84	98	622	
Total	511	121	152	927	1,711	
Single Use Trip Gen Estim	525	130	231	1,007	1,893	Internal Capture 9.61%

Print Date = 08/10/18
Print Time = 5:36 PM

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ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period:
AM _____ PM X Daily _____

NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT						
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total	
Enter	229	76	271	152	728	
Exit	152	79	345	832	1,408	
Total	381	155	616	984	2,136	
Single Use Trip Gen Estim	550	180	831	1,049	2,610	Internal Capture 18.16%

Print Date = 08/10/18
Print Time = 5:36 PM

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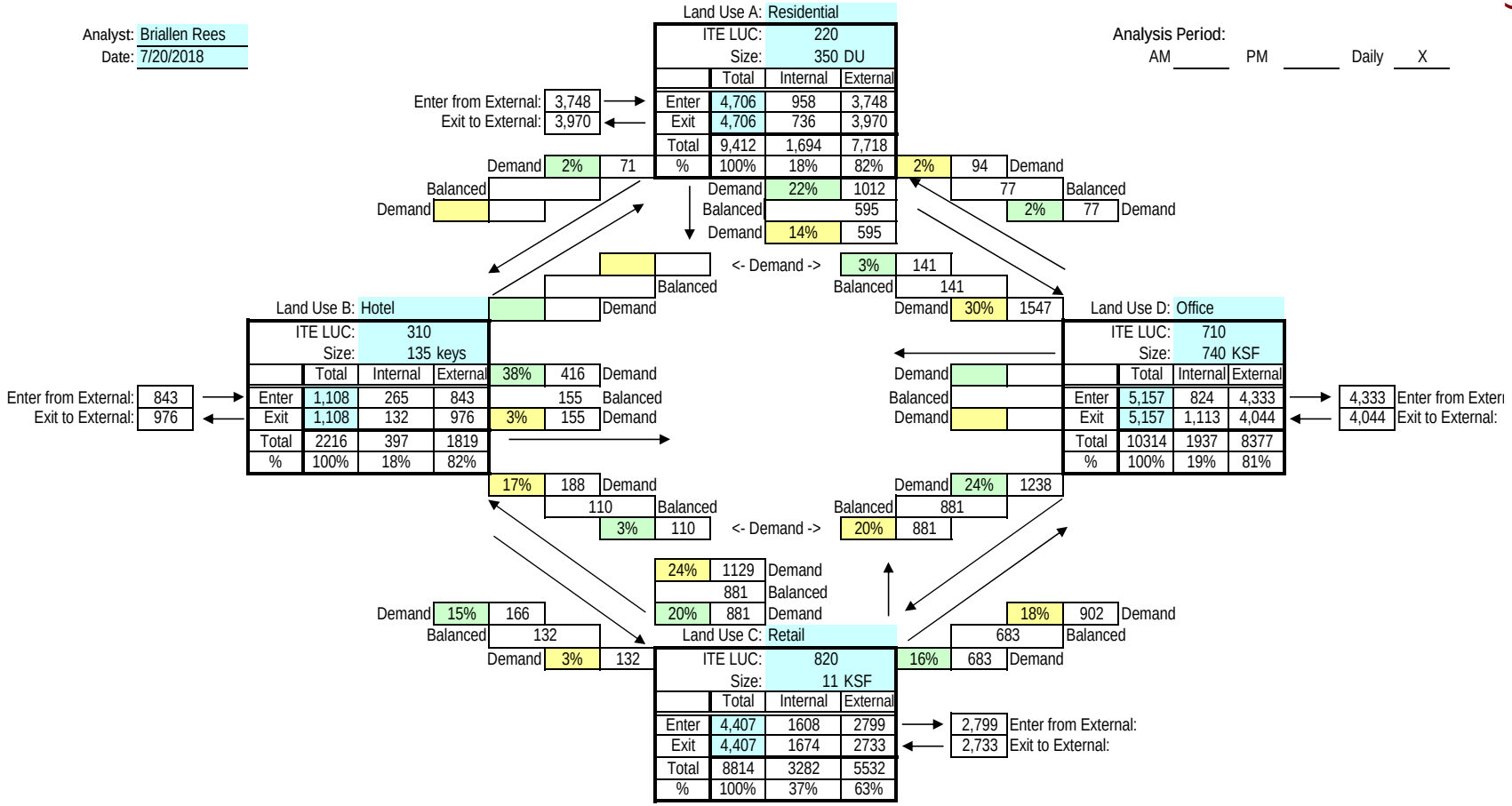
ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Chapter 6, ITE *Trip Generation Handbook, Third Edition*, August 2014)

Analyst: Briallen Rees
Date: 7/20/2018

Analysis Period: AM ____ PM ____ Daily X



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT						
Category	Land Use A Residenti	B Hotel	C Retail	D Office	Total	
Enter	3,748	843	2,733	4,333	11,657	
Exit	3,970	976	2,799	4,044	11,789	
Total	7,718	1,819	5,532	8,377	23,446	
Single Use Trip Gen Estim	9,412	2,216	8,814	10,314	30,756	Internal Capture 23.77%

Print Date = 08/10/18
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APPENDIX G

TRIP DISTRIBUTION CALCULATIONS

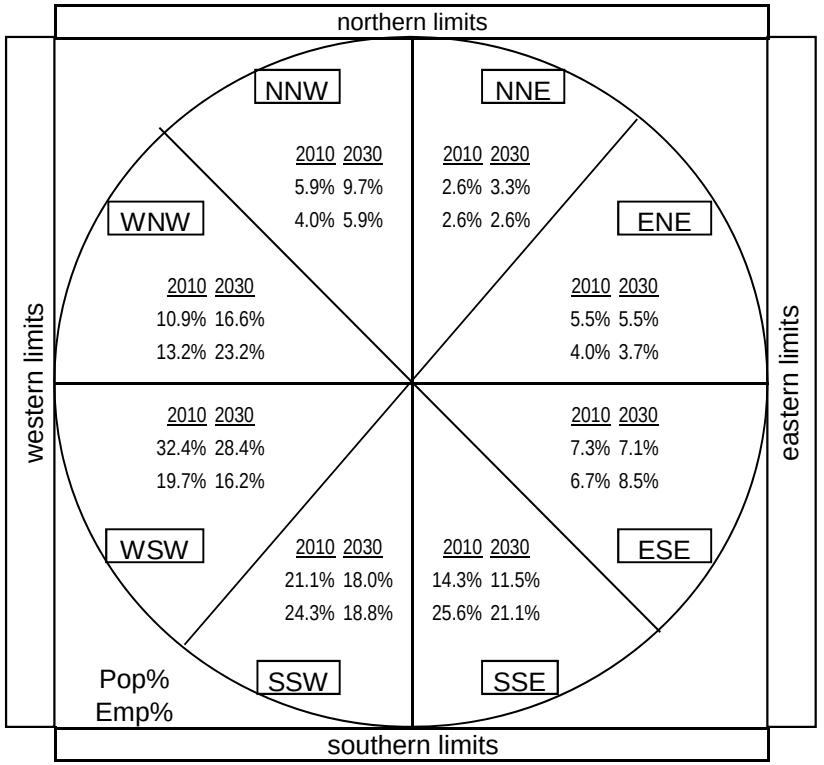
Crossroads East TIA

Trip Distribution - Summaries

	2010				2030			
Quadrant	**Population**	**Percent**	**Employment**	**Percent**	**Population**	**Percent**	**Employment**	**Percent**
North Northwest	44,693	5.9%	14,407	4.0%	93,892	9.7%	28,777	5.9%
North Northeast	20,070	2.6%	9,253	2.6%	32,204	3.3%	12,508	2.6%
North	64,763	**8.5%**	23,660	**6.6%**	126,096	**13.0%**	41,285	**8.5%**
East Northeast	42,287	5.5%	14,416	4.0%	53,001	5.5%	18,187	3.7%
East Southeast	55,441	7.3%	24,064	6.7%	69,310	7.1%	41,708	8.5%
East	97,728	**12.8%**	38,481	**10.7%**	122,311	**12.6%**	59,895	**12.2%**
South Southeast	108,723	14.3%	92,264	25.6%	111,265	11.5%	103,255	21.1%
South Southwest	160,488	21.1%	87,576	24.3%	174,342	18.0%	92,164	18.8%
South	269,211	**35.4%**	179,840	**49.9%**	285,608	**29.5%**	195,419	**39.9%**
West Southwest	246,952	32.4%	70,904	19.7%	275,017	28.4%	79,469	16.2%
West Northwest	83,419	10.9%	47,634	13.2%	160,902	16.6%	113,343	23.2%
West	330,371	**43.3%**	118,538	**32.9%**	435,919	**45.0%**	192,811	**39.4%**
Totals	762,073	100.0%	360,519	100.1%	969,934	100.1%	489,410	100.0%

Radii

Population: 12-mile Radius
Employment: 12-mile radius



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Crossroads East TIA

Trip Distribution - Pop from North

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
NNW						
206	PH	31,389	57,432	10%	3,139	5,743
207	CC	5,110	12,897	40%	2,044	5,159
208	CA	4,043	4,895	30%	1,213	1,469
209	SC	12,385	15,195	20%	2,477	3,039
217	PH	8,097	69,595	20%	1,619	13,919
218	PH	16,657	17,859		16,657	17,859
219	PH	20,374	57,616	50%	10,187	28,808
228	PH	24,521	59,655	30%	7,356	17,897
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From North					44,693	93,892

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
NNE						
208	CA	4,043	4,895	50%	2,022	2,448
209	SC	12,385	15,195	80%	9,908	12,156
210	SC	3,927	14,459	60%	2,356	8,675
229	SC	19,282	29,751	30%	5,785	8,925
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					20,070	32,204
					64,763	126,096

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Crossroads East TIA

Trip Distribution - Pop from East

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
ENE						
210	SC	3,927	14,459	10%	393	1,446
229	SC	19,282	29,751	70%	13,497	20,826
230	SC	28,471	41,061	10%	2,847	4,106
231	CO	1,727	2,034	30%	518	610
245	PH	62,580	65,033	40%	25,032	26,013
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From East					42,287	53,001

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
ESE						
230	SC	28,471	41,061	80%	22,777	32,849
231	CO	1,727	2,034	25%	432	509
249	SC	27,842	28,865	70%	19,489	20,206
250	FH	24,748	30,742	50%	12,374	15,371
264	SA	7,378	7,527	5%	369	376
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					55,441	69,310
					97,728	122,311

Crossroads East TIA

Trip Distribution - Pop from South

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
SSE						
230	SC	28,471	41,061	10%	2,847	4,106
247	SC	12,498	12,729	80%	9,998	10,183
248	SC	40,505	40,911		40,505	40,911
249	SC	27,842	28,865	30%	8,353	8,660
263	SC	37,358	37,553		37,358	37,553
264	SA	7,378	7,527	35%	2,582	2,634
272	SC	70,798	72,182	10%	7,080	7,218
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From South					108,723	111,265

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
SSW						
228	PH	24,521	59,655	20%	4,904	11,931
244	PH	58,232	61,790	5%	2,912	3,090
245	PH	62,580	65,033	50%	31,290	32,517
246	PH	64,312	66,555	90%	57,881	59,900
247	SC	12,498	12,729	20%	2,500	2,546
261	PH	35,935	38,155	80%	28,748	30,524
262	PA	15,180	15,883		15,180	15,883
271	PH	67,667	71,719	20%	13,533	14,344
272	SC	70,798	72,182	5%	3,540	3,609
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					160,488	174,342
					269,211	285,608

Crossroads East TIA

Trip Distribution - Pop from West

12-mile Radius

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
WSW						
224	PH	51,812	53,682	30%	15,544	16,105
226	PH	67,280	70,273		67,280	70,273
227	PH	54,266	74,093	40%	21,706	29,637
228	PH	24,521	59,655	30%	7,356	17,897
241	PH	45,519	46,783	30%	13,656	14,035
242	PH	31,280	32,288		31,280	32,288
244	PH	58,232	61,790	90%	52,409	55,611
245	PH	62,580	65,033	50%	31,290	32,517
246	PH	64,312	66,555	10%	6,431	6,656
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From West					246,952	275,017

RAZ	MPA	2010 Population	2030 Population	% of TAZ	2010 Adjusted	2030 Adjusted
WNW						
217	PH	8,097	69,595	60%	4,858	41,757
219	PH	20,374	57,616	50%	10,187	28,808
223	PH	48,677	53,670	20%	9,735	10,734
225	PH	21,175	23,216		21,175	23,216
227	PH	54,266	74,093	60%	32,560	44,456
228	PH	24,521	59,655	20%	4,904	11,931
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					83,419	160,902
					330,371	435,919

Crossroads East TIA

Trip Distribution - Emp from North

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
NNW						
206	PH	8,391	16,816	10%	839	1,682
207	CC	1,890	3,664	40%	756	1,466
208	CA	2,749	3,150	30%	825	945
209	SC	5,097	5,464	20%	1,019	1,093
217	PH	5,641	40,119	20%	1,128	8,024
218	PH	2,614	2,420		2,614	2,420
219	PH	3,223	5,448	50%	1,612	2,724
228	PH	18,714	34,747	30%	5,614	10,424
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From North					14,407	28,777

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
NNE						
208	CA	2,749	3,150	50%	1,375	1,575
209	SC	5,097	5,464	80%	4,078	4,371
210	SC	1,340	4,815	60%	804	2,889
229	SC	9,990	12,243	30%	2,997	3,673
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					9,253	12,508
					23,660	41,285

Crossroads East TIA

Trip Distribution - Emp from East

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
ENE						
210	SC	1,340	4,815	10%	134	482
229	SC	9,990	12,243	70%	6,993	8,570
230	SC	16,241	34,780	10%	1,624	3,478
231	CO	267	303	30%	80	91
245	PH	13,963	13,916	40%	5,585	5,566
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From East					14,416	18,187

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
ESE						
230	SC	16,241	34,780	80%	12,993	27,824
231	CO	267	303	25%	67	76
249	SC	9,677	12,159	70%	6,774	8,511
250	FH	7,686	8,634	50%	3,843	4,317
264	SA	7,755	19,598	5%	388	980
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					24,064	41,708
					38,481	59,895

CivTech

Crossroads East TIA

Trip Distribution - Emp from South

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
SSE						
230	SC	16,241	34,780	10%	1,624	3,478
247	SC	35,648	38,871	80%	28,518	31,097
248	SC	25,592	26,823		25,592	26,823
249	SC	9,677	12,159	30%	2,903	3,648
263	SC	25,716	25,979		25,716	25,979
264	SA	7,755	19,598	35%	2,714	6,859
272	SC	51,966	53,707	10%	5,197	5,371
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From South					92,264	103,255

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
SSW						
228	PH	18,714	34,747	20%	3,743	6,949
244	PH	13,072	13,120	5%	654	656
245	PH	13,963	13,916	50%	6,982	6,958
246	PH	26,791	27,134	90%	24,112	24,421
247	SC	35,648	38,871	20%	7,130	7,774
261	PH	33,750	33,793	80%	27,000	27,034
262	PA	5,597	5,907		5,597	5,907
271	PH	48,806	48,896	20%	9,761	9,779
272	SC	51,966	53,707	5%	2,598	2,685
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					87,576	92,164
					179,840	195,419

Crossroads East TIA

Trip Distribution - Emp from West

12-mile radius

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
WSW						
224	PH	19,202	20,010	30%	5,761	6,003
226	PH	19,241	21,312		19,241	21,312
227	PH	16,487	18,859	40%	6,595	7,544
228	PH	18,714	34,747	30%	5,614	10,424
241	PH	10,214	10,462	30%	3,064	3,139
242	PH	9,204	9,568		9,204	9,568
244	PH	13,072	13,120	90%	11,765	11,808
245	PH	13,963	13,916	50%	6,982	6,958
246	PH	26,791	27,134	10%	2,679	2,713
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From West					70,904	79,469

RAZ	MPA	2010 Em-ployment	2030 Em-ployment	% of TAZ	2010 Adjusted	2030 Adjusted
WNW						
217	PH	5,641	40,119	60%	3,385	24,071
219	PH	3,223	5,448	50%	1,612	2,724
223	PH	15,395	20,337	20%	3,079	4,067
225	PH	25,924	64,215		25,924	64,215
227	PH	16,487	18,859	60%	9,892	11,315
228	PH	18,714	34,747	20%	3,743	6,949
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					47,634	113,343
					118,538	192,811

APPENDIX H

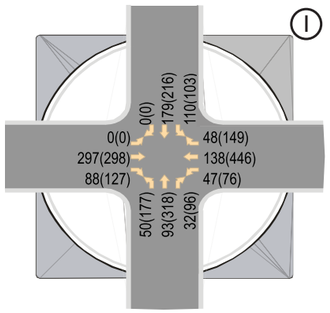
BACKGROUND TRAFFIC CALCULATIONS, EXCERPTS FROM CROSSROADS EAST

Location of counts: Thompson Peak Pkwy between Scottsdale and Hayden
Source(s): https://www.scottsdaleaz.gov/transportation/studies-reports/traffic-volume

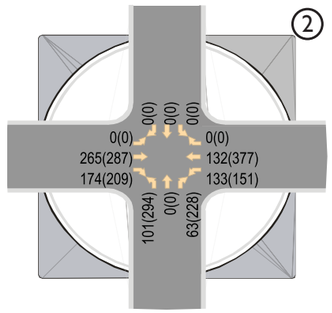
	Year	Volume	Avg Growth Rate to 2014	Expansion Factor to 2014
Beginning	2014	11,900		
End	2016	12,400	2.1%	0.960

Growth Rate Used	2.1%	1.0%
Per-Year Multiplier	1.021	1.010

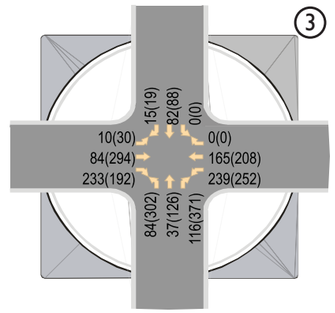
Year	**Expansion Factor(s)**		
2018	1.000	0.802	
2019	1.021	0.810	
2020	1.042	0.818	Expansion Factor for Phase 1
2021	1.064	0.826	
2022	1.087	0.835	
2023	1.110	0.843	
2024	1.133	0.851	
2025	1.157	0.860	
2026	1.181	0.869	
2027	1.206	0.878	
2028	1.231	0.886	
2029	1.257	0.895	
2030	1.283	0.904	Reduction Factor for Phase 2
2031	1.310	0.914	
2032	1.338	0.923	
2033	1.366	0.932	
2034	1.394	0.941	
2035	1.424	0.951	
2036	1.454	0.961	
2037	1.484	0.970	
2038	1.515	0.980	
2039	1.547	0.990	
2040	1.580	1.000	



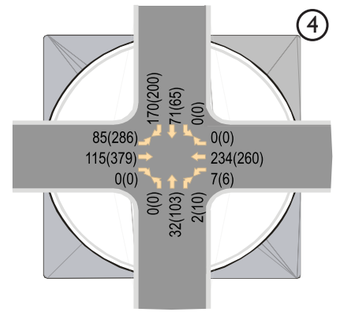
Scottsdale Rd. & Thompson Peak Pkwy



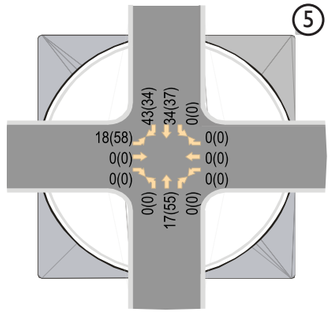
Miller Rd. & Thompson Peak Pkwy



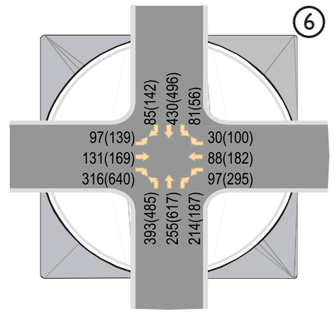
Hayden Rd. & Thompson Peak Pkwy



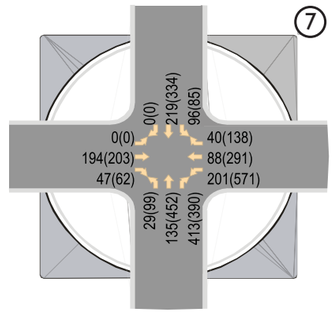
Pima Rd. & Thompson Peak Pkwy



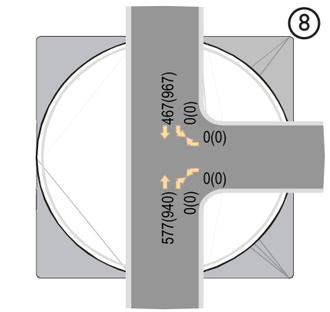
Pima Rd. & Hualapai Dr.



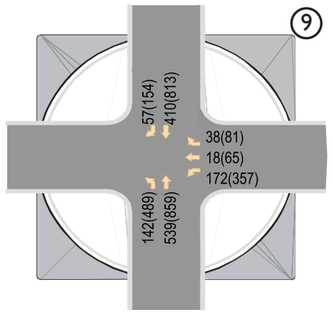
Hayden Rd. & Legacy Blvd.



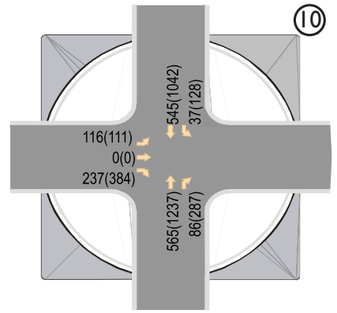
Scottsdale Rd.& Legacy Blvd.



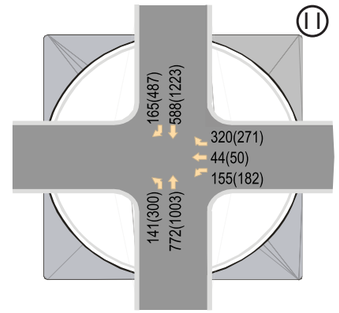
Scottsdale Rd. & 19200 North



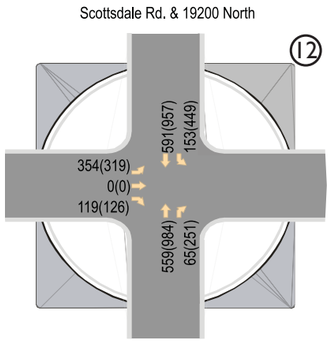
Scottsdale Rd. & Loop 101 WB Ramps



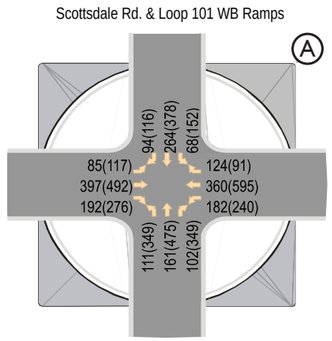
Scottsdale Rd. & Loop 101 EB Ramps



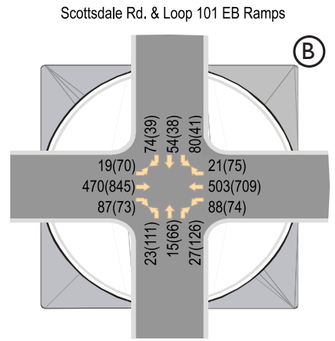
Hayden Rd. & Loop 101 WB Ramps



Scottsdale Rd. & 19200 North



Scottsdale Rd. & Loop 101 WB Ramps



Scottsdale Rd. & Loop 101 EB Ramps

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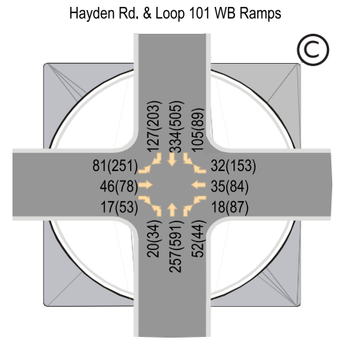

Hayden Rd. & Loop 101 WB Ramps

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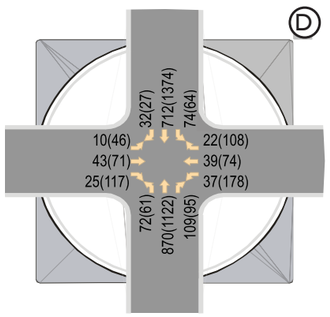
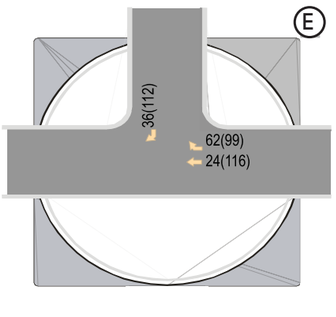
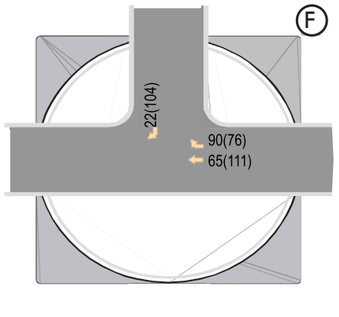


Hayden Rd. & Loop 101 EB Ramps

D



Miller Rd. & Legacy Blvd.



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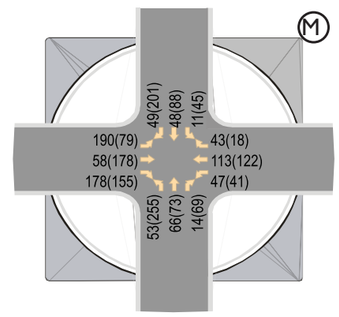

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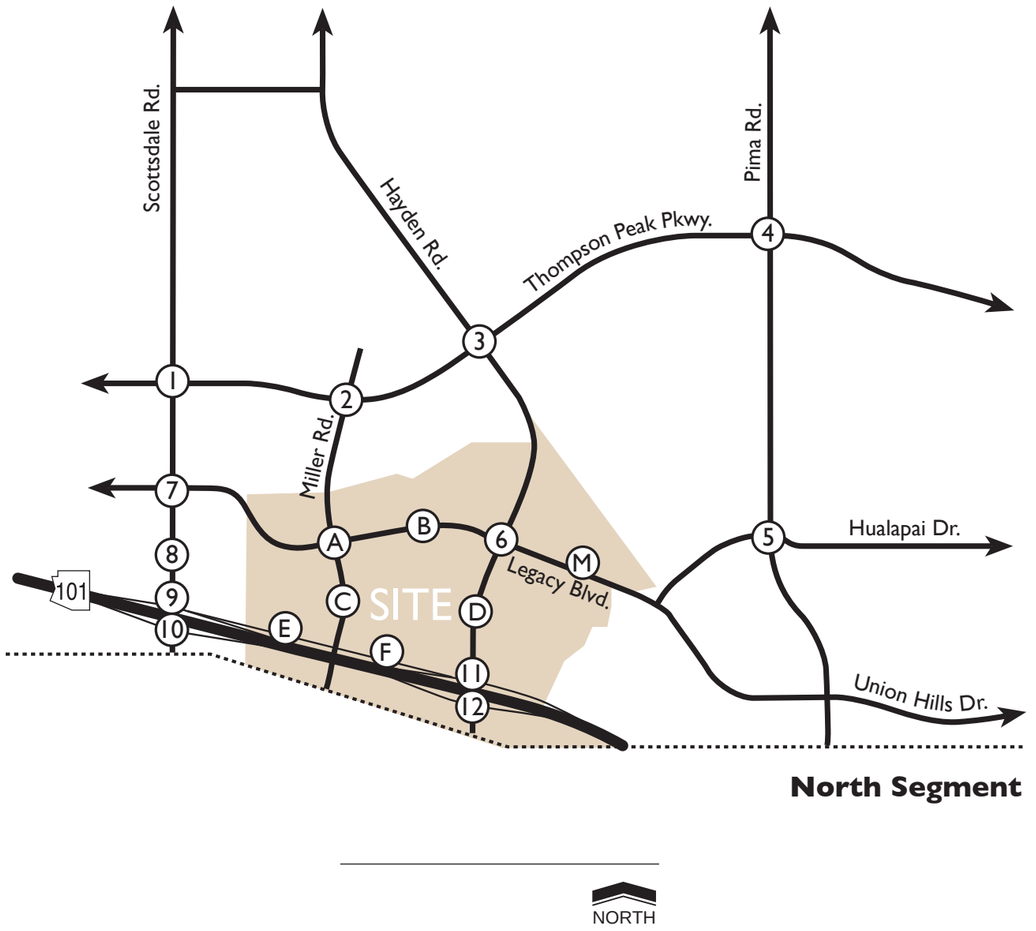
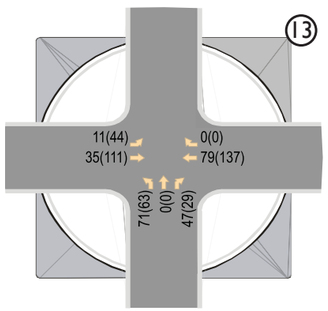
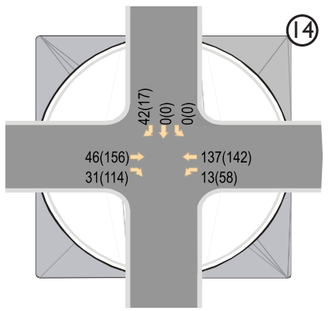


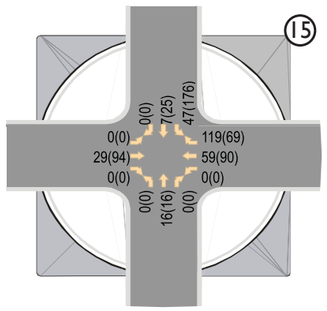
Figure 9: 2030 Peak Hour Site Generated Traffic - North



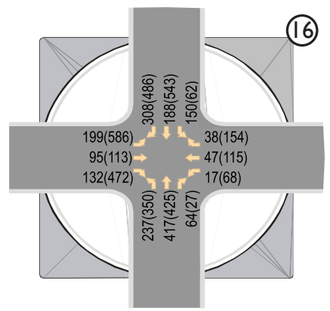
Pima Rd. & Loop 101 NB Ramps



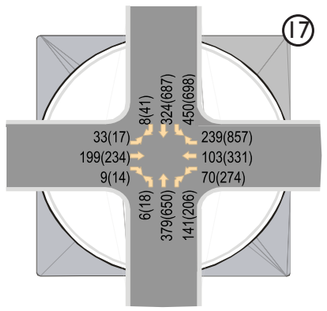
Pima Rd. & Loop 101 SB Ramps



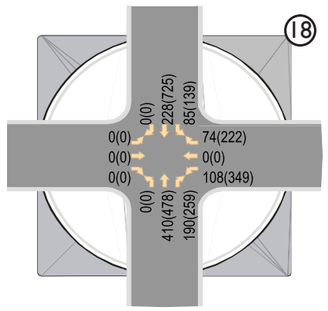
Perimeter Dr. & Princess Dr.



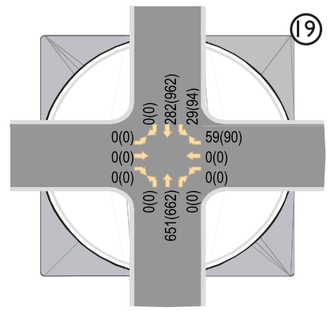
Hayden Rd. & Union Hills Rd.



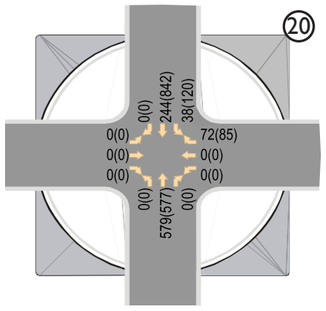
Scottsdale Rd. & Mayo Blvd.



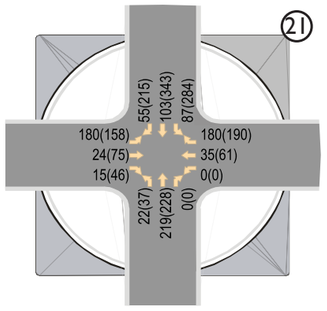
Scottsdale Rd. & Princess Dr.



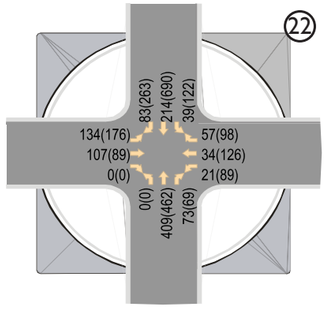
Hayden Rd. & Princess Dr.



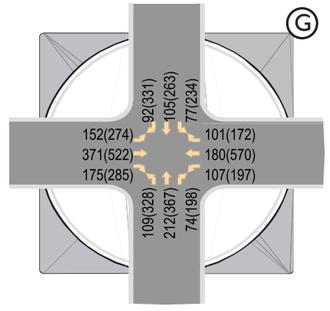
Hayden Rd. & Bell Rd.



Hayden Rd. & Frank Lloyd Wright Blvd.



Scottsdale Rd. & Frank Lloyd Wright Blvd.



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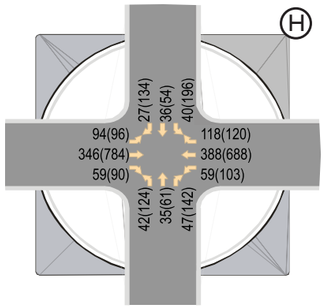

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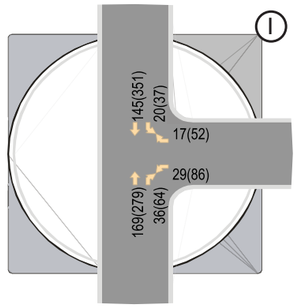
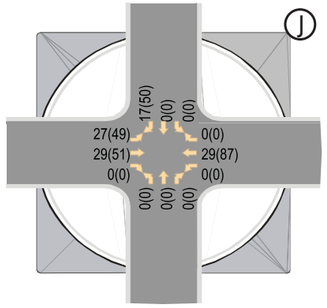


Miller Rd. & Princess Dr.



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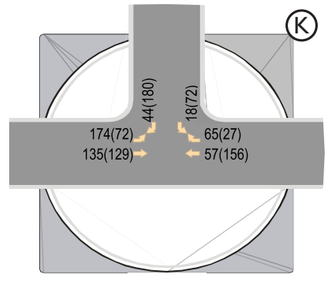

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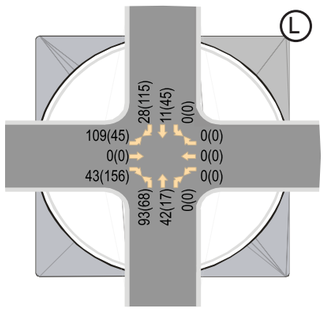

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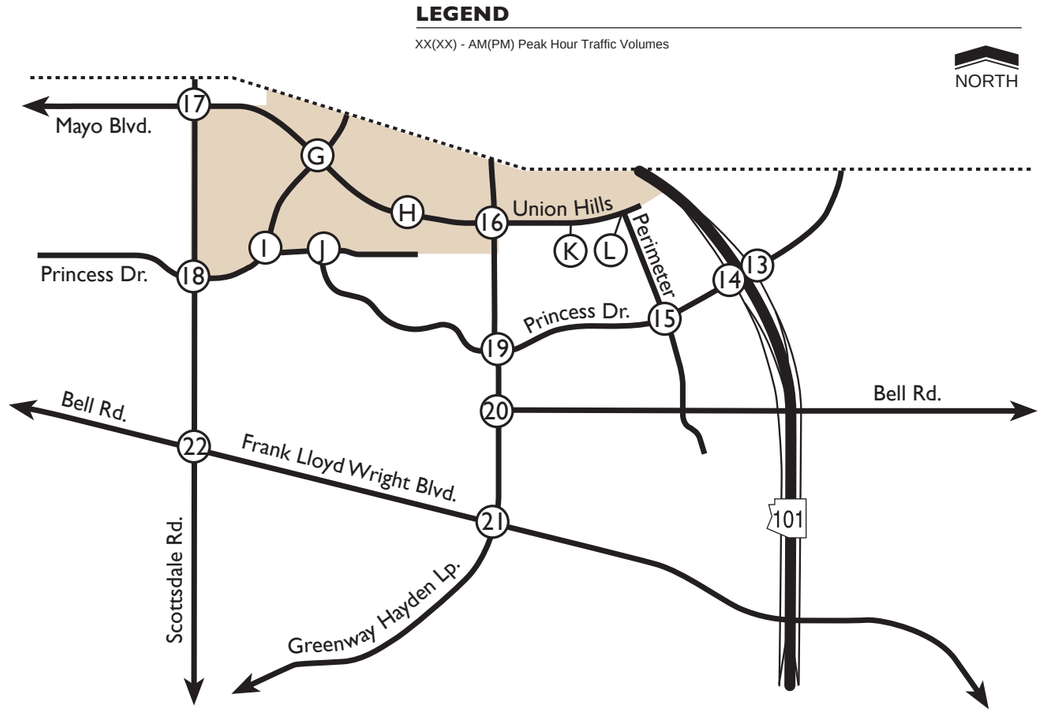
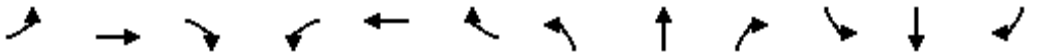


South Segment

Figure 10: 2030 Peak Hour Site Generated Traffic - South

APPENDIX I

2020 PEAK HOUR TRAFFIC ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	11	60	62	12	2	59	508	16	3	568	32
Future Volume (vph)	26	11	60	62	12	2	59	508	16	3	568	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1825		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.41	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	1393	1626		1314	1825		768	3539	1583	820	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	12	67	69	13	2	66	564	18	3	631	36
RTOR Reduction (vph)	0	60	0	0	2	0	0	0	4	0	0	8
Lane Group Flow (vph)	29	19	0	69	13	0	66	564	14	3	631	28
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	9.3	9.3		9.3	9.3		72.7	72.7	72.7	72.7	72.7	72.7
Effective Green, g (s)	9.3	9.3		9.3	9.3		72.7	72.7	72.7	72.7	72.7	72.7
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.77	0.77	0.77	0.77	0.77	0.77
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	136	159		128	178		587	2708	1211	627	2708	1211
v/s Ratio Prot		0.01			0.01			0.16			c0.18	
v/s Ratio Perm	0.02			c0.05			0.09		0.01	0.00		0.02
v/c Ratio	0.21	0.12		0.54	0.07		0.11	0.21	0.01	0.00	0.23	0.02
Uniform Delay, d1	39.5	39.1		40.8	38.9		2.9	3.1	2.6	2.6	3.2	2.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		4.3	0.2		0.4	0.2	0.0	0.0	0.2	0.0
Delay (s)	40.3	39.4		45.1	39.1		3.3	3.3	2.7	2.6	3.4	2.7
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		39.7			44.1			3.3			3.3	
Approach LOS		D			D			A			A	

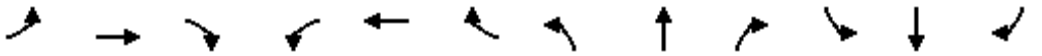
Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	54	41
Maximum Split (%)	56.8%	43.2%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	54
End Time (s)	54	0
Yield/Force Off (s)	48	88
Yield/Force Off 170(s)	44	84
Local Start Time (s)	0	54
Local Yield (s)	48	88
Local Yield 170(s)	44	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	90	45	8	18	35	531	9	3	671	34
Future Volume (vph)	30	2	90	45	8	18	35	531	9	3	671	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1670		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.36	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	1375	1863	1583	1409	1670		676	3539	1583	800	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	2	100	50	9	20	39	590	10	3	746	38
RTOR Reduction (vph)	0	0	90	0	18	0	0	0	2	0	0	8
Lane Group Flow (vph)	33	2	11	50	11	0	39	590	8	3	746	30
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	12.6	12.6	12.6	12.6	12.6		93.4	93.4	93.4	93.4	93.4	93.4
Effective Green, g (s)	12.6	12.6	12.6	12.6	12.6		93.4	93.4	93.4	93.4	93.4	93.4
Actuated g/C Ratio	0.10	0.10	0.10	0.10	0.10		0.78	0.78	0.78	0.78	0.78	0.78
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	144	195	166	147	175		526	2754	1232	622	2754	1232
v/s Ratio Prot		0.00			0.01			0.17			c0.21	
v/s Ratio Perm	0.02		0.01	c0.04			0.06		0.00	0.00		0.02
v/c Ratio	0.23	0.01	0.06	0.34	0.06		0.07	0.21	0.01	0.00	0.27	0.02
Uniform Delay, d1	49.2	48.1	48.4	49.8	48.4		3.1	3.5	3.0	3.0	3.7	3.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.70	0.69	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0	0.2	1.4	0.2		0.3	0.2	0.0	0.0	0.2	0.0
Delay (s)	50.1	48.1	48.5	51.2	48.5		2.5	2.6	3.0	3.0	4.0	3.0
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		48.9			50.2			2.6			3.9	
Approach LOS		D			D			A			A	

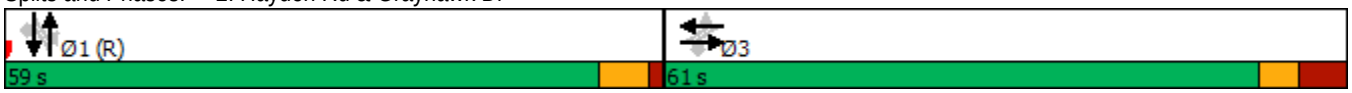
Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

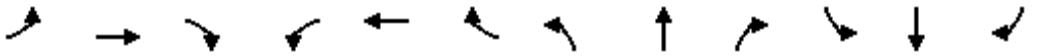
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	59	61
Maximum Split (%)	49.2%	50.8%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	57	116
End Time (s)	116	57
Yield/Force Off (s)	110	49
Yield/Force Off 170(s)	103	41
Local Start Time (s)	0	59
Local Yield (s)	53	112
Local Yield 170(s)	46	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 57 (48%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	259	265	294	244	88	133	440	251	206	566	44
Future Volume (vph)	27	259	265	294	244	88	133	440	251	206	566	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.58	1.00	1.00	0.33	1.00	1.00	0.37	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1089	3539	1583	607	3539	1583	694	3539	1583	650	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	288	294	327	271	98	148	489	279	229	629	49
RTOR Reduction (vph)	0	0	250	0	0	69	0	0	168	0	0	27
Lane Group Flow (vph)	30	288	44	327	271	29	148	489	111	229	629	22
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	21.2	18.1	18.1	43.1	35.5	35.5	58.0	47.7	47.7	66.8	53.1	53.1
Effective Green, g (s)	21.2	18.1	18.1	43.1	35.5	35.5	58.0	47.7	47.7	66.8	53.1	53.1
Actuated g/C Ratio	0.18	0.15	0.15	0.36	0.30	0.30	0.48	0.40	0.40	0.56	0.44	0.44
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	533	238	426	1046	468	427	1406	629	489	1566	700
v/s Ratio Prot	0.00	0.08		c0.14	0.08		0.03	0.14		c0.05	c0.18	
v/s Ratio Perm	0.02		0.03	c0.14		0.02	0.14		0.07	c0.21		0.01
v/c Ratio	0.14	0.54	0.19	0.77	0.26	0.06	0.35	0.35	0.18	0.47	0.40	0.03
Uniform Delay, d1	41.4	47.1	44.5	30.8	32.2	30.3	17.6	25.3	23.4	14.6	22.7	18.9
Progression Factor	1.00	1.00	1.00	0.53	0.55	0.31	1.00	1.00	1.00	0.99	0.85	1.00
Incremental Delay, d2	0.3	1.1	0.4	7.9	0.1	0.1	0.5	0.7	0.6	0.7	0.8	0.1
Delay (s)	41.7	48.2	44.9	24.3	17.9	9.5	18.1	26.0	24.0	15.2	20.0	19.0
Level of Service	D	D	D	C	B	A	B	C	C	B	C	B
Approach Delay (s)		46.3			19.7			24.1			18.7	
Approach LOS		D			B			C			B	

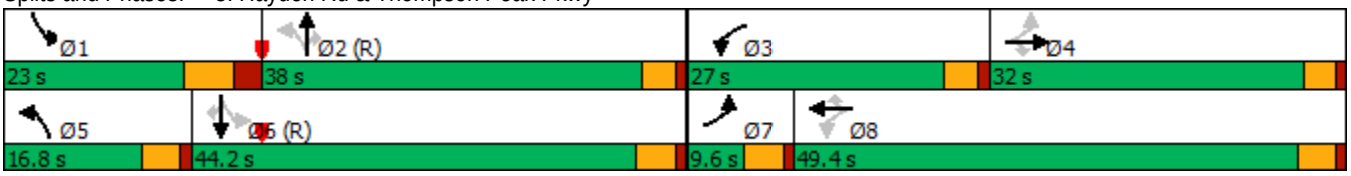
Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

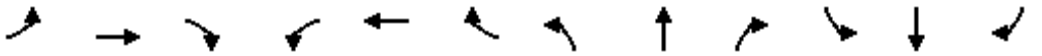
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	23	38	27	32	16.8	44.2	9.6	49.4
Maximum Split (%)	19.2%	31.7%	22.5%	26.7%	14.0%	36.8%	8.0%	41.2%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	97	0	38	65	97	113.8	38	47.6
End Time (s)	0	38	65	97	113.8	38	47.6	97
Yield/Force Off (s)	113	34	61	93	109.3	33.5	43.1	92.5
Yield/Force Off 170(s)	113	10	61	72	109.3	9.5	43.1	71.5
Local Start Time (s)	97	0	38	65	97	113.8	38	47.6
Local Yield (s)	113	34	61	93	109.3	33.5	43.1	92.5
Local Yield 170(s)	113	10	61	72	109.3	9.5	43.1	71.5

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

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	0	32	0	0	0	9	778	0	0	1140	4
Future Volume (vph)	9	0	32	0	0	0	9	778	0	0	1140	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5				7.0	7.0			7.0	7.0
Lane Util. Factor	1.00		1.00				1.00	0.95			0.95	1.00
Frt	1.00		0.85				1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770		1583				1770	3539			3539	1583
Flt Permitted	1.00		1.00				0.21	1.00			1.00	1.00
Satd. Flow (perm)	1863		1583				395	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	0	36	0	0	0	10	864	0	0	1267	4
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	0	0	0	1
Lane Group Flow (vph)	10	0	2	0	0	0	10	864	0	0	1267	3
Turn Type	Perm		Perm	Perm			Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			1			1	
Permitted Phases	4		4	8			1		1	1		1
Actuated Green, G (s)	3.2		3.2				50.7	50.7			50.7	50.7
Effective Green, g (s)	3.2		3.2				50.7	50.7			50.7	50.7
Actuated g/C Ratio	0.05		0.05				0.78	0.78			0.78	0.78
Clearance Time (s)	4.5		4.5				7.0	7.0			7.0	7.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	91		77				306	2743			2743	1227
v/s Ratio Prot								0.24			c0.36	
v/s Ratio Perm	c0.01		0.00				0.03					0.00
v/c Ratio	0.11		0.02				0.03	0.31			0.46	0.00
Uniform Delay, d1	29.7		29.6				1.7	2.2			2.6	1.7
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	0.5		0.1				0.0	0.1			0.1	0.0
Delay (s)	30.3		29.7				1.7	2.3			2.7	1.7
Level of Service	C		C				A	A			A	A
Approach Delay (s)		29.8			0.0			2.2			2.7	
Approach LOS		C			A			A			A	

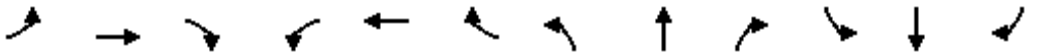
Intersection Summary			
HCM 2000 Control Delay	3.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	4	8
Movement	NBSB	EBTL	WBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	None	None	None
Maximum Split (s)	80	30	30
Maximum Split (%)	72.7%	27.3%	27.3%
Minimum Split (s)	50	22.5	22.5
Yellow Time (s)	4.8	3.5	3.5
All-Red Time (s)	2.2	1	1
Minimum Initial (s)	10	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	15	7	7
Flash Dont Walk (s)	10	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	80	80
End Time (s)	80	0	0
Yield/Force Off (s)	73	105.5	105.5
Yield/Force Off 170(s)	63	94.5	94.5
Local Start Time (s)	0	80	80
Local Yield (s)	73	105.5	105.5
Local Yield 170(s)	63	94.5	94.5

Intersection Summary	
Cycle Length	110
Control Type	Semi Act-Uncoord
Natural Cycle	75

Splits and Phases: 4: Hayden Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	4	322	122	455	0	0	793	412
Future Volume (vph)	0	0	0	34	4	322	122	455	0	0	793	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1510	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1510	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	38	4	358	136	506	0	0	881	458
RTOR Reduction (vph)	0	0	0	0	146	146	0	0	0	0	0	352
Lane Group Flow (vph)	0	0	0	38	37	33	136	506	0	0	881	106
Turn Type				Perm	NA	Perm	Split	NA			NA	Perm
Protected Phases					3		6	6			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				22.1	22.1	22.1	50.0	50.0			27.9	27.9
Effective Green, g (s)				22.1	22.1	22.1	50.0	50.0			27.9	27.9
Actuated g/C Ratio				0.18	0.18	0.18	0.42	0.42			0.23	0.23
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				632	278	276	737	1474			1489	368
v/s Ratio Prot					c0.02		0.08	c0.14			c0.14	
v/s Ratio Perm				0.01		0.02						0.07
v/c Ratio				0.06	0.13	0.12	0.18	0.34			0.59	0.29
Uniform Delay, d1				40.4	40.9	40.8	22.1	23.8			41.0	37.9
Progression Factor				1.00	1.00	1.00	1.41	1.48			1.00	1.00
Incremental Delay, d2				0.0	0.2	0.2	0.1	0.1			0.6	0.4
Delay (s)				40.4	41.2	41.0	31.3	35.3			41.6	38.3
Level of Service				D	D	D	C	D			D	D
Approach Delay (s)		0.0			41.0			34.5			40.5	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

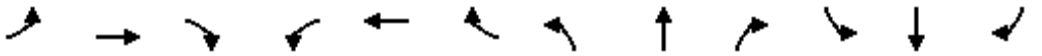
c Critical Lane Group

Phase Number	1	2	3	5	6	7
Node Number	6	6	5	5	5	6
Movement	NBT	SBTL	WBTL	SBT	NBTL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	None	None
Maximum Split (s)	24	61	35	37	48	35
Maximum Split (%)	20.0%	50.8%	29.2%	30.8%	40.0%	29.2%
Minimum Split (s)	18	12	15	18	18	15
Yellow Time (s)	4.4	4.4	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1.6	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	6	7	12	12	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	96	0	61	96	13	61
End Time (s)	0	61	96	13	61	96
Yield/Force Off (s)	114	55	88	7	55	88
Yield/Force Off 170(s)	114	55	88	7	55	88
Local Start Time (s)	96	0	61	96	13	61
Local Yield (s)	114	55	88	7	55	88
Local Yield 170(s)	114	55	88	7	55	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60

Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	0	435	0	0	0	0	345	17	530	303	0
Future Volume (vph)	228	0	435	0	0	0	0	345	17	530	303	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1458	1504					5085	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1458	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	253	0	483	0	0	0	0	383	19	589	337	0
RTOR Reduction (vph)	0	189	205	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	228	68	46	0	0	0	0	383	2	589	337	0
Turn Type	Perm	NA	Perm					NA	Perm	Split	NA	
Protected Phases		7						1		2	2	
Permitted Phases	7		7						1			
Actuated Green, G (s)	22.1	22.1	22.1					14.8	14.8	63.1	63.1	
Effective Green, g (s)	22.1	22.1	22.1					14.8	14.8	63.1	63.1	
Actuated g/C Ratio	0.18	0.18	0.18					0.12	0.12	0.53	0.53	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	309	268	276					627	195	1805	1860	
v/s Ratio Prot								c0.08		c0.17	0.10	
v/s Ratio Perm	c0.14	0.05	0.03						0.00			
v/c Ratio	0.74	0.25	0.17					0.61	0.01	0.33	0.18	
Uniform Delay, d1	46.2	41.9	41.2					49.9	46.2	16.3	14.9	
Progression Factor	0.88	1.17	1.47					0.67	1.00	0.78	0.58	
Incremental Delay, d2	5.3	0.3	0.2					1.8	0.0	0.4	0.2	
Delay (s)	46.0	49.2	60.9					34.9	46.2	13.2	8.9	
Level of Service	D	D	E					C	D	B	A	
Approach Delay (s)		52.2			0.0			35.5			11.6	
Approach LOS		D			A			D			B	

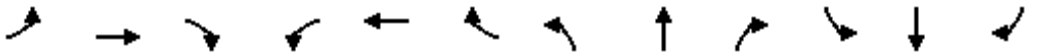
Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	317	10	181	585
Future Volume (Veh/h)	0	42	317	10	181	585
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	47	352	11	201	650
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.99					
vC, conflicting volume	1079	176			363	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1062	176			363	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			83	
cM capacity (veh/h)	180	837			1192	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	176	176	11	201	325	325
Volume Left	0	0	0	0	201	0	0
Volume Right	47	0	0	11	0	0	0
cSH	837	1700	1700	1700	1192	1700	1700
Volume to Capacity	0.06	0.10	0.10	0.01	0.17	0.19	0.19
Queue Length 95th (ft)	4	0	0	0	15	0	0
Control Delay (s)	9.6	0.0	0.0	0.0	8.6	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.6	0.0			2.0		
Approach LOS	A						

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	58	85	162	0	23	70	223	190	117	413	46
Future Volume (vph)	41	58	85	162	0	23	70	223	190	117	413	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.47	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	882	3539	1583	1114	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	64	94	180	0	26	78	248	211	130	459	51
RTOR Reduction (vph)	0	0	84	0	0	23	0	0	90	0	0	22
Lane Group Flow (vph)	0	110	10	180	0	3	78	248	121	130	459	29
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		29.3	12.8	18.6		14.9	68.6	68.6	68.6	68.6	68.6	68.6
Effective Green, g (s)		29.3	12.8	18.6		14.9	68.6	68.6	68.6	68.6	68.6	68.6
Actuated g/C Ratio		0.24	0.11	0.16		0.12	0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		445	168	532		196	504	2023	904	636	2023	904
v/s Ratio Prot		c0.03		c0.05				0.07			c0.13	
v/s Ratio Perm		0.03	0.01			0.00	0.09		0.08	0.12		0.02
v/c Ratio		0.25	0.06	0.34		0.02	0.15	0.12	0.13	0.20	0.23	0.03
Uniform Delay, d1		36.5	48.2	45.2		46.1	12.1	11.8	11.9	12.5	12.6	11.2
Progression Factor		0.83	0.79	1.00		1.00	0.22	0.22	0.07	0.48	0.45	1.00
Incremental Delay, d2		0.3	0.1	0.4		0.0	0.6	0.1	0.3	0.7	0.2	0.1
Delay (s)		30.6	38.2	45.6		46.2	3.3	2.7	1.2	6.7	6.0	11.3
Level of Service		C	D	D		D	A	A	A	A	A	B
Approach Delay (s)		34.1			45.7			2.2			6.6	
Approach LOS		C			D			A			A	

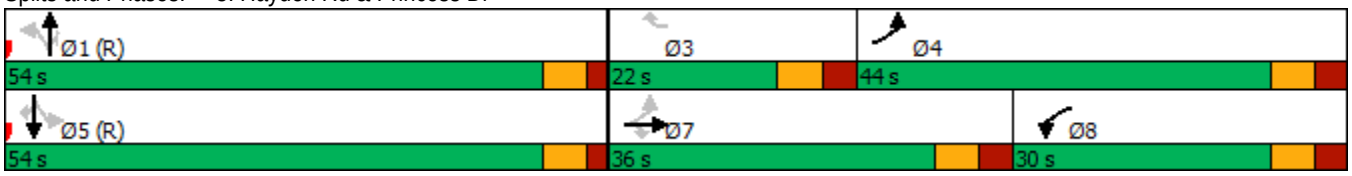
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

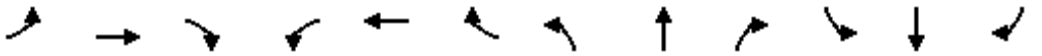
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	54	22	44	54	36	30
Maximum Split (%)	45.0%	18.3%	36.7%	45.0%	30.0%	25.0%
Minimum Split (s)	24	15	12	24	25	12
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7			7	7	
Flash Dont Walk (s)	11			11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	30	84	106	30	84	0
End Time (s)	84	106	30	84	0	30
Yield/Force Off (s)	78	99	23	78	113	23
Yield/Force Off 170(s)	67	99	23	67	102	23
Local Start Time (s)	0	54	76	0	54	90
Local Yield (s)	48	69	113	48	83	113
Local Yield 170(s)	37	69	113	37	72	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 30 (25%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	19	206	9	75	27	417	346	127	545	18
Future Volume (vph)	8	6	19	206	9	75	27	417	346	127	545	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3199		1681	1692	1583	1770	3539	1583	1770	3522	
Flt Permitted		0.87		0.73	0.72	1.00	0.37	1.00	1.00	0.47	1.00	
Satd. Flow (perm)		2812		1295	1266	1583	696	3539	1583	870	3522	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	7	21	229	10	83	30	463	384	141	606	20
RTOR Reduction (vph)	0	18	0	0	0	71	0	0	172	0	1	0
Lane Group Flow (vph)	0	19	0	119	120	12	30	463	212	141	625	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		16.9		16.9	16.9	16.9	86.6	66.1	66.1	82.6	64.1	
Effective Green, g (s)		16.9		16.9	16.9	16.9	86.6	66.1	66.1	82.6	64.1	
Actuated g/C Ratio		0.14		0.14	0.14	0.14	0.72	0.55	0.55	0.69	0.53	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		396		182	178	222	685	1949	871	737	1881	
v/s Ratio Prot							0.01	0.13		c0.03	c0.18	
v/s Ratio Perm		0.01		0.09	c0.09	0.01	0.02		0.13	0.10		
v/c Ratio		0.05		0.65	0.67	0.05	0.04	0.24	0.24	0.19	0.33	
Uniform Delay, d1		44.6		48.8	48.9	44.6	6.9	13.9	14.0	7.8	15.8	
Progression Factor		1.00		1.00	1.00	1.00	1.44	0.66	4.24	1.08	0.94	
Incremental Delay, d2		0.1		8.2	9.7	0.1	0.1	0.2	0.6	0.6	0.5	
Delay (s)		44.6		56.9	58.6	44.7	10.1	9.5	59.8	9.0	15.3	
Level of Service		D		E	E	D	B	A	E	A	B	
Approach Delay (s)		44.6			54.4			31.5			14.1	
Approach LOS		D			D			C			B	

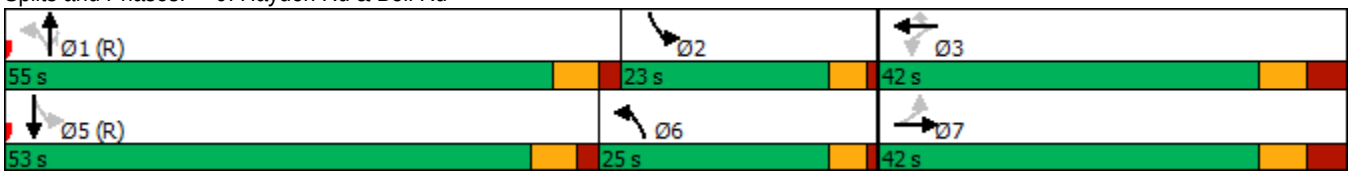
Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	55	23	42	53	25	42
Maximum Split (%)	45.8%	19.2%	35.0%	44.2%	20.8%	35.0%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	11	66	89	11	64	89
End Time (s)	66	89	11	64	89	11
Yield/Force Off (s)	60	84.5	3	58	84.5	3
Yield/Force Off 170(s)	49	73.5	112	47	73.5	112
Local Start Time (s)	0	55	78	0	53	78
Local Yield (s)	49	73.5	112	47	73.5	112
Local Yield 170(s)	38	62.5	101	36	62.5	101

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 11 (9%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	26	873	132	44	1862
Future Volume (vph)	94	26	873	132	44	1862
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.28	1.00
Satd. Flow (perm)	1770	1583	3539	1583	529	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	29	970	147	49	2069
RTOR Reduction (vph)	0	26	0	24	0	0
Lane Group Flow (vph)	104	3	970	123	49	2069
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.4	12.4	95.6	95.6	95.6	95.6
Effective Green, g (s)	12.4	12.4	95.6	95.6	95.6	95.6
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	182	163	2819	1261	421	2819
v/s Ratio Prot	c0.06		0.27			c0.58
v/s Ratio Perm		0.00		0.08	0.09	
v/c Ratio	0.57	0.02	0.34	0.10	0.12	0.73
Uniform Delay, d1	51.3	48.3	3.4	2.7	2.7	6.0
Progression Factor	1.00	1.00	0.13	0.02	1.00	1.00
Incremental Delay, d2	4.3	0.0	0.3	0.1	0.6	1.7
Delay (s)	55.6	48.4	0.8	0.2	3.3	7.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		0.7			7.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	82	38
Maximum Split (%)	68.3%	31.7%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	12	94
End Time (s)	94	12
Yield/Force Off (s)	88	6
Yield/Force Off 170(s)	82	2
Local Start Time (s)	0	82
Local Yield (s)	76	114
Local Yield 170(s)	70	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 12 (10%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	32	959	46	39	1910
Future Volume (vph)	98	32	959	46	39	1910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.25	1.00
Satd. Flow (perm)	1770	1583	3539	1583	473	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	36	1066	51	43	2122
RTOR Reduction (vph)	0	32	0	10	0	0
Lane Group Flow (vph)	109	4	1066	41	43	2122
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	376	2813
v/s Ratio Prot	c0.06		0.30			c0.60
v/s Ratio Perm		0.00		0.03	0.09	
v/c Ratio	0.59	0.02	0.38	0.03	0.11	0.75
Uniform Delay, d1	51.2	48.2	3.6	2.6	2.8	6.3
Progression Factor	1.00	1.00	1.64	3.77	0.26	0.34
Incremental Delay, d2	4.7	0.1	0.3	0.0	0.4	1.3
Delay (s)	56.0	48.2	6.2	9.8	1.2	3.5
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		6.4			3.5
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	56	33
End Time (s)	33	56
Yield/Force Off (s)	27	50
Yield/Force Off 170(s)	15	39
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 56 (47%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	73	980	444	65	1916
Future Volume (vph)	439	73	980	444	65	1916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	81	1089	493	72	2129
RTOR Reduction (vph)	0	66	0	265	0	0
Lane Group Flow (vph)	488	15	1089	228	72	2129
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	22.4	22.4	55.6	55.6	23.0	82.6
Effective Green, g (s)	22.4	22.4	55.6	55.6	23.0	82.6
Actuated g/C Ratio	0.19	0.19	0.46	0.46	0.19	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	640	295	1639	733	339	2436
v/s Ratio Prot	c0.14		0.31		0.04	c0.60
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.76	0.05	0.66	0.31	0.21	0.87
Uniform Delay, d1	46.3	40.1	25.0	20.2	40.9	14.6
Progression Factor	1.00	1.00	0.17	0.91	1.08	1.25
Incremental Delay, d2	5.4	0.1	1.3	0.6	0.9	3.2
Delay (s)	51.6	40.1	5.6	19.1	45.2	21.5
Level of Service	D	D	A	B	D	C
Approach Delay (s)	50.0		9.8			22.3
Approach LOS	D		A			C

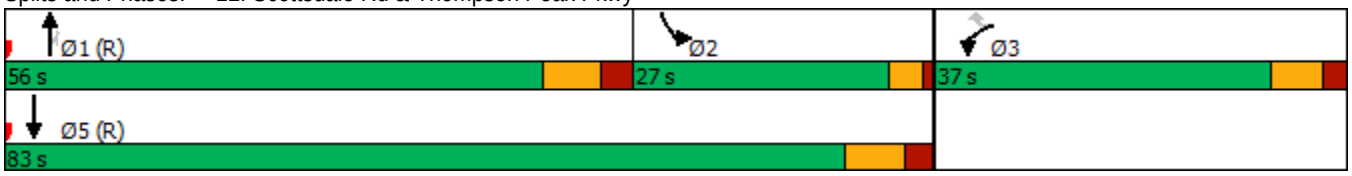
Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	56	27	37	83
Maximum Split (%)	46.7%	22.5%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	5	5	6	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	25		23	
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	60	116	23	60
End Time (s)	116	23	60	23
Yield/Force Off (s)	108	19	53	15
Yield/Force Off 170(s)	83	19	30	15
Local Start Time (s)	0	56	83	0
Local Yield (s)	48	79	113	75
Local Yield 170(s)	23	79	90	75

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	
Offset: 60 (50%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	13	1419	32	4	2413
Future Volume (vph)	94	13	1419	32	4	2413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	14	1577	36	4	2681
RTOR Reduction (vph)	0	13	0	9	0	0
Lane Group Flow (vph)	104	1	1577	27	4	2681
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	9.0	9.0	67.0	67.0	26.0	97.0
Effective Green, g (s)	9.0	9.0	67.0	67.0	26.0	97.0
Actuated g/C Ratio	0.08	0.08	0.56	0.56	0.22	0.81
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	257	118	1975	883	383	2860
v/s Ratio Prot	c0.03		0.45		0.00	c0.76
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.40	0.01	0.80	0.03	0.01	0.94
Uniform Delay, d1	52.9	51.4	21.1	11.9	36.9	9.1
Progression Factor	1.00	1.00	0.51	0.01	1.26	0.47
Incremental Delay, d2	1.0	0.0	1.8	0.0	0.0	4.7
Delay (s)	54.0	51.4	12.5	0.1	46.6	8.9
Level of Service	D	D	B	A	D	A
Approach Delay (s)	53.7		12.2			9.0
Approach LOS	D		B			A

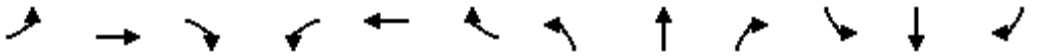
Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	74	11	35	85
Maximum Split (%)	61.7%	9.2%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	5	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	16		21	
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	112	101	66	101
End Time (s)	66	112	101	66
Yield/Force Off (s)	59	108	94	59
Yield/Force Off 170(s)	43	108	73	59
Local Start Time (s)	0	109	74	109
Local Yield (s)	67	116	102	67
Local Yield 170(s)	51	116	81	67

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 112 (93%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	479	1	466	296	1008	0	0	1871	625
Future Volume (vph)	0	0	0	479	1	466	296	1008	0	0	1871	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1505	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1505	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	532	1	518	329	1120	0	0	2079	694
RTOR Reduction (vph)	0	0	0	0	218	218	0	0	0	0	0	451
Lane Group Flow (vph)	0	0	0	532	42	41	329	1120	0	0	2079	243
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	4			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				19.0	19.0	19.0	11.0	27.0			42.0	42.0
Effective Green, g (s)				19.0	19.0	19.0	11.0	27.0			42.0	42.0
Actuated g/C Ratio				0.16	0.16	0.16	0.09	0.22			0.35	0.35
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				543	238	238	314	1144			2640	554
v/s Ratio Prot					0.03		c0.10	c0.22			c0.28	
v/s Ratio Perm				c0.15		0.03						0.15
v/c Ratio				0.98	0.18	0.17	1.05	0.98			0.79	0.44
Uniform Delay, d1				50.3	43.7	43.7	54.5	46.2			35.0	29.9
Progression Factor				0.93	0.72	0.72	1.08	1.17			1.03	2.26
Incremental Delay, d2				32.5	0.3	0.3	62.0	21.1			0.7	0.2
Delay (s)				79.5	31.8	31.9	120.9	75.1			36.6	67.8
Level of Service				E	C	C	F	E			D	E
Approach Delay (s)		0.0			56.0			85.5			44.4	
Approach LOS		A			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	58.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

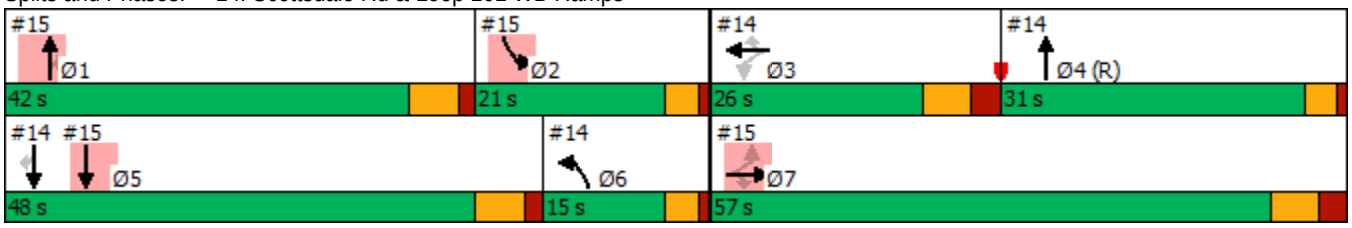
c Critical Lane Group

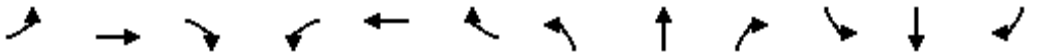
Phase Number	1	2	3	4	5	6	7
Node Number	15	15	14	14	14	14	15
Movement	NBT	SBL	WBTL	NBT	SBT	NBL	EBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	None	C-Max	None	Max	None
Maximum Split (s)	42	21	26	31	48	15	57
Maximum Split (%)	35.0%	17.5%	21.7%	25.8%	40.0%	12.5%	47.5%
Minimum Split (s)	16	9	14	5	16	9	14
Yellow Time (s)	4.5	3	4.3	3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1	1.5	1	2.7
Minimum Initial (s)	10	5	7	1	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)							
Flash Dont Walk (s)							
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	42	63	89	0	48	63
End Time (s)	42	63	89	0	48	63	0
Yield/Force Off (s)	36	59	82	116	42	59	113
Yield/Force Off 170(s)	36	59	82	116	42	59	113
Local Start Time (s)	31	73	94	0	31	79	94
Local Yield (s)	67	90	113	27	73	90	24
Local Yield 170(s)	67	90	113	27	73	90	24

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110

Offset: 89 (74%), Referenced to phase 4:NBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

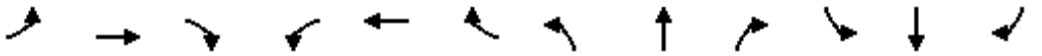




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	629	2	598	0	0	0	0	686	312	724	1658	0
Future Volume (vph)	629	2	598	0	0	0	0	686	312	724	1658	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	699	2	664	0	0	0	0	762	347	804	1842	0
RTOR Reduction (vph)	0	149	149	0	0	0	0	0	281	0	0	0
Lane Group Flow (vph)	699	185	183	0	0	0	0	762	66	804	1842	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	50.0	50.0	50.0					22.9	22.9	30.1	42.0	
Effective Green, g (s)	50.0	50.0	50.0					22.9	22.9	30.1	42.0	
Actuated g/C Ratio	0.42	0.42	0.42					0.19	0.19	0.25	0.35	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1430	627	626					1439	302	861	1779	
v/s Ratio Prot		0.12						0.10		c0.23	c0.36	
v/s Ratio Perm	c0.20		0.12						0.04			
v/c Ratio	0.49	0.29	0.29					0.53	0.22	0.93	1.04	
Uniform Delay, d1	25.6	23.3	23.2					43.7	41.0	44.0	39.0	
Progression Factor	1.00	1.00	1.00					0.53	2.08	0.64	0.48	
Incremental Delay, d2	0.3	0.3	0.3					0.3	0.3	11.7	25.9	
Delay (s)	25.9	23.5	23.5					23.5	85.6	39.9	44.6	
Level of Service	C	C	C					C	F	D	D	
Approach Delay (s)		24.7			0.0			42.9			43.2	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	12	255	17	4	25	121	636	11	40	1599	619
Future Volume (vph)	389	12	255	17	4	25	121	636	11	40	1599	619
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3075		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	432	13	283	19	4	28	134	707	12	44	1777	688
RTOR Reduction (vph)	0	0	235	0	30	0	0	0	7	0	0	251
Lane Group Flow (vph)	432	13	48	19	2	0	134	707	5	44	1777	437
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	19.2	20.2	20.2	7.2	8.2		5.0	47.1	47.1	23.0	65.1	65.1
Effective Green, g (s)	19.2	20.2	20.2	7.2	8.2		5.0	47.1	47.1	23.0	65.1	65.1
Actuated g/C Ratio	0.16	0.17	0.17	0.06	0.07		0.04	0.39	0.39	0.19	0.54	0.54
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	549	855	266	205	210		143	1995	621	657	2758	858
v/s Ratio Prot	c0.13	0.00		0.01	0.00		c0.04	0.14		0.01	c0.35	
v/s Ratio Perm			c0.03						0.00			0.28
v/c Ratio	0.79	0.02	0.18	0.09	0.01		0.94	0.35	0.01	0.07	0.64	0.51
Uniform Delay, d1	48.4	41.6	42.8	53.3	52.1		57.3	25.7	22.2	39.7	19.3	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.29	0.87	1.00	0.57	1.07	2.17
Incremental Delay, d2	7.3	0.0	0.3	0.2	0.0		59.7	0.5	0.0	0.1	0.5	1.0
Delay (s)	55.8	41.6	43.1	53.5	52.1		133.4	22.8	22.2	22.9	21.2	38.6
Level of Service	E	D	D	D	D		F	C	C	C	C	D
Approach Delay (s)		50.6			52.6			40.1			26.0	
Approach LOS		D			D			D			C	

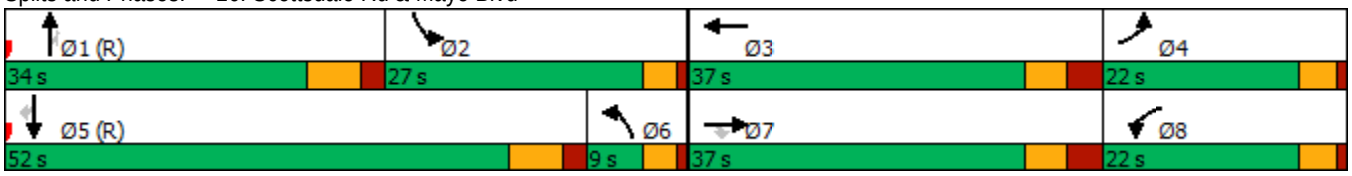
Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

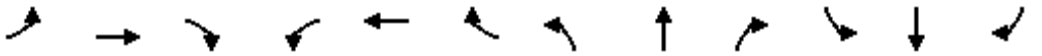
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	34	27	37	22	52	9	37	22
Maximum Split (%)	28.3%	22.5%	30.8%	18.3%	43.3%	7.5%	30.8%	18.3%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	61	98	0	52	61	98
End Time (s)	34	61	98	0	52	61	98	0
Yield/Force Off (s)	27	57	91	115.5	45	57	91	115.5
Yield/Force Off 170(s)	8	57	68	115.5	26	57	68	115.5
Local Start Time (s)	0	34	61	98	0	52	61	98
Local Yield (s)	27	57	91	115.5	45	57	91	115.5
Local Yield 170(s)	8	57	68	115.5	26	57	68	115.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	4	98	9	4	4	132	723	4	5	1816	126
Future Volume (vph)	83	4	98	9	4	4	132	723	4	5	1816	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	5085	1583	0	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	4	109	10	4	4	147	803	4	6	2018	140
RTOR Reduction (vph)	0	0	32	0	0	4	0	0	1	0	0	25
Lane Group Flow (vph)	92	4	77	10	4	0	147	803	3	6	2018	115
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7!	3!		7!	3!		5!	1!		5!	1!	
Permitted Phases	3		3	3		3	1		1	1		1
Actuated Green, G (s)	16.1	13.6	13.6	16.1	13.6	13.6	94.9	92.4	92.4	94.9	92.4	92.4
Effective Green, g (s)	16.1	13.6	13.6	16.1	13.6	13.6	94.9	92.4	92.4	94.9	92.4	92.4
Actuated g/C Ratio	0.13	0.11	0.11	0.13	0.11	0.11	0.79	0.77	0.77	0.79	0.77	0.77
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	237	401	179	237	401	179	1399	3915	1218	1399	3915	1218
v/s Ratio Prot	c0.05	0.00		0.01	0.00		0.08	0.16		0.00	c0.40	
v/s Ratio Perm			0.05			0.00			0.00			0.07
v/c Ratio	0.39	0.01	0.43	0.04	0.01	0.00	0.11	0.21	0.00	0.00	0.52	0.09
Uniform Delay, d1	47.5	47.2	49.6	45.2	47.2	47.2	2.9	3.8	3.2	2.6	5.3	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.15	0.15	1.00	0.16	0.61	0.18
Incremental Delay, d2	1.1	0.0	1.7	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.1
Delay (s)	48.5	47.2	51.3	45.3	47.2	47.2	0.5	0.7	3.2	0.4	3.6	0.7
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Approach Delay (s)		49.9			46.2			0.6			3.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

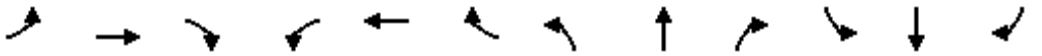
! Phase conflict between lane groups.

c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBSB	EBWB	NBSBL	EBWBL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	None	None
Maximum Split (s)	81	39	81	39
Maximum Split (%)	67.5%	32.5%	67.5%	32.5%
Minimum Split (s)	30	36	9.5	9.5
Yellow Time (s)	4.9	3.9	3.5	3.5
All-Red Time (s)	2.1	3.1	1	1
Minimum Initial (s)	5	6	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		
Flash Dont Walk (s)	16	22		
Dual Entry	Yes	Yes	No	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	32	113	32	113
End Time (s)	113	32	113	32
Yield/Force Off (s)	106	25	108.5	27.5
Yield/Force Off 170(s)	90	3	108.5	27.5
Local Start Time (s)	0	81	0	81
Local Yield (s)	74	113	76.5	115.5
Local Yield 170(s)	58	91	76.5	115.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 32 (27%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	28	248	69	9	123	128	705	145	189	1656	73
Future Volume (vph)	39	28	248	69	9	123	128	705	145	189	1656	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3062		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.39	1.00	1.00	0.07	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	1398	3062		725	3539	1583	130	5085	1583	602	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	31	276	77	10	137	142	783	161	210	1840	81
RTOR Reduction (vph)	0	218	0	0	0	124	0	0	71	0	0	36
Lane Group Flow (vph)	43	89	0	77	10	13	142	783	90	210	1840	45
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	15.8	11.8		15.8	11.8	11.8	83.2	67.2	67.2	83.2	67.2	67.2
Effective Green, g (s)	15.8	11.8		15.8	11.8	11.8	83.2	67.2	67.2	83.2	67.2	67.2
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.56	0.56	0.69	0.56	0.56
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	301		130	348	155	308	2847	886	573	2847	886
v/s Ratio Prot	0.01	0.03		c0.02	0.00		c0.06	0.15		0.05	c0.36	
v/s Ratio Perm	0.02			c0.06		0.01	0.26		0.06	0.21		0.03
v/c Ratio	0.22	0.30		0.59	0.03	0.09	0.46	0.28	0.10	0.37	0.65	0.05
Uniform Delay, d1	46.4	50.2		47.9	48.9	49.2	27.9	13.7	12.3	10.3	18.2	12.0
Progression Factor	1.00	1.00		0.81	0.84	1.15	1.94	1.15	4.09	1.51	1.37	5.79
Incremental Delay, d2	0.6	0.5		7.0	0.0	0.2	1.0	0.1	0.0	0.4	0.4	0.0
Delay (s)	46.9	50.8		45.8	41.2	56.8	55.2	15.9	50.4	15.9	25.4	69.2
Level of Service	D	D		D	D	E	E	B	D	B	C	E
Approach Delay (s)		50.3			52.3			26.1			26.2	
Approach LOS		D			D			C			C	

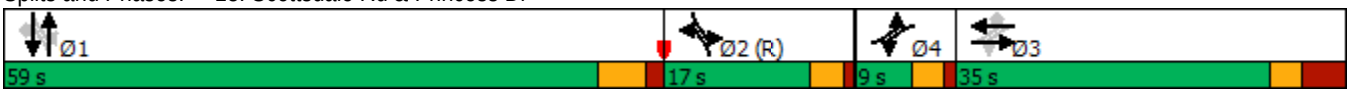
Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

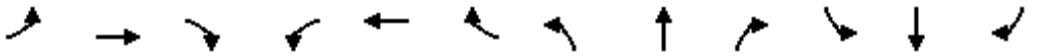
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	80	106	97
End Time (s)	80	97	21	106
Yield/Force Off (s)	74	93	14	102
Yield/Force Off 170(s)	64	93	113	102
Local Start Time (s)	61	0	26	17
Local Yield (s)	114	13	54	22
Local Yield 170(s)	104	13	33	22

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 80 (67%), Referenced to phase 2:NBSBL and 6:, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	0	114	30	0	19	40	902	11	41	1928	24
Future Volume (vph)	61	0	114	30	0	19	40	902	11	41	1928	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1713		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.58		0.06	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)		1465			1023		107	5085	1583	486	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	0	127	33	0	21	44	1002	12	46	2142	27
RTOR Reduction (vph)	0	64	0	0	47	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	131	0	0	7	0	44	1002	8	46	2142	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.5			16.5		86.5	81.5	81.5	86.5	81.5	81.5
Effective Green, g (s)		16.5			16.5		86.5	81.5	81.5	86.5	81.5	81.5
Actuated g/C Ratio		0.14			0.14		0.72	0.68	0.68	0.72	0.68	0.68
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		201			140		146	3453	1075	403	3453	1075
v/s Ratio Prot							c0.01	0.20		0.00	c0.42	
v/s Ratio Perm		c0.09			0.01		0.20		0.01	0.08		0.01
v/c Ratio		0.65			0.05		0.30	0.29	0.01	0.11	0.62	0.02
Uniform Delay, d1		49.0			45.0		19.3	7.7	6.2	6.4	10.7	6.2
Progression Factor		1.00			1.00		0.83	0.51	1.00	0.42	0.43	1.00
Incremental Delay, d2		7.4			0.2		4.6	0.2	0.0	0.5	0.7	0.0
Delay (s)		54.4			45.1		20.6	4.1	6.2	3.1	5.3	6.3
Level of Service		D			D		C	A	A	A	A	A
Approach Delay (s)		54.4			45.1			4.8			5.3	
Approach LOS		D			D			A			A	

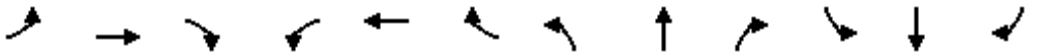
Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	75	9	36
Maximum Split (%)	62.5%	7.5%	30.0%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	59	14	23
End Time (s)	14	23	59
Yield/Force Off (s)	8	19	52
Yield/Force Off 170(s)	5	19	31
Local Start Time (s)	0	75	84
Local Yield (s)	69	80	113
Local Yield 170(s)	66	80	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 59 (49%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	523	1411	399	226	450	204	85	332	124	352	1456	152
Future Volume (vph)	523	1411	399	226	450	204	85	332	124	352	1456	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5013	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	581	1568	443	251	500	227	94	369	138	391	1618	169
RTOR Reduction (vph)	0	0	114	0	0	190	0	0	103	0	10	0
Lane Group Flow (vph)	581	1568	329	251	500	37	94	369	35	391	1777	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	30.2	41.0	41.0	9.0	19.8	19.8	5.0	30.4	30.4	17.6	43.0	
Effective Green, g (s)	30.2	41.0	41.0	9.0	19.8	19.8	5.0	30.4	30.4	17.6	43.0	
Actuated g/C Ratio	0.25	0.34	0.34	0.08	0.17	0.17	0.04	0.25	0.25	0.15	0.36	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	863	1737	540	257	839	261	143	1288	401	503	1796	
v/s Ratio Prot	0.17	c0.31		c0.07	0.10		c0.03	0.07		0.11	c0.35	
v/s Ratio Perm			0.21			0.02			0.02			
v/c Ratio	0.67	0.90	0.61	0.98	0.60	0.14	0.66	0.29	0.09	0.78	0.99	
Uniform Delay, d1	40.5	37.6	32.8	55.4	46.4	42.8	56.7	36.1	34.2	49.3	38.3	
Progression Factor	1.00	1.00	1.00	0.61	0.54	1.50	1.00	1.00	1.00	0.93	0.45	
Incremental Delay, d2	2.1	7.0	2.0	44.3	0.9	0.2	10.4	0.6	0.4	5.0	15.0	
Delay (s)	42.5	44.6	34.8	78.0	26.0	64.7	67.1	36.6	34.6	51.0	32.0	
Level of Service	D	D	C	E	C	E	E	D	C	D	C	
Approach Delay (s)		42.4			48.3			40.9			35.4	
Approach LOS		D			D			D			D	

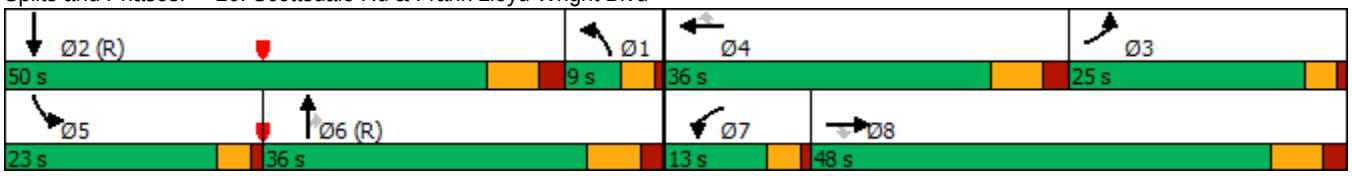
Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

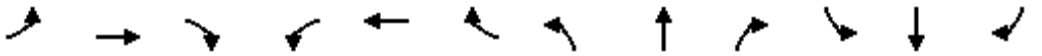
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	9	50	25	36	23	36	13	48
Maximum Split (%)	7.5%	41.7%	20.8%	30.0%	19.2%	30.0%	10.8%	40.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	33	103	78	42	103	6	42	55
End Time (s)	42	33	103	78	6	42	55	103
Yield/Force Off (s)	38	26	99	71	2	35	51	96
Yield/Force Off 170(s)	38	5	99	49	2	14	51	74
Local Start Time (s)	27	97	72	36	97	0	36	49
Local Yield (s)	32	20	93	65	116	29	45	90
Local Yield 170(s)	32	119	93	43	116	8	45	68

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 6 (5%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

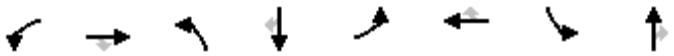




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	1237	57	551	998	152	9	254	244	169	551	263
Future Volume (vph)	417	1237	57	551	998	152	9	254	244	169	551	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	463	1374	63	612	1109	169	10	282	271	188	612	292
RTOR Reduction (vph)	0	0	44	0	0	117	0	0	231	0	0	210
Lane Group Flow (vph)	463	1374	19	612	1109	52	10	282	40	188	612	82
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.0	36.2	36.2	21.0	37.2	37.2	1.0	17.9	17.9	16.9	33.8	33.8
Effective Green, g (s)	20.0	36.2	36.2	21.0	37.2	37.2	1.0	17.9	17.9	16.9	33.8	33.8
Actuated g/C Ratio	0.17	0.30	0.30	0.18	0.31	0.31	0.01	0.15	0.15	0.14	0.28	0.28
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	1533	477	600	1576	490	14	527	236	483	996	445
v/s Ratio Prot	0.13	c0.27		c0.18	0.22		0.01	c0.08		0.05	c0.17	
v/s Ratio Perm			0.01			0.03			0.03			0.05
v/c Ratio	0.81	0.90	0.04	1.02	0.70	0.11	0.71	0.54	0.17	0.39	0.61	0.18
Uniform Delay, d1	48.2	40.1	29.6	49.5	36.5	29.5	59.4	47.2	44.6	46.9	37.4	32.7
Progression Factor	1.07	0.43	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.72	1.21
Incremental Delay, d2	4.6	4.9	0.1	41.9	2.7	0.4	100.1	1.0	0.3	0.5	1.1	0.2
Delay (s)	56.0	22.1	29.7	91.4	39.2	30.0	159.5	48.3	44.9	37.9	28.0	39.8
Level of Service	E	C	C	F	D	C	F	D	D	D	C	D
Approach Delay (s)		30.6			54.3			48.6			32.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

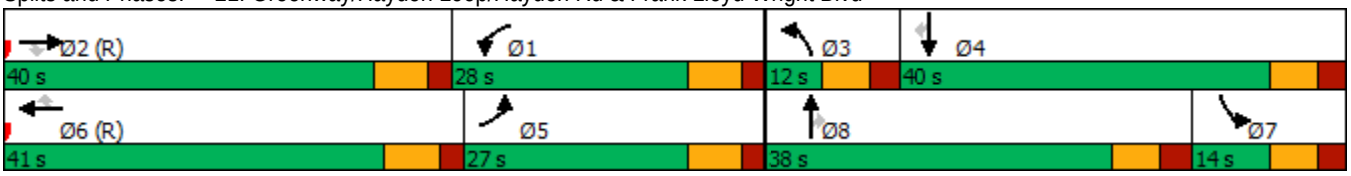
c Critical Lane Group

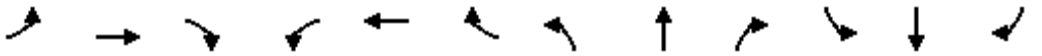


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	28	40	12	40	27	41	14	38
Maximum Split (%)	23.3%	33.3%	10.0%	33.3%	22.5%	34.2%	11.7%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	35	115	63	75	36	115	101	63
End Time (s)	63	35	75	115	63	36	115	101
Yield/Force Off (s)	56	28	68	108	56	29	108	94
Yield/Force Off 170(s)	56	11	68	84	56	12	108	70
Local Start Time (s)	40	0	68	80	41	0	106	68
Local Yield (s)	61	33	73	113	61	34	113	99
Local Yield 170(s)	61	16	73	89	61	17	113	75

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	311	118	89	206	270	114	969	4	280	1147	259
Future Volume (vph)	163	311	118	89	206	270	114	969	4	280	1147	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	181	346	131	99	229	300	127	1077	4	311	1274	288
RTOR Reduction (vph)	0	0	112	0	0	173	0	0	0	0	0	145
Lane Group Flow (vph)	181	346	19	99	229	127	127	1081	0	311	1274	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	11.6	17.7	17.7	10.6	16.7	16.7	10.0	52.7		17.0	59.7	59.7
Effective Green, g (s)	11.6	17.7	17.7	10.6	16.7	16.7	10.0	52.7		17.0	59.7	59.7
Actuated g/C Ratio	0.10	0.15	0.15	0.09	0.14	0.14	0.08	0.44		0.14	0.50	0.50
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	522	233	303	492	220	286	2231		486	2529	787
v/s Ratio Prot	c0.05	c0.10		0.03	0.06		0.04	0.21		c0.09	c0.25	
v/s Ratio Perm			0.01			0.08						0.09
v/c Ratio	0.55	0.66	0.08	0.33	0.47	0.58	0.44	0.48		0.64	0.50	0.18
Uniform Delay, d1	51.7	48.3	44.1	51.4	47.5	48.3	52.4	24.0		48.6	20.2	16.7
Progression Factor	0.82	0.75	0.77	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.7	3.0	0.1	0.6	0.7	3.6	4.9	0.8		6.3	0.7	0.5
Delay (s)	44.1	39.5	34.1	52.0	48.2	52.0	57.3	24.7		54.9	20.9	17.2
Level of Service	D	D	C	D	D	D	E	C		D	C	B
Approach Delay (s)		39.7			50.6			28.2			26.0	
Approach LOS		D			D			C			C	

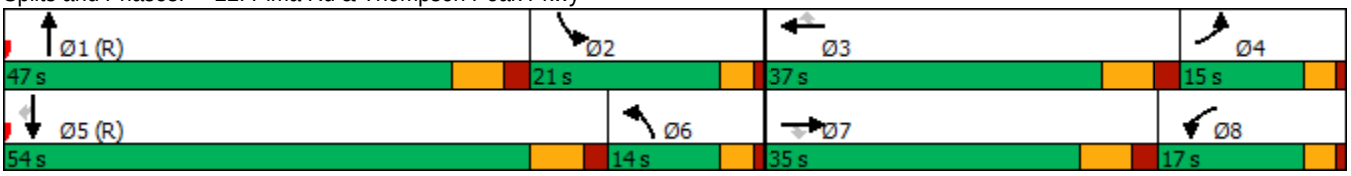
Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

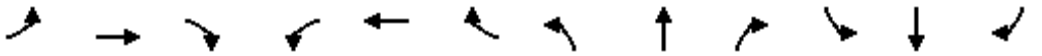
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	21	37	15	54	14	35	17
Maximum Split (%)	39.2%	17.5%	30.8%	12.5%	45.0%	11.7%	29.2%	14.2%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	118	45	66	103	118	52	66	101
End Time (s)	45	66	103	118	52	66	101	118
Yield/Force Off (s)	38	62	96	114	45	62	94	114
Yield/Force Off 170(s)	16	62	75	114	23	62	73	114
Local Start Time (s)	0	47	68	105	0	54	68	103
Local Yield (s)	40	64	98	116	47	64	96	116
Local Yield 170(s)	18	64	77	116	25	64	75	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 118 (98%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	62	35	11	3	68	915	71	4	395	15
Future Volume (vph)	20	16	62	35	11	3	68	915	71	4	395	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1807		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.50	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	1393	1641		1305	1807		926	3539	1583	507	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	18	69	39	12	3	76	1017	79	4	439	17
RTOR Reduction (vph)	0	64	0	0	3	0	0	0	13	0	0	4
Lane Group Flow (vph)	22	23	0	39	12	0	76	1017	66	4	439	13
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	7.3	7.3		7.3	7.3		74.7	74.7	74.7	74.7	74.7	74.7
Effective Green, g (s)	7.3	7.3		7.3	7.3		74.7	74.7	74.7	74.7	74.7	74.7
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.79	0.79	0.79	0.79	0.79	0.79
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	126		100	138		728	2782	1244	398	2782	1244
v/s Ratio Prot		0.01			0.01			c0.29			0.12	
v/s Ratio Perm	0.02			c0.03			0.08		0.04	0.01		0.01
v/c Ratio	0.21	0.18		0.39	0.09		0.10	0.37	0.05	0.01	0.16	0.01
Uniform Delay, d1	41.1	41.1		41.7	40.8		2.4	3.0	2.3	2.2	2.5	2.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.7		2.5	0.3		0.3	0.4	0.1	0.0	0.1	0.0
Delay (s)	42.1	41.8		44.2	41.0		2.7	3.4	2.3	2.2	2.6	2.2
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		41.8			43.4			3.3			2.6	
Approach LOS		D			D			A			A	

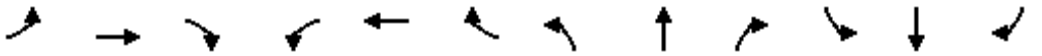
Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	56	39
Maximum Split (%)	58.9%	41.1%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	56
End Time (s)	56	0
Yield/Force Off (s)	50	88
Yield/Force Off 170(s)	46	84
Local Start Time (s)	0	56
Local Yield (s)	50	88
Local Yield 170(s)	46	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	8	59	20	6	11	68	1034	33	11	433	34
Future Volume (vph)	32	8	59	20	6	11	68	1034	33	11	433	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1686		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.48	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	1388	1863	1583	1400	1686		889	3539	1583	429	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	9	66	22	7	12	76	1149	37	12	481	38
RTOR Reduction (vph)	0	0	60	0	11	0	0	0	8	0	0	8
Lane Group Flow (vph)	36	9	6	22	8	0	76	1149	29	12	481	30
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	10.7	10.7	10.7	10.7	10.7		95.3	95.3	95.3	95.3	95.3	95.3
Effective Green, g (s)	10.7	10.7	10.7	10.7	10.7		95.3	95.3	95.3	95.3	95.3	95.3
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.09		0.79	0.79	0.79	0.79	0.79	0.79
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	123	166	141	124	150		706	2810	1257	340	2810	1257
v/s Ratio Prot		0.00			0.00			c0.32			0.14	
v/s Ratio Perm	c0.03		0.00	0.02			0.09		0.02	0.03		0.02
v/c Ratio	0.29	0.05	0.04	0.18	0.05		0.11	0.41	0.02	0.04	0.17	0.02
Uniform Delay, d1	51.1	50.0	50.0	50.6	50.0		2.8	3.8	2.6	2.6	2.9	2.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.23	0.19	0.03	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1	0.1	0.7	0.2		0.3	0.4	0.0	0.2	0.1	0.0
Delay (s)	52.4	50.2	50.1	51.3	50.2		0.9	1.1	0.1	2.8	3.1	2.6
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		50.9			50.8			1.1			3.0	
Approach LOS		D			D			A			A	

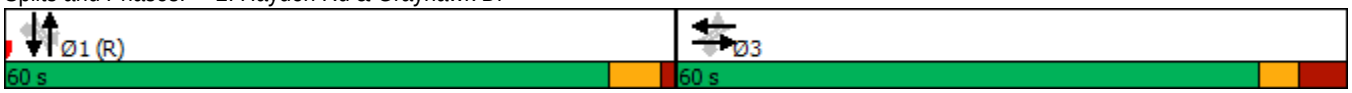
Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

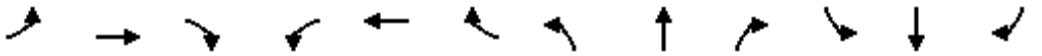
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	60
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	54	112
Yield/Force Off 170(s)	47	104
Local Start Time (s)	0	60
Local Yield (s)	54	112
Local Yield 170(s)	47	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	335	213	172	208	145	277	946	340	192	290	54
Future Volume (vph)	57	335	213	172	208	145	277	946	340	192	290	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.31	1.00	1.00	0.53	1.00	1.00	0.53	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	570	3539	1583	988	3539	1583	996	3539	1583	287	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	63	372	237	191	231	161	308	1051	378	213	322	60
RTOR Reduction (vph)	0	0	199	0	0	128	0	0	160	0	0	33
Lane Group Flow (vph)	63	372	38	191	231	33	308	1051	218	213	322	27
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	19.1	19.1	19.1	25.2	24.7	24.7	74.6	57.3	57.3	67.6	54.8	54.8
Effective Green, g (s)	19.1	19.1	19.1	25.2	24.7	24.7	74.6	57.3	57.3	67.6	54.8	54.8
Actuated g/C Ratio	0.16	0.16	0.16	0.21	0.21	0.21	0.62	0.48	0.48	0.56	0.46	0.46
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	142	563	251	284	728	325	730	1689	755	319	1616	722
v/s Ratio Prot	0.02	c0.11		c0.07	0.07		c0.06	0.30		c0.07	0.09	
v/s Ratio Perm	0.05		0.02	0.07		0.02	0.20		0.14	c0.30		0.02
v/c Ratio	0.44	0.66	0.15	0.67	0.32	0.10	0.42	0.62	0.29	0.67	0.20	0.04
Uniform Delay, d1	44.2	47.4	43.5	43.6	40.5	38.7	13.5	23.3	19.0	34.8	19.5	18.0
Progression Factor	1.00	1.00	1.00	0.95	0.92	2.54	1.00	1.00	1.00	0.92	0.91	1.00
Incremental Delay, d2	2.2	2.9	0.3	6.0	0.2	0.1	0.4	1.7	1.0	5.2	0.3	0.1
Delay (s)	46.4	50.3	43.7	47.3	37.5	98.2	13.9	25.0	20.0	37.1	18.0	18.1
Level of Service	D	D	D	D	D	F	B	C	B	D	B	B
Approach Delay (s)		47.6			57.5			22.0			24.9	
Approach LOS		D			E			C			C	

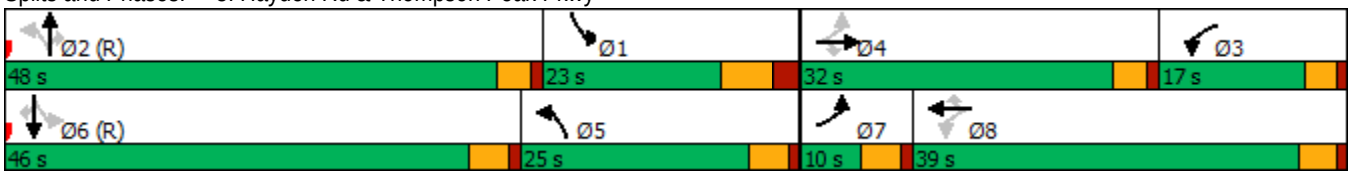
Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

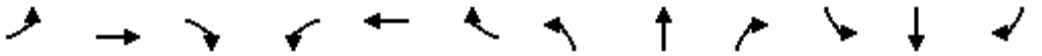
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	23	48	17	32	25	46	10	39
Maximum Split (%)	19.2%	40.0%	14.2%	26.7%	20.8%	38.3%	8.3%	32.5%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	92	44	27	115	90	44	115	5
End Time (s)	115	92	44	27	115	90	5	44
Yield/Force Off (s)	108	88	40	23	110.5	85.5	0.5	39.5
Yield/Force Off 170(s)	108	64	40	2	110.5	61.5	0.5	18.5
Local Start Time (s)	48	0	103	71	46	0	71	81
Local Yield (s)	64	44	116	99	66.5	41.5	76.5	115.5
Local Yield 170(s)	64	20	116	78	66.5	17.5	76.5	94.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 44 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	16	0	0	0	35	1536	0	0	614	15
Future Volume (vph)	15	0	16	0	0	0	35	1536	0	0	614	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5				7.0	7.0			7.0	7.0
Lane Util. Factor	1.00		1.00				1.00	0.95			0.95	1.00
Frt	1.00		0.85				1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770		1583				1770	3539			3539	1583
Flt Permitted	1.00		1.00				0.39	1.00			1.00	1.00
Satd. Flow (perm)	1863		1583				731	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	0	18	0	0	0	39	1707	0	0	682	17
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	0	0	0	3
Lane Group Flow (vph)	17	0	1	0	0	0	39	1707	0	0	682	14
Turn Type	Perm		Perm	Perm			Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			1			1	
Permitted Phases	4		4	8			1		1	1		1
Actuated Green, G (s)	3.7		3.7				61.8	61.8			61.8	61.8
Effective Green, g (s)	3.7		3.7				61.8	61.8			61.8	61.8
Actuated g/C Ratio	0.05		0.05				0.80	0.80			0.80	0.80
Clearance Time (s)	4.5		4.5				7.0	7.0			7.0	7.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	89		76				586	2840			2840	1270
v/s Ratio Prot								c0.48			0.19	
v/s Ratio Perm	c0.01		0.00				0.05					0.01
v/c Ratio	0.19		0.01				0.07	0.60			0.24	0.01
Uniform Delay, d1	35.2		34.9				1.6	2.9			1.9	1.5
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	1.0		0.1				0.0	0.4			0.0	0.0
Delay (s)	36.3		35.0				1.6	3.3			1.9	1.5
Level of Service	D		C				A	A			A	A
Approach Delay (s)		35.6			0.0			3.2			1.9	
Approach LOS		D			A			A			A	

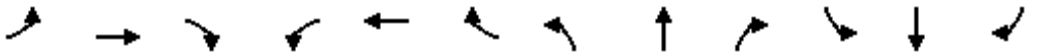
Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	4	8
Movement	NBSB	EBTL	WBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	None	None	None
Maximum Split (s)	80	30	30
Maximum Split (%)	72.7%	27.3%	27.3%
Minimum Split (s)	50	22.5	22.5
Yellow Time (s)	4.8	3.5	3.5
All-Red Time (s)	2.2	1	1
Minimum Initial (s)	10	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	15	7	7
Flash Dont Walk (s)	10	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	80	80
End Time (s)	80	0	0
Yield/Force Off (s)	73	105.5	105.5
Yield/Force Off 170(s)	63	94.5	94.5
Local Start Time (s)	0	80	80
Local Yield (s)	73	105.5	105.5
Local Yield 170(s)	63	94.5	94.5

Intersection Summary	
Cycle Length	110
Control Type	Semi Act-Uncoord
Natural Cycle	75

Splits and Phases: 4: Hayden Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	123	678	589	887	0	0	521	204
Future Volume (vph)	0	0	0	76	123	678	589	887	0	0	521	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1584	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1584	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	84	137	753	654	986	0	0	579	227
RTOR Reduction (vph)	0	0	0	0	72	261	0	0	0	0	0	195
Lane Group Flow (vph)	0	0	0	84	381	176	654	986	0	0	579	32
Turn Type				Perm	NA	Perm	Split	NA			NA	Perm
Protected Phases					3		6	6			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				32.4	32.4	32.4	50.7	50.7			16.9	16.9
Effective Green, g (s)				32.4	32.4	32.4	50.7	50.7			16.9	16.9
Actuated g/C Ratio				0.27	0.27	0.27	0.42	0.42			0.14	0.14
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				926	427	406	747	1495			902	222
v/s Ratio Prot					c0.24		c0.37	0.28			c0.09	
v/s Ratio Perm				0.02		0.12						0.02
v/c Ratio				0.09	0.89	0.43	0.88	0.66			0.64	0.14
Uniform Delay, d1				32.8	42.1	36.2	31.8	27.7			48.7	45.2
Progression Factor				1.00	1.00	1.00	0.81	0.81			1.00	1.00
Incremental Delay, d2				0.0	20.4	0.7	10.1	1.6			1.6	0.3
Delay (s)				32.8	62.6	36.9	36.0	24.1			50.3	45.5
Level of Service				C	E	D	D	C			D	D
Approach Delay (s)		0.0			48.5			28.8			48.9	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

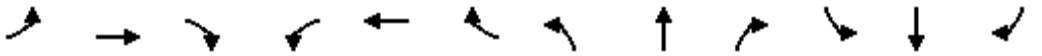
c Critical Lane Group

Phase Number	1	2	3	5	6	7
Node Number	6	6	5	5	5	6
Movement	NBT	SBTL	WBTL	SBT	NBTL	EBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	41	36	43	24	53	43
Maximum Split (%)	34.2%	30.0%	35.8%	20.0%	44.2%	35.8%
Minimum Split (s)	21	21	41	21	39	41
Yellow Time (s)	4.4	4.4	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1.6	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	6	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	59	16	59	83	16
End Time (s)	16	95	59	83	16	59
Yield/Force Off (s)	10	89	51	77	10	51
Yield/Force Off 170(s)	10	89	51	77	10	51
Local Start Time (s)	12	96	53	96	0	53
Local Yield (s)	47	6	88	114	47	88
Local Yield 170(s)	47	6	88	114	47	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105

Offset: 83 (69%), Referenced to phase 2:SBTL and 6:, Start of Green

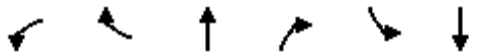
Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	474	0	156	0	0	0	0	1039	54	391	221	0
Future Volume (vph)	474	0	156	0	0	0	0	1039	54	391	221	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1604	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1604	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	527	0	173	0	0	0	0	1154	60	434	246	0
RTOR Reduction (vph)	0	99	114	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	274	171	42	0	0	0	0	1154	18	434	246	0
Turn Type	Perm	NA	Perm					NA	Perm	Split	NA	
Protected Phases		7						1		2	2	
Permitted Phases	7		7						1			
Actuated Green, G (s)	32.4	32.4	32.4					35.0	35.0	32.6	32.6	
Effective Green, g (s)	32.4	32.4	32.4					35.0	35.0	32.6	32.6	
Actuated g/C Ratio	0.27	0.27	0.27					0.29	0.29	0.27	0.27	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	453	433	406					1483	461	932	961	
v/s Ratio Prot								c0.23		c0.13	0.07	
v/s Ratio Perm	c0.16	0.11	0.03						0.01			
v/c Ratio	0.60	0.39	0.10					0.78	0.04	0.47	0.26	
Uniform Delay, d1	38.2	35.8	32.9					38.9	30.4	36.4	34.2	
Progression Factor	0.63	0.42	0.38					0.80	1.00	0.13	0.11	
Incremental Delay, d2	0.2	0.1	0.0					2.6	0.0	1.4	0.6	
Delay (s)	24.4	15.2	12.4					33.6	30.5	6.3	4.5	
Level of Service	C	B	B					C	C	A	A	
Approach Delay (s)		18.2			0.0			33.4			5.7	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

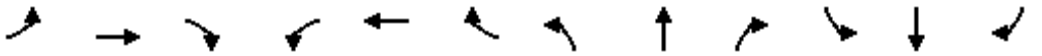
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	244	844	5	33	363
Future Volume (Veh/h)	3	244	844	5	33	363
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	271	938	6	37	403
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.97					
vC, conflicting volume	1214	469			944	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1152	469			944	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	50			95	
cM capacity (veh/h)	175	541			722	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	274	469	469	6	37	202	202
Volume Left	3	0	0	0	37	0	0
Volume Right	271	0	0	6	0	0	0
cSH	529	1700	1700	1700	722	1700	1700
Volume to Capacity	0.52	0.28	0.28	0.00	0.05	0.12	0.12
Queue Length 95th (ft)	74	0	0	0	4	0	0
Control Delay (s)	18.9	0.0	0.0	0.0	10.3	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	18.9	0.0			0.9		
Approach LOS	C						

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	18	63	217	0	135	127	698	142	11	295	61
Future Volume (vph)	32	18	63	217	0	135	127	698	142	11	295	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1805	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.55	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)		1805	1583	3433		1583	1031	3539	1583	610	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	20	70	241	0	150	141	776	158	12	328	68
RTOR Reduction (vph)	0	0	65	0	0	113	0	0	56	0	0	24
Lane Group Flow (vph)	0	56	5	241	0	37	141	776	102	12	328	44
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		9.1	9.1	13.7		29.8	77.2	77.2	77.2	77.2	77.2	77.2
Effective Green, g (s)		9.1	9.1	13.7		29.8	77.2	77.2	77.2	77.2	77.2	77.2
Actuated g/C Ratio		0.08	0.08	0.11		0.25	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	120	391		393	663	2276	1018	392	2276	1018
v/s Ratio Prot				c0.07				c0.22			0.09	
v/s Ratio Perm		0.03	0.00			0.02	0.14		0.06	0.02		0.03
v/c Ratio		0.41	0.04	0.62		0.09	0.21	0.34	0.10	0.03	0.14	0.04
Uniform Delay, d1		52.9	51.4	50.6		34.7	8.8	9.8	8.2	7.8	8.4	7.8
Progression Factor		0.82	1.00	1.00		1.00	0.16	0.14	0.01	0.60	0.59	1.00
Incremental Delay, d2		2.0	0.1	2.9		0.1	0.7	0.4	0.2	0.1	0.1	0.1
Delay (s)		45.3	51.6	53.5		34.8	2.0	1.7	0.3	4.8	5.1	7.9
Level of Service		D	D	D		C	A	A	A	A	A	A
Approach Delay (s)		48.8			46.4			1.6			5.6	
Approach LOS		D			D			A			A	

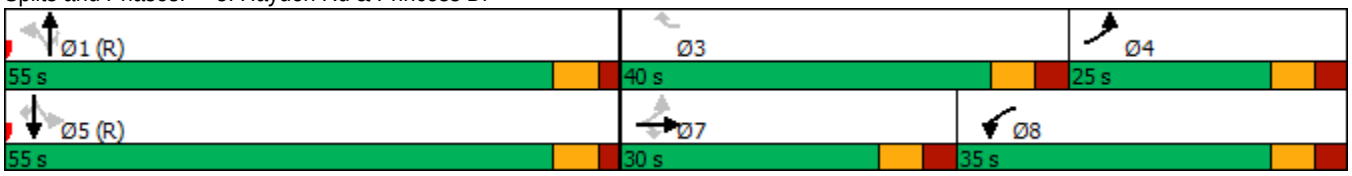
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

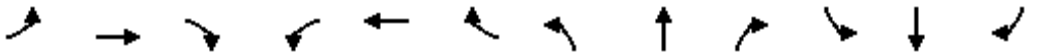
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55	40	25	55	30	35
Maximum Split (%)	45.8%	33.3%	20.8%	45.8%	25.0%	29.2%
Minimum Split (s)	50	40	25	50	30	25
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	20	75	115	20	75	105
End Time (s)	75	115	20	75	105	20
Yield/Force Off (s)	69	108	13	69	98	13
Yield/Force Off 170(s)	58	97	13	58	87	13
Local Start Time (s)	0	55	95	0	55	85
Local Yield (s)	49	88	113	49	78	113
Local Yield 170(s)	38	77	113	38	67	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 20 (17%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1	19	419	0	102	5	903	236	93	511	9
Future Volume (vph)	11	1	19	419	0	102	5	903	236	93	511	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3156		1681	1681	1583	1770	3539	1583	1770	3530	
Flt Permitted		0.83		0.73	0.73	1.00	0.43	1.00	1.00	0.20	1.00	
Satd. Flow (perm)		2669		1299	1299	1583	809	3539	1583	378	3530	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	1	21	466	0	113	6	1003	262	103	568	10
RTOR Reduction (vph)	0	16	0	0	0	88	0	0	116	0	1	0
Lane Group Flow (vph)	0	18	0	233	233	25	6	1003	146	103	577	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		26.7		26.7	26.7	26.7	67.9	66.7	66.7	79.3	73.6	
Effective Green, g (s)		26.7		26.7	26.7	26.7	67.9	66.7	66.7	79.3	73.6	
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.57	0.56	0.56	0.66	0.61	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		593		289	289	352	467	1967	879	343	2165	
v/s Ratio Prot							0.00	c0.28		c0.02	0.16	
v/s Ratio Perm		0.01		c0.18	0.18	0.02	0.01		0.09	0.18		
v/c Ratio		0.03		0.81	0.81	0.07	0.01	0.51	0.17	0.30	0.27	
Uniform Delay, d1		36.5		44.2	44.2	36.9	11.3	16.5	13.0	9.5	10.7	
Progression Factor		1.00		1.00	1.00	1.00	0.62	0.81	1.69	1.06	0.86	
Incremental Delay, d2		0.0		15.0	15.0	0.1	0.0	0.7	0.3	0.5	0.3	
Delay (s)		36.5		59.2	59.2	36.9	7.0	14.1	22.3	10.6	9.5	
Level of Service		D		E	E	D	A	B	C	B	A	
Approach Delay (s)		36.5			54.9			15.8			9.7	
Approach LOS		D			D			B			A	

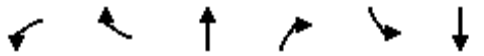
Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55.4	22.6	42	52.4	25.6	42
Maximum Split (%)	46.2%	18.8%	35.0%	43.7%	21.3%	35.0%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	115	92.4	50.4	118	92.4	50.4
End Time (s)	50.4	115	92.4	50.4	118	92.4
Yield/Force Off (s)	44.4	110.5	84.4	44.4	113.5	84.4
Yield/Force Off 170(s)	33.4	99.5	73.4	33.4	102.5	73.4
Local Start Time (s)	117	94.4	52.4	0	94.4	52.4
Local Yield (s)	46.4	112.5	86.4	46.4	115.5	86.4
Local Yield 170(s)	35.4	101.5	75.4	35.4	104.5	75.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 118 (98%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	54	1731	93	17	898
Future Volume (vph)	113	54	1731	93	17	898
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.08	1.00
Satd. Flow (perm)	1770	1583	3539	1583	149	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	60	1923	103	19	998
RTOR Reduction (vph)	0	21	0	10	0	0
Lane Group Flow (vph)	126	39	1923	93	19	998
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.9	13.9	94.1	94.1	94.1	94.1
Effective Green, g (s)	13.9	13.9	94.1	94.1	94.1	94.1
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	183	2775	1241	116	2775
v/s Ratio Prot	c0.07		c0.54			0.28
v/s Ratio Perm		0.02		0.06	0.13	
v/c Ratio	0.61	0.21	0.69	0.07	0.16	0.36
Uniform Delay, d1	50.5	48.1	6.1	3.0	3.2	3.9
Progression Factor	1.00	1.00	0.15	0.21	1.00	1.00
Incremental Delay, d2	5.4	0.6	1.1	0.1	3.0	0.4
Delay (s)	55.9	48.7	2.0	0.7	6.2	4.3
Level of Service	E	D	A	A	A	A
Approach Delay (s)	53.6		1.9			4.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	88	32
Maximum Split (%)	73.3%	26.7%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	79	47
End Time (s)	47	79
Yield/Force Off (s)	41	73
Yield/Force Off 170(s)	35	69
Local Start Time (s)	0	88
Local Yield (s)	82	114
Local Yield 170(s)	76	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 79 (66%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	109	59	1741	109	52	927
Future Volume (vph)	109	59	1741	109	52	927
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.08	1.00
Satd. Flow (perm)	1770	1583	3539	1583	148	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	66	1934	121	58	1030
RTOR Reduction (vph)	0	31	0	22	0	0
Lane Group Flow (vph)	121	35	1934	99	58	1030
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.2	13.2	94.8	94.8	94.8	94.8
Effective Green, g (s)	13.2	13.2	94.8	94.8	94.8	94.8
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	174	2795	1250	116	2795
v/s Ratio Prot	c0.07		c0.55			0.29
v/s Ratio Perm		0.02		0.06	0.39	
v/c Ratio	0.62	0.20	0.69	0.08	0.50	0.37
Uniform Delay, d1	51.0	48.6	5.8	2.8	4.4	3.7
Progression Factor	1.00	1.00	0.51	0.00	1.45	1.23
Incremental Delay, d2	6.1	0.6	0.7	0.1	13.9	0.4
Delay (s)	57.1	49.2	3.6	0.1	20.2	4.9
Level of Service	E	D	A	A	C	A
Approach Delay (s)	54.3		3.4			5.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	20	117
End Time (s)	117	20
Yield/Force Off (s)	111	14
Yield/Force Off 170(s)	99	3
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 20 (17%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	534	113	1520	377	93	1093
Future Volume (vph)	534	113	1520	377	93	1093
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	126	1689	419	103	1214
RTOR Reduction (vph)	0	99	0	227	0	0
Lane Group Flow (vph)	593	27	1689	192	103	1214
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.8	25.8	55.0	55.0	20.2	79.2
Effective Green, g (s)	25.8	25.8	55.0	55.0	20.2	79.2
Actuated g/C Ratio	0.22	0.22	0.46	0.46	0.17	0.66
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	340	1622	725	297	2335
v/s Ratio Prot	c0.17		c0.48		0.06	c0.34
v/s Ratio Perm		0.02		0.12		
v/c Ratio	0.80	0.08	1.04	0.26	0.35	0.52
Uniform Delay, d1	44.7	37.6	32.5	20.0	44.1	10.6
Progression Factor	1.00	1.00	0.67	0.88	0.96	0.73
Incremental Delay, d2	6.3	0.1	28.1	0.5	3.1	0.8
Delay (s)	51.0	37.7	50.0	18.1	45.5	8.5
Level of Service	D	D	D	B	D	A
Approach Delay (s)	48.7		43.6			11.4
Approach LOS	D		D			B

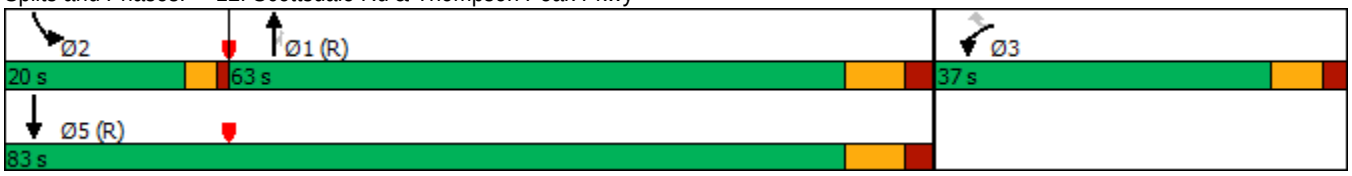
Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	63	20	37	83
Maximum Split (%)	52.5%	16.7%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	5	5	6	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	95	75	38	75
End Time (s)	38	95	75	38
Yield/Force Off (s)	30	91	68	30
Yield/Force Off 170(s)	5	91	45	5
Local Start Time (s)	0	100	63	100
Local Yield (s)	55	116	93	55
Local Yield 170(s)	30	116	70	30

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 95 (79%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	26	1893	84	17	1637
Future Volume (vph)	54	26	1893	84	17	1637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	29	2103	93	19	1819
RTOR Reduction (vph)	0	27	0	12	0	0
Lane Group Flow (vph)	60	2	2103	81	19	1819
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	6.4	6.4	84.0	84.0	11.6	99.6
Effective Green, g (s)	6.4	6.4	84.0	84.0	11.6	99.6
Actuated g/C Ratio	0.05	0.05	0.70	0.70	0.10	0.83
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	84	2477	1108	171	2937
v/s Ratio Prot	c0.02		c0.59		0.01	c0.51
v/s Ratio Perm		0.00		0.05		
v/c Ratio	0.33	0.02	0.85	0.07	0.11	0.62
Uniform Delay, d1	54.7	53.8	13.3	5.7	49.5	3.6
Progression Factor	1.00	1.00	2.45	0.96	0.99	1.62
Incremental Delay, d2	1.1	0.1	0.3	0.0	1.1	0.3
Delay (s)	54.8	53.9	32.9	5.5	50.3	6.1
Level of Service	D	D	C	A	D	A
Approach Delay (s)	54.2		31.7			6.6
Approach LOS	D		C			A

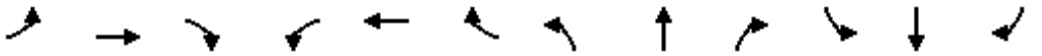
Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	None
Maximum Split (s)	74	17	29	91
Maximum Split (%)	61.7%	14.2%	24.2%	75.8%
Minimum Split (s)	80	20	35	100
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	46	0	17	46
End Time (s)	0	17	46	17
Yield/Force Off (s)	113	13	39	10
Yield/Force Off 170(s)	97	13	18	114
Local Start Time (s)	46	0	17	46
Local Yield (s)	113	13	39	10
Local Yield 170(s)	97	13	18	114

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:SBL and 6:, Start of Green		

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	484	69	502	690	1492	0	0	1144	616
Future Volume (vph)	0	0	0	484	69	502	690	1492	0	0	1144	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1567	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1567	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	538	77	558	767	1658	0	0	1271	684
RTOR Reduction (vph)	0	0	0	0	97	248	0	0	0	0	0	473
Lane Group Flow (vph)	0	0	0	538	226	64	767	1658	0	0	1271	211
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	4			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				24.8	24.8	24.8	26.0	23.2			25.0	25.0
Effective Green, g (s)				24.8	24.8	24.8	26.0	23.2			25.0	25.0
Actuated g/C Ratio				0.21	0.21	0.21	0.22	0.19			0.21	0.21
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				709	323	310	743	983			1571	329
v/s Ratio Prot					0.14		c0.22	c0.33			c0.17	
v/s Ratio Perm				c0.16		0.04						0.13
v/c Ratio				0.76	0.70	0.21	1.03	1.69			0.81	0.64
Uniform Delay, d1				44.8	44.2	39.5	47.0	48.4			45.2	43.4
Progression Factor				0.89	0.82	0.65	0.66	1.37			0.95	1.49
Incremental Delay, d2				3.4	4.9	0.2	36.4	312.1			2.7	3.5
Delay (s)				43.2	41.1	25.7	67.3	378.6			45.5	68.0
Level of Service				D	D	C	E	F			D	E
Approach Delay (s)		0.0			38.0			280.2			53.4	
Approach LOS		A			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	149.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

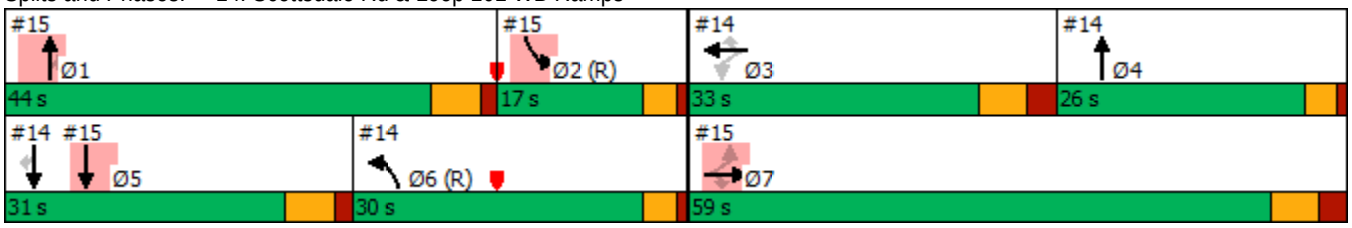
c Critical Lane Group

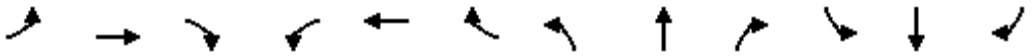
Phase Number	1	2	3	4	5	6	7
Node Number	15	15	14	14	14	14	15
Movement	NBT	SBL	WBTL	NBT	SBT	NBL	EBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	None	C-Max	None
Maximum Split (s)	44	17	33	26	31	30	59
Maximum Split (%)	36.7%	14.2%	27.5%	21.7%	25.8%	25.0%	49.2%
Minimum Split (s)	16	9	21	5	20	9	14
Yellow Time (s)	4.5	3	4.3	3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1	1.5	1	2.7
Minimum Initial (s)	10	5	7	1	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)							
Flash Dont Walk (s)							
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	76	0	17	50	76	107	17
End Time (s)	0	17	50	76	107	17	76
Yield/Force Off (s)	114	13	43	72	101	13	69
Yield/Force Off 170(s)	114	13	43	72	101	13	69
Local Start Time (s)	76	0	17	50	76	107	17
Local Yield (s)	114	13	43	72	101	13	69
Local Yield 170(s)	114	13	43	72	101	13	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130

Offset: 0 (0%), Referenced to phase 2:SBL and 6:, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

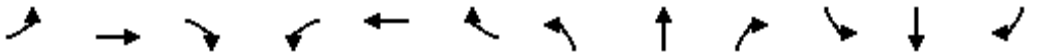




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	494	0	616	0	0	0	0	1701	519	472	1246	0
Future Volume (vph)	494	0	616	0	0	0	0	1701	519	472	1246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	549	0	684	0	0	0	0	1890	577	524	1384	0
RTOR Reduction (vph)	0	194	194	0	0	0	0	0	237	0	0	0
Lane Group Flow (vph)	549	148	148	0	0	0	0	1890	340	524	1384	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	52.0	52.0	52.0					38.0	38.0	13.0	25.0	
Effective Green, g (s)	52.0	52.0	52.0					38.0	38.0	13.0	25.0	
Actuated g/C Ratio	0.43	0.43	0.43					0.32	0.32	0.11	0.21	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1487	651	651					2388	501	371	1059	
v/s Ratio Prot		0.10						c0.25		c0.15	c0.27	
v/s Ratio Perm	c0.16		0.10						0.21			
v/c Ratio	0.37	0.23	0.23					0.79	0.68	1.41	1.31	
Uniform Delay, d1	22.9	21.4	21.4					37.4	35.7	53.5	47.5	
Progression Factor	1.00	1.00	1.00					0.48	1.02	0.89	0.70	
Incremental Delay, d2	0.2	0.2	0.2					0.2	0.3	195.8	142.7	
Delay (s)	23.1	21.6	21.6					18.0	36.8	243.6	176.1	
Level of Service	C	C	C					B	D	F	F	
Approach Delay (s)		22.2			0.0			22.4			194.6	
Approach LOS		C			A			C			F	

Intersection Summary			
HCM 2000 Control Delay	80.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	632	9	176	11	13	21	347	1598	11	10	1157	680
Future Volume (vph)	632	9	176	11	13	21	347	1598	11	10	1157	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	702	10	196	12	14	23	386	1776	12	11	1286	756
RTOR Reduction (vph)	0	0	148	0	21	0	0	0	8	0	0	394
Lane Group Flow (vph)	702	10	48	12	16	0	386	1776	4	11	1286	362
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	23.5	29.4	29.4	2.6	8.5		13.0	36.2	36.2	29.3	52.5	52.5
Effective Green, g (s)	23.5	29.4	29.4	2.6	8.5		13.0	36.2	36.2	29.3	52.5	52.5
Actuated g/C Ratio	0.20	0.24	0.24	0.02	0.07		0.11	0.30	0.30	0.24	0.44	0.44
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	672	1245	387	74	227		371	1533	477	838	2224	692
v/s Ratio Prot	c0.20	0.00		0.00	0.00		0.11	c0.35		0.00	c0.25	
v/s Ratio Perm			c0.03						0.00			0.23
v/c Ratio	1.04	0.01	0.12	0.16	0.07		1.04	1.16	0.01	0.01	0.58	0.52
Uniform Delay, d1	48.2	34.3	35.3	57.6	52.1		53.5	41.9	29.3	34.4	25.4	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.72	0.69	1.00	0.63	0.87	4.33
Incremental Delay, d2	46.9	0.0	0.1	1.0	0.1		54.1	78.0	0.0	0.0	0.3	0.7
Delay (s)	95.2	34.3	35.4	58.7	52.2		92.8	107.1	29.4	21.7	22.3	107.3
Level of Service	F	C	D	E	D		F	F	C	C	C	F
Approach Delay (s)		81.6			53.8			104.2			53.6	
Approach LOS		F			D			F			D	

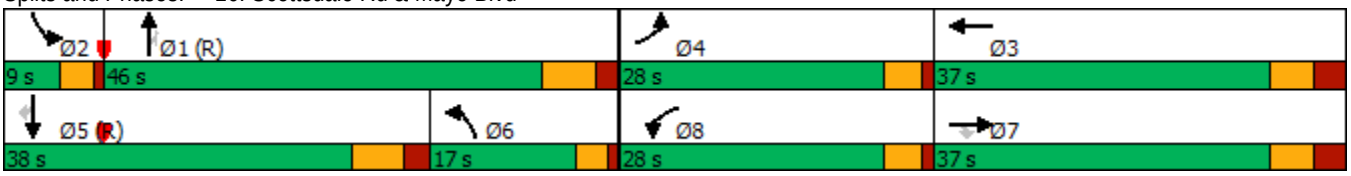
Intersection Summary			
HCM 2000 Control Delay	79.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

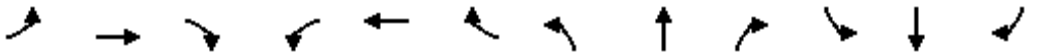
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	46	9	37	28	38	17	37	28
Maximum Split (%)	38.3%	7.5%	30.8%	23.3%	31.7%	14.2%	30.8%	23.3%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	27	18	101	73	18	56	101	73
End Time (s)	73	27	18	101	56	73	18	101
Yield/Force Off (s)	66	23	11	96.5	49	69	11	96.5
Yield/Force Off 170(s)	47	23	108	96.5	30	69	108	96.5
Local Start Time (s)	0	111	74	46	111	29	74	46
Local Yield (s)	39	116	104	69.5	22	42	104	69.5
Local Yield 170(s)	20	116	81	69.5	3	42	81	69.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 27 (23%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1	123	14	4	4	144	1913	6	9	1457	87
Future Volume (vph)	122	1	123	14	4	4	144	1913	6	9	1457	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	5085	1583	0	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	1	137	16	4	4	160	2126	7	10	1619	97
RTOR Reduction (vph)	0	0	31	0	0	3	0	0	2	0	0	24
Lane Group Flow (vph)	136	1	106	16	4	1	160	2126	5	10	1619	73
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7!	3!		7!	3!		5!	1!		5!	1!	
Permitted Phases	3		3	3		3	1		1	1		1
Actuated Green, G (s)	17.6	15.1	15.1	17.6	15.1	15.1	93.4	90.9	90.9	93.4	90.9	90.9
Effective Green, g (s)	17.6	15.1	15.1	17.6	15.1	15.1	93.4	90.9	90.9	93.4	90.9	90.9
Actuated g/C Ratio	0.15	0.13	0.13	0.15	0.13	0.13	0.78	0.76	0.76	0.78	0.76	0.76
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	259	445	199	259	445	199	1377	3851	1199	1377	3851	1199
v/s Ratio Prot	c0.08	0.00		0.01	0.00		0.09	c0.42		0.01	0.32	
v/s Ratio Perm			0.07			0.00			0.00			0.05
v/c Ratio	0.53	0.00	0.53	0.06	0.01	0.00	0.12	0.55	0.00	0.01	0.42	0.06
Uniform Delay, d1	47.3	45.9	49.1	44.1	45.9	45.9	3.2	6.1	3.5	3.0	5.2	3.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.26	0.41	1.00	0.52	0.72	0.57
Incremental Delay, d2	1.9	0.0	2.7	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.3	0.1
Delay (s)	49.3	45.9	51.8	44.2	45.9	45.9	0.9	2.9	3.5	1.5	4.0	2.2
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Approach Delay (s)		50.5			44.8			2.8			3.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

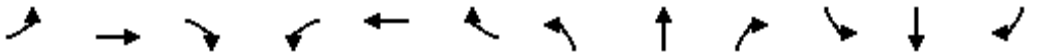
! Phase conflict between lane groups.

c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBSB	EBWB	NBSBL	EBWBL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	None	None
Maximum Split (s)	82	38	82	38
Maximum Split (%)	68.3%	31.7%	68.3%	31.7%
Minimum Split (s)	30	36	9.5	9.5
Yellow Time (s)	4.9	3.9	3.5	3.5
All-Red Time (s)	2.1	3.1	1	1
Minimum Initial (s)	5	6	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		
Flash Dont Walk (s)	16	22		
Dual Entry	Yes	Yes	No	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	119	81	119	81
End Time (s)	81	119	81	119
Yield/Force Off (s)	74	112	76.5	114.5
Yield/Force Off 170(s)	58	90	76.5	114.5
Local Start Time (s)	0	82	0	82
Local Yield (s)	75	113	77.5	115.5
Local Yield 170(s)	59	91	77.5	115.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 119 (99%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	13	241	127	39	190	250	1779	98	113	1407	69
Future Volume (vph)	54	13	241	127	39	190	250	1779	98	113	1407	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3035		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.45	1.00	1.00	0.11	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1355	3035		829	3539	1583	207	5085	1583	109	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	14	268	141	43	211	278	1977	109	126	1563	77
RTOR Reduction (vph)	0	230	0	0	0	190	0	0	47	0	0	33
Lane Group Flow (vph)	60	52	0	141	43	21	278	1977	62	126	1563	44
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	15.8	11.8		15.8	11.8	11.8	83.2	68.2	68.2	83.2	68.2	68.2
Effective Green, g (s)	15.8	11.8		15.8	11.8	11.8	83.2	68.2	68.2	83.2	68.2	68.2
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.57	0.57	0.69	0.57	0.57
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	298		140	348	155	338	2889	899	283	2889	899
v/s Ratio Prot	0.01	0.02		c0.03	0.01		c0.10	0.39		0.06	0.31	
v/s Ratio Perm	0.03			c0.10		0.01	c0.47		0.04	0.25		0.03
v/c Ratio	0.31	0.17		1.01	0.12	0.13	0.82	0.68	0.07	0.45	0.54	0.05
Uniform Delay, d1	46.8	49.6		51.5	49.4	49.4	26.5	18.3	11.6	29.6	16.1	11.5
Progression Factor	1.00	1.00		1.05	1.15	1.90	0.79	0.24	0.07	1.25	0.60	1.50
Incremental Delay, d2	0.9	0.3		77.9	0.2	0.4	13.9	0.9	0.1	4.7	0.7	0.1
Delay (s)	47.8	49.9		132.2	56.8	94.1	34.8	5.3	1.0	41.6	10.4	17.3
Level of Service	D	D		F	E	F	C	A	A	D	B	B
Approach Delay (s)		49.5			103.7			8.5			12.9	
Approach LOS		D			F			A			B	

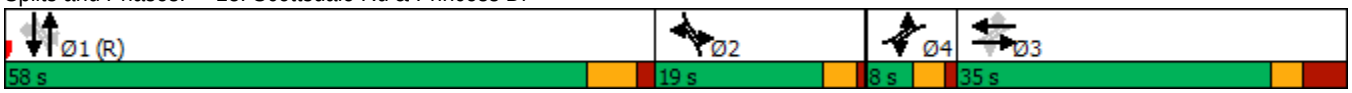
Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

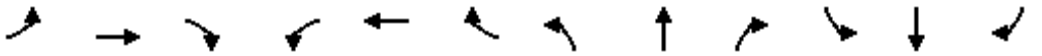
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	58	19	35	8
Maximum Split (%)	48.3%	15.8%	29.2%	6.7%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	78	16	43	35
End Time (s)	16	35	78	43
Yield/Force Off (s)	10	31	71	39
Yield/Force Off 170(s)	0	31	50	39
Local Start Time (s)	0	58	85	77
Local Yield (s)	52	73	113	81
Local Yield 170(s)	42	73	92	81

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 78 (65%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	119	92	8	57	107	2015	26	56	1688	82
Future Volume (vph)	65	2	119	92	8	57	107	2015	26	56	1688	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1672			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.61		0.07	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)		1384			1085		134	5085	1583	105	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	2	132	102	9	63	119	2239	29	62	1876	91
RTOR Reduction (vph)	0	58	0	0	18	0	0	0	12	0	0	37
Lane Group Flow (vph)	0	148	0	0	156	0	119	2239	17	62	1876	54
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.7			20.7		82.3	71.3	71.3	82.3	71.3	71.3
Effective Green, g (s)		20.7			20.7		82.3	71.3	71.3	82.3	71.3	71.3
Actuated g/C Ratio		0.17			0.17		0.69	0.59	0.59	0.69	0.59	0.59
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		238			187		241	3021	940	224	3021	940
v/s Ratio Prot							c0.05	c0.44		0.03	0.37	
v/s Ratio Perm		0.11			c0.14		0.29		0.01	0.16		0.03
v/c Ratio		0.62			0.83		0.49	0.74	0.02	0.28	0.62	0.06
Uniform Delay, d1		46.0			48.0		28.5	17.7	10.0	31.4	15.7	10.2
Progression Factor		1.00			1.00		0.69	0.21	1.00	1.76	1.81	2.95
Incremental Delay, d2		5.0			26.0		2.5	0.6	0.0	2.6	0.8	0.1
Delay (s)		51.0			54.0		22.0	4.4	10.0	57.9	29.1	30.3
Level of Service		D			D		C	A	B	E	C	C
Approach Delay (s)		51.0			54.0			5.3			30.1	
Approach LOS		D			D			A			C	

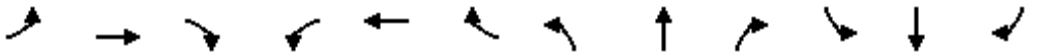
Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	70	15	35
Maximum Split (%)	58.3%	12.5%	29.2%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	27	97	112
End Time (s)	97	112	27
Yield/Force Off (s)	91	108	20
Yield/Force Off 170(s)	88	108	119
Local Start Time (s)	0	70	85
Local Yield (s)	64	81	113
Local Yield 170(s)	61	81	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 27 (23%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	585	208	177	1408	472	496	1475	233	342	1177	410
Future Volume (vph)	269	585	208	177	1408	472	496	1475	233	342	1177	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4888	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	299	650	231	197	1564	524	551	1639	259	380	1308	456
RTOR Reduction (vph)	0	0	173	0	0	158	0	0	127	0	53	0
Lane Group Flow (vph)	299	650	58	197	1564	366	551	1639	132	380	1711	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	8.0	30.2	30.2	9.8	32.0	32.0	16.0	44.0	44.0	14.0	42.0	
Effective Green, g (s)	8.0	30.2	30.2	9.8	32.0	32.0	16.0	44.0	44.0	14.0	42.0	
Actuated g/C Ratio	0.07	0.25	0.25	0.08	0.27	0.27	0.13	0.37	0.37	0.12	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	228	1279	398	280	1356	422	457	1864	580	400	1710	
v/s Ratio Prot	c0.09	0.13		0.06	c0.31		c0.16	0.32		0.11	c0.35	
v/s Ratio Perm			0.04			0.23			0.08			
v/c Ratio	1.31	0.51	0.15	0.70	1.15	0.87	1.21	0.88	0.23	0.95	1.00	
Uniform Delay, d1	56.0	38.5	34.9	53.7	44.0	42.0	52.0	35.5	26.3	52.7	39.0	
Progression Factor	1.00	1.00	1.00	0.81	0.58	0.40	1.00	1.00	1.00	0.67	0.56	
Incremental Delay, d2	167.9	0.3	0.2	0.7	69.9	1.9	111.7	6.3	0.9	27.6	19.6	
Delay (s)	223.9	38.8	35.1	44.4	95.6	18.8	163.7	41.8	27.2	62.9	41.3	
Level of Service	F	D	D	D	F	B	F	D	C	E	D	
Approach Delay (s)		85.0			73.6			67.7			45.1	
Approach LOS		F			E			E			D	

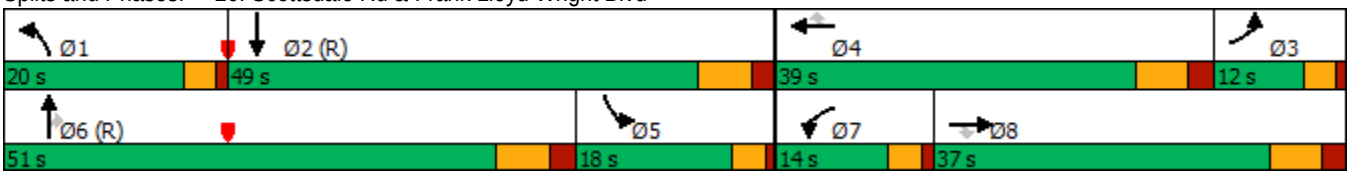
Intersection Summary			
HCM 2000 Control Delay	65.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

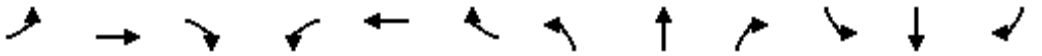
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	49	12	39	18	51	14	37
Maximum Split (%)	16.7%	40.8%	10.0%	32.5%	15.0%	42.5%	11.7%	30.8%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	21	41	9	90	72	21	90	104
End Time (s)	41	90	21	9	90	72	104	21
Yield/Force Off (s)	37	83	17	2	86	65	100	14
Yield/Force Off 170(s)	37	62	17	100	86	44	100	112
Local Start Time (s)	100	0	88	49	31	100	49	63
Local Yield (s)	116	42	96	81	45	24	59	93
Local Yield 170(s)	116	21	96	59	45	3	59	71

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 41 (34%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

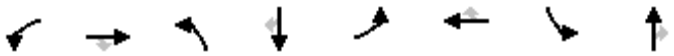




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	358	1082	39	349	1621	318	78	413	542	205	517	514
Future Volume (vph)	358	1082	39	349	1621	318	78	413	542	205	517	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	398	1202	43	388	1801	353	87	459	602	228	574	571
RTOR Reduction (vph)	0	0	29	0	0	151	0	0	248	0	0	209
Lane Group Flow (vph)	398	1202	14	388	1801	202	87	459	354	228	574	362
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.8	37.8	37.8	16.0	40.0	40.0	6.0	29.1	29.1	9.1	32.2	32.2
Effective Green, g (s)	13.8	37.8	37.8	16.0	40.0	40.0	6.0	29.1	29.1	9.1	32.2	32.2
Actuated g/C Ratio	0.12	0.31	0.31	0.13	0.33	0.33	0.05	0.24	0.24	0.08	0.27	0.27
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	394	1601	498	457	1695	527	88	858	383	260	949	424
v/s Ratio Prot	c0.12	0.24		0.11	c0.35		0.05	0.13		0.07	0.16	
v/s Ratio Perm			0.01			0.13			c0.22			c0.23
v/c Ratio	1.01	0.75	0.03	0.85	1.06	0.38	0.99	0.53	0.93	0.88	0.60	0.85
Uniform Delay, d1	53.1	36.9	28.4	50.8	40.0	30.6	57.0	39.6	44.4	54.9	38.3	41.7
Progression Factor	0.66	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.82	0.70
Incremental Delay, d2	45.4	2.9	0.1	13.7	40.6	2.1	91.3	0.6	27.8	25.7	1.1	14.9
Delay (s)	80.3	30.7	28.5	64.5	80.6	32.7	148.3	40.2	72.1	72.5	32.4	43.9
Level of Service	F	C	C	E	F	C	F	D	E	E	C	D
Approach Delay (s)		42.6			71.5			65.1			43.9	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	57.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

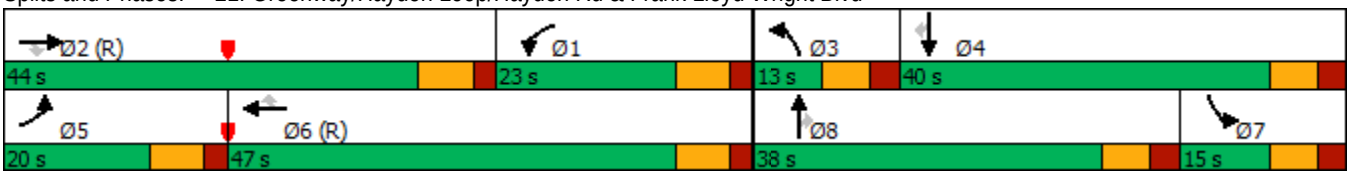
c Critical Lane Group

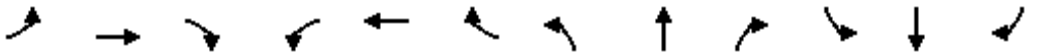


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	23	44	13	40	20	47	15	38
Maximum Split (%)	19.2%	36.7%	10.8%	33.3%	16.7%	39.2%	12.5%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	64	20	87	100	20	40	5	87
End Time (s)	87	64	100	20	40	87	20	5
Yield/Force Off (s)	80	57	93	13	33	80	13	118
Yield/Force Off 170(s)	80	40	93	109	33	63	13	94
Local Start Time (s)	24	100	47	60	100	0	85	47
Local Yield (s)	40	17	53	93	113	40	93	78
Local Yield 170(s)	40	0	53	69	113	23	93	54

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 40 (33%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	382	293	122	82	182	343	204	1397	4	311	906	185
Future Volume (vph)	382	293	122	82	182	343	204	1397	4	311	906	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	424	326	136	91	202	381	227	1552	4	346	1007	206
RTOR Reduction (vph)	0	0	117	0	0	240	0	0	0	0	0	135
Lane Group Flow (vph)	424	326	19	91	202	141	227	1556	0	346	1007	71
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	16.0	16.9	16.9	16.5	17.4	17.4	23.0	48.6		16.0	41.6	41.6
Effective Green, g (s)	16.0	16.9	16.9	16.5	17.4	17.4	23.0	48.6		16.0	41.6	41.6
Actuated g/C Ratio	0.13	0.14	0.14	0.14	0.14	0.14	0.19	0.41		0.13	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	457	498	222	472	513	229	657	2058		457	1762	548
v/s Ratio Prot	c0.12	0.09		0.03	0.06		c0.07	c0.31		c0.10	0.20	
v/s Ratio Perm			0.01			c0.09						0.05
v/c Ratio	0.93	0.65	0.09	0.19	0.39	0.61	0.35	0.76		0.76	0.57	0.13
Uniform Delay, d1	51.4	48.8	44.8	45.8	46.5	48.2	42.0	30.6		50.1	31.9	26.8
Progression Factor	0.69	0.68	0.46	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	23.2	2.8	0.2	0.2	0.5	4.8	1.4	2.6		11.1	1.4	0.5
Delay (s)	58.9	35.9	20.7	46.1	47.0	53.0	43.4	33.3		61.3	33.3	27.3
Level of Service	E	D	C	D	D	D	D	C		E	C	C
Approach Delay (s)		44.6			50.3			34.6			38.7	
Approach LOS		D			D			C			D	

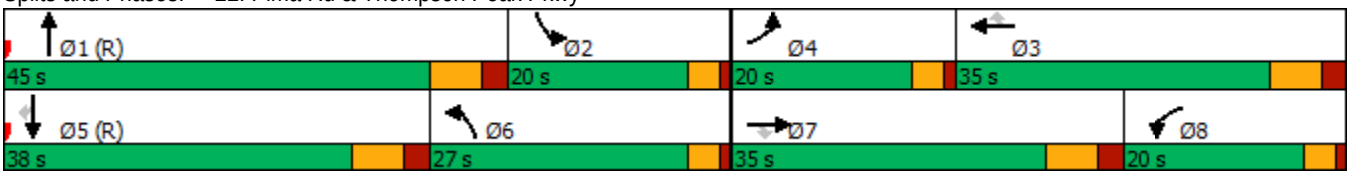
Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

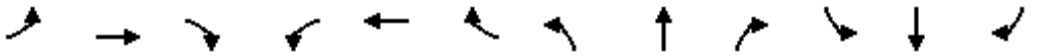
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	45	20	35	20	38	27	35	20
Maximum Split (%)	37.5%	16.7%	29.2%	16.7%	31.7%	22.5%	29.2%	16.7%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	38	83	3	103	38	76	103	18
End Time (s)	83	103	38	3	76	103	18	38
Yield/Force Off (s)	76	99	31	119	69	99	11	34
Yield/Force Off 170(s)	54	99	10	119	47	99	110	34
Local Start Time (s)	0	45	85	65	0	38	65	100
Local Yield (s)	38	61	113	81	31	61	93	116
Local Yield 170(s)	16	61	92	81	9	61	72	116

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 38 (32%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	11	60	62	12	2	59	513	16	3	582	32
Future Volume (vph)	26	11	60	62	12	2	59	513	16	3	582	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1825		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.71	1.00		0.41	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	1393	1626		1314	1825		756	3539	1583	815	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	12	67	69	13	2	66	570	18	3	647	36
RTOR Reduction (vph)	0	60	0	0	2	0	0	0	4	0	0	8
Lane Group Flow (vph)	29	19	0	69	13	0	66	570	14	3	647	28
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	9.3	9.3		9.3	9.3		72.7	72.7	72.7	72.7	72.7	72.7
Effective Green, g (s)	9.3	9.3		9.3	9.3		72.7	72.7	72.7	72.7	72.7	72.7
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.77	0.77	0.77	0.77	0.77	0.77
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	136	159		128	178		578	2708	1211	623	2708	1211
v/s Ratio Prot		0.01			0.01			0.16			c0.18	
v/s Ratio Perm	0.02			c0.05			0.09		0.01	0.00		0.02
v/c Ratio	0.21	0.12		0.54	0.07		0.11	0.21	0.01	0.00	0.24	0.02
Uniform Delay, d1	39.5	39.1		40.8	38.9		2.9	3.1	2.6	2.6	3.2	2.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		4.3	0.2		0.4	0.2	0.0	0.0	0.2	0.0
Delay (s)	40.3	39.4		45.1	39.1		3.3	3.3	2.7	2.6	3.4	2.7
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		39.7			44.1			3.3			3.4	
Approach LOS		D			D			A			A	

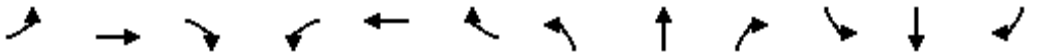
Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	54	41
Maximum Split (%)	56.8%	43.2%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	54
End Time (s)	54	0
Yield/Force Off (s)	48	88
Yield/Force Off 170(s)	44	84
Local Start Time (s)	0	54
Local Yield (s)	48	88
Local Yield 170(s)	44	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	90	45	8	18	35	536	9	3	685	34
Future Volume (vph)	30	2	90	45	8	18	35	536	9	3	685	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1670		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.36	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	1375	1863	1583	1409	1670		665	3539	1583	795	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	2	100	50	9	20	39	596	10	3	761	38
RTOR Reduction (vph)	0	0	90	0	18	0	0	0	2	0	0	8
Lane Group Flow (vph)	33	2	11	50	11	0	39	596	8	3	761	30
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	12.6	12.6	12.6	12.6	12.6		93.4	93.4	93.4	93.4	93.4	93.4
Effective Green, g (s)	12.6	12.6	12.6	12.6	12.6		93.4	93.4	93.4	93.4	93.4	93.4
Actuated g/C Ratio	0.10	0.10	0.10	0.10	0.10		0.78	0.78	0.78	0.78	0.78	0.78
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	144	195	166	147	175		517	2754	1232	618	2754	1232
v/s Ratio Prot		0.00			0.01			0.17			c0.22	
v/s Ratio Perm	0.02		0.01	c0.04			0.06		0.00	0.00		0.02
v/c Ratio	0.23	0.01	0.06	0.34	0.06		0.08	0.22	0.01	0.00	0.28	0.02
Uniform Delay, d1	49.2	48.1	48.4	49.8	48.4		3.1	3.5	3.0	3.0	3.8	3.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.70	0.68	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0	0.2	1.4	0.2		0.3	0.2	0.0	0.0	0.2	0.0
Delay (s)	50.1	48.1	48.5	51.2	48.5		2.5	2.6	3.0	3.0	4.0	3.0
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		48.9			50.2			2.6			4.0	
Approach LOS		D			D			A			A	

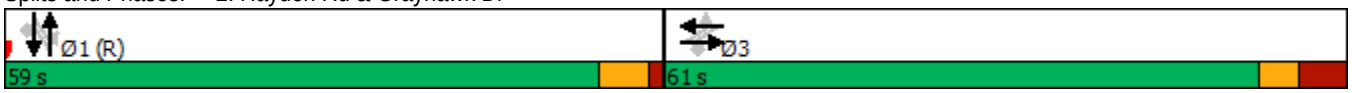
Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

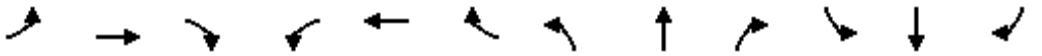
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	59	61
Maximum Split (%)	49.2%	50.8%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	57	116
End Time (s)	116	57
Yield/Force Off (s)	110	49
Yield/Force Off 170(s)	103	41
Local Start Time (s)	0	59
Local Yield (s)	53	112
Local Yield 170(s)	46	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 57 (48%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	269	308	323	274	88	142	443	264	206	580	44
Future Volume (vph)	29	269	308	323	274	88	142	443	264	206	580	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.57	1.00	1.00	0.32	1.00	1.00	0.36	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1055	3539	1583	599	3539	1583	663	3539	1583	640	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	299	342	359	304	98	158	492	293	229	644	49
RTOR Reduction (vph)	0	0	262	0	0	68	0	0	180	0	0	28
Lane Group Flow (vph)	32	299	80	359	304	30	158	492	113	229	644	21
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	21.9	18.8	18.8	44.4	36.8	36.8	57.0	46.2	46.2	65.2	51.3	51.3
Effective Green, g (s)	21.9	18.8	18.8	44.4	36.8	36.8	57.0	46.2	46.2	65.2	51.3	51.3
Actuated g/C Ratio	0.18	0.16	0.16	0.37	0.31	0.31	0.48	0.39	0.39	0.54	0.43	0.43
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	554	248	437	1085	485	414	1362	609	478	1512	676
v/s Ratio Prot	0.00	0.08		c0.15	0.09		0.03	0.14		c0.06	c0.18	
v/s Ratio Perm	0.02		0.05	c0.15		0.02	0.15		0.07	c0.20		0.01
v/c Ratio	0.15	0.54	0.32	0.82	0.28	0.06	0.38	0.36	0.19	0.48	0.43	0.03
Uniform Delay, d1	40.8	46.6	44.9	30.5	31.6	29.4	18.3	26.4	24.4	15.5	24.0	19.9
Progression Factor	1.00	1.00	1.00	0.53	0.54	0.28	1.00	1.00	1.00	1.01	0.85	1.00
Incremental Delay, d2	0.3	1.0	0.8	11.4	0.1	0.1	0.6	0.7	0.7	0.7	0.9	0.1
Delay (s)	41.2	47.6	45.7	27.5	17.2	8.3	18.9	27.1	25.1	16.4	21.4	20.0
Level of Service	D	D	D	C	B	A	B	C	C	B	C	C
Approach Delay (s)		46.3			20.9			25.1			20.0	
Approach LOS		D			C			C			C	

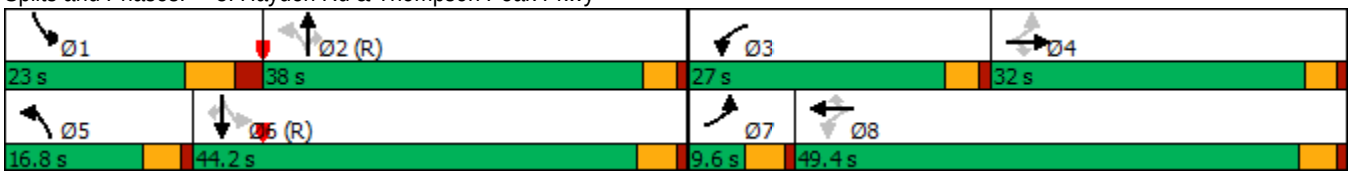
Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

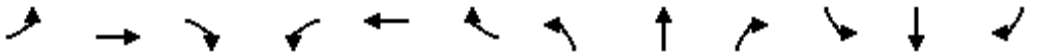
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	23	38	27	32	16.8	44.2	9.6	49.4
Maximum Split (%)	19.2%	31.7%	22.5%	26.7%	14.0%	36.8%	8.0%	41.2%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	97	0	38	65	97	113.8	38	47.6
End Time (s)	0	38	65	97	113.8	38	47.6	97
Yield/Force Off (s)	113	34	61	93	109.3	33.5	43.1	92.5
Yield/Force Off 170(s)	113	10	61	72	109.3	9.5	43.1	71.5
Local Start Time (s)	97	0	38	65	97	113.8	38	47.6
Local Yield (s)	113	34	61	93	109.3	33.5	43.1	92.5
Local Yield 170(s)	113	10	61	72	109.3	9.5	43.1	71.5

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

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	100	28	3	0	14	804	7	0	1226	13
Future Volume (vph)	12	1	100	28	3	0	14	804	7	0	1226	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539		1770	3539	1583		3539	1583
Flt Permitted	0.76	1.00	1.00	0.76	1.00		0.18	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1408	3539	1583	1410	3539		340	3539	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1	111	31	3	0	16	893	8	0	1362	14
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	2	0	0	3
Lane Group Flow (vph)	13	1	46	31	3	0	16	893	6	0	1362	11
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			1			1	
Permitted Phases	4		4	8			1		1	1		1
Actuated Green, G (s)	6.4	6.4	6.4	6.4	6.4		57.9	57.9	57.9		57.9	57.9
Effective Green, g (s)	6.4	6.4	6.4	6.4	6.4		57.9	57.9	57.9		57.9	57.9
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.08		0.76	0.76	0.76		0.76	0.76
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	118	298	133	119	298		259	2703	1209		2703	1209
v/s Ratio Prot		0.00			0.00			0.25			c0.38	
v/s Ratio Perm	0.01		c0.03	0.02			0.05		0.00			0.01
v/c Ratio	0.11	0.00	0.35	0.26	0.01		0.06	0.33	0.01		0.50	0.01
Uniform Delay, d1	32.1	31.8	32.7	32.5	31.8		2.2	2.8	2.1		3.4	2.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.0	1.6	1.2	0.0		0.1	0.1	0.0		0.1	0.0
Delay (s)	32.5	31.8	34.3	33.7	31.8		2.3	2.9	2.1		3.6	2.1
Level of Service	C	C	C	C	C		A	A	A		A	A
Approach Delay (s)		34.1			33.5			2.9			3.6	
Approach LOS		C			C			A			A	

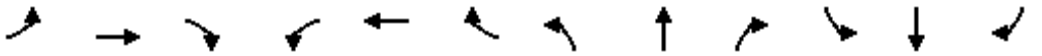
Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	11.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	4	8
Movement	NBSB	EBTL	WBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	None	None	None
Maximum Split (s)	80	30	30
Maximum Split (%)	72.7%	27.3%	27.3%
Minimum Split (s)	50	22.5	22.5
Yellow Time (s)	4.8	3.5	3.5
All-Red Time (s)	2.2	1	1
Minimum Initial (s)	10	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	15	7	7
Flash Dont Walk (s)	10	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	80	80
End Time (s)	80	0	0
Yield/Force Off (s)	73	105.5	105.5
Yield/Force Off 170(s)	63	94.5	94.5
Local Start Time (s)	0	80	80
Local Yield (s)	73	105.5	105.5
Local Yield 170(s)	63	94.5	94.5

Intersection Summary	
Cycle Length	110
Control Type	Semi Act-Uncoord
Natural Cycle	75

Splits and Phases: 4: Hayden Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	31	413	204	601	0	0	858	446
Future Volume (vph)	0	0	0	34	31	413	204	601	0	0	858	446
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1540	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1540	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	38	34	459	227	668	0	0	953	496
RTOR Reduction (vph)	0	0	0	0	166	187	0	0	0	0	0	375
Lane Group Flow (vph)	0	0	0	38	84	56	227	668	0	0	953	121
Turn Type				Perm	NA	Perm	Split	NA			NA	Perm
Protected Phases					3		6	6			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				27.7	27.7	27.7	43.1	43.1			29.2	29.2
Effective Green, g (s)				27.7	27.7	27.7	43.1	43.1			29.2	29.2
Actuated g/C Ratio				0.23	0.23	0.23	0.36	0.36			0.24	0.24
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				792	355	347	635	1271			1559	385
v/s Ratio Prot					c0.05		0.13	c0.19			c0.15	
v/s Ratio Perm				0.01		0.04						0.08
v/c Ratio				0.05	0.24	0.16	0.36	0.53			0.61	0.31
Uniform Delay, d1				35.9	37.5	36.9	28.3	30.4			40.4	37.2
Progression Factor				1.00	1.00	1.00	1.28	1.31			0.86	0.91
Incremental Delay, d2				0.0	0.3	0.2	0.3	0.3			0.6	0.4
Delay (s)				35.9	37.9	37.1	36.4	40.1			35.2	34.3
Level of Service				D	D	D	D	D			D	C
Approach Delay (s)		0.0			37.4			39.1			34.9	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

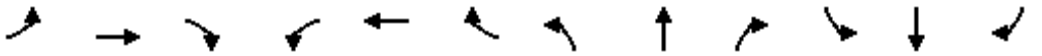
c Critical Lane Group

Phase Number	1	2	3	5	6	7
Node Number	6	6	5	5	5	6
Movement	NBT	SBTL	WBTL	SBT	NBTL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	None	None
Maximum Split (s)	23	56	41	37	42	41
Maximum Split (%)	19.2%	46.7%	34.2%	30.8%	35.0%	34.2%
Minimum Split (s)	18	12	15	18	18	15
Yellow Time (s)	4.4	4.4	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1.6	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	6	7	12	12	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	97	0	56	97	14	56
End Time (s)	0	56	97	14	56	97
Yield/Force Off (s)	114	50	89	8	50	89
Yield/Force Off 170(s)	114	50	89	8	50	89
Local Start Time (s)	97	0	56	97	14	56
Local Yield (s)	114	50	89	8	50	89
Local Yield 170(s)	114	50	89	8	50	89

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60

Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	337	10	435	0	0	0	0	464	17	559	339	0
Future Volume (vph)	337	10	435	0	0	0	0	464	17	559	339	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.89	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1497	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1497	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	374	11	483	0	0	0	0	516	19	621	377	0
RTOR Reduction (vph)	0	75	215	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	299	214	65	0	0	0	0	516	3	621	377	0
Turn Type	Perm	NA	Perm					NA	Perm	Split	NA	
Protected Phases		7						1		2	2	
Permitted Phases	7		7						1			
Actuated Green, G (s)	27.7	27.7	27.7					16.3	16.3	56.0	56.0	
Effective Green, g (s)	27.7	27.7	27.7					16.3	16.3	56.0	56.0	
Actuated g/C Ratio	0.23	0.23	0.23					0.14	0.14	0.47	0.47	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	388	345	347					690	215	1602	1651	
v/s Ratio Prot								c0.10		c0.18	0.11	
v/s Ratio Perm	c0.18	0.14	0.04						0.00			
v/c Ratio	0.77	0.62	0.19					0.75	0.01	0.39	0.23	
Uniform Delay, d1	43.2	41.4	37.1					49.9	44.9	20.8	19.1	
Progression Factor	0.91	0.94	1.94					0.63	1.00	0.68	0.53	
Incremental Delay, d2	4.8	1.7	0.1					4.4	0.0	0.6	0.3	
Delay (s)	44.1	40.5	72.0					35.7	44.9	14.8	10.3	
Level of Service	D	D	E					D	D	B	B	
Approach Delay (s)		51.9			0.0			36.0			13.1	
Approach LOS		D			A			D			B	

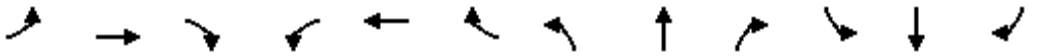
Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	393	10	181	605
Future Volume (Veh/h)	0	42	393	10	181	605
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	47	437	11	201	672
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.97					
vC, conflicting volume	1175	218			448	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1125	218			448	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			82	
cM capacity (veh/h)	158	786			1109	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	47	218	218	11	201	336	336
Volume Left	0	0	0	0	201	0	0
Volume Right	47	0	0	11	0	0	0
cSH	786	1700	1700	1700	1109	1700	1700
Volume to Capacity	0.06	0.13	0.13	0.01	0.18	0.20	0.20
Queue Length 95th (ft)	5	0	0	0	17	0	0
Control Delay (s)	9.9	0.0	0.0	0.0	9.0	0.0	0.0
Lane LOS	A				A		
Approach Delay (s)	9.9	0.0			2.1		
Approach LOS	A						

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	58	85	162	0	23	70	317	190	117	443	46
Future Volume (vph)	41	58	85	162	0	23	70	317	190	117	443	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.45	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	846	3539	1583	1008	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	64	94	180	0	26	78	352	211	130	492	51
RTOR Reduction (vph)	0	0	84	0	0	23	0	0	90	0	0	22
Lane Group Flow (vph)	0	110	10	180	0	3	78	352	121	130	492	29
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		29.3	12.8	18.6		14.9	68.6	68.6	68.6	68.6	68.6	68.6
Effective Green, g (s)		29.3	12.8	18.6		14.9	68.6	68.6	68.6	68.6	68.6	68.6
Actuated g/C Ratio		0.24	0.11	0.16		0.12	0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		445	168	532		196	483	2023	904	576	2023	904
v/s Ratio Prot		c0.03		c0.05				0.10			c0.14	
v/s Ratio Perm		0.03	0.01			0.00	0.09		0.08	0.13		0.02
v/c Ratio		0.25	0.06	0.34		0.02	0.16	0.17	0.13	0.23	0.24	0.03
Uniform Delay, d1		36.5	48.2	45.2		46.1	12.1	12.2	11.9	12.6	12.8	11.2
Progression Factor		0.83	0.70	1.00		1.00	0.22	0.22	0.06	0.58	0.54	1.00
Incremental Delay, d2		0.3	0.1	0.4		0.0	0.7	0.2	0.3	0.9	0.3	0.1
Delay (s)		30.5	34.0	45.6		46.2	3.4	2.8	1.0	8.2	7.1	11.3
Level of Service		C	C	D		D	A	A	A	A	A	B
Approach Delay (s)		32.1			45.7			2.3			7.6	
Approach LOS		C			D			A			A	

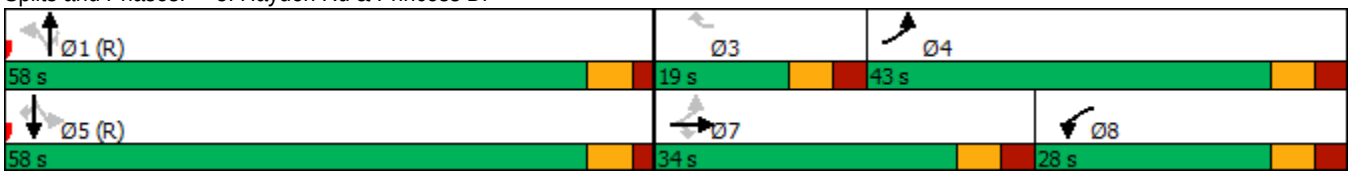
Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

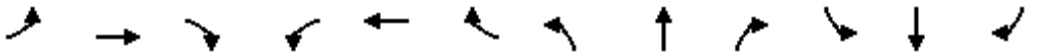
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	58	19	43	58	34	28
Maximum Split (%)	48.3%	15.8%	35.8%	48.3%	28.3%	23.3%
Minimum Split (s)	24	15	12	24	25	12
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7			7	7	
Flash Dont Walk (s)	11			11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	26	84	103	26	84	118
End Time (s)	84	103	26	84	118	26
Yield/Force Off (s)	78	96	19	78	111	19
Yield/Force Off 170(s)	67	96	19	67	100	19
Local Start Time (s)	0	58	77	0	58	92
Local Yield (s)	52	70	113	52	85	113
Local Yield 170(s)	41	70	113	41	74	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 26 (22%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	19	206	9	86	27	500	346	132	570	18
Future Volume (vph)	8	6	19	206	9	86	27	500	346	132	570	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3199		1681	1692	1583	1770	3539	1583	1770	3523	
Flt Permitted		0.87		0.73	0.72	1.00	0.36	1.00	1.00	0.41	1.00	
Satd. Flow (perm)		2812		1295	1266	1583	670	3539	1583	769	3523	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	7	21	229	10	96	30	556	384	147	633	20
RTOR Reduction (vph)	0	18	0	0	0	82	0	0	172	0	1	0
Lane Group Flow (vph)	0	19	0	119	120	14	30	556	212	147	652	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		16.9		16.9	16.9	16.9	86.6	66.1	66.1	82.6	64.1	
Effective Green, g (s)		16.9		16.9	16.9	16.9	86.6	66.1	66.1	82.6	64.1	
Actuated g/C Ratio		0.14		0.14	0.14	0.14	0.72	0.55	0.55	0.69	0.53	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		396		182	178	222	671	1949	871	683	1881	
v/s Ratio Prot							0.01	0.16		c0.03	c0.18	
v/s Ratio Perm		0.01		0.09	c0.09	0.01	0.02		0.13	0.11		
v/c Ratio		0.05		0.65	0.67	0.06	0.04	0.29	0.24	0.22	0.35	
Uniform Delay, d1		44.6		48.8	48.9	44.7	7.2	14.4	14.0	8.9	16.0	
Progression Factor		1.00		1.00	1.00	1.00	1.36	0.69	3.67	1.25	0.79	
Incremental Delay, d2		0.1		8.2	9.7	0.1	0.1	0.3	0.5	0.7	0.5	
Delay (s)		44.6		56.9	58.6	44.8	9.8	10.3	51.8	11.8	13.0	
Level of Service		D		E	E	D	A	B	D	B	B	
Approach Delay (s)		44.6			54.1			26.7			12.8	
Approach LOS		D			D			C			B	

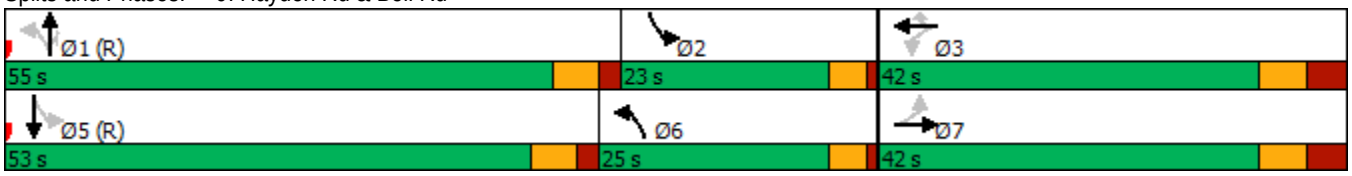
Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	55	23	42	53	25	42
Maximum Split (%)	45.8%	19.2%	35.0%	44.2%	20.8%	35.0%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	11	66	89	11	64	89
End Time (s)	66	89	11	64	89	11
Yield/Force Off (s)	60	84.5	3	58	84.5	3
Yield/Force Off 170(s)	49	73.5	112	47	73.5	112
Local Start Time (s)	0	55	78	0	53	78
Local Yield (s)	49	73.5	112	47	73.5	112
Local Yield 170(s)	38	62.5	101	36	62.5	101

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 11 (9%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	26	888	132	44	1902
Future Volume (vph)	94	26	888	132	44	1902
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.28	1.00
Satd. Flow (perm)	1770	1583	3539	1583	519	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	29	987	147	49	2113
RTOR Reduction (vph)	0	26	0	24	0	0
Lane Group Flow (vph)	104	3	987	123	49	2113
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.4	12.4	95.6	95.6	95.6	95.6
Effective Green, g (s)	12.4	12.4	95.6	95.6	95.6	95.6
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	182	163	2819	1261	413	2819
v/s Ratio Prot	c0.06		0.28			c0.60
v/s Ratio Perm		0.00		0.08	0.09	
v/c Ratio	0.57	0.02	0.35	0.10	0.12	0.75
Uniform Delay, d1	51.3	48.3	3.4	2.7	2.7	6.2
Progression Factor	1.00	1.00	0.13	0.02	1.00	1.00
Incremental Delay, d2	4.3	0.0	0.3	0.1	0.6	1.9
Delay (s)	55.6	48.4	0.8	0.2	3.3	8.0
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		0.7			7.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	82	38
Maximum Split (%)	68.3%	31.7%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	12	94
End Time (s)	94	12
Yield/Force Off (s)	88	6
Yield/Force Off 170(s)	82	2
Local Start Time (s)	0	82
Local Yield (s)	76	114
Local Yield 170(s)	70	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 12 (10%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	98	32	974	46	39	1950
Future Volume (vph)	98	32	974	46	39	1950
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.25	1.00
Satd. Flow (perm)	1770	1583	3539	1583	464	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	36	1082	51	43	2167
RTOR Reduction (vph)	0	32	0	10	0	0
Lane Group Flow (vph)	109	4	1082	41	43	2167
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	12.6	12.6	95.4	95.4	95.4	95.4
Effective Green, g (s)	12.6	12.6	95.4	95.4	95.4	95.4
Actuated g/C Ratio	0.10	0.10	0.80	0.80	0.80	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	166	2813	1258	368	2813
v/s Ratio Prot	c0.06		0.31			c0.61
v/s Ratio Perm		0.00		0.03	0.09	
v/c Ratio	0.59	0.02	0.38	0.03	0.12	0.77
Uniform Delay, d1	51.2	48.2	3.6	2.6	2.8	6.5
Progression Factor	1.00	1.00	1.69	3.82	0.26	0.34
Incremental Delay, d2	4.7	0.1	0.3	0.0	0.4	1.4
Delay (s)	56.0	48.2	6.4	9.9	1.2	3.6
Level of Service	E	D	A	A	A	A
Approach Delay (s)	54.0		6.6			3.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	56	33
End Time (s)	33	56
Yield/Force Off (s)	27	50
Yield/Force Off 170(s)	15	39
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 56 (47%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	82	986	444	93	1928
Future Volume (vph)	439	82	986	444	93	1928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	91	1096	493	103	2142
RTOR Reduction (vph)	0	74	0	265	0	0
Lane Group Flow (vph)	488	17	1096	228	103	2142
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	22.4	22.4	55.6	55.6	23.0	82.6
Effective Green, g (s)	22.4	22.4	55.6	55.6	23.0	82.6
Actuated g/C Ratio	0.19	0.19	0.46	0.46	0.19	0.69
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	640	295	1639	733	339	2436
v/s Ratio Prot	c0.14		0.31		0.06	c0.61
v/s Ratio Perm		0.01		0.14		
v/c Ratio	0.76	0.06	0.67	0.31	0.30	0.88
Uniform Delay, d1	46.3	40.1	25.0	20.2	41.6	14.8
Progression Factor	1.00	1.00	0.18	0.87	1.07	1.27
Incremental Delay, d2	5.4	0.1	1.3	0.6	1.5	3.2
Delay (s)	51.6	40.2	5.7	18.3	46.0	21.9
Level of Service	D	D	A	B	D	C
Approach Delay (s)	49.8		9.6			23.0
Approach LOS	D		A			C

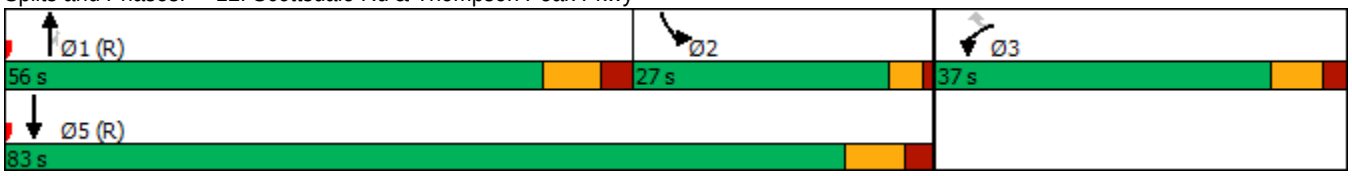
Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	56	27	37	83
Maximum Split (%)	46.7%	22.5%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	5	5	6	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	25		23	
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	60	116	23	60
End Time (s)	116	23	60	23
Yield/Force Off (s)	108	19	53	15
Yield/Force Off 170(s)	83	19	30	15
Local Start Time (s)	0	56	83	0
Local Yield (s)	48	79	113	75
Local Yield 170(s)	23	79	90	75

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	
Offset: 60 (50%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	16	1427	114	16	2413
Future Volume (vph)	116	16	1427	114	16	2413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	129	18	1586	127	18	2681
RTOR Reduction (vph)	0	17	0	31	0	0
Lane Group Flow (vph)	129	1	1586	96	18	2681
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	9.9	9.9	67.0	67.0	25.1	96.1
Effective Green, g (s)	9.9	9.9	67.0	67.0	25.1	96.1
Actuated g/C Ratio	0.08	0.08	0.56	0.56	0.21	0.80
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	283	130	1975	883	370	2834
v/s Ratio Prot	c0.04		0.45		0.01	c0.76
v/s Ratio Perm		0.00		0.06		
v/c Ratio	0.46	0.01	0.80	0.11	0.05	0.95
Uniform Delay, d1	52.5	50.6	21.2	12.5	37.9	9.8
Progression Factor	1.00	1.00	0.51	0.01	1.22	0.49
Incremental Delay, d2	1.2	0.0	1.4	0.1	0.1	5.2
Delay (s)	53.6	50.6	12.2	0.2	46.4	10.0
Level of Service	D	D	B	A	D	B
Approach Delay (s)	53.3		11.3			10.3
Approach LOS	D		B			B

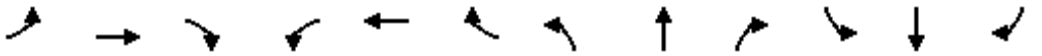
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	74	11	35	85
Maximum Split (%)	61.7%	9.2%	29.2%	70.8%
Minimum Split (s)	30	9	35	30
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	5	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	16		21	
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	112	101	66	101
End Time (s)	66	112	101	66
Yield/Force Off (s)	59	108	94	59
Yield/Force Off 170(s)	43	108	73	59
Local Start Time (s)	0	109	74	109
Local Yield (s)	67	116	102	67
Local Yield 170(s)	51	116	81	67

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 112 (93%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	498	21	477	296	1090	0	0	1880	638
Future Volume (vph)	0	0	0	498	21	477	296	1090	0	0	1880	638
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1526	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1526	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	553	23	530	329	1211	0	0	2089	709
RTOR Reduction (vph)	0	0	0	0	214	232	0	0	0	0	0	461
Lane Group Flow (vph)	0	0	0	553	63	44	329	1211	0	0	2089	248
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	4			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				19.0	19.0	19.0	11.0	27.0			42.0	42.0
Effective Green, g (s)				19.0	19.0	19.0	11.0	27.0			42.0	42.0
Actuated g/C Ratio				0.16	0.16	0.16	0.09	0.22			0.35	0.35
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				543	241	238	314	1144			2640	554
v/s Ratio Prot					0.04		c0.10	c0.24			c0.28	
v/s Ratio Perm				c0.16		0.03						0.16
v/c Ratio				1.02	0.26	0.18	1.05	1.06			0.79	0.45
Uniform Delay, d1				50.5	44.3	43.8	54.5	46.5			35.1	30.1
Progression Factor				1.00	1.00	1.00	1.07	1.16			1.03	2.30
Incremental Delay, d2				43.3	0.6	0.4	61.7	42.5			0.7	0.2
Delay (s)				93.8	44.9	44.2	120.0	96.4			36.9	69.4
Level of Service				F	D	D	F	F			D	E
Approach Delay (s)		0.0			69.2			101.5			45.2	
Approach LOS		A			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	66.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

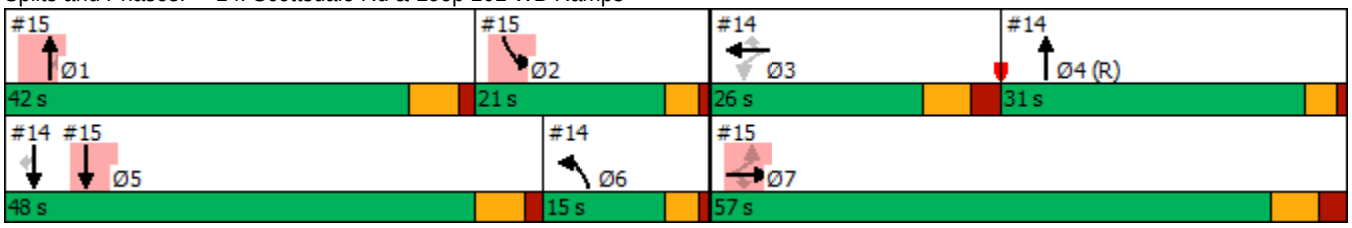
c Critical Lane Group

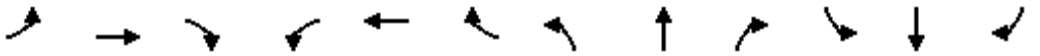
Phase Number	1	2	3	4	5	6	7
Node Number	15	15	14	14	14	14	15
Movement	NBT	SBL	WBTL	NBT	SBT	NBL	EBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max	None	C-Max	None	Max	None
Maximum Split (s)	42	21	26	31	48	15	57
Maximum Split (%)	35.0%	17.5%	21.7%	25.8%	40.0%	12.5%	47.5%
Minimum Split (s)	16	9	14	5	16	9	14
Yellow Time (s)	4.5	3	4.3	3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1	1.5	1	2.7
Minimum Initial (s)	10	5	7	1	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)							
Flash Dont Walk (s)							
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	42	63	89	0	48	63
End Time (s)	42	63	89	0	48	63	0
Yield/Force Off (s)	36	59	82	116	42	59	113
Yield/Force Off 170(s)	36	59	82	116	42	59	113
Local Start Time (s)	31	73	94	0	31	79	94
Local Yield (s)	67	90	113	27	73	90	24
Local Yield 170(s)	67	90	113	27	73	90	24

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130

Offset: 89 (74%), Referenced to phase 4:NBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

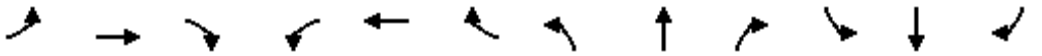




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	666	2	598	0	0	0	0	732	322	734	1677	0
Future Volume (vph)	666	2	598	0	0	0	0	732	322	734	1677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	740	2	664	0	0	0	0	813	358	816	1863	0
RTOR Reduction (vph)	0	149	149	0	0	0	0	0	285	0	0	0
Lane Group Flow (vph)	740	185	183	0	0	0	0	813	73	816	1863	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	50.0	50.0	50.0					24.4	24.4	28.6	42.0	
Effective Green, g (s)	50.0	50.0	50.0					24.4	24.4	28.6	42.0	
Actuated g/C Ratio	0.42	0.42	0.42					0.20	0.20	0.24	0.35	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1430	627	626					1533	321	818	1779	
v/s Ratio Prot		0.12						0.11		c0.24	c0.37	
v/s Ratio Perm	c0.22		0.12						0.05			
v/c Ratio	0.52	0.29	0.29					0.53	0.23	1.00	1.05	
Uniform Delay, d1	26.0	23.3	23.2					42.7	39.9	45.7	39.0	
Progression Factor	1.00	1.00	1.00					0.46	1.66	0.66	0.49	
Incremental Delay, d2	0.3	0.3	0.3					0.3	0.3	22.4	29.8	
Delay (s)	26.3	23.5	23.5					20.0	66.5	52.5	48.8	
Level of Service	C	C	C					B	E	D	D	
Approach Delay (s)		25.0			0.0			34.2			49.9	
Approach LOS		C			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	396	39	255	22	15	25	121	685	11	40	1617	620
Future Volume (vph)	396	39	255	22	15	25	121	685	11	40	1617	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	440	43	283	24	17	28	134	761	12	44	1797	689
RTOR Reduction (vph)	0	0	239	0	26	0	0	0	8	0	0	259
Lane Group Flow (vph)	440	43	44	24	19	0	134	761	4	44	1797	430
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	20.0	18.7	18.7	11.0	9.7		5.0	44.8	44.8	23.0	62.8	62.8
Effective Green, g (s)	20.0	18.7	18.7	11.0	9.7		5.0	44.8	44.8	23.0	62.8	62.8
Actuated g/C Ratio	0.17	0.16	0.16	0.09	0.08		0.04	0.37	0.37	0.19	0.52	0.52
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	792	246	314	259		143	1898	590	657	2661	828
v/s Ratio Prot	c0.13	0.01		0.01	0.01		c0.04	0.15		0.01	c0.35	
v/s Ratio Perm			c0.03						0.00			0.27
v/c Ratio	0.77	0.05	0.18	0.08	0.07		0.94	0.40	0.01	0.07	0.68	0.52
Uniform Delay, d1	47.8	43.1	44.0	49.9	51.0		57.3	27.7	23.6	39.7	21.1	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.28	0.87	1.00	0.58	1.05	2.12
Incremental Delay, d2	6.2	0.0	0.4	0.1	0.1		59.6	0.6	0.0	0.1	0.6	1.0
Delay (s)	54.0	43.2	44.3	50.0	51.1		133.3	24.7	23.7	22.9	22.7	40.6
Level of Service	D	D	D	D	D		F	C	C	C	C	D
Approach Delay (s)		49.8			50.7			40.7			27.6	
Approach LOS		D			D			D			C	

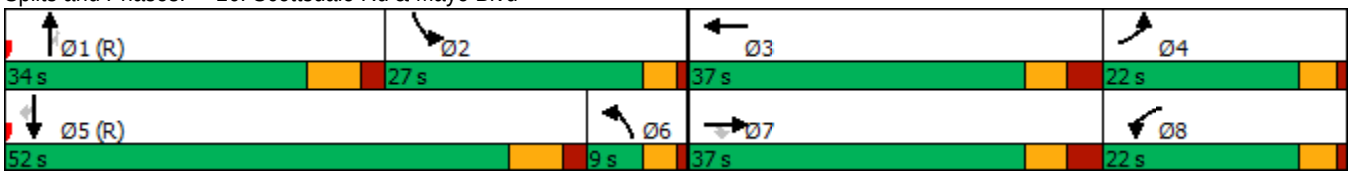
Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

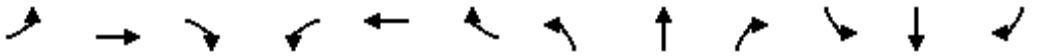
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	34	27	37	22	52	9	37	22
Maximum Split (%)	28.3%	22.5%	30.8%	18.3%	43.3%	7.5%	30.8%	18.3%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	34	61	98	0	52	61	98
End Time (s)	34	61	98	0	52	61	98	0
Yield/Force Off (s)	27	57	91	115.5	45	57	91	115.5
Yield/Force Off 170(s)	8	57	68	115.5	26	57	68	115.5
Local Start Time (s)	0	34	61	98	0	52	61	98
Local Yield (s)	27	57	91	115.5	45	57	91	115.5
Local Yield 170(s)	8	57	68	115.5	26	57	68	115.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	4	98	9	4	4	132	772	4	5	1838	126
Future Volume (vph)	83	4	98	9	4	4	132	772	4	5	1838	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	5085	1583	0	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	4	109	10	4	4	147	858	4	6	2042	140
RTOR Reduction (vph)	0	0	32	0	0	4	0	0	1	0	0	25
Lane Group Flow (vph)	92	4	77	10	4	0	147	858	3	6	2042	115
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7!	3!		7!	3!		5!	1!		5!	1!	
Permitted Phases	3		3	3		3	1		1	1		1
Actuated Green, G (s)	16.1	13.6	13.6	16.1	13.6	13.6	94.9	92.4	92.4	94.9	92.4	92.4
Effective Green, g (s)	16.1	13.6	13.6	16.1	13.6	13.6	94.9	92.4	92.4	94.9	92.4	92.4
Actuated g/C Ratio	0.13	0.11	0.11	0.13	0.11	0.11	0.79	0.77	0.77	0.79	0.77	0.77
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	237	401	179	237	401	179	1399	3915	1218	1399	3915	1218
v/s Ratio Prot	c0.05	0.00		0.01	0.00		0.08	0.17		0.00	c0.40	
v/s Ratio Perm			0.05			0.00			0.00			0.07
v/c Ratio	0.39	0.01	0.43	0.04	0.01	0.00	0.11	0.22	0.00	0.00	0.52	0.09
Uniform Delay, d1	47.5	47.2	49.6	45.2	47.2	47.2	2.9	3.8	3.2	2.6	5.3	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.14	0.14	1.00	0.20	0.49	0.04
Incremental Delay, d2	1.1	0.0	1.7	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.1
Delay (s)	48.5	47.2	51.3	45.3	47.2	47.2	0.4	0.6	3.2	0.5	3.0	0.3
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Approach Delay (s)		49.9			46.2			0.6			2.8	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

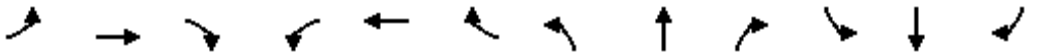
! Phase conflict between lane groups.

c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBSB	EBWB	NBSBL	EBWBL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	None	None
Maximum Split (s)	81	39	81	39
Maximum Split (%)	67.5%	32.5%	67.5%	32.5%
Minimum Split (s)	30	36	9.5	9.5
Yellow Time (s)	4.9	3.9	3.5	3.5
All-Red Time (s)	2.1	3.1	1	1
Minimum Initial (s)	5	6	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		
Flash Dont Walk (s)	16	22		
Dual Entry	Yes	Yes	No	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	32	113	32	113
End Time (s)	113	32	113	32
Yield/Force Off (s)	106	25	108.5	27.5
Yield/Force Off 170(s)	90	3	108.5	27.5
Local Start Time (s)	0	81	0	81
Local Yield (s)	74	113	76.5	115.5
Local Yield 170(s)	58	91	76.5	115.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 32 (27%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	28	248	82	9	123	128	754	182	189	1678	73
Future Volume (vph)	39	28	248	82	9	123	128	754	182	189	1678	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3062		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.39	1.00	1.00	0.07	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1398	3062		729	3539	1583	128	5085	1583	564	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	31	276	91	10	137	142	838	202	210	1864	81
RTOR Reduction (vph)	0	213	0	0	0	123	0	0	87	0	0	35
Lane Group Flow (vph)	43	94	0	91	10	14	142	838	115	210	1864	46
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	16.9	11.9		16.9	11.9	11.9	82.1	68.4	68.4	82.1	68.4	68.4
Effective Green, g (s)	16.9	11.9		16.9	11.9	11.9	82.1	68.4	68.4	82.1	68.4	68.4
Actuated g/C Ratio	0.14	0.10		0.14	0.10	0.10	0.68	0.57	0.57	0.68	0.57	0.57
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	212	303		146	350	156	275	2898	902	523	2898	902
v/s Ratio Prot	0.01	0.03		c0.03	0.00		c0.06	0.16		0.05	c0.37	
v/s Ratio Perm	0.02			c0.06		0.01	0.29		0.07	0.23		0.03
v/c Ratio	0.20	0.31		0.62	0.03	0.09	0.52	0.29	0.13	0.40	0.64	0.05
Uniform Delay, d1	45.4	50.2		47.1	48.8	49.1	29.0	13.3	12.0	11.5	17.5	11.4
Progression Factor	1.00	1.00		0.83	0.88	1.08	1.98	1.27	4.69	1.46	1.35	5.76
Incremental Delay, d2	0.5	0.6		8.0	0.0	0.2	1.5	0.1	0.1	0.4	0.4	0.0
Delay (s)	45.9	50.8		47.3	42.9	53.4	58.8	17.0	56.2	17.3	24.1	65.9
Level of Service	D	D		D	D	D	E	B	E	B	C	E
Approach Delay (s)		50.2			50.6			28.7			25.0	
Approach LOS		D			D			C			C	

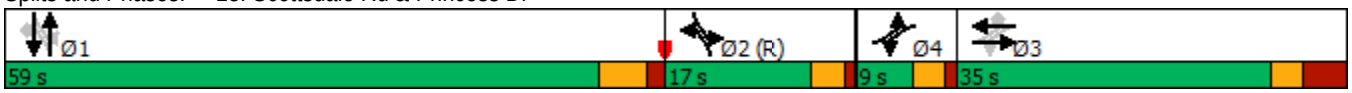
Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

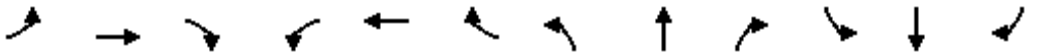
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	21	80	106	97
End Time (s)	80	97	21	106
Yield/Force Off (s)	74	93	14	102
Yield/Force Off 170(s)	64	93	113	102
Local Start Time (s)	61	0	26	17
Local Yield (s)	114	13	54	22
Local Yield 170(s)	104	13	33	22

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 80 (67%), Referenced to phase 2:NBSBL and 6:, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	0	114	30	0	19	40	989	11	41	1964	24
Future Volume (vph)	61	0	114	30	0	19	40	989	11	41	1964	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1713		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.58		0.05	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)		1465			1023		101	5085	1583	432	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	0	127	33	0	21	44	1099	12	46	2182	27
RTOR Reduction (vph)	0	64	0	0	47	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	131	0	0	7	0	44	1099	8	46	2182	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.5			16.5		86.5	81.5	81.5	86.5	81.5	81.5
Effective Green, g (s)		16.5			16.5		86.5	81.5	81.5	86.5	81.5	81.5
Actuated g/C Ratio		0.14			0.14		0.72	0.68	0.68	0.72	0.68	0.68
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		201			140		142	3453	1075	367	3453	1075
v/s Ratio Prot							c0.01	0.22		0.01	c0.43	
v/s Ratio Perm		c0.09			0.01		0.21		0.01	0.09		0.01
v/c Ratio		0.65			0.05		0.31	0.32	0.01	0.13	0.63	0.02
Uniform Delay, d1		49.0			45.0		20.3	7.9	6.2	6.9	10.8	6.2
Progression Factor		1.00			1.00		0.90	0.54	1.00	0.43	0.38	1.00
Incremental Delay, d2		7.4			0.2		4.8	0.2	0.0	0.6	0.7	0.0
Delay (s)		54.4			45.1		23.1	4.5	6.2	3.6	4.9	6.3
Level of Service		D			D		C	A	A	A	A	A
Approach Delay (s)		54.4			45.1			5.2			4.8	
Approach LOS		D			D			A			A	

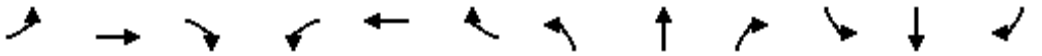
Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	75	9	36
Maximum Split (%)	62.5%	7.5%	30.0%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	59	14	23
End Time (s)	14	23	59
Yield/Force Off (s)	8	19	52
Yield/Force Off 170(s)	5	19	31
Local Start Time (s)	0	75	84
Local Yield (s)	69	80	113
Local Yield 170(s)	66	80	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 59 (49%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	542	1426	399	226	452	204	85	400	124	354	1480	162
Future Volume (vph)	542	1426	399	226	452	204	85	400	124	354	1480	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5010	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5010	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	602	1584	443	251	502	227	94	444	138	393	1644	180
RTOR Reduction (vph)	0	0	114	0	0	189	0	0	103	0	11	0
Lane Group Flow (vph)	602	1584	329	251	502	38	94	444	35	393	1813	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	30.1	41.0	41.0	9.0	19.9	19.9	5.0	30.4	30.4	17.6	43.0	
Effective Green, g (s)	30.1	41.0	41.0	9.0	19.9	19.9	5.0	30.4	30.4	17.6	43.0	
Actuated g/C Ratio	0.25	0.34	0.34	0.08	0.17	0.17	0.04	0.25	0.25	0.15	0.36	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	861	1737	540	257	843	262	143	1288	401	503	1795	
v/s Ratio Prot	0.18	c0.31		c0.07	0.10		c0.03	0.09		0.11	c0.36	
v/s Ratio Perm			0.21			0.02			0.02			
v/c Ratio	0.70	0.91	0.61	0.98	0.60	0.14	0.66	0.34	0.09	0.78	1.01	
Uniform Delay, d1	40.8	37.8	32.8	55.4	46.3	42.8	56.7	36.7	34.2	49.3	38.5	
Progression Factor	1.00	1.00	1.00	0.58	0.51	1.39	1.00	1.00	1.00	0.98	0.41	
Incremental Delay, d2	2.5	7.7	2.0	43.7	0.9	0.2	10.4	0.7	0.4	5.1	19.6	
Delay (s)	43.3	45.5	34.8	76.1	24.7	59.7	67.1	37.4	34.6	53.6	35.5	
Level of Service	D	D	C	E	C	E	E	D	C	D	D	
Approach Delay (s)		43.2			46.0			40.9			38.7	
Approach LOS		D			D			D			D	

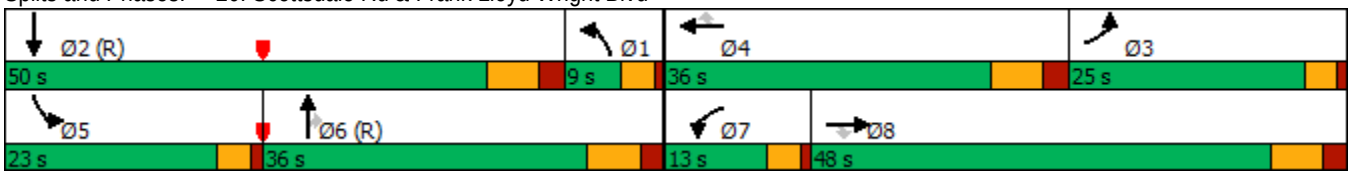
Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

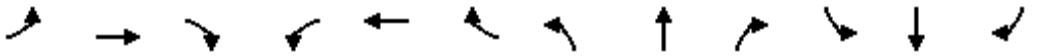
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	9	50	25	36	23	36	13	48
Maximum Split (%)	7.5%	41.7%	20.8%	30.0%	19.2%	30.0%	10.8%	40.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	33	103	78	42	103	6	42	55
End Time (s)	42	33	103	78	6	42	55	103
Yield/Force Off (s)	38	26	99	71	2	35	51	96
Yield/Force Off 170(s)	38	5	99	49	2	14	51	74
Local Start Time (s)	27	97	72	36	97	0	36	49
Local Yield (s)	32	20	93	65	116	29	45	90
Local Yield 170(s)	32	119	93	43	116	8	45	68

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 6 (5%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	1237	59	551	998	186	9	288	244	181	561	265
Future Volume (vph)	432	1237	59	551	998	186	9	288	244	181	561	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	480	1374	66	612	1109	207	10	320	271	201	623	294
RTOR Reduction (vph)	0	0	47	0	0	146	0	0	228	0	0	203
Lane Group Flow (vph)	480	1374	19	612	1109	61	10	320	43	201	623	91
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.0	34.1	34.1	21.0	35.1	35.1	1.0	19.0	19.0	17.9	35.9	35.9
Effective Green, g (s)	20.0	34.1	34.1	21.0	35.1	35.1	1.0	19.0	19.0	17.9	35.9	35.9
Actuated g/C Ratio	0.17	0.28	0.28	0.18	0.29	0.29	0.01	0.16	0.16	0.15	0.30	0.30
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	1444	449	600	1487	463	14	560	250	512	1058	473
v/s Ratio Prot	0.14	c0.27		c0.18	0.22		0.01	c0.09		0.06	c0.18	
v/s Ratio Perm			0.01			0.04			0.03			0.06
v/c Ratio	0.84	0.95	0.04	1.02	0.75	0.13	0.71	0.57	0.17	0.39	0.59	0.19
Uniform Delay, d1	48.4	42.1	31.1	49.5	38.4	31.2	59.4	46.7	43.7	46.1	35.8	31.3
Progression Factor	1.07	0.45	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.73	1.09
Incremental Delay, d2	5.8	9.0	0.1	41.9	3.4	0.6	100.1	1.4	0.3	0.5	0.8	0.2
Delay (s)	57.4	28.1	31.2	91.4	41.9	31.8	159.5	48.1	44.0	38.1	26.9	34.2
Level of Service	E	C	C	F	D	C	F	D	D	D	C	C
Approach Delay (s)		35.5			54.5			48.1			30.9	
Approach LOS		D			D			D			C	

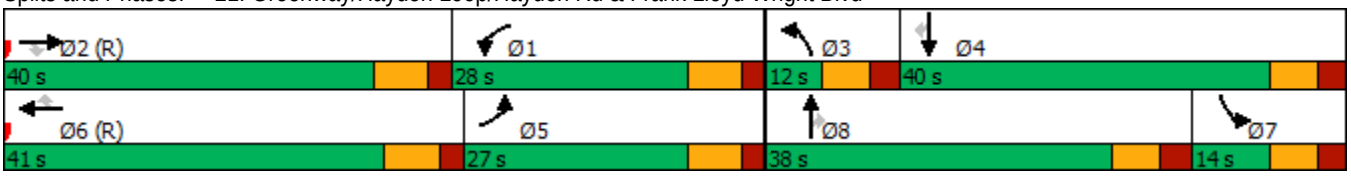
Intersection Summary			
HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

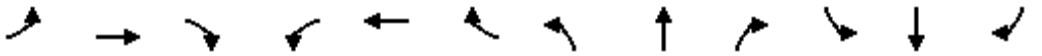
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	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)	28	40	12	40	27	41	14	38
Maximum Split (%)	23.3%	33.3%	10.0%	33.3%	22.5%	34.2%	11.7%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	35	115	63	75	36	115	101	63
End Time (s)	63	35	75	115	63	36	115	101
Yield/Force Off (s)	56	28	68	108	56	29	108	94
Yield/Force Off 170(s)	56	11	68	84	56	12	108	70
Local Start Time (s)	40	0	68	80	41	0	106	68
Local Yield (s)	61	33	73	113	61	34	113	99
Local Yield 170(s)	61	16	73	89	61	17	113	75

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	323	118	89	240	270	114	971	4	280	1155	284
Future Volume (vph)	173	323	118	89	240	270	114	971	4	280	1155	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5082		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	359	131	99	267	300	127	1079	4	311	1283	316
RTOR Reduction (vph)	0	0	111	0	0	257	0	0	0	0	0	160
Lane Group Flow (vph)	192	359	20	99	267	43	127	1083	0	311	1283	156
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	11.6	18.2	18.2	10.5	17.1	17.1	10.0	39.9		29.4	59.3	59.3
Effective Green, g (s)	11.6	18.2	18.2	10.5	17.1	17.1	10.0	39.9		29.4	59.3	59.3
Actuated g/C Ratio	0.10	0.15	0.15	0.09	0.14	0.14	0.08	0.33		0.24	0.49	0.49
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	536	240	300	504	225	286	1689		841	2512	782
v/s Ratio Prot	c0.06	c0.10		0.03	0.08		0.04	c0.21		0.09	c0.25	
v/s Ratio Perm			0.01			0.03						0.10
v/c Ratio	0.58	0.67	0.08	0.33	0.53	0.19	0.44	0.64		0.37	0.51	0.20
Uniform Delay, d1	51.9	48.1	43.7	51.4	47.7	45.3	52.4	34.0		37.6	20.5	17.0
Progression Factor	0.82	0.75	1.53	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.4	3.0	0.1	0.6	1.0	0.4	4.9	1.9		1.3	0.7	0.6
Delay (s)	44.8	39.2	66.9	52.1	48.7	45.8	57.3	35.9		38.9	21.3	17.6
Level of Service	D	D	E	D	D	D	E	D		D	C	B
Approach Delay (s)		46.1			47.9			38.1			23.5	
Approach LOS		D			D			D			C	

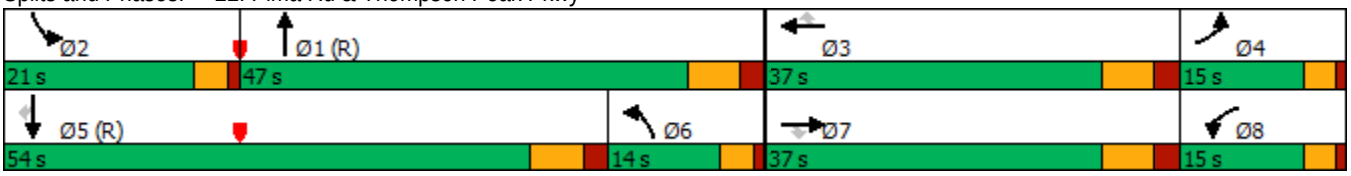
Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

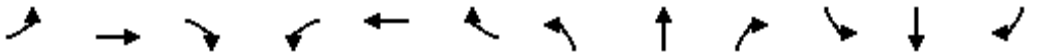
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	21	37	15	54	14	37	15
Maximum Split (%)	39.2%	17.5%	30.8%	12.5%	45.0%	11.7%	30.8%	12.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	19	118	66	103	118	52	66	103
End Time (s)	66	19	103	118	52	66	103	118
Yield/Force Off (s)	59	15	96	114	45	62	96	114
Yield/Force Off 170(s)	37	15	75	114	23	62	75	114
Local Start Time (s)	0	99	47	84	99	33	47	84
Local Yield (s)	40	116	77	95	26	43	77	95
Local Yield 170(s)	18	116	56	95	4	43	56	95

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 19 (16%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





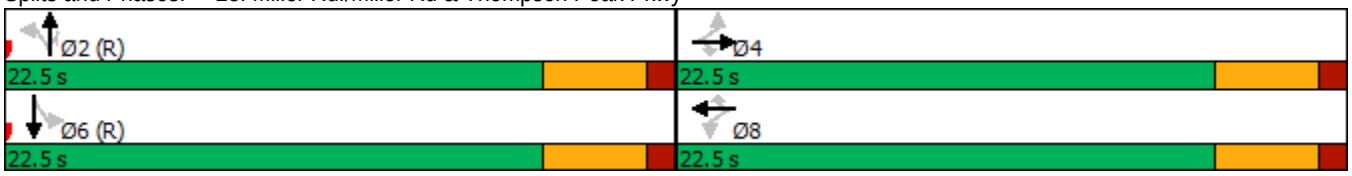
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	553	40	30	112	0	13	0	12	0	0	0
Future Volume (vph)	0	553	40	30	112	0	13	0	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)		3539	1583	1770	3539		1770		1583			
Flt Permitted		1.00	1.00	0.39	1.00		0.76		1.00			
Satd. Flow (perm)		3539	1583	720	3539		1410		1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	614	44	33	124	0	14	0	13	0	0	0
RTOR Reduction (vph)	0	0	26	0	0	0	0	0	8	0	0	0
Lane Group Flow (vph)	0	614	18	33	124	0	14	0	5	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40		0.40			
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Grp Cap (vph)		1415	633	288	1415		564		633			
v/s Ratio Prot		c0.17			0.04							
v/s Ratio Perm			0.01	0.05			c0.01		0.00			
v/c Ratio		0.43	0.03	0.11	0.09		0.02		0.01			
Uniform Delay, d1		9.8	8.2	8.5	8.4		8.2		8.1			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		1.0	0.1	0.8	0.1		0.1		0.0			
Delay (s)		10.8	8.3	9.3	8.5		8.3		8.2			
Level of Service		B	A	A	A		A		A			
Approach Delay (s)		10.6			8.7			8.2			0.0	
Approach LOS		B			A			A			A	

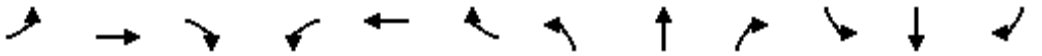
Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd./Miller Rd & Thompson Peak Pkwy

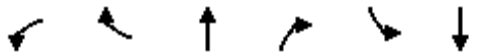




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	96	95	12	17	2	36	17	4	8	41	0
Future Volume (Veh/h)	0	96	95	12	17	2	36	17	4	8	41	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	107	106	13	19	2	40	19	4	9	46	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	21			213			166	154	54	108	258	10
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			213			166	154	54	108	258	10
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			95	97	100	99	93	100
cM capacity (veh/h)	1593			1355			735	730	1002	833	639	1069

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	NB 3	SB 1
Volume Total	0	54	54	106	13	10	10	2	20	20	23	9
Volume Left	0	0	0	0	13	0	0	0	20	20	0	9
Volume Right	0	0	0	106	0	0	0	2	0	0	4	0
cSH	1700	1700	1700	1700	1355	1700	1700	1700	735	735	883	833
Volume to Capacity	0.00	0.03	0.03	0.06	0.01	0.01	0.01	0.00	0.03	0.03	0.03	0.01
Queue Length 95th (ft)	0	0	0	0	1	0	0	0	2	2	2	1
Control Delay (s)	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	10.0	10.0	9.8	9.4
Lane LOS					A				B	B	A	A
Approach Delay (s)	0.0				2.9				10.0			11.1
Approach LOS									A			B

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	22.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	11	101	25	15	63
Future Volume (Veh/h)	0	11	101	25	15	63
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	12	112	28	17	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)			252			
pX, platoon unblocked						
vC, conflicting volume	216	112			140	
vC1, stage 1 conf vol	112					
vC2, stage 2 conf vol	104					
vCu, unblocked vol	216	112			140	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			99	
cM capacity (veh/h)	841	941			1443	

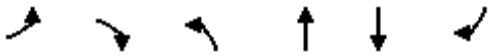
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	112	28	17	70
Volume Left	0	0	0	17	0
Volume Right	12	0	28	0	0
cSH	941	1700	1700	1443	1700
Volume to Capacity	0.01	0.07	0.02	0.01	0.04
Queue Length 95th (ft)	1	0	0	1	0
Control Delay (s)	8.9	0.0	0.0	7.5	0.0
Lane LOS	A			A	
Approach Delay (s)	8.9	0.0		1.5	
Approach LOS	A				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	103	45	62	39	19	11
Future Volume (Veh/h)	103	45	62	39	19	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	114	50	69	43	21	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			164		295	114
vC1, stage 1 conf vol					114	
vC2, stage 2 conf vol					181	
vCu, unblocked vol			164		295	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		97	99
cM capacity (veh/h)			1414		764	939

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	114	50	69	43	21	12
Volume Left	0	0	69	0	21	0
Volume Right	0	50	0	0	0	12
cSH	1700	1700	1414	1700	764	939
Volume to Capacity	0.07	0.03	0.05	0.03	0.03	0.01
Queue Length 95th (ft)	0	0	4	0	2	1
Control Delay (s)	0.0	0.0	7.7	0.0	9.8	8.9
Lane LOS			A		A	A
Approach Delay (s)	0.0		4.7		9.5	
Approach LOS					A	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	37	122	778	1310	77
Future Volume (vph)	38	37	122	778	1310	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.14	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	265	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	41	136	864	1456	86
RTOR Reduction (vph)	0	39	0	0	0	20
Lane Group Flow (vph)	42	2	136	864	1456	66
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	7.2	7.2	103.8	103.8	92.0	92.0
Effective Green, g (s)	7.2	7.2	103.8	103.8	92.0	92.0
Actuated g/C Ratio	0.06	0.06	0.86	0.86	0.77	0.77
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	106	94	320	3061	2713	1213
v/s Ratio Prot			c0.03	0.24	c0.41	
v/s Ratio Perm	c0.02	0.00	0.34			0.04
v/c Ratio	0.40	0.03	0.42	0.28	0.54	0.05
Uniform Delay, d1	54.3	53.1	4.2	1.4	5.6	3.4
Progression Factor	1.00	1.00	4.10	0.86	1.00	1.00
Incremental Delay, d2	2.4	0.1	0.8	0.2	0.8	0.1
Delay (s)	56.7	53.2	18.0	1.5	6.3	3.5
Level of Service	E	D	B	A	A	A
Approach Delay (s)	55.0			3.7	6.2	
Approach LOS	D			A	A	

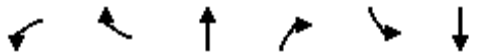
Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBTL	EBL	NBL	SBT
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	C-Max	None	None	C-Max
Maximum Split (s)	95	25	18	77
Maximum Split (%)	79.2%	20.8%	15.0%	64.2%
Minimum Split (s)	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		7
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	51	26	51	69
End Time (s)	26	51	69	26
Yield/Force Off (s)	21.5	46.5	64.5	21.5
Yield/Force Off 170(s)	10.5	35.5	64.5	10.5
Local Start Time (s)	102	77	102	0
Local Yield (s)	72.5	97.5	115.5	72.5
Local Yield 170(s)	61.5	86.5	115.5	61.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 69 (58%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd & Cavasson Blvd.



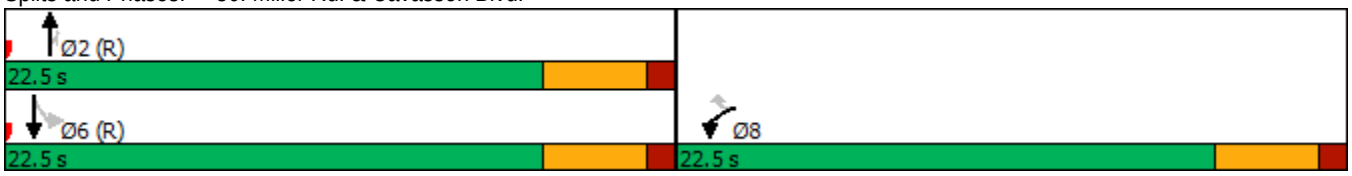
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	58	0	0	148	0
Future Volume (vph)	0	58	0	0	148	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		1.00			1.00	
Frt		0.85			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		1583			1770	
Flt Permitted		1.00			0.76	
Satd. Flow (perm)		1583			1410	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	64	0	0	164	0
RTOR Reduction (vph)	0	38	0	0	0	0
Lane Group Flow (vph)	0	26	0	0	164	0
Turn Type	Prot	Perm		Perm	Perm	
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)		18.0			18.0	
Effective Green, g (s)		18.0			18.0	
Actuated g/C Ratio		0.40			0.40	
Clearance Time (s)		4.5			4.5	
Lane Grp Cap (vph)		633			564	
v/s Ratio Prot						
v/s Ratio Perm		c0.02			c0.12	
v/c Ratio		0.04			0.29	
Uniform Delay, d1		8.2			9.2	
Progression Factor		1.00			1.00	
Incremental Delay, d2		0.1			1.3	
Delay (s)		8.4			10.5	
Level of Service		A			B	
Approach Delay (s)	8.4		0.0			10.5
Approach LOS	A		A			B

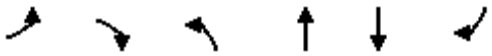
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	11.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	6	8
Movement	NBT	SBTL	WBL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1	1	1
Minimum Initial (s)	5	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	11	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	0	22.5
End Time (s)	22.5	22.5	0
Yield/Force Off (s)	18	18	40.5
Yield/Force Off 170(s)	7	7	29.5
Local Start Time (s)	0	0	22.5
Local Yield (s)	18	18	40.5
Local Yield 170(s)	7	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 30: Miller Rd. & Cavasson Blvd.

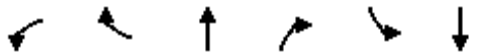




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	46	115	899	1259	89
Future Volume (Veh/h)	0	46	115	899	1259	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	51	128	999	1399	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				653	612	
pX, platoon unblocked	0.90	0.83	0.83			
vC, conflicting volume	2154	700	1498			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1384	232	1193			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	73			
cM capacity (veh/h)	89	640	483			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	51	128	500	500	700	700	99
Volume Left	0	128	0	0	0	0	0
Volume Right	51	0	0	0	0	0	99
cSH	640	483	1700	1700	1700	1700	1700
Volume to Capacity	0.08	0.27	0.29	0.29	0.41	0.41	0.06
Queue Length 95th (ft)	6	26	0	0	0	0	0
Control Delay (s)	11.1	15.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	C					
Approach Delay (s)	11.1	1.7			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	65	12	19	93	94	13
Future Volume (Veh/h)	65	12	19	93	94	13
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	72	13	21	103	104	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			624			
pX, platoon unblocked						
vC, conflicting volume	243	21			124	
vC1, stage 1 conf vol	21					
vC2, stage 2 conf vol	222					
vCu, unblocked vol	243	21			124	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	99			93	
cM capacity (veh/h)	737	1056			1463	

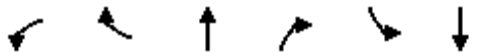
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	72	13	21	103	104	14
Volume Left	72	0	0	0	104	0
Volume Right	0	13	0	103	0	0
cSH	737	1056	1700	1700	1463	1700
Volume to Capacity	0.10	0.01	0.01	0.06	0.07	0.01
Queue Length 95th (ft)	8	1	0	0	6	0
Control Delay (s)	10.4	8.4	0.0	0.0	7.6	0.0
Lane LOS	B	A			A	
Approach Delay (s)	10.1		0.0		6.7	
Approach LOS	B					

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	22.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	11	103	140	59	42	64
Future Volume (Veh/h)	11	103	140	59	42	64
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	114	156	66	47	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				621		
pX, platoon unblocked						
vC, conflicting volume			126		390	12
vC1, stage 1 conf vol					12	
vC2, stage 2 conf vol					378	
vCu, unblocked vol			126		390	12
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			89		92	93
cM capacity (veh/h)			1460		603	1069

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	12	114	156	66	47	71
Volume Left	0	0	156	0	47	0
Volume Right	0	114	0	0	0	71
cSH	1700	1700	1460	1700	603	1069
Volume to Capacity	0.01	0.07	0.11	0.04	0.08	0.07
Queue Length 95th (ft)	0	0	9	0	6	5
Control Delay (s)	0.0	0.0	7.8	0.0	11.5	8.6
Lane LOS			A		B	A
Approach Delay (s)	0.0		5.5		9.8	
Approach LOS					A	

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	8	22	9	0	107
Future Volume (Veh/h)	0	8	22	9	0	107
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	9	24	10	0	119
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			877			
pX, platoon unblocked						
vC, conflicting volume	148	29			34	
vC1, stage 1 conf vol	29					
vC2, stage 2 conf vol	119					
vCu, unblocked vol	148	29			34	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	878	1046			1578	

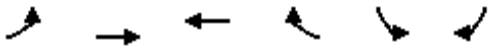
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	34	119
Volume Left	0	0	0
Volume Right	9	10	0
cSH	1046	1700	1700
Volume to Capacity	0.01	0.02	0.07
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				1169		
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol					0	
vC2, stage 2 conf vol					0	
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	0	0	0	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	
Approach LOS			A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



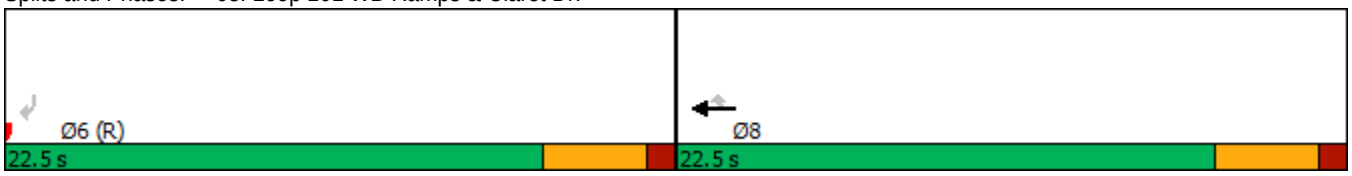
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	555	126	0	63
Future Volume (vph)	0	0	555	126	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5		4.5
Lane Util. Factor			0.95	1.00		1.00
Frt			1.00	0.85		0.86
Flt Protected			1.00	1.00		1.00
Satd. Flow (prot)			3539	1583		1611
Flt Permitted			1.00	1.00		1.00
Satd. Flow (perm)			3539	1583		1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	617	140	0	70
RTOR Reduction (vph)	0	0	0	84	0	42
Lane Group Flow (vph)	0	0	617	56	0	28
Turn Type			NA	Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)			18.0	18.0		18.0
Effective Green, g (s)			18.0	18.0		18.0
Actuated g/C Ratio			0.40	0.40		0.40
Clearance Time (s)			4.5	4.5		4.5
Lane Grp Cap (vph)			1415	633		644
v/s Ratio Prot			c0.17			
v/s Ratio Perm				0.04		c0.02
v/c Ratio			0.44	0.09		0.04
Uniform Delay, d1			9.8	8.4		8.2
Progression Factor			1.00	1.00		1.56
Incremental Delay, d2			1.0	0.3		0.1
Delay (s)			10.8	8.7		13.0
Level of Service			B	A		B
Approach Delay (s)		0.0	10.4		13.0	
Approach LOS		A	B		B	

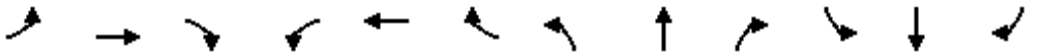
Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 63: Loop 101 WB Ramps & Claret Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	16	62	35	11	3	68	930	71	4	401	15
Future Volume (vph)	20	16	62	35	11	3	68	930	71	4	401	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1807		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.49	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	1393	1641		1305	1807		920	3539	1583	497	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	18	69	39	12	3	76	1033	79	4	446	17
RTOR Reduction (vph)	0	64	0	0	3	0	0	0	12	0	0	4
Lane Group Flow (vph)	22	23	0	39	12	0	76	1033	67	4	446	13
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	7.3	7.3		7.3	7.3		74.7	74.7	74.7	74.7	74.7	74.7
Effective Green, g (s)	7.3	7.3		7.3	7.3		74.7	74.7	74.7	74.7	74.7	74.7
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.79	0.79	0.79	0.79	0.79	0.79
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	126		100	138		723	2782	1244	390	2782	1244
v/s Ratio Prot		0.01			0.01			c0.29			0.13	
v/s Ratio Perm	0.02			c0.03			0.08		0.04	0.01		0.01
v/c Ratio	0.21	0.18		0.39	0.09		0.11	0.37	0.05	0.01	0.16	0.01
Uniform Delay, d1	41.1	41.1		41.7	40.8		2.4	3.1	2.3	2.2	2.5	2.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.7		2.5	0.3		0.3	0.4	0.1	0.0	0.1	0.0
Delay (s)	42.1	41.8		44.2	41.0		2.7	3.4	2.3	2.2	2.6	2.2
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		41.8			43.4			3.3			2.6	
Approach LOS		D			D			A			A	

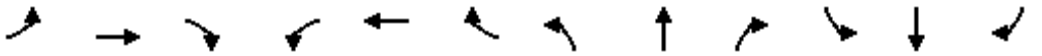
Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	56	39
Maximum Split (%)	58.9%	41.1%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	56
End Time (s)	56	0
Yield/Force Off (s)	50	88
Yield/Force Off 170(s)	46	84
Local Start Time (s)	0	56
Local Yield (s)	50	88
Local Yield 170(s)	46	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	8	59	20	6	11	68	1049	33	11	439	34
Future Volume (vph)	32	8	59	20	6	11	68	1049	33	11	439	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1686		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00		0.47	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	1388	1863	1583	1400	1686		883	3539	1583	420	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	9	66	22	7	12	76	1166	37	12	488	38
RTOR Reduction (vph)	0	0	60	0	11	0	0	0	8	0	0	8
Lane Group Flow (vph)	36	9	6	22	8	0	76	1166	29	12	488	30
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	10.7	10.7	10.7	10.7	10.7		95.3	95.3	95.3	95.3	95.3	95.3
Effective Green, g (s)	10.7	10.7	10.7	10.7	10.7		95.3	95.3	95.3	95.3	95.3	95.3
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.09		0.79	0.79	0.79	0.79	0.79	0.79
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	123	166	141	124	150		701	2810	1257	333	2810	1257
v/s Ratio Prot		0.00			0.00			c0.33			0.14	
v/s Ratio Perm	c0.03		0.00	0.02			0.09		0.02	0.03		0.02
v/c Ratio	0.29	0.05	0.04	0.18	0.05		0.11	0.41	0.02	0.04	0.17	0.02
Uniform Delay, d1	51.1	50.0	50.0	50.6	50.0		2.8	3.8	2.6	2.6	2.9	2.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.27	0.21	0.07	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1	0.1	0.7	0.2		0.3	0.4	0.0	0.2	0.1	0.0
Delay (s)	52.4	50.2	50.1	51.3	50.2		1.0	1.2	0.2	2.8	3.1	2.6
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		50.9			50.8			1.1			3.0	
Approach LOS		D			D			A			A	

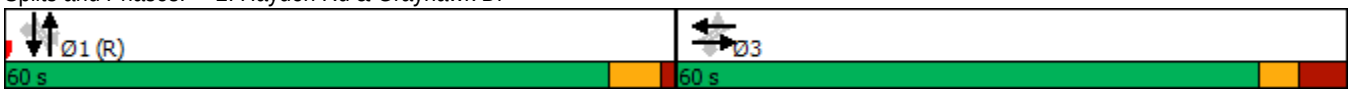
Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

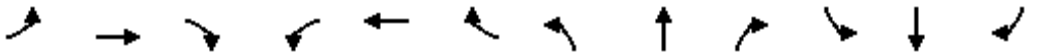
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	60	60
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	60
End Time (s)	60	0
Yield/Force Off (s)	54	112
Yield/Force Off 170(s)	47	104
Local Start Time (s)	0	60
Local Yield (s)	54	112
Local Yield 170(s)	47	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	365	238	186	222	145	319	954	379	192	296	54
Future Volume (vph)	64	365	238	186	222	145	319	954	379	192	296	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.32	1.00	1.00	0.51	1.00	1.00	0.53	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	591	3539	1583	956	3539	1583	981	3539	1583	265	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	71	406	264	207	247	161	354	1060	421	213	329	60
RTOR Reduction (vph)	0	0	218	0	0	125	0	0	182	0	0	34
Lane Group Flow (vph)	71	406	46	207	247	36	354	1060	239	213	329	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.7	20.7	20.7	27.0	26.5	26.5	72.8	55.4	55.4	65.8	52.9	52.9
Effective Green, g (s)	20.7	20.7	20.7	27.0	26.5	26.5	72.8	55.4	55.4	65.8	52.9	52.9
Actuated g/C Ratio	0.17	0.17	0.17	0.22	0.22	0.22	0.61	0.46	0.46	0.55	0.44	0.44
Clearance Time (s)	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	153	610	273	296	781	349	709	1633	730	307	1560	697
v/s Ratio Prot	0.02	c0.11		c0.07	0.07		c0.07	0.30		c0.07	0.09	
v/s Ratio Perm	0.06		0.03	0.09		0.02	0.23		0.15	c0.31		0.02
v/c Ratio	0.46	0.67	0.17	0.70	0.32	0.10	0.50	0.65	0.33	0.69	0.21	0.04
Uniform Delay, d1	43.0	46.4	42.3	42.7	39.2	37.3	15.8	24.8	20.5	36.4	20.7	19.1
Progression Factor	1.00	1.00	1.00	0.60	0.61	0.61	1.00	1.00	1.00	0.92	0.90	1.00
Incremental Delay, d2	2.2	2.7	0.3	6.8	0.2	0.1	0.6	2.0	1.2	6.6	0.3	0.1
Delay (s)	45.3	49.2	42.6	32.6	24.3	22.8	16.3	26.8	21.7	40.3	19.0	19.2
Level of Service	D	D	D	C	C	C	B	C	C	D	B	B
Approach Delay (s)		46.4			26.7			23.6			26.5	
Approach LOS		D			C			C			C	

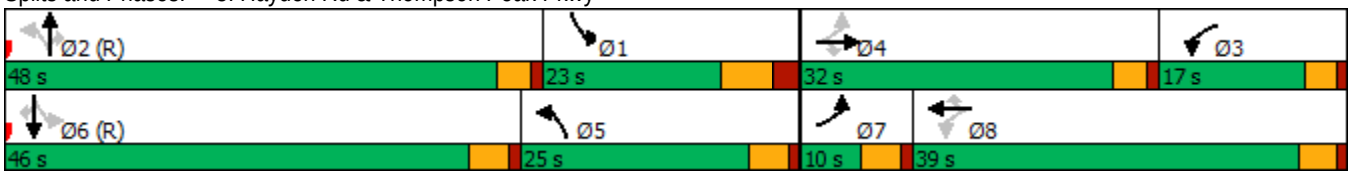
Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

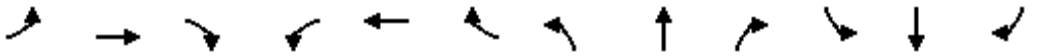
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	23	48	17	32	25	46	10	39
Maximum Split (%)	19.2%	40.0%	14.2%	26.7%	20.8%	38.3%	8.3%	32.5%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	92	44	27	115	90	44	115	5
End Time (s)	115	92	44	27	115	90	5	44
Yield/Force Off (s)	108	88	40	23	110.5	85.5	0.5	39.5
Yield/Force Off 170(s)	108	64	40	2	110.5	61.5	0.5	18.5
Local Start Time (s)	48	0	103	71	46	0	71	81
Local Yield (s)	64	44	116	99	66.5	41.5	76.5	115.5
Local Yield 170(s)	64	20	116	78	66.5	17.5	76.5	94.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 44 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	3	48	13	1	0	52	1616	21	0	655	19
Future Volume (vph)	25	3	48	13	1	0	52	1616	21	0	655	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539		1770	3539	1583		3539	1583
Flt Permitted	0.76	1.00	1.00	0.76	1.00		0.38	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1410	3539	1583	1408	3539		699	3539	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	3	53	14	1	0	58	1796	23	0	728	21
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	5	0	0	4
Lane Group Flow (vph)	28	3	4	14	1	0	58	1796	18	0	728	17
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			1			1	
Permitted Phases	4		4	8			1		1	1		1
Actuated Green, G (s)	5.7	5.7	5.7	5.7	5.7		67.0	67.0	67.0		67.0	67.0
Effective Green, g (s)	5.7	5.7	5.7	5.7	5.7		67.0	67.0	67.0		67.0	67.0
Actuated g/C Ratio	0.07	0.07	0.07	0.07	0.07		0.80	0.80	0.80		0.80	0.80
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	95	239	107	95	239		556	2816	1259		2816	1259
v/s Ratio Prot		0.00			0.00			c0.51			0.21	
v/s Ratio Perm	c0.02		0.00	0.01			0.08		0.01			0.01
v/c Ratio	0.29	0.01	0.03	0.15	0.00		0.10	0.64	0.01		0.26	0.01
Uniform Delay, d1	37.3	36.6	36.7	37.0	36.6		1.9	3.6	1.8		2.2	1.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.7	0.0	0.1	0.7	0.0		0.1	0.5	0.0		0.0	0.0
Delay (s)	39.1	36.6	36.8	37.7	36.6		2.0	4.0	1.8		2.3	1.8
Level of Service	D	D	D	D	D		A	A	A		A	A
Approach Delay (s)		37.6			37.6			4.0			2.2	
Approach LOS		D			D			A			A	

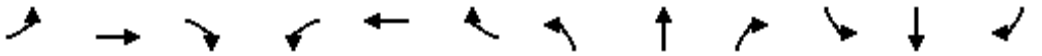
Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	11.5
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	4	8
Movement	NBSB	EBTL	WBTL
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	None	None	None
Maximum Split (s)	80	30	30
Maximum Split (%)	72.7%	27.3%	27.3%
Minimum Split (s)	50	22.5	22.5
Yellow Time (s)	4.8	3.5	3.5
All-Red Time (s)	2.2	1	1
Minimum Initial (s)	10	5	5
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	15	7	7
Flash Dont Walk (s)	10	11	11
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	0	80	80
End Time (s)	80	0	0
Yield/Force Off (s)	73	105.5	105.5
Yield/Force Off 170(s)	63	94.5	94.5
Local Start Time (s)	0	80	80
Local Yield (s)	73	105.5	105.5
Local Yield 170(s)	63	94.5	94.5

Intersection Summary	
Cycle Length	110
Control Type	Semi Act-Uncoord
Natural Cycle	75

Splits and Phases: 4: Hayden Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	136	721	628	956	0	0	724	267
Future Volume (vph)	0	0	0	76	136	721	628	956	0	0	724	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.95			0.86	1.00
Frt				1.00	0.90	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1586	1504	1770	3539			6408	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1586	1504	1770	3539			6408	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	84	151	801	698	1062	0	0	804	297
RTOR Reduction (vph)	0	0	0	0	67	253	0	0	0	0	0	252
Lane Group Flow (vph)	0	0	0	84	420	212	698	1062	0	0	804	45
Turn Type				Perm	NA	Perm	Split	NA			NA	Perm
Protected Phases					3		6	6			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				33.9	33.9	33.9	47.8	47.8			18.3	18.3
Effective Green, g (s)				33.9	33.9	33.9	47.8	47.8			18.3	18.3
Actuated g/C Ratio				0.28	0.28	0.28	0.40	0.40			0.15	0.15
Clearance Time (s)				8.0	8.0	8.0	6.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				969	448	424	705	1409			977	241
v/s Ratio Prot					c0.26		c0.39	0.30			c0.13	
v/s Ratio Perm				0.02		0.14						0.03
v/c Ratio				0.09	0.94	0.50	0.99	0.75			0.82	0.19
Uniform Delay, d1				31.7	42.0	36.0	35.9	31.0			49.3	44.4
Progression Factor				1.00	1.00	1.00	0.85	0.87			0.91	1.31
Incremental Delay, d2				0.0	27.0	0.9	24.6	2.4			5.6	0.4
Delay (s)				31.7	69.0	36.9	55.2	29.5			50.3	58.5
Level of Service				C	E	D	E	C			D	E
Approach Delay (s)		0.0			51.6			39.7			52.6	
Approach LOS		A			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

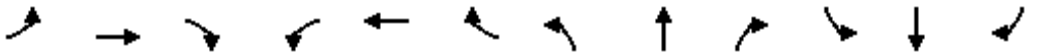
c Critical Lane Group

Phase Number	1	2	3	5	6	7
Node Number	6	6	5	5	5	6
Movement	NBT	SBTL	WBTL	SBT	NBTL	EBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	41	36	43	24	53	43
Maximum Split (%)	34.2%	30.0%	35.8%	20.0%	44.2%	35.8%
Minimum Split (s)	21	21	41	21	39	41
Yellow Time (s)	4.4	4.4	4.9	4.4	4.4	4.9
All-Red Time (s)	1.6	1.6	3.1	1.6	1.6	3.1
Minimum Initial (s)	12	6	7	12	6	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	59	16	59	83	16
End Time (s)	16	95	59	83	16	59
Yield/Force Off (s)	10	89	51	77	10	51
Yield/Force Off 170(s)	10	89	51	77	10	51
Local Start Time (s)	12	96	53	96	0	53
Local Yield (s)	47	6	88	114	47	88
Local Yield 170(s)	47	6	88	114	47	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105

Offset: 83 (69%), Referenced to phase 2:SBTL and 6:, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	526	5	156	0	0	0	0	1095	54	481	334	0
Future Volume (vph)	526	5	156	0	0	0	0	1095	54	481	334	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	0.97	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1607	1504					5085	1583	3433	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1607	1504					5085	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	584	6	173	0	0	0	0	1217	60	534	371	0
RTOR Reduction (vph)	0	2	112	0	0	0	0	0	43	0	0	0
Lane Group Flow (vph)	304	301	44	0	0	0	0	1217	18	534	371	0
Turn Type	Perm	NA	Perm					NA	Perm	Split	NA	
Protected Phases		7						1		2	2	
Permitted Phases	7		7						1			
Actuated Green, G (s)	33.9	33.9	33.9					35.0	35.0	31.1	31.1	
Effective Green, g (s)	33.9	33.9	33.9					35.0	35.0	31.1	31.1	
Actuated g/C Ratio	0.28	0.28	0.28					0.29	0.29	0.26	0.26	
Clearance Time (s)	8.0	8.0	8.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	474	453	424					1483	461	889	917	
v/s Ratio Prot								c0.24		c0.16	0.10	
v/s Ratio Perm	0.18	0.19	0.03						0.01			
v/c Ratio	0.64	0.66	0.10					0.82	0.04	0.60	0.40	
Uniform Delay, d1	37.7	38.0	31.8					39.6	30.4	39.0	36.8	
Progression Factor	0.59	0.61	0.32					0.78	1.00	0.15	0.08	
Incremental Delay, d2	0.3	0.3	0.0					3.7	0.0	2.0	0.9	
Delay (s)	22.5	23.4	10.0					34.6	30.5	8.0	3.9	
Level of Service	C	C	B					C	C	A	A	
Approach Delay (s)		20.3			0.0			34.4			6.3	
Approach LOS		C			A			C			A	

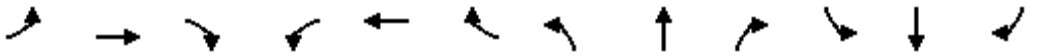
Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	244	900	5	33	476
Future Volume (Veh/h)	3	244	900	5	33	476
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	271	1000	6	37	529
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						595
pX, platoon unblocked	0.93					
vC, conflicting volume	1338	500			1006	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1206	500			1006	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	48			95	
cM capacity (veh/h)	154	516			684	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	274	500	500	6	37	264	264
Volume Left	3	0	0	0	37	0	0
Volume Right	271	0	0	6	0	0	0
cSH	503	1700	1700	1700	684	1700	1700
Volume to Capacity	0.54	0.29	0.29	0.00	0.05	0.16	0.16
Queue Length 95th (ft)	81	0	0	0	4	0	0
Control Delay (s)	20.4	0.0	0.0	0.0	10.6	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	20.4	0.0			0.7		
Approach LOS	C						

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	18	63	217	0	135	127	754	142	11	408	61
Future Volume (vph)	32	18	63	217	0	135	127	754	142	11	408	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1805	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.49	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)		1805	1583	3433		1583	907	3539	1583	563	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	20	70	241	0	150	141	838	158	12	453	68
RTOR Reduction (vph)	0	0	65	0	0	113	0	0	56	0	0	24
Lane Group Flow (vph)	0	56	5	241	0	37	141	838	102	12	453	44
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		9.1	9.1	13.7		29.8	77.2	77.2	77.2	77.2	77.2	77.2
Effective Green, g (s)		9.1	9.1	13.7		29.8	77.2	77.2	77.2	77.2	77.2	77.2
Actuated g/C Ratio		0.08	0.08	0.11		0.25	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		136	120	391		393	583	2276	1018	362	2276	1018
v/s Ratio Prot				c0.07				c0.24			0.13	
v/s Ratio Perm		0.03	0.00			0.02	0.16		0.06	0.02		0.03
v/c Ratio		0.41	0.04	0.62		0.09	0.24	0.37	0.10	0.03	0.20	0.04
Uniform Delay, d1		52.9	51.4	50.6		34.7	9.0	10.0	8.2	7.8	8.8	7.8
Progression Factor		0.82	1.00	1.00		1.00	0.15	0.13	0.01	0.47	0.45	1.00
Incremental Delay, d2		2.0	0.1	2.9		0.1	0.9	0.4	0.2	0.2	0.2	0.1
Delay (s)		45.3	51.6	53.5		34.8	2.2	1.7	0.3	3.8	4.1	7.9
Level of Service		D	D	D		C	A	A	A	A	A	A
Approach Delay (s)		48.8			46.4			1.6			4.6	
Approach LOS		D			D			A			A	

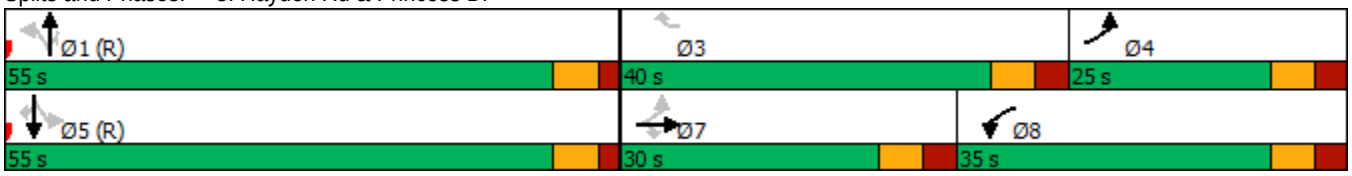
Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

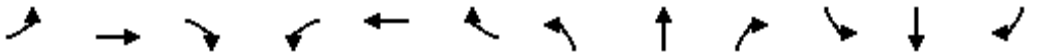
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55	40	25	55	30	35
Maximum Split (%)	45.8%	33.3%	20.8%	45.8%	25.0%	29.2%
Minimum Split (s)	50	40	25	50	30	25
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	20	75	115	20	75	105
End Time (s)	75	115	20	75	105	20
Yield/Force Off (s)	69	108	13	69	98	13
Yield/Force Off 170(s)	58	97	13	58	87	13
Local Start Time (s)	0	55	95	0	55	85
Local Yield (s)	49	88	113	49	78	113
Local Yield 170(s)	38	77	113	38	67	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 20 (17%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1	19	419	0	107	5	954	236	108	609	9
Future Volume (vph)	11	1	19	419	0	107	5	954	236	108	609	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3156		1681	1681	1583	1770	3539	1583	1770	3531	
Flt Permitted		0.83		0.73	0.73	1.00	0.39	1.00	1.00	0.18	1.00	
Satd. Flow (perm)		2669		1299	1299	1583	727	3539	1583	342	3531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	1	21	466	0	119	6	1060	262	120	677	10
RTOR Reduction (vph)	0	16	0	0	0	93	0	0	117	0	0	0
Lane Group Flow (vph)	0	18	0	233	233	26	6	1060	145	120	687	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		26.7		26.7	26.7	26.7	67.4	66.2	66.2	79.3	73.6	
Effective Green, g (s)		26.7		26.7	26.7	26.7	67.4	66.2	66.2	79.3	73.6	
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.56	0.55	0.55	0.66	0.61	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		593		289	289	352	418	1952	873	328	2165	
v/s Ratio Prot							0.00	c0.30		c0.03	0.19	
v/s Ratio Perm		0.01		c0.18	0.18	0.02	0.01		0.09	0.22		
v/c Ratio		0.03		0.81	0.81	0.08	0.01	0.54	0.17	0.37	0.32	
Uniform Delay, d1		36.5		44.2	44.2	36.9	11.6	17.2	13.3	10.2	11.1	
Progression Factor		1.00		1.00	1.00	1.00	0.65	0.81	1.69	1.61	1.22	
Incremental Delay, d2		0.0		15.0	15.0	0.1	0.0	0.8	0.3	0.7	0.4	
Delay (s)		36.5		59.2	59.2	37.0	7.5	14.8	22.7	17.1	14.0	
Level of Service		D		E	E	D	A	B	C	B	B	
Approach Delay (s)		36.5			54.7			16.3			14.4	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55.4	22.6	42	52.4	25.6	42
Maximum Split (%)	46.2%	18.8%	35.0%	43.7%	21.3%	35.0%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	115	92.4	50.4	118	92.4	50.4
End Time (s)	50.4	115	92.4	50.4	118	92.4
Yield/Force Off (s)	44.4	110.5	84.4	44.4	113.5	84.4
Yield/Force Off 170(s)	33.4	99.5	73.4	33.4	102.5	73.4
Local Start Time (s)	117	94.4	52.4	0	94.4	52.4
Local Yield (s)	46.4	112.5	86.4	46.4	115.5	86.4
Local Yield 170(s)	35.4	101.5	75.4	35.4	104.5	75.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 118 (98%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	54	1836	93	17	943
Future Volume (vph)	113	54	1836	93	17	943
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1770	1583	3539	1583	122	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	126	60	2040	103	19	1048
RTOR Reduction (vph)	0	17	0	10	0	0
Lane Group Flow (vph)	126	43	2040	93	19	1048
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.9	13.9	94.1	94.1	94.1	94.1
Effective Green, g (s)	13.9	13.9	94.1	94.1	94.1	94.1
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	205	183	2775	1241	95	2775
v/s Ratio Prot	c0.07		c0.58			0.30
v/s Ratio Perm		0.03		0.06	0.16	
v/c Ratio	0.61	0.24	0.74	0.08	0.20	0.38
Uniform Delay, d1	50.5	48.2	6.6	3.0	3.3	4.0
Progression Factor	1.00	1.00	0.20	0.37	1.00	1.00
Incremental Delay, d2	5.4	0.7	1.2	0.1	4.7	0.4
Delay (s)	55.9	48.9	2.6	1.2	8.0	4.4
Level of Service	E	D	A	A	A	A
Approach Delay (s)	53.6		2.5			4.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	88	32
Maximum Split (%)	73.3%	26.7%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	79	47
End Time (s)	47	79
Yield/Force Off (s)	41	73
Yield/Force Off 170(s)	35	69
Local Start Time (s)	0	88
Local Yield (s)	82	114
Local Yield 170(s)	76	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 79 (66%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	109	59	1846	109	52	972
Future Volume (vph)	109	59	1846	109	52	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1770	1583	3539	1583	122	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	66	2051	121	58	1080
RTOR Reduction (vph)	0	25	0	20	0	0
Lane Group Flow (vph)	121	41	2051	101	58	1080
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.2	13.2	94.8	94.8	94.8	94.8
Effective Green, g (s)	13.2	13.2	94.8	94.8	94.8	94.8
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	174	2795	1250	96	2795
v/s Ratio Prot	c0.07		c0.58			0.31
v/s Ratio Perm		0.03		0.06	0.48	
v/c Ratio	0.62	0.24	0.73	0.08	0.60	0.39
Uniform Delay, d1	51.0	48.8	6.3	2.8	5.1	3.8
Progression Factor	1.00	1.00	0.62	0.00	1.48	1.21
Incremental Delay, d2	6.1	0.7	0.8	0.1	23.9	0.4
Delay (s)	57.1	49.5	4.7	0.1	31.3	5.0
Level of Service	E	D	A	A	C	A
Approach Delay (s)	54.4		4.4			6.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	20	117
End Time (s)	117	20
Yield/Force Off (s)	111	14
Yield/Force Off 170(s)	99	3
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 20 (17%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	534	181	1557	381	127	1104
Future Volume (vph)	534	181	1557	381	127	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	201	1730	423	141	1227
RTOR Reduction (vph)	0	158	0	229	0	0
Lane Group Flow (vph)	593	43	1730	194	141	1227
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	25.8	25.8	55.0	55.0	20.2	79.2
Effective Green, g (s)	25.8	25.8	55.0	55.0	20.2	79.2
Actuated g/C Ratio	0.22	0.22	0.46	0.46	0.17	0.66
Clearance Time (s)	7.0	7.0	8.0	8.0	4.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	340	1622	725	297	2335
v/s Ratio Prot	c0.17		c0.49		0.08	c0.35
v/s Ratio Perm		0.03		0.12		
v/c Ratio	0.80	0.13	1.07	0.27	0.47	0.53
Uniform Delay, d1	44.7	38.0	32.5	20.1	45.1	10.6
Progression Factor	1.00	1.00	0.56	0.54	0.97	0.71
Incremental Delay, d2	6.3	0.2	35.5	0.3	5.1	0.8
Delay (s)	51.0	38.2	53.9	11.1	48.9	8.3
Level of Service	D	D	D	B	D	A
Approach Delay (s)	47.8		45.5			12.5
Approach LOS	D		D			B

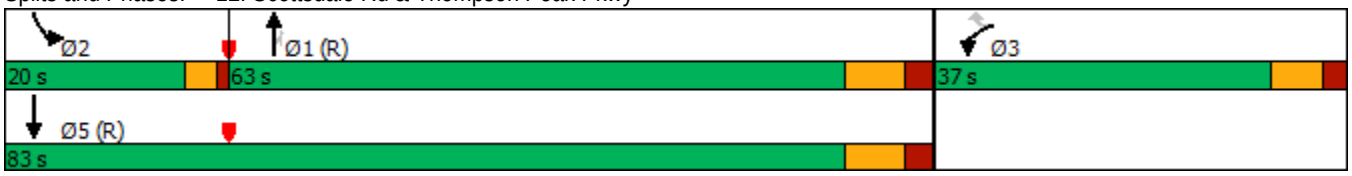
Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lag	Lead		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	C-Max	Max	None	C-Max
Maximum Split (s)	63	20	37	83
Maximum Split (%)	52.5%	16.7%	30.8%	69.2%
Minimum Split (s)	40	9	37	40
Yellow Time (s)	5.3	3	4.6	5.3
All-Red Time (s)	2.7	1	2.4	2.7
Minimum Initial (s)	5	5	6	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	25		23	25
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	95	75	38	75
End Time (s)	38	95	75	38
Yield/Force Off (s)	30	91	68	30
Yield/Force Off 170(s)	5	91	45	5
Local Start Time (s)	0	100	63	100
Local Yield (s)	55	116	93	55
Local Yield 170(s)	30	116	70	30

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	
Offset: 95 (79%), Referenced to phase 1:NBT and 5:SBT, Start of Green		

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	168	37	1923	146	28	1637
Future Volume (vph)	168	37	1923	146	28	1637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	187	41	2137	162	31	1819
RTOR Reduction (vph)	0	37	0	24	0	0
Lane Group Flow (vph)	187	4	2137	138	31	1819
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	3		1		2	5
Permitted Phases		3		1		
Actuated Green, G (s)	11.9	11.9	77.1	77.1	13.0	94.1
Effective Green, g (s)	11.9	11.9	77.1	77.1	13.0	94.1
Actuated g/C Ratio	0.10	0.10	0.64	0.64	0.11	0.78
Clearance Time (s)	7.0	7.0	7.0	7.0	4.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	340	156	2273	1017	191	2775
v/s Ratio Prot	c0.05		c0.60		0.02	c0.51
v/s Ratio Perm		0.00		0.09		
v/c Ratio	0.55	0.03	0.94	0.14	0.16	0.66
Uniform Delay, d1	51.5	48.8	19.4	8.4	48.6	5.8
Progression Factor	1.00	1.00	2.12	0.81	0.98	1.30
Incremental Delay, d2	1.9	0.1	1.0	0.0	1.5	0.5
Delay (s)	53.4	48.9	42.1	6.8	49.3	8.0
Level of Service	D	D	D	A	D	A
Approach Delay (s)	52.6		39.6			8.7
Approach LOS	D		D			A

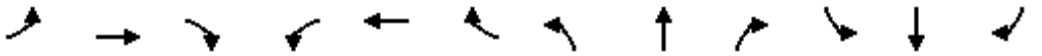
Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5
Movement	NBT	SBL	WBL	SBT
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	None	None
Maximum Split (s)	74	17	29	91
Maximum Split (%)	61.7%	14.2%	24.2%	75.8%
Minimum Split (s)	80	20	35	100
Yellow Time (s)	4.9	3	3	4.9
All-Red Time (s)	2.1	1	4	2.1
Minimum Initial (s)	20	5	6	20
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	7
Flash Dont Walk (s)	16		21	16
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	46	0	17	46
End Time (s)	0	17	46	17
Yield/Force Off (s)	113	13	39	10
Yield/Force Off 170(s)	97	13	18	114
Local Start Time (s)	46	0	17	46
Local Yield (s)	113	13	39	10
Local Yield 170(s)	97	13	18	114

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	145	
Offset: 0 (0%), Referenced to phase 2:SBL and 6:, Start of Green		

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Future Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.91	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1616	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1616	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	644	163	591	767	1727	0	0	1340	742
RTOR Reduction (vph)	0	0	0	0	42	287	0	0	0	0	0	386
Lane Group Flow (vph)	0	0	0	644	346	79	767	1727	0	0	1340	356
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	4			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				26.0	26.0	26.0	26.0	22.0			25.0	25.0
Effective Green, g (s)				26.0	26.0	26.0	26.0	22.0			25.0	25.0
Actuated g/C Ratio				0.22	0.22	0.22	0.22	0.18			0.21	0.21
Clearance Time (s)				7.0	7.0	7.0	4.0	4.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				743	350	325	743	932			1571	329
v/s Ratio Prot					c0.21		c0.22	c0.34			0.18	
v/s Ratio Perm				0.19		0.05						c0.23
v/c Ratio				0.87	0.99	0.24	1.03	1.85			0.85	1.08
Uniform Delay, d1				45.3	46.9	38.9	47.0	49.0			45.7	47.5
Progression Factor				1.00	1.00	1.00	0.66	1.36			0.98	1.21
Incremental Delay, d2				10.4	44.9	0.4	36.0	386.7			3.8	68.7
Delay (s)				55.7	91.8	39.3	66.9	453.2			48.7	126.1
Level of Service				E	F	D	E	F			D	F
Approach Delay (s)		0.0			61.4			334.4			76.3	
Approach LOS		A			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	180.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

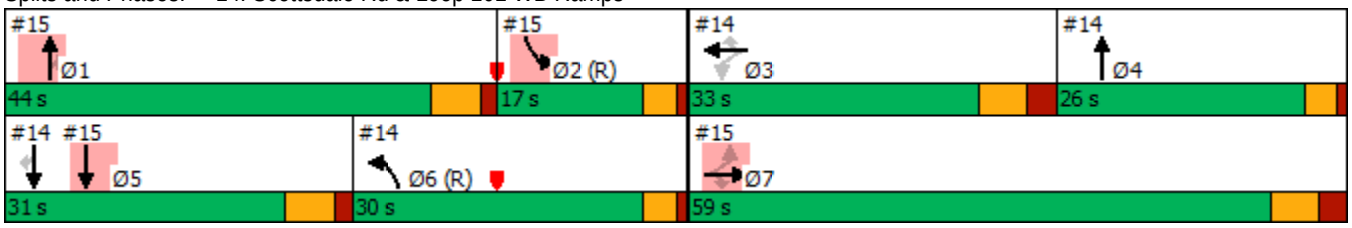
c Critical Lane Group

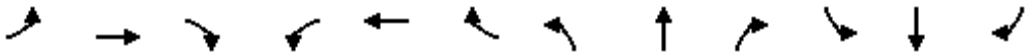
Phase Number	1	2	3	4	5	6	7
Node Number	15	15	14	14	14	14	15
Movement	NBT	SBL	WBTL	NBT	SBT	NBL	EBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	None	None	None	C-Max	None
Maximum Split (s)	44	17	33	26	31	30	59
Maximum Split (%)	36.7%	14.2%	27.5%	21.7%	25.8%	25.0%	49.2%
Minimum Split (s)	16	9	21	5	20	9	14
Yellow Time (s)	4.5	3	4.3	3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1	1.5	1	2.7
Minimum Initial (s)	10	5	7	1	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0
Walk Time (s)							
Flash Dont Walk (s)							
Dual Entry	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	76	0	17	50	76	107	17
End Time (s)	0	17	50	76	107	17	76
Yield/Force Off (s)	114	13	43	72	101	13	69
Yield/Force Off 170(s)	114	13	43	72	101	13	69
Local Start Time (s)	76	0	17	50	76	107	17
Local Yield (s)	114	13	43	72	101	13	69
Local Yield 170(s)	114	13	43	72	101	13	69

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150

Offset: 0 (0%), Referenced to phase 2:SBL and 6:, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

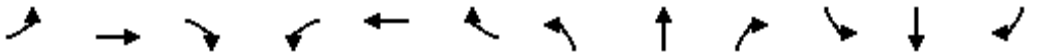




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Future Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	573	0	684	0	0	0	0	1934	582	558	1527	0
RTOR Reduction (vph)	0	194	194	0	0	0	0	0	234	0	0	0
Lane Group Flow (vph)	573	148	148	0	0	0	0	1934	348	558	1527	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	52.0	52.0	52.0					38.0	38.0	13.0	25.0	
Effective Green, g (s)	52.0	52.0	52.0					38.0	38.0	13.0	25.0	
Actuated g/C Ratio	0.43	0.43	0.43					0.32	0.32	0.11	0.21	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1487	651	651					2388	501	371	1059	
v/s Ratio Prot		0.10						c0.26		c0.16	c0.30	
v/s Ratio Perm	c0.17		0.10						0.22			
v/c Ratio	0.39	0.23	0.23					0.81	0.70	1.50	1.44	
Uniform Delay, d1	23.1	21.4	21.4					37.7	35.9	53.5	47.5	
Progression Factor	1.00	1.00	1.00					0.48	1.00	0.91	0.75	
Incremental Delay, d2	0.2	0.2	0.2					0.2	0.4	234.5	201.9	
Delay (s)	23.3	21.6	21.6					18.3	36.1	283.1	237.5	
Level of Service	C	C	C					B	D	F	F	
Approach Delay (s)		22.3			0.0			22.4			249.7	
Approach LOS		C			A			C			F	

Intersection Summary			
HCM 2000 Control Delay	103.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Future Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	720	10	196	12	14	23	386	1808	12	11	1386	798
RTOR Reduction (vph)	0	0	148	0	21	0	0	0	8	0	0	386
Lane Group Flow (vph)	720	10	48	12	16	0	386	1808	4	11	1386	412
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7						1			5
Actuated Green, G (s)	23.5	29.4	29.4	2.6	8.5		13.0	36.2	36.2	29.3	52.5	52.5
Effective Green, g (s)	23.5	29.4	29.4	2.6	8.5		13.0	36.2	36.2	29.3	52.5	52.5
Actuated g/C Ratio	0.20	0.24	0.24	0.02	0.07		0.11	0.30	0.30	0.24	0.44	0.44
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	672	1245	387	74	227		371	1533	477	838	2224	692
v/s Ratio Prot	c0.21	0.00		0.00	0.00		0.11	c0.36		0.00	c0.27	
v/s Ratio Perm			c0.03						0.00			0.26
v/c Ratio	1.07	0.01	0.12	0.16	0.07		1.04	1.18	0.01	0.01	0.62	0.60
Uniform Delay, d1	48.2	34.3	35.3	57.6	52.1		53.5	41.9	29.3	34.4	26.1	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.73	0.70	1.00	0.60	0.88	3.94
Incremental Delay, d2	55.4	0.0	0.1	1.0	0.1		54.0	86.8	0.0	0.0	0.1	0.3
Delay (s)	103.7	34.3	35.4	58.7	52.2		93.2	116.3	29.4	20.7	23.0	101.6
Level of Service	F	C	D	E	D		F	F	C	C	C	F
Approach Delay (s)		88.5			53.8			111.8			51.5	
Approach LOS		F			D			F			D	

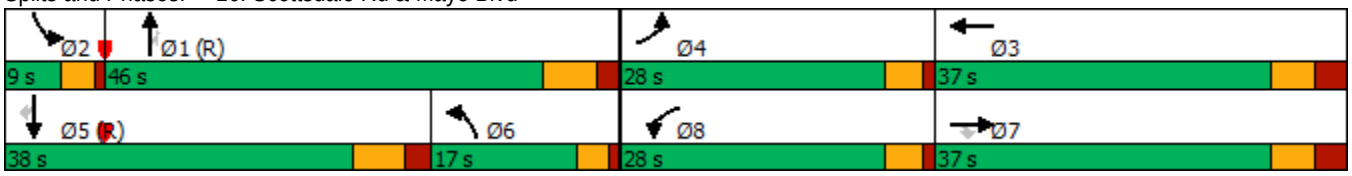
Intersection Summary			
HCM 2000 Control Delay	82.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

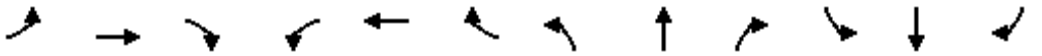
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	46	9	37	28	38	17	37	28
Maximum Split (%)	38.3%	7.5%	30.8%	23.3%	31.7%	14.2%	30.8%	23.3%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	27	18	101	73	18	56	101	73
End Time (s)	73	27	18	101	56	73	18	101
Yield/Force Off (s)	66	23	11	96.5	49	69	11	96.5
Yield/Force Off 170(s)	47	23	108	96.5	30	69	108	96.5
Local Start Time (s)	0	111	74	46	111	29	74	46
Local Yield (s)	39	116	104	69.5	22	42	104	69.5
Local Yield 170(s)	20	116	81	69.5	3	42	81	69.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 27 (23%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1	123	14	4	4	144	1942	6	9	1547	87
Future Volume (vph)	122	1	123	14	4	4	144	1942	6	9	1547	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Satd. Flow (perm)	0	3539	1583	0	3539	1583	0	5085	1583	0	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	1	137	16	4	4	160	2158	7	10	1719	97
RTOR Reduction (vph)	0	0	31	0	0	3	0	0	2	0	0	22
Lane Group Flow (vph)	136	1	106	16	4	1	160	2158	5	10	1719	75
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7!	3!		7!	3!		5!	1!		5!	1!	
Permitted Phases	3		3	3		3	1		1	1		1
Actuated Green, G (s)	17.6	15.1	15.1	17.6	15.1	15.1	93.4	90.9	90.9	93.4	90.9	90.9
Effective Green, g (s)	17.6	15.1	15.1	17.6	15.1	15.1	93.4	90.9	90.9	93.4	90.9	90.9
Actuated g/C Ratio	0.15	0.13	0.13	0.15	0.13	0.13	0.78	0.76	0.76	0.78	0.76	0.76
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	259	445	199	259	445	199	1377	3851	1199	1377	3851	1199
v/s Ratio Prot	c0.08	0.00		0.01	0.00		0.09	c0.42		0.01	0.34	
v/s Ratio Perm			0.07			0.00			0.00			0.05
v/c Ratio	0.53	0.00	0.53	0.06	0.01	0.00	0.12	0.56	0.00	0.01	0.45	0.06
Uniform Delay, d1	47.3	45.9	49.1	44.1	45.9	45.9	3.2	6.1	3.5	3.0	5.3	3.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.26	0.42	1.00	0.51	0.81	0.56
Incremental Delay, d2	1.9	0.0	2.7	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.3	0.1
Delay (s)	49.3	45.9	51.8	44.2	45.9	45.9	0.9	3.0	3.5	1.5	4.6	2.2
Level of Service	D	D	D	D	D	D	A	A	A	A	A	A
Approach Delay (s)		50.5			44.8			2.9			4.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

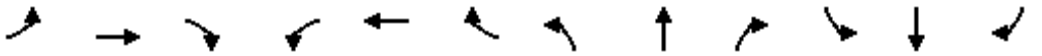
! Phase conflict between lane groups.

c Critical Lane Group

Phase Number	1	3	5	7
Movement	NBSB	EBWB	NBSBL	EBWBL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	None	None
Maximum Split (s)	82	38	82	38
Maximum Split (%)	68.3%	31.7%	68.3%	31.7%
Minimum Split (s)	30	36	9.5	9.5
Yellow Time (s)	4.9	3.9	3.5	3.5
All-Red Time (s)	2.1	3.1	1	1
Minimum Initial (s)	5	6	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		
Flash Dont Walk (s)	16	22		
Dual Entry	Yes	Yes	No	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	119	81	119	81
End Time (s)	81	119	81	119
Yield/Force Off (s)	74	112	76.5	114.5
Yield/Force Off 170(s)	58	90	76.5	114.5
Local Start Time (s)	0	82	0	82
Local Yield (s)	75	113	77.5	115.5
Local Yield 170(s)	59	91	77.5	115.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 119 (99%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Future Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3035		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.45	1.00	1.00	0.10	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1355	3035		829	3539	1583	178	5085	1583	109	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	14	268	141	43	211	278	2009	109	126	1663	77
RTOR Reduction (vph)	0	228	0	0	0	190	0	0	47	0	0	33
Lane Group Flow (vph)	60	54	0	141	43	21	278	2009	62	126	1663	44
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	3		4	3		2	1		2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	15.8	11.8		15.8	11.8	11.8	83.2	68.2	68.2	83.2	68.2	68.2
Effective Green, g (s)	15.8	11.8		15.8	11.8	11.8	83.2	68.2	68.2	83.2	68.2	68.2
Actuated g/C Ratio	0.13	0.10		0.13	0.10	0.10	0.69	0.57	0.57	0.69	0.57	0.57
Clearance Time (s)	4.0	7.0		4.0	7.0	7.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	298		140	348	155	322	2889	899	283	2889	899
v/s Ratio Prot	0.01	0.02		c0.03	0.01		c0.11	0.40		0.06	0.33	
v/s Ratio Perm	0.03			c0.10		0.01	c0.49		0.04	0.25		0.03
v/c Ratio	0.31	0.18		1.01	0.12	0.13	0.86	0.70	0.07	0.45	0.58	0.05
Uniform Delay, d1	46.8	49.7		51.5	49.4	49.4	28.2	18.5	11.6	30.0	16.6	11.5
Progression Factor	1.00	1.00		1.09	1.19	2.12	0.79	0.24	0.08	1.25	0.61	1.64
Incremental Delay, d2	0.9	0.3		77.9	0.2	0.4	17.8	0.9	0.1	4.6	0.8	0.1
Delay (s)	47.8	50.0		134.2	58.8	105.2	40.1	5.4	1.0	42.2	10.9	19.0
Level of Service	D	D		F	E	F	D	A	A	D	B	B
Approach Delay (s)		49.6			110.5			9.2			13.3	
Approach LOS		D			F			A			B	

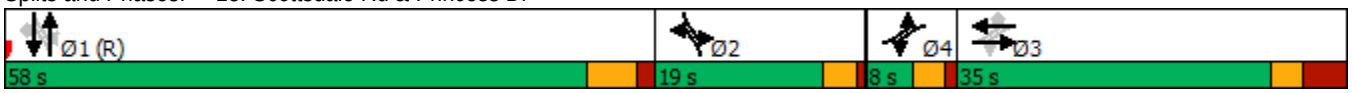
Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

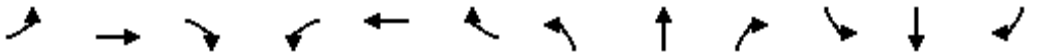
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	EBWBL
Lead/Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	58	19	35	8
Maximum Split (%)	48.3%	15.8%	29.2%	6.7%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	78	16	43	35
End Time (s)	16	35	78	43
Yield/Force Off (s)	10	31	71	39
Yield/Force Off 170(s)	0	31	50	39
Local Start Time (s)	0	58	85	77
Local Yield (s)	52	73	113	81
Local Yield 170(s)	42	73	92	81

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 78 (65%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Future Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1672			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.61		0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)		1384			1085		113	5085	1583	105	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	2	132	102	9	63	119	2271	29	62	1976	91
RTOR Reduction (vph)	0	58	0	0	18	0	0	0	12	0	0	35
Lane Group Flow (vph)	0	148	0	0	156	0	119	2271	17	62	1976	56
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.7			20.7		82.3	71.3	71.3	82.3	71.3	71.3
Effective Green, g (s)		20.7			20.7		82.3	71.3	71.3	82.3	71.3	71.3
Actuated g/C Ratio		0.17			0.17		0.69	0.59	0.59	0.69	0.59	0.59
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		238			187		229	3021	940	224	3021	940
v/s Ratio Prot							c0.05	c0.45		0.03	0.39	
v/s Ratio Perm		0.11			c0.14		0.31		0.01	0.16		0.04
v/c Ratio		0.62			0.83		0.52	0.75	0.02	0.28	0.65	0.06
Uniform Delay, d1		46.0			48.0		30.0	17.9	10.0	32.0	16.2	10.2
Progression Factor		1.00			1.00		0.70	0.21	1.00	1.76	1.78	2.57
Incremental Delay, d2		5.0			26.0		2.8	0.6	0.0	2.6	0.9	0.1
Delay (s)		51.0			54.0		23.7	4.4	10.0	58.9	29.8	26.4
Level of Service		D			D		C	A	B	E	C	C
Approach Delay (s)		51.0			54.0			5.4			30.5	
Approach LOS		D			D			A			C	

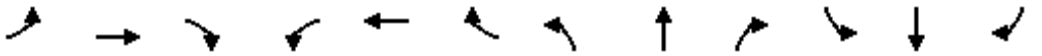
Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	70	15	35
Maximum Split (%)	58.3%	12.5%	29.2%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	27	97	112
End Time (s)	97	112	27
Yield/Force Off (s)	91	108	20
Yield/Force Off 170(s)	88	108	119
Local Start Time (s)	0	70	85
Local Yield (s)	64	81	113
Local Yield 170(s)	61	81	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 27 (23%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Future Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4889	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	4889	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	302	664	231	218	1588	524	551	1668	266	399	1370	474
RTOR Reduction (vph)	0	0	173	0	0	158	0	0	127	0	52	0
Lane Group Flow (vph)	302	664	58	218	1588	366	551	1668	139	399	1792	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			
Actuated Green, G (s)	8.0	30.1	30.1	9.9	32.0	32.0	16.0	44.0	44.0	14.0	42.0	
Effective Green, g (s)	8.0	30.1	30.1	9.9	32.0	32.0	16.0	44.0	44.0	14.0	42.0	
Actuated g/C Ratio	0.07	0.25	0.25	0.08	0.27	0.27	0.13	0.37	0.37	0.12	0.35	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	228	1275	397	283	1356	422	457	1864	580	400	1711	
v/s Ratio Prot	c0.09	0.13		0.06	c0.31		c0.16	0.33		0.12	c0.37	
v/s Ratio Perm			0.04			0.23			0.09			
v/c Ratio	1.32	0.52	0.15	0.77	1.17	0.87	1.21	0.89	0.24	1.00	1.05	
Uniform Delay, d1	56.0	38.7	35.0	53.9	44.0	42.0	52.0	35.8	26.4	53.0	39.0	
Progression Factor	1.00	1.00	1.00	0.82	0.60	0.40	1.00	1.00	1.00	0.70	0.60	
Incremental Delay, d2	173.2	0.4	0.2	1.2	77.8	1.9	111.7	7.1	1.0	38.5	32.9	
Delay (s)	229.2	39.1	35.1	45.3	104.4	18.8	163.7	43.0	27.4	75.3	56.3	
Level of Service	F	D	D	D	F	B	F	D	C	E	E	
Approach Delay (s)		86.3			79.6			68.1			59.7	
Approach LOS		F			E			E			E	

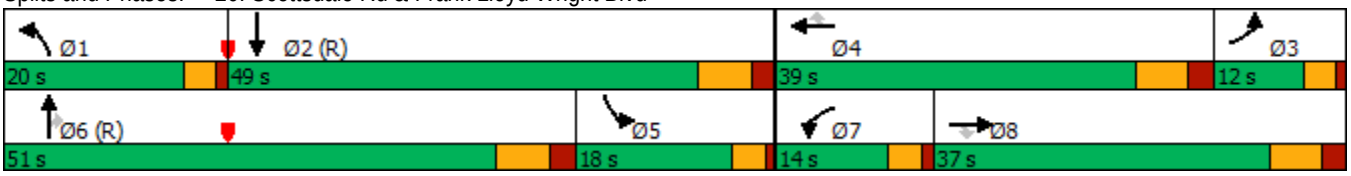
Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

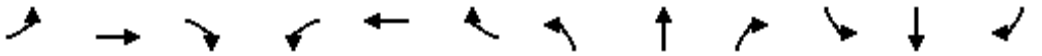
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	49	12	39	18	51	14	37
Maximum Split (%)	16.7%	40.8%	10.0%	32.5%	15.0%	42.5%	11.7%	30.8%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	21	41	9	90	72	21	90	104
End Time (s)	41	90	21	9	90	72	104	21
Yield/Force Off (s)	37	83	17	2	86	65	100	14
Yield/Force Off 170(s)	37	62	17	100	86	44	100	112
Local Start Time (s)	100	0	88	49	31	100	49	63
Local Yield (s)	116	42	96	81	45	24	59	93
Local Yield 170(s)	116	21	96	59	45	3	59	71

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 41 (34%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Future Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	419	1202	62	388	1801	371	87	477	602	270	598	614
RTOR Reduction (vph)	0	0	43	0	0	151	0	0	247	0	0	207
Lane Group Flow (vph)	419	1202	19	388	1801	220	87	477	355	270	598	407
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.0	37.0	37.0	16.0	40.0	40.0	6.0	29.2	29.2	9.8	33.0	33.0
Effective Green, g (s)	13.0	37.0	37.0	16.0	40.0	40.0	6.0	29.2	29.2	9.8	33.0	33.0
Actuated g/C Ratio	0.11	0.31	0.31	0.13	0.33	0.33	0.05	0.24	0.24	0.08	0.28	0.28
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	1567	488	457	1695	527	88	861	385	280	973	435
v/s Ratio Prot	c0.12	0.24		0.11	c0.35		0.05	0.13		0.08	0.17	
v/s Ratio Perm			0.01			0.14			c0.22			c0.26
v/c Ratio	1.13	0.77	0.04	0.85	1.06	0.42	0.99	0.55	0.92	0.96	0.61	0.94
Uniform Delay, d1	53.5	37.6	29.1	50.8	40.0	31.0	57.0	39.7	44.3	54.9	38.0	42.5
Progression Factor	0.66	0.76	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.89	0.81
Incremental Delay, d2	84.0	3.2	0.1	13.7	40.6	2.4	91.3	0.8	27.3	42.6	1.1	26.8
Delay (s)	119.4	31.7	29.2	64.5	80.6	33.4	148.3	40.5	71.6	92.2	34.8	61.0
Level of Service	F	C	C	E	F	C	F	D	E	F	C	E
Approach Delay (s)		53.4			71.3			64.6			56.1	
Approach LOS		D			E			E			E	

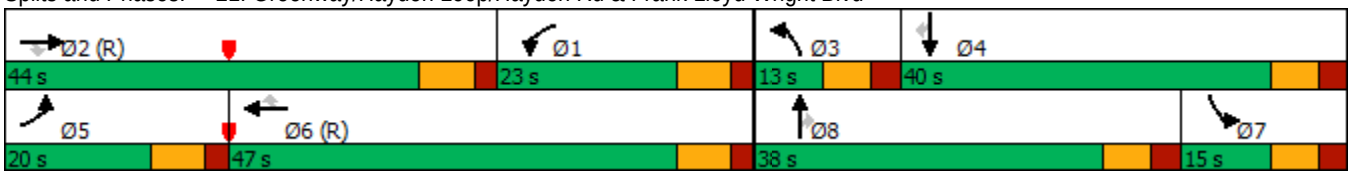
Intersection Summary			
HCM 2000 Control Delay	62.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

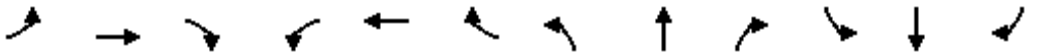
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	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)	23	44	13	40	20	47	15	38
Maximum Split (%)	19.2%	36.7%	10.8%	33.3%	16.7%	39.2%	12.5%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	64	20	87	100	20	40	5	87
End Time (s)	87	64	100	20	40	87	20	5
Yield/Force Off (s)	80	57	93	13	33	80	13	118
Yield/Force Off 170(s)	80	40	93	109	33	63	13	94
Local Start Time (s)	24	100	47	60	100	0	85	47
Local Yield (s)	40	17	53	93	113	40	93	78
Local Yield 170(s)	40	0	53	69	113	23	93	54

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	125
Offset: 40 (33%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	414	331	122	82	198	343	204	1403	4	311	910	197
Future Volume (vph)	414	331	122	82	198	343	204	1403	4	311	910	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5083		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	460	368	136	91	220	381	227	1559	4	346	1011	219
RTOR Reduction (vph)	0	0	115	0	0	145	0	0	0	0	0	159
Lane Group Flow (vph)	460	368	21	91	220	236	227	1563	0	346	1011	60
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	17.0	18.4	18.4	20.6	22.0	22.0	26.0	46.0		13.0	33.0	33.0
Effective Green, g (s)	17.0	18.4	18.4	20.6	22.0	22.0	26.0	46.0		13.0	33.0	33.0
Actuated g/C Ratio	0.14	0.15	0.15	0.17	0.18	0.18	0.22	0.38		0.11	0.28	0.28
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	486	542	242	589	648	290	743	1948		371	1398	435
v/s Ratio Prot	c0.13	0.10		0.03	0.06		0.07	c0.31		c0.10	0.20	
v/s Ratio Perm			0.01			c0.15						0.04
v/c Ratio	0.95	0.68	0.09	0.15	0.34	0.82	0.31	0.80		0.93	0.72	0.14
Uniform Delay, d1	51.0	48.0	43.6	42.3	42.7	47.0	39.4	33.0		53.1	39.4	32.8
Progression Factor	0.68	0.67	0.83	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.3	3.0	0.1	0.1	0.3	16.0	1.1	3.6		32.4	3.3	0.7
Delay (s)	60.3	35.0	36.3	42.4	43.0	63.0	40.5	36.6		85.5	42.6	33.4
Level of Service	E	D	D	D	D	E	D	D		F	D	C
Approach Delay (s)		47.3			54.0			37.1			50.8	
Approach LOS		D			D			D			D	

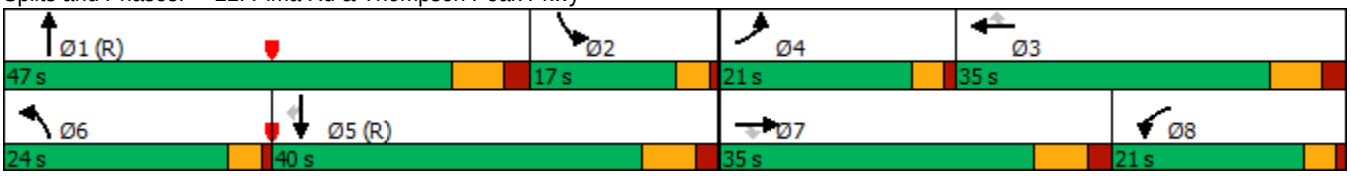
Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

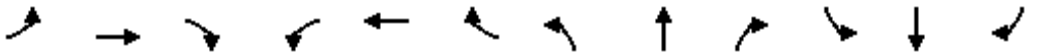
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	47	17	35	21	40	24	35	21
Maximum Split (%)	39.2%	14.2%	29.2%	17.5%	33.3%	20.0%	29.2%	17.5%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	38	85	3	102	62	38	102	17
End Time (s)	85	102	38	3	102	62	17	38
Yield/Force Off (s)	78	98	31	119	95	58	10	34
Yield/Force Off 170(s)	56	98	10	119	73	58	109	34
Local Start Time (s)	96	23	61	40	0	96	40	75
Local Yield (s)	16	36	89	57	33	116	68	92
Local Yield 170(s)	114	36	68	57	11	116	47	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	105
Offset: 62 (52%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Pima Rd & Thompson Peak Pkwy





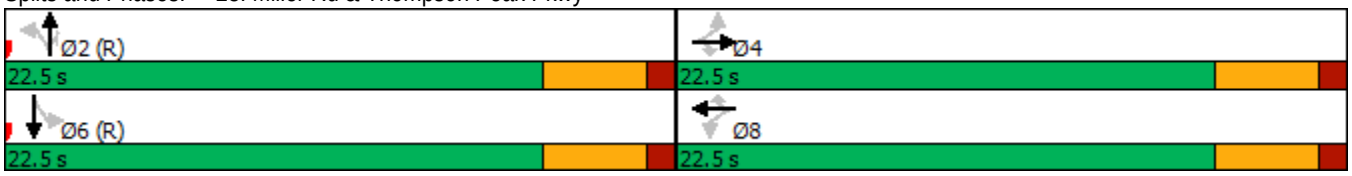
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	498	9	14	136	0	26	0	33	0	0	0
Future Volume (vph)	0	498	9	14	136	0	26	0	33	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)		3539	1583	1770	3539		1770		1583			
Flt Permitted		1.00	1.00	0.43	1.00		0.76		1.00			
Satd. Flow (perm)		3539	1583	796	3539		1410		1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	553	10	16	151	0	29	0	37	0	0	0
RTOR Reduction (vph)	0	0	6	0	0	0	0	0	22	0	0	0
Lane Group Flow (vph)	0	553	4	16	151	0	29	0	15	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40		0.40			
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Grp Cap (vph)		1415	633	318	1415		564		633			
v/s Ratio Prot		c0.16			0.04							
v/s Ratio Perm			0.00	0.02			c0.02		0.01			
v/c Ratio		0.39	0.01	0.05	0.11		0.05		0.02			
Uniform Delay, d1		9.6	8.1	8.3	8.5		8.3		8.2			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		0.8	0.0	0.3	0.2		0.2		0.1			
Delay (s)		10.4	8.1	8.6	8.6		8.4		8.2			
Level of Service		B	A	A	A		A		A			
Approach Delay (s)		10.4			8.6			8.3			0.0	
Approach LOS		B			A			A			A	

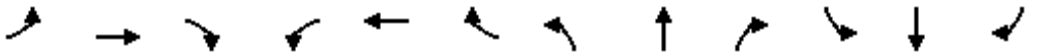
Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy

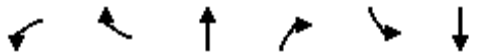




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	130	45	6	61	5	113	54	13	4	20	0
Future Volume (Veh/h)	0	130	45	6	61	5	113	54	13	4	20	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	144	50	7	68	6	126	60	14	4	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									12			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	74			194			203	232	72	184	276	34
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	74			194			203	232	72	184	276	34
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			82	91	99	99	96	100
cM capacity (veh/h)	1524			1377			715	664	975	695	627	1032

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	NB 3	SB 1
Volume Total	0	72	72	50	7	34	34	6	63	63	74	4
Volume Left	0	0	0	0	7	0	0	0	63	63	0	4
Volume Right	0	0	0	50	0	0	0	6	0	0	14	0
cSH	1700	1700	1700	1700	1377	1700	1700	1700	715	715	818	695
Volume to Capacity	0.00	0.04	0.04	0.03	0.01	0.02	0.02	0.00	0.09	0.09	0.09	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	7	7	7	0
Control Delay (s)	0.0	0.0	0.0	0.0	7.6	0.0	0.0	0.0	10.5	10.5	10.5	10.2
Lane LOS					A				B	B	B	B
Approach Delay (s)	0.0				0.7				10.5			11.4
Approach LOS									B			B

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	21.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	20	54	6	10	193
Future Volume (Veh/h)	0	20	54	6	10	193
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	22	60	7	11	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)			252			
pX, platoon unblocked						
vC, conflicting volume	296	60			67	
vC1, stage 1 conf vol	60					
vC2, stage 2 conf vol	236					
vCu, unblocked vol	296	60			67	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	768	1005			1535	

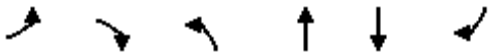
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	60	7	11	214
Volume Left	0	0	0	11	0
Volume Right	22	0	7	0	0
cSH	1005	1700	1700	1535	1700
Volume to Capacity	0.02	0.04	0.00	0.01	0.13
Queue Length 95th (ft)	2	0	0	1	0
Control Delay (s)	8.7	0.0	0.0	7.4	0.0
Lane LOS	A			A	
Approach Delay (s)	8.7	0.0		0.4	
Approach LOS	A				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	49	21	37	122	58	35
Future Volume (Veh/h)	49	21	37	122	58	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	54	23	41	136	64	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			77		272	54
vC1, stage 1 conf vol					54	
vC2, stage 2 conf vol					218	
vCu, unblocked vol			77		272	54
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		92	96
cM capacity (veh/h)			1522		769	1013

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	54	23	41	136	64	39
Volume Left	0	0	41	0	64	0
Volume Right	0	23	0	0	0	39
cSH	1700	1700	1522	1700	769	1013
Volume to Capacity	0.03	0.01	0.03	0.08	0.08	0.04
Queue Length 95th (ft)	0	0	2	0	7	3
Control Delay (s)	0.0	0.0	7.4	0.0	10.1	8.7
Lane LOS			A		B	A
Approach Delay (s)	0.0		1.7		9.6	
Approach LOS					A	

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	114	58	1567	774	36
Future Volume (vph)	120	114	58	1567	774	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.29	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	539	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	127	64	1741	860	40
RTOR Reduction (vph)	0	112	0	0	0	11
Lane Group Flow (vph)	133	15	64	1741	860	29
Turn Type	Perm	Perm	pm+pt	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	14.3	14.3	96.7	96.7	86.9	86.9
Effective Green, g (s)	14.3	14.3	96.7	96.7	86.9	86.9
Actuated g/C Ratio	0.12	0.12	0.81	0.81	0.72	0.72
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	210	188	488	2851	2562	1146
v/s Ratio Prot			0.01	c0.49	0.24	
v/s Ratio Perm	c0.08	0.01	0.10			0.02
v/c Ratio	0.63	0.08	0.13	0.61	0.34	0.03
Uniform Delay, d1	50.4	47.0	2.9	4.5	6.0	4.7
Progression Factor	1.00	1.01	0.18	0.14	1.00	1.00
Incremental Delay, d2	6.1	0.2	0.1	0.6	0.4	0.0
Delay (s)	56.3	47.8	0.6	1.2	6.4	4.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	52.2			1.2	6.3	
Approach LOS	D			A	A	

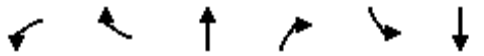
Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBTL	EBL	NBL	SBT
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	C-Max	None	None	C-Max
Maximum Split (s)	92	28	11	81
Maximum Split (%)	76.7%	23.3%	9.2%	67.5%
Minimum Split (s)	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		7
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	114	86	114	5
End Time (s)	86	114	5	86
Yield/Force Off (s)	81.5	109.5	0.5	81.5
Yield/Force Off 170(s)	70.5	98.5	0.5	70.5
Local Start Time (s)	109	81	109	0
Local Yield (s)	76.5	104.5	115.5	76.5
Local Yield 170(s)	65.5	93.5	115.5	65.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 5 (4%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

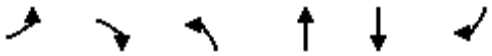
Splits and Phases: 29: Hayden Rd & Cavasson Blvd.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	180	0	0	70	0
Future Volume (Veh/h)	0	180	0	0	70	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	200	0	0	78	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	156	0			0	
vC1, stage 1 conf vol	0					
vC2, stage 2 conf vol	156					
vCu, unblocked vol	156	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			95	
cM capacity (veh/h)	810	1085			1623	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	200	0	0	78	0
Volume Left	0	0	0	0	78	0
Volume Right	0	200	0	0	0	0
cSH	1700	1085	1700	1700	1623	1700
Volume to Capacity	0.00	0.18	0.00	0.00	0.05	0.00
Queue Length 95th (ft)	0	17	0	0	4	0
Control Delay (s)	0.0	9.1	0.0	0.0	7.3	0.0
Lane LOS	A	A			A	
Approach Delay (s)	9.1		0.0		7.3	
Approach LOS	A					

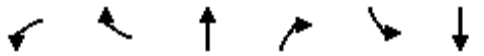
Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	144	54	1623	846	42
Future Volume (Veh/h)	0	144	54	1623	846	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	160	60	1803	940	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				653	609	
pX, platoon unblocked	0.79	0.92	0.92			
vC, conflicting volume	1962	470	987			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1232	248	810			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	77	92			
cM capacity (veh/h)	123	692	746			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	160	60	902	902	470	470	47
Volume Left	0	60	0	0	0	0	0
Volume Right	160	0	0	0	0	0	47
cSH	692	746	1700	1700	1700	1700	1700
Volume to Capacity	0.23	0.08	0.53	0.53	0.28	0.28	0.03
Queue Length 95th (ft)	22	7	0	0	0	0	0
Control Delay (s)	11.8	10.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	11.8	0.3			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	187	60	24	50	42	16
Future Volume (Veh/h)	187	60	24	50	42	16
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	208	67	27	56	47	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			624			
pX, platoon unblocked						
vC, conflicting volume	139	27			83	
vC1, stage 1 conf vol	27					
vC2, stage 2 conf vol	112					
vCu, unblocked vol	139	27			83	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	76	94			97	
cM capacity (veh/h)	859	1048			1514	

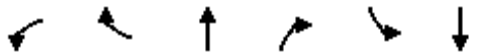
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	208	67	27	56	47	18
Volume Left	208	0	0	0	47	0
Volume Right	0	67	0	56	0	0
cSH	859	1048	1700	1700	1514	1700
Volume to Capacity	0.24	0.06	0.02	0.03	0.03	0.01
Queue Length 95th (ft)	24	5	0	0	2	0
Control Delay (s)	10.5	8.7	0.0	0.0	7.5	0.0
Lane LOS	B	A			A	
Approach Delay (s)	10.1		0.0		5.4	
Approach LOS	B					

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	49	67	28	131	199
Future Volume (Veh/h)	35	49	67	28	131	199
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	54	74	31	146	221
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)				593		
pX, platoon unblocked						
vC, conflicting volume			93		218	39
vC1, stage 1 conf vol					39	
vC2, stage 2 conf vol					179	
vCu, unblocked vol			93		218	39
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		81	79
cM capacity (veh/h)			1501		786	1033

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	39	54	74	31	146	221
Volume Left	0	0	74	0	146	0
Volume Right	0	54	0	0	0	221
cSH	1700	1700	1501	1700	786	1033
Volume to Capacity	0.02	0.03	0.05	0.02	0.19	0.21
Queue Length 95th (ft)	0	0	4	0	17	20
Control Delay (s)	0.0	0.0	7.5	0.0	10.6	9.4
Lane LOS			A		B	A
Approach Delay (s)	0.0		5.3		9.9	
Approach LOS					A	

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	78	6	0	58
Future Volume (Veh/h)	0	15	78	6	0	58
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	17	87	7	0	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			907			
pX, platoon unblocked						
vC, conflicting volume	154	90			94	
vC1, stage 1 conf vol	90					
vC2, stage 2 conf vol	64					
vCu, unblocked vol	154	90			94	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	887	967			1500	

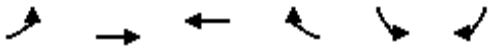
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	94	64
Volume Left	0	0	0
Volume Right	17	7	0
cSH	967	1700	1700
Volume to Capacity	0.02	0.06	0.04
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)				1169		
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol					0	
vC2, stage 2 conf vol					0	
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	0	0	0	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	
Approach LOS			A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		



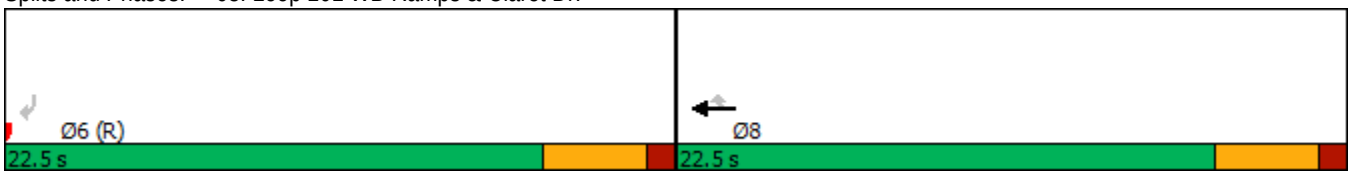
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↱		↱
Traffic Volume (vph)	0	0	971	60	0	193
Future Volume (vph)	0	0	971	60	0	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5		4.5
Lane Util. Factor			0.95	1.00		1.00
Frt			1.00	0.85		0.86
Flt Protected			1.00	1.00		1.00
Satd. Flow (prot)			3539	1583		1611
Flt Permitted			1.00	1.00		1.00
Satd. Flow (perm)			3539	1583		1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	1079	67	0	214
RTOR Reduction (vph)	0	0	0	40	0	17
Lane Group Flow (vph)	0	0	1079	27	0	197
Turn Type			NA	Perm		Perm
Protected Phases			8			
Permitted Phases				8		6
Actuated Green, G (s)			18.0	18.0		18.0
Effective Green, g (s)			18.0	18.0		18.0
Actuated g/C Ratio			0.40	0.40		0.40
Clearance Time (s)			4.5	4.5		4.5
Lane Grp Cap (vph)			1415	633		644
v/s Ratio Prot			c0.30			
v/s Ratio Perm				0.02		c0.12
v/c Ratio			0.76	0.04		0.31
Uniform Delay, d1			11.7	8.2		9.2
Progression Factor			1.00	1.00		1.00
Incremental Delay, d2			3.9	0.1		1.2
Delay (s)			15.6	8.4		10.5
Level of Service			B	A		B
Approach Delay (s)		0.0	15.2		10.5	
Approach LOS		A	B		B	

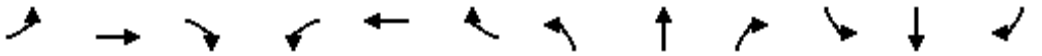
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	6	8
Movement	SBR	WBT
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Max	Max
Maximum Split (s)	22.5	22.5
Maximum Split (%)	50.0%	50.0%
Minimum Split (s)	22.5	22.5
Yellow Time (s)	3.5	3.5
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	7	7
Flash Dont Walk (s)	11	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	22.5
End Time (s)	22.5	0
Yield/Force Off (s)	18	40.5
Yield/Force Off 170(s)	7	29.5
Local Start Time (s)	0	22.5
Local Yield (s)	18	40.5
Local Yield 170(s)	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2: and 6:SBR, Start of Green	

Splits and Phases: 63: Loop 101 WB Ramps & Claret Dr.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	498	21	477	296	1090	0	0	1880	638
Future Volume (vph)	0	0	0	498	21	477	296	1090	0	0	1880	638
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1526	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1526	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	553	23	530	329	1211	0	0	2089	709
RTOR Reduction (vph)	0	0	0	0	188	204	0	0	0	0	0	359
Lane Group Flow (vph)	0	0	0	553	89	72	329	1211	0	0	2089	350
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				31.2	31.2	31.2	20.0	34.8			51.8	51.8
Effective Green, g (s)				31.2	31.2	31.2	20.0	34.8			51.8	51.8
Actuated g/C Ratio				0.26	0.26	0.26	0.17	0.29			0.43	0.43
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				892	396	391	572	1474			3256	683
v/s Ratio Prot					0.06		c0.10	c0.24			c0.28	
v/s Ratio Perm				c0.16		0.05						0.22
v/c Ratio				0.62	0.22	0.18	0.58	0.82			0.64	0.51
Uniform Delay, d1				39.2	34.9	34.5	46.1	39.7			26.8	24.9
Progression Factor				1.00	1.00	1.00	1.28	0.45			1.07	1.94
Incremental Delay, d2				1.3	0.3	0.2	3.4	3.2			0.2	0.3
Delay (s)				40.5	35.2	34.7	62.3	20.8			28.9	48.5
Level of Service				D	D	C	E	C			C	D
Approach Delay (s)		0.0			37.7			29.7			33.9	
Approach LOS		A			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

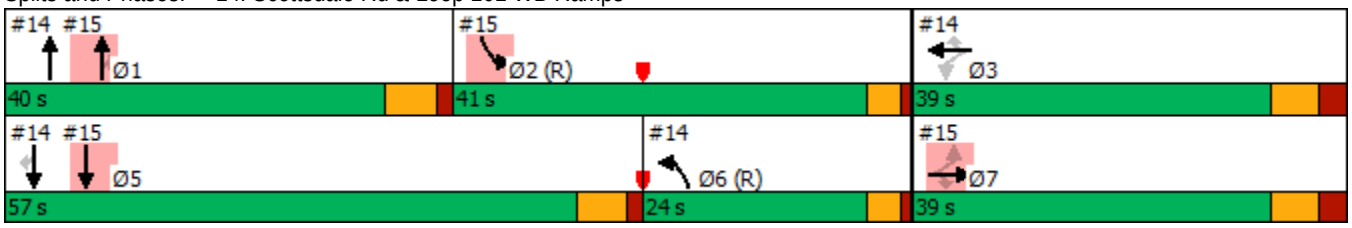
c Critical Lane Group

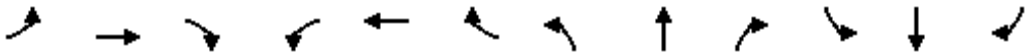
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	40	41	39	57	24	39
Maximum Split (%)	33.3%	34.2%	32.5%	47.5%	20.0%	32.5%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	111	31	72	111	48	72
End Time (s)	31	72	111	48	72	111
Yield/Force Off (s)	25	68	104	42	68	104
Yield/Force Off 170(s)	25	68	104	42	68	104
Local Start Time (s)	63	103	24	63	0	24
Local Yield (s)	97	20	56	114	20	56
Local Yield 170(s)	97	20	56	114	20	56

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	60

Offset: 48 (40%), Referenced to phase 2:SBL and 6:, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

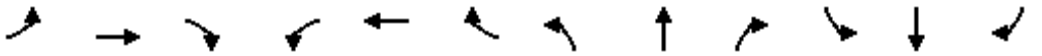




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	666	2	598	0	0	0	0	732	322	734	1677	0
Future Volume (vph)	666	2	598	0	0	0	0	732	322	734	1677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	740	2	664	0	0	0	0	813	358	816	1863	0
RTOR Reduction (vph)	0	246	246	0	0	0	0	0	254	0	0	0
Lane Group Flow (vph)	740	88	86	0	0	0	0	813	104	816	1863	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	31.2	31.2	31.2					34.8	34.8	37.0	51.8	
Effective Green, g (s)	31.2	31.2	31.2					34.8	34.8	37.0	51.8	
Actuated g/C Ratio	0.26	0.26	0.26					0.29	0.29	0.31	0.43	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	892	391	391					2187	459	1058	2195	
v/s Ratio Prot		0.06						0.11		c0.24	c0.37	
v/s Ratio Perm	c0.22		0.06						0.07			
v/c Ratio	0.83	0.23	0.22					0.37	0.23	0.77	0.85	
Uniform Delay, d1	41.9	34.9	34.9					33.9	32.4	37.7	30.6	
Progression Factor	1.00	1.00	1.00					0.33	1.10	0.92	0.43	
Incremental Delay, d2	6.5	0.3	0.3					0.1	0.2	4.3	2.6	
Delay (s)	48.3	35.2	35.1					11.4	35.8	38.9	15.9	
Level of Service	D	D	D					B	D	D	B	
Approach Delay (s)		42.1			0.0			18.9			22.9	
Approach LOS		D			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	396	39	255	22	15	25	121	685	11	40	1617	620
Future Volume (vph)	396	39	255	22	15	25	121	685	11	40	1617	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	440	43	283	24	17	28	134	761	12	44	1797	689
RTOR Reduction (vph)	0	0	92	0	27	0	0	0	9	0	0	208
Lane Group Flow (vph)	440	43	191	24	18	0	134	761	3	44	1797	481
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3		6	1		2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	24.5	20.6	41.5	9.1	5.2		20.9	34.8	34.8	33.0	46.9	71.4
Effective Green, g (s)	24.5	20.6	41.5	9.1	5.2		20.9	34.8	34.8	33.0	46.9	71.4
Actuated g/C Ratio	0.20	0.17	0.35	0.08	0.04		0.17	0.29	0.29	0.28	0.39	0.60
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	700	872	547	260	139		597	1474	459	944	1987	941
v/s Ratio Prot	c0.13	0.01	c0.06	0.01	0.01		0.04	c0.15		0.01	c0.35	0.10
v/s Ratio Perm			0.06						0.00			0.20
v/c Ratio	0.63	0.05	0.35	0.09	0.13		0.22	0.52	0.01	0.05	0.90	0.51
Uniform Delay, d1	43.6	41.5	29.2	51.6	55.2		42.6	35.6	30.3	31.9	34.4	14.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.59	0.65	1.00	0.57	0.51	1.06
Incremental Delay, d2	1.8	0.0	0.4	0.2	0.4		0.9	1.3	0.0	0.1	4.8	0.3
Delay (s)	45.4	41.5	29.6	51.8	55.7		26.0	24.3	30.3	18.4	22.6	15.3
Level of Service	D	D	C	D	E		C	C	C	B	C	B
Approach Delay (s)		39.3			54.3			24.6			20.5	
Approach LOS		D			D			C			C	

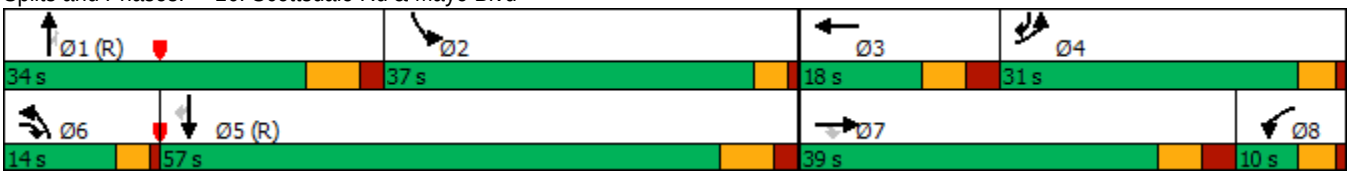
Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

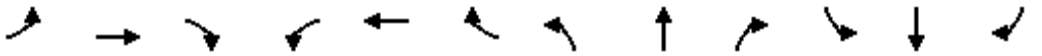
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	34	37	18	31	57	14	39	10
Maximum Split (%)	28.3%	30.8%	15.0%	25.8%	47.5%	11.7%	32.5%	8.3%
Minimum Split (s)	33	9	11	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7				7		7	
Flash Dont Walk (s)	19				19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105	19	56	74	119	105	56	95
End Time (s)	19	56	74	105	56	119	95	105
Yield/Force Off (s)	12	52	67	100.5	49	115	88	100.5
Yield/Force Off 170(s)	113	52	67	100.5	30	115	65	100.5
Local Start Time (s)	106	20	57	75	0	106	57	96
Local Yield (s)	13	53	68	101.5	50	116	89	101.5
Local Yield 170(s)	114	53	68	101.5	31	116	66	101.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 119 (99%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	28	248	82	9	123	128	754	182	189	1678	73
Future Volume (vph)	39	28	248	82	9	123	128	754	182	189	1678	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.5	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3062		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.47	1.00		0.58	1.00	1.00	0.07	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	870	3062		1080	3539	1583	128	5085	1583	555	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	31	276	91	10	137	142	838	202	210	1864	81
RTOR Reduction (vph)	0	198	0	0	0	118	0	0	83	0	0	24
Lane Group Flow (vph)	43	109	0	91	10	19	142	838	119	210	1864	57
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	26.7	13.2		15.9	6.9	16.9	81.2	70.8	70.8	79.9	69.9	84.7
Effective Green, g (s)	26.7	13.2		15.9	6.9	16.9	81.2	70.8	70.8	79.9	69.9	84.7
Actuated g/C Ratio	0.22	0.11		0.13	0.06	0.14	0.68	0.59	0.59	0.67	0.58	0.71
Clearance Time (s)	4.5	4.0		4.5	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	336		194	203	282	228	3000	933	470	2962	1176
v/s Ratio Prot	0.02	c0.04		c0.04	0.00	0.01	c0.05	0.16		0.04	c0.37	0.01
v/s Ratio Perm	0.01			c0.03		0.01	0.37		0.08	0.26		0.03
v/c Ratio	0.14	0.32		0.47	0.05	0.07	0.62	0.28	0.13	0.45	0.63	0.05
Uniform Delay, d1	37.3	49.3		47.6	53.4	44.7	18.4	12.1	10.9	7.8	16.5	5.4
Progression Factor	1.00	1.00		0.87	0.92	1.33	1.29	1.41	4.57	2.21	1.76	2.58
Incremental Delay, d2	0.2	0.6		1.8	0.1	0.1	5.0	0.2	0.3	0.6	0.9	0.0
Delay (s)	37.5	49.8		43.4	49.5	59.6	28.7	17.3	50.1	17.9	29.9	13.9
Level of Service	D	D		D	D	E	C	B	D	B	C	B
Approach Delay (s)		48.3			53.0			24.3			28.1	
Approach LOS		D			D			C			C	

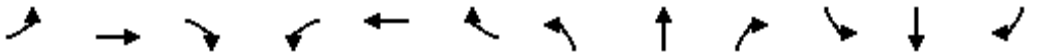
Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	18	69.4	14	18.6	20	67.4	10	22.6
Maximum Split (%)	15.0%	57.8%	11.7%	15.5%	16.7%	56.2%	8.3%	18.8%
Minimum Split (s)	9.5	8	9.5	8	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3	3.5	3	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	5	4	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)						7		7
Flash Dont Walk (s)						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)	118	16	85.4	99.4	118	18	85.4	95.4
End Time (s)	16	85.4	99.4	118	18	85.4	95.4	118
Yield/Force Off (s)	11.5	81.4	94.9	114	13.5	80.9	90.9	113.5
Yield/Force Off 170(s)	11.5	81.4	94.9	114	13.5	69.9	90.9	102.5
Local Start Time (s)	100	118	67.4	81.4	100	0	67.4	77.4
Local Yield (s)	113.5	63.4	76.9	96	115.5	62.9	72.9	95.5
Local Yield 170(s)	113.5	63.4	76.9	96	115.5	51.9	72.9	84.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 18 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	0	114	30	0	19	40	989	11	41	1964	24
Future Volume (vph)	61	0	114	30	0	19	40	989	11	41	1964	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1713		1770	5085	1583	1770	5085	1583
Flt Permitted		0.86			0.58		0.05	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)		1465			1023		97	5085	1583	428	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	0	127	33	0	21	44	1099	12	46	2182	27
RTOR Reduction (vph)	0	64	0	0	47	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	131	0	0	7	0	44	1099	8	46	2182	18
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		16.5			16.5		86.5	79.5	79.5	86.5	79.5	79.5
Effective Green, g (s)		16.5			16.5		86.5	79.5	79.5	86.5	79.5	79.5
Actuated g/C Ratio		0.14			0.14		0.72	0.66	0.66	0.72	0.66	0.66
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		201			140		167	3368	1048	386	3368	1048
v/s Ratio Prot							c0.02	0.22		0.01	c0.43	
v/s Ratio Perm		c0.09			0.01		0.17		0.01	0.08		0.01
v/c Ratio		0.65			0.05		0.26	0.33	0.01	0.12	0.65	0.02
Uniform Delay, d1		49.0			45.0		21.4	8.7	6.9	7.1	12.0	6.9
Progression Factor		1.00			1.00		0.92	0.63	1.00	0.31	0.28	1.00
Incremental Delay, d2		7.4			0.2		3.3	0.2	0.0	0.5	0.8	0.0
Delay (s)		54.4			45.1		23.1	5.7	6.9	2.7	4.1	6.9
Level of Service		D			D		C	A	A	A	A	A
Approach Delay (s)		54.4			45.1			6.4			4.1	
Approach LOS		D			D			A			A	

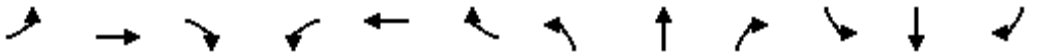
Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	73	11	36
Maximum Split (%)	60.8%	9.2%	30.0%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	57	10	21
End Time (s)	10	21	57
Yield/Force Off (s)	4	17	50
Yield/Force Off 170(s)	1	17	29
Local Start Time (s)	0	73	84
Local Yield (s)	67	80	113
Local Yield 170(s)	64	80	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 57 (48%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	542	1426	399	226	452	204	85	400	124	354	1480	162
Future Volume (vph)	542	1426	399	226	452	204	85	400	124	354	1480	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	602	1584	443	251	502	227	94	444	138	393	1644	180
RTOR Reduction (vph)	0	0	67	0	0	115	0	0	89	0	0	53
Lane Group Flow (vph)	602	1584	376	251	502	112	94	444	49	393	1644	127
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	30.9	40.0	46.0	10.0	19.1	35.6	6.0	31.5	41.5	16.5	42.0	72.9
Effective Green, g (s)	30.9	40.0	46.0	10.0	19.1	35.6	6.0	31.5	41.5	16.5	42.0	72.9
Actuated g/C Ratio	0.26	0.33	0.38	0.08	0.16	0.30	0.05	0.26	0.35	0.14	0.35	0.61
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	883	1695	606	286	809	469	171	1334	547	472	1779	1014
v/s Ratio Prot	0.18	c0.31	c0.03	c0.07	0.10	0.03	0.03	0.09	0.01	0.11	c0.32	0.03
v/s Ratio Perm			0.21			0.04			0.02			0.05
v/c Ratio	0.68	0.93	0.62	0.88	0.62	0.24	0.55	0.33	0.09	0.83	0.92	0.12
Uniform Delay, d1	40.1	38.7	29.9	54.4	47.1	31.9	55.7	35.8	26.5	50.4	37.5	10.0
Progression Factor	1.00	1.00	1.00	0.61	0.55	2.13	1.00	1.00	1.00	0.76	0.93	0.23
Incremental Delay, d2	2.2	10.0	2.0	21.5	1.2	0.2	3.6	0.7	0.1	9.5	7.8	0.0
Delay (s)	42.3	48.8	31.9	54.7	27.3	68.3	59.3	36.4	26.6	48.0	42.5	2.3
Level of Service	D	D	C	D	C	E	E	D	C	D	D	A
Approach Delay (s)		44.4			43.8			37.6			40.2	
Approach LOS		D			D			D			D	

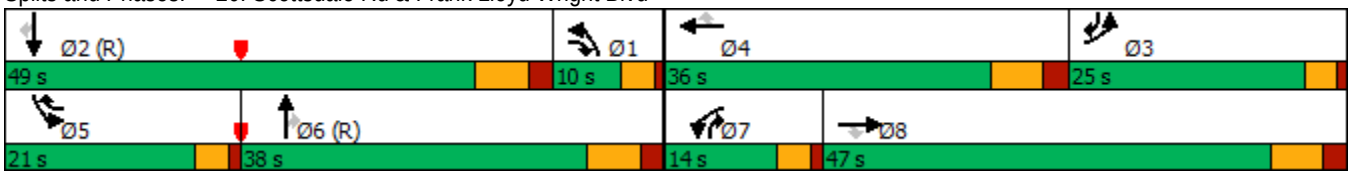
Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

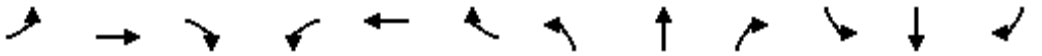
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	10	49	25	36	21	38	14	47
Maximum Split (%)	8.3%	40.8%	20.8%	30.0%	17.5%	31.7%	11.7%	39.2%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	30	101	76	40	101	2	40	54
End Time (s)	40	30	101	76	2	40	54	101
Yield/Force Off (s)	36	23	97	69	118	33	50	94
Yield/Force Off 170(s)	36	2	97	47	118	12	50	72
Local Start Time (s)	28	99	74	38	99	0	38	52
Local Yield (s)	34	21	95	67	116	31	48	92
Local Yield 170(s)	34	0	95	45	116	10	48	70

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 2 (2%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	1237	59	551	998	186	9	288	244	181	561	265
Future Volume (vph)	432	1237	59	551	998	186	9	288	244	181	561	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	480	1374	66	612	1109	207	10	320	271	201	623	294
RTOR Reduction (vph)	0	0	46	0	0	91	0	0	67	0	0	61
Lane Group Flow (vph)	480	1374	20	612	1109	116	10	320	204	201	623	233
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.0	35.6	35.6	21.0	36.6	53.7	1.0	18.3	39.3	17.1	34.4	54.4
Effective Green, g (s)	20.0	35.6	35.6	21.0	36.6	53.7	1.0	18.3	39.3	17.1	34.4	54.4
Actuated g/C Ratio	0.17	0.30	0.30	0.18	0.31	0.45	0.01	0.15	0.33	0.14	0.29	0.45
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	1508	469	600	1550	800	14	539	610	489	1014	717
v/s Ratio Prot	0.14	c0.27		c0.18	0.22	0.02	0.01	c0.09	0.06	0.06	c0.18	0.05
v/s Ratio Perm			0.01			0.05			0.07			0.09
v/c Ratio	0.84	0.91	0.04	1.02	0.72	0.15	0.71	0.59	0.33	0.41	0.61	0.32
Uniform Delay, d1	48.4	40.7	30.1	49.5	37.1	19.6	59.4	47.4	30.5	46.9	37.1	21.0
Progression Factor	1.03	0.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.71	0.26
Incremental Delay, d2	5.3	5.2	0.1	41.9	2.9	0.1	100.1	1.8	0.3	0.6	1.1	0.3
Delay (s)	55.3	22.3	30.1	91.4	39.9	19.7	159.5	49.1	30.8	38.1	27.4	5.7
Level of Service	E	C	C	F	D	B	F	D	C	D	C	A
Approach Delay (s)		30.8			54.1			42.7			23.7	
Approach LOS		C			D			D			C	

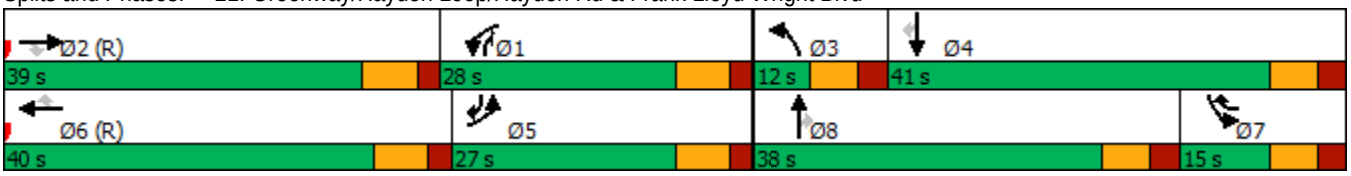
Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

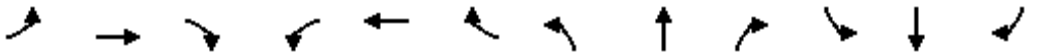
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	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)	28	39	12	41	27	40	15	38
Maximum Split (%)	23.3%	32.5%	10.0%	34.2%	22.5%	33.3%	12.5%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	32	113	60	72	33	113	98	60
End Time (s)	60	32	72	113	60	33	113	98
Yield/Force Off (s)	53	25	65	106	53	26	106	91
Yield/Force Off 170(s)	53	8	65	82	53	9	106	67
Local Start Time (s)	39	0	67	79	40	0	105	67
Local Yield (s)	60	32	72	113	60	33	113	98
Local Yield 170(s)	60	15	72	89	60	16	113	74

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 113 (94%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Future Volume (vph)	0	0	0	580	147	532	690	1554	0	0	1206	668
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.91	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1616	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1616	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	644	163	591	767	1727	0	0	1340	742
RTOR Reduction (vph)	0	0	0	0	42	279	0	0	0	0	0	146
Lane Group Flow (vph)	0	0	0	644	346	87	767	1727	0	0	1340	596
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				28.5	28.5	28.5	27.0	45.5			47.5	47.5
Effective Green, g (s)				28.5	28.5	28.5	27.0	45.5			47.5	47.5
Actuated g/C Ratio				0.24	0.24	0.24	0.22	0.38			0.40	0.40
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				815	383	357	772	1928			2986	626
v/s Ratio Prot					c0.21		c0.22	0.34			0.18	
v/s Ratio Perm				0.19		0.06						c0.38
v/c Ratio				0.79	0.90	0.24	0.99	0.90			0.45	0.95
Uniform Delay, d1				42.9	44.4	37.0	46.4	35.0			26.6	35.1
Progression Factor				1.00	1.00	1.00	1.05	0.36			1.02	1.11
Incremental Delay, d2				5.2	23.9	0.4	26.1	4.4			0.1	21.2
Delay (s)				48.2	68.3	37.4	74.9	16.8			27.3	60.2
Level of Service				D	E	D	E	B			C	E
Approach Delay (s)		0.0			50.9			34.7			39.0	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

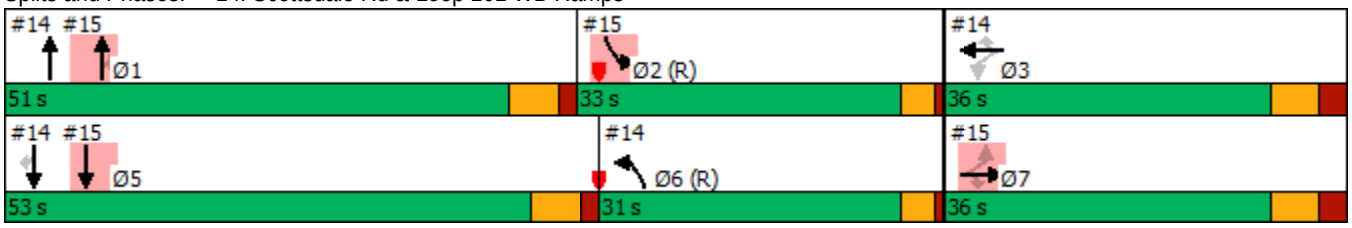
c Critical Lane Group

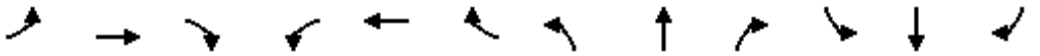
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	51	33	36	53	31	36
Maximum Split (%)	42.5%	27.5%	30.0%	44.2%	25.8%	30.0%
Minimum Split (s)	16	9	21	20	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	26	77	110	26	79	110
End Time (s)	77	110	26	79	110	26
Yield/Force Off (s)	71	106	19	73	106	19
Yield/Force Off 170(s)	71	106	19	73	106	19
Local Start Time (s)	67	118	31	67	0	31
Local Yield (s)	112	27	60	114	27	60
Local Yield 170(s)	112	27	60	114	27	60

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	80	

Offset: 79 (66%), Referenced to phase 2:SBL and 6:, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

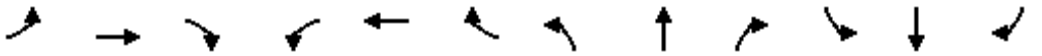




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Future Volume (vph)	516	0	616	0	0	0	0	1741	524	502	1374	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	573	0	684	0	0	0	0	1934	582	558	1527	0
RTOR Reduction (vph)	0	261	261	0	0	0	0	0	232	0	0	0
Lane Group Flow (vph)	573	81	81	0	0	0	0	1934	350	558	1527	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	28.5	28.5	28.5					45.5	45.5	29.0	47.5	
Effective Green, g (s)	28.5	28.5	28.5					45.5	45.5	29.0	47.5	
Actuated g/C Ratio	0.24	0.24	0.24					0.38	0.38	0.24	0.40	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	815	357	357					2860	600	829	2012	
v/s Ratio Prot		0.05						0.26		c0.16	c0.30	
v/s Ratio Perm	c0.17		0.05						0.22			
v/c Ratio	0.70	0.23	0.23					0.68	0.58	0.67	0.76	
Uniform Delay, d1	41.9	36.9	36.9					31.1	29.7	41.2	31.3	
Progression Factor	1.00	1.00	1.00					0.68	1.25	1.18	0.41	
Incremental Delay, d2	2.8	0.3	0.3					0.3	0.7	3.7	1.5	
Delay (s)	44.6	37.2	37.2					21.4	37.9	52.4	14.1	
Level of Service	D	D	D					C	D	D	B	
Approach Delay (s)		40.6			0.0			25.2			24.4	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Future Volume (vph)	648	9	176	11	13	21	347	1627	11	10	1247	718
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95		0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3209		3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	720	10	196	12	14	23	386	1808	12	11	1386	798
RTOR Reduction (vph)	0	0	130	0	22	0	0	0	7	0	0	173
Lane Group Flow (vph)	720	10	66	12	15	0	386	1808	5	11	1386	625
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3		6	1		2	5	4
Permitted Phases			7						1			5
Actuated Green, G (s)	27.4	23.5	40.5	9.6	5.7		17.0	47.8	47.8	16.6	47.4	74.8
Effective Green, g (s)	27.4	23.5	40.5	9.6	5.7		17.0	47.8	47.8	16.6	47.4	74.8
Actuated g/C Ratio	0.23	0.20	0.34	0.08	0.05		0.14	0.40	0.40	0.14	0.39	0.62
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0		4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	783	995	534	274	152		486	2025	630	474	2008	986
v/s Ratio Prot	c0.21	0.00	c0.02	0.00	0.00		0.11	c0.36		0.00	c0.27	0.14
v/s Ratio Perm			0.02						0.00			0.25
v/c Ratio	0.92	0.01	0.12	0.04	0.10		0.79	0.89	0.01	0.02	0.69	0.63
Uniform Delay, d1	45.2	38.9	27.5	51.0	54.7		49.8	33.7	21.8	44.7	30.2	14.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.72	0.64	1.00	0.60	0.81	4.23
Incremental Delay, d2	15.7	0.0	0.1	0.1	0.3		10.9	5.7	0.0	0.1	1.4	1.0
Delay (s)	60.9	38.9	27.6	51.0	55.0		46.8	27.3	21.8	26.9	26.0	60.5
Level of Service	E	D	C	D	D		D	C	C	C	C	E
Approach Delay (s)		53.6			54.0			30.7			38.5	
Approach LOS		D			D			C			D	

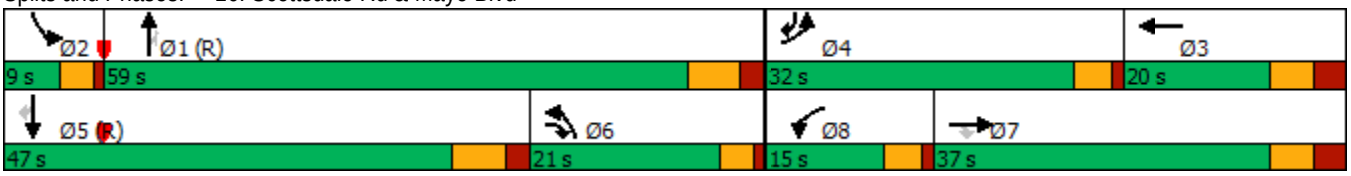
Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

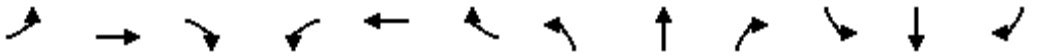
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	59	9	20	32	47	21	37	15
Maximum Split (%)	49.2%	7.5%	16.7%	26.7%	39.2%	17.5%	30.8%	12.5%
Minimum Split (s)	33	9	11	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	10	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7				7		7	
Flash Dont Walk (s)	19				19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	88	79	59	27	79	6	42	27
End Time (s)	27	88	79	59	6	27	79	42
Yield/Force Off (s)	20	84	72	54.5	119	23	72	37.5
Yield/Force Off 170(s)	1	84	72	54.5	100	23	49	37.5
Local Start Time (s)	0	111	91	59	111	38	74	59
Local Yield (s)	52	116	104	86.5	31	55	104	69.5
Local Yield 170(s)	33	116	104	86.5	12	55	81	69.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 88 (73%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Future Volume (vph)	54	13	241	127	39	190	250	1808	98	113	1497	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0		4.5	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3035		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00		0.33	1.00	1.00	0.07	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1355	3035		616	3539	1583	138	5085	1583	150	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	60	14	268	141	43	211	278	2009	109	126	1663	77
RTOR Reduction (vph)	0	250	0	0	0	71	0	0	44	0	0	31
Lane Group Flow (vph)	60	32	0	141	43	140	278	2009	65	126	1663	46
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	12.5	8.1		22.3	13.4	26.7	71.4	71.4	71.4	66.7	66.7	71.1
Effective Green, g (s)	12.5	8.1		22.3	13.4	26.7	71.4	71.4	71.4	66.7	66.7	71.1
Actuated g/C Ratio	0.10	0.07		0.19	0.11	0.22	0.60	0.60	0.60	0.56	0.56	0.59
Clearance Time (s)	4.5	4.0		4.5	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	156	204		212	395	352	320	3025	941	262	2826	997
v/s Ratio Prot	0.01	0.01		c0.06	0.01	0.04	c0.13	0.40		0.05	c0.33	0.00
v/s Ratio Perm	0.03			c0.07		0.04	c0.39		0.04	0.21		0.03
v/c Ratio	0.38	0.16		0.67	0.11	0.40	0.87	0.66	0.07	0.48	0.59	0.05
Uniform Delay, d1	49.8	52.7		43.5	47.9	39.8	34.4	16.3	10.3	27.9	17.6	10.2
Progression Factor	1.00	1.00		1.05	1.07	1.20	1.28	0.22	0.14	1.10	1.14	2.64
Incremental Delay, d2	1.6	0.4		7.6	0.1	0.7	15.0	0.8	0.1	1.3	0.8	0.0
Delay (s)	51.4	53.1		53.4	51.4	48.5	58.8	4.4	1.5	32.0	20.9	27.0
Level of Service	D	D		D	D	D	E	A	A	C	C	C
Approach Delay (s)		52.8			50.6			10.6			21.9	
Approach LOS		D			D			B			C	

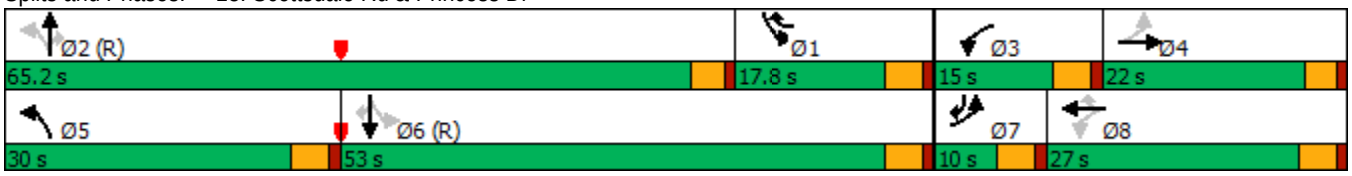
Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

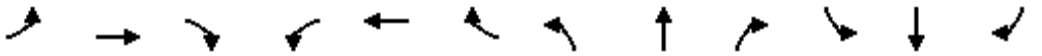
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	17.8	65.2	15	22	30	53	10	27
Maximum Split (%)	14.8%	54.3%	12.5%	18.3%	25.0%	44.2%	8.3%	22.5%
Minimum Split (s)	9.5	22	9.5	22	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3	3.5	3	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	5	4	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		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)	95.2	30	113	8	30	60	113	3
End Time (s)	113	95.2	8	30	60	113	3	30
Yield/Force Off (s)	108.5	91.2	3.5	26	55.5	108.5	118.5	25.5
Yield/Force Off 170(s)	108.5	80.2	3.5	15	55.5	97.5	118.5	14.5
Local Start Time (s)	35.2	90	53	68	90	0	53	63
Local Yield (s)	48.5	31.2	63.5	86	115.5	48.5	58.5	85.5
Local Yield 170(s)	48.5	20.2	63.5	75	115.5	37.5	58.5	74.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 60 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Future Volume (vph)	65	2	119	92	8	57	107	2044	26	56	1778	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1672			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.61		0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)		1384			1085		113	5085	1583	105	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	72	2	132	102	9	63	119	2271	29	62	1976	91
RTOR Reduction (vph)	0	58	0	0	18	0	0	0	12	0	0	35
Lane Group Flow (vph)	0	148	0	0	156	0	119	2271	17	62	1976	56
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		20.7			20.7		82.3	71.3	71.3	82.3	71.3	71.3
Effective Green, g (s)		20.7			20.7		82.3	71.3	71.3	82.3	71.3	71.3
Actuated g/C Ratio		0.17			0.17		0.69	0.59	0.59	0.69	0.59	0.59
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		238			187		229	3021	940	224	3021	940
v/s Ratio Prot							c0.05	c0.45		0.03	0.39	
v/s Ratio Perm		0.11			c0.14		0.31		0.01	0.16		0.04
v/c Ratio		0.62			0.83		0.52	0.75	0.02	0.28	0.65	0.06
Uniform Delay, d1		46.0			48.0		30.0	17.9	10.0	32.0	16.2	10.2
Progression Factor		1.00			1.00		0.60	0.50	1.00	0.92	0.61	0.07
Incremental Delay, d2		5.0			26.0		2.8	0.6	0.0	2.6	0.9	0.1
Delay (s)		51.0			54.0		20.8	9.5	10.0	32.0	10.8	0.8
Level of Service		D			D		C	A	B	C	B	A
Approach Delay (s)		51.0			54.0			10.1			11.0	
Approach LOS		D			D			B			B	

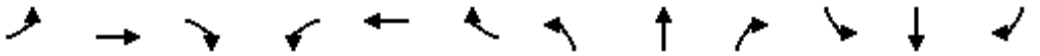
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	70	15	35
Maximum Split (%)	58.3%	12.5%	29.2%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	95	45	60
End Time (s)	45	60	95
Yield/Force Off (s)	39	56	88
Yield/Force Off 170(s)	36	56	67
Local Start Time (s)	0	70	85
Local Yield (s)	64	81	113
Local Yield 170(s)	61	81	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 95 (79%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Future Volume (vph)	272	598	208	196	1429	472	496	1501	239	359	1233	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	302	664	231	218	1588	524	551	1668	266	399	1370	474
RTOR Reduction (vph)	0	0	76	0	0	80	0	0	96	0	0	69
Lane Group Flow (vph)	302	664	155	218	1588	444	551	1668	170	399	1370	405
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.0	34.1	53.1	11.9	35.0	49.0	19.0	38.0	49.9	14.0	33.0	44.0
Effective Green, g (s)	11.0	34.1	53.1	11.9	35.0	49.0	19.0	38.0	49.9	14.0	33.0	44.0
Actuated g/C Ratio	0.09	0.28	0.44	0.10	0.29	0.41	0.16	0.32	0.42	0.12	0.28	0.37
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	314	1444	700	340	1483	699	543	1610	658	400	1398	580
v/s Ratio Prot	c0.09	0.13	0.04	0.06	c0.31	0.07	0.16	c0.33	0.03	c0.12	c0.27	0.06
v/s Ratio Perm			0.06			0.21			0.08			0.19
v/c Ratio	0.96	0.46	0.22	0.64	1.07	0.63	1.01	1.04	0.26	1.00	0.98	0.70
Uniform Delay, d1	54.3	35.4	20.7	52.0	42.5	28.3	50.5	41.0	22.9	53.0	43.2	32.3
Progression Factor	1.00	1.00	1.00	0.76	0.65	0.32	1.00	1.00	1.00	0.72	0.71	0.59
Incremental Delay, d2	40.4	0.2	0.2	1.2	36.4	0.5	42.4	32.3	0.2	38.5	16.8	2.8
Delay (s)	94.6	35.6	20.8	40.4	63.9	9.5	92.9	73.3	23.2	76.8	47.5	21.8
Level of Service	F	D	C	D	E	A	F	E	C	E	D	C
Approach Delay (s)		47.6			49.4			72.3			47.3	
Approach LOS		D			D			E			D	

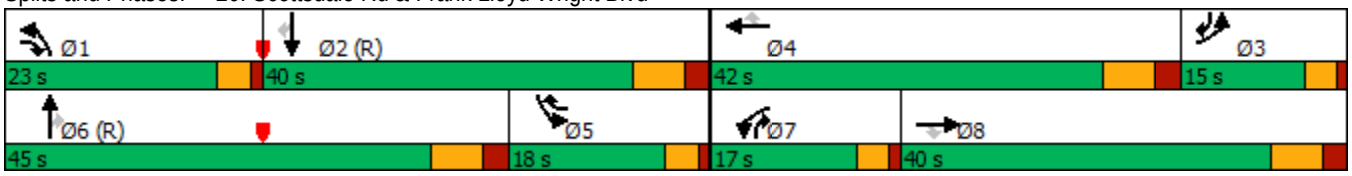
Intersection Summary			
HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

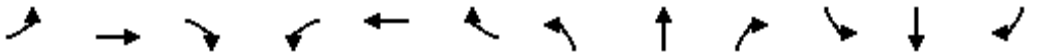
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	23	40	15	42	18	45	17	40
Maximum Split (%)	19.2%	33.3%	12.5%	35.0%	15.0%	37.5%	14.2%	33.3%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	96	119	81	39	21	96	39	56
End Time (s)	119	39	96	81	39	21	56	96
Yield/Force Off (s)	115	32	92	74	35	14	52	89
Yield/Force Off 170(s)	115	11	92	52	35	113	52	67
Local Start Time (s)	97	0	82	40	22	97	40	57
Local Yield (s)	116	33	93	75	36	15	53	90
Local Yield 170(s)	116	12	93	53	36	114	53	68

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 119 (99%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Future Volume (vph)	377	1082	56	349	1621	334	78	429	542	243	538	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	419	1202	62	388	1801	371	87	477	602	270	598	614
RTOR Reduction (vph)	0	0	42	0	0	87	0	0	112	0	0	105
Lane Group Flow (vph)	419	1202	20	388	1801	284	87	477	490	270	598	509
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	12.8	38.7	38.7	15.0	40.9	56.5	7.9	22.7	37.7	15.6	30.4	43.2
Effective Green, g (s)	12.8	38.7	38.7	15.0	40.9	56.5	7.9	22.7	37.7	15.6	30.4	43.2
Actuated g/C Ratio	0.11	0.32	0.32	0.12	0.34	0.47	0.07	0.19	0.31	0.13	0.25	0.36
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	366	1639	510	429	1733	745	116	669	589	446	896	662
v/s Ratio Prot	c0.12	0.24		0.11	c0.35	0.05	0.05	0.13	c0.10	0.08	0.17	c0.08
v/s Ratio Perm			0.01			0.13			0.21			0.24
v/c Ratio	1.14	0.73	0.04	0.90	1.04	0.38	0.75	0.71	0.83	0.61	0.67	0.77
Uniform Delay, d1	53.6	36.1	27.9	51.8	39.5	20.5	55.1	45.6	38.2	49.3	40.3	34.0
Progression Factor	0.69	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.84	0.83
Incremental Delay, d2	90.3	2.7	0.1	22.0	32.6	0.3	23.5	3.6	9.7	2.2	1.8	5.2
Delay (s)	127.4	31.1	28.0	73.8	72.1	20.8	78.6	49.2	47.9	44.7	35.6	33.3
Level of Service	F	C	C	E	E	C	E	D	D	D	D	C
Approach Delay (s)		55.0			64.9			50.7			36.3	
Approach LOS		D			E			D			D	

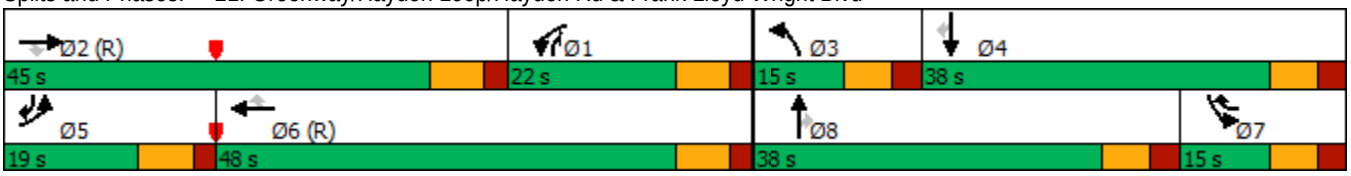
Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	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)	22	45	15	38	19	48	15	38
Maximum Split (%)	18.3%	37.5%	12.5%	31.7%	15.8%	40.0%	12.5%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	15	90	37	52	90	109	75	37
End Time (s)	37	15	52	90	109	37	90	75
Yield/Force Off (s)	30	8	45	83	102	30	83	68
Yield/Force Off 170(s)	30	111	45	59	102	13	83	44
Local Start Time (s)	26	101	48	63	101	0	86	48
Local Yield (s)	41	19	56	94	113	41	94	79
Local Yield 170(s)	41	2	56	70	113	24	94	55

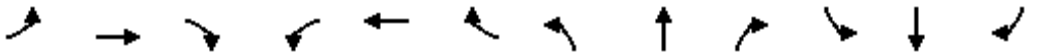
Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	125
Offset: 109 (91%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd



APPENDIX J

2030 PEAK HOUR TRAFFIC ANALYSIS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	13	70	73	14	3	69	618	19	4	712	38
Future Volume (vph)	30	13	70	73	14	3	69	618	19	4	712	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1819		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.35	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	1388	1626		1299	1819		648	3539	1583	727	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	14	78	81	16	3	77	687	21	4	791	42
RTOR Reduction (vph)	0	70	0	0	3	0	0	0	5	0	0	10
Lane Group Flow (vph)	33	22	0	81	16	0	77	687	16	4	791	32
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	10.1	10.1		10.1	10.1		71.9	71.9	71.9	71.9	71.9	71.9
Effective Green, g (s)	10.1	10.1		10.1	10.1		71.9	71.9	71.9	71.9	71.9	71.9
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.76	0.76	0.76	0.76	0.76	0.76
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	147	172		138	193		490	2678	1198	550	2678	1198
v/s Ratio Prot		0.01			0.01			0.19			c0.22	
v/s Ratio Perm	0.02			c0.06			0.12		0.01	0.01		0.02
v/c Ratio	0.22	0.13		0.59	0.08		0.16	0.26	0.01	0.01	0.30	0.03
Uniform Delay, d1	38.9	38.5		40.5	38.3		3.2	3.5	2.8	2.8	3.6	2.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		6.2	0.2		0.7	0.2	0.0	0.0	0.3	0.0
Delay (s)	39.6	38.8		46.7	38.5		3.9	3.7	2.9	2.8	3.9	2.9
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		39.0			45.1			3.7			3.8	
Approach LOS		D			D			A			A	

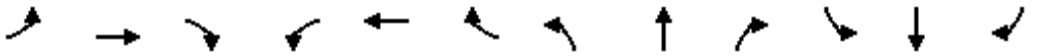
Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	54	41
Maximum Split (%)	56.8%	43.2%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	54
End Time (s)	54	0
Yield/Force Off (s)	48	88
Yield/Force Off 170(s)	44	84
Local Start Time (s)	0	54
Local Yield (s)	48	88
Local Yield 170(s)	44	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	3	105	53	9	21	41	645	10	4	833	40
Future Volume (vph)	35	3	105	53	9	21	41	645	10	4	833	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1668		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.29	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	1370	1863	1583	1408	1668		549	3539	1583	697	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	3	117	59	10	23	46	717	11	4	926	44
RTOR Reduction (vph)	0	0	59	0	20	0	0	0	2	0	0	10
Lane Group Flow (vph)	39	3	58	59	13	0	46	717	9	4	926	34
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	13.1	13.1	13.1	13.1	13.1		92.9	92.9	92.9	92.9	92.9	92.9
Effective Green, g (s)	13.1	13.1	13.1	13.1	13.1		92.9	92.9	92.9	92.9	92.9	92.9
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.77	0.77	0.77	0.77	0.77	0.77
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	203	172	153	182		425	2739	1225	539	2739	1225
v/s Ratio Prot		0.00			0.01			0.20			c0.26	
v/s Ratio Perm	0.03		0.04	c0.04			0.08		0.01	0.01		0.02
v/c Ratio	0.26	0.01	0.34	0.39	0.07		0.11	0.26	0.01	0.01	0.34	0.03
Uniform Delay, d1	49.0	47.7	49.4	49.7	48.0		3.3	3.8	3.1	3.1	4.1	3.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.14	1.44	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.0	1.2	1.6	0.2		0.5	0.2	0.0	0.0	0.3	0.0
Delay (s)	50.0	47.7	50.6	51.3	48.1		4.3	5.7	3.1	3.1	4.5	3.2
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		50.4			50.2			5.6			4.4	
Approach LOS		D			D			A			A	

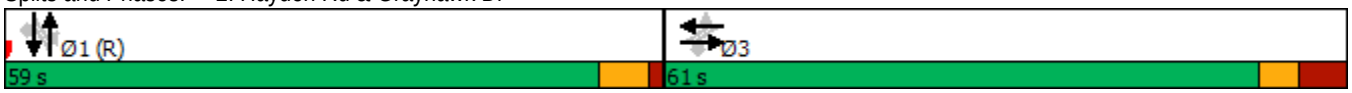
Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

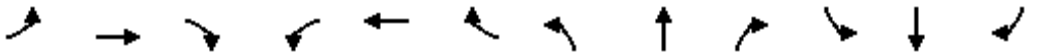
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	59	61
Maximum Split (%)	49.2%	50.8%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	70	9
End Time (s)	9	70
Yield/Force Off (s)	3	62
Yield/Force Off 170(s)	116	54
Local Start Time (s)	0	59
Local Yield (s)	53	112
Local Yield 170(s)	46	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 70 (58%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	347	426	469	365	103	202	533	357	240	701	60
Future Volume (vph)	37	347	426	469	365	103	202	533	357	240	701	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.0	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.51	1.00	1.00	0.23	1.00	1.00	0.23	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1855	3539	1583	840	3539	1583	821	3539	1583	1250	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	386	473	521	406	114	224	592	397	267	779	67
RTOR Reduction (vph)	0	0	59	0	0	78	0	0	47	0	0	40
Lane Group Flow (vph)	41	386	414	521	406	36	224	592	350	267	779	27
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.8	19.5	42.2	39.3	30.5	38.2	71.7	60.0	76.3	52.2	44.5	48.8
Effective Green, g (s)	23.8	19.5	42.2	39.3	30.5	38.2	71.7	60.0	76.3	52.2	44.5	48.8
Actuated g/C Ratio	0.20	0.16	0.35	0.33	0.25	0.32	0.60	0.50	0.64	0.44	0.37	0.41
Clearance Time (s)	4.5	4.0	4.5	4.0	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	424	575	556	627	899	503	984	1769	1006	683	1312	643
v/s Ratio Prot	0.00	0.11	c0.14	c0.11	0.11	0.00	0.04	0.17	0.05	0.03	c0.22	0.00
v/s Ratio Perm	0.02		0.12	c0.16		0.02	0.09		0.17	0.14		0.02
v/c Ratio	0.10	0.67	0.74	0.83	0.45	0.07	0.23	0.33	0.35	0.39	0.59	0.04
Uniform Delay, d1	39.0	47.2	34.2	32.9	37.7	28.5	22.0	18.0	10.2	29.4	30.5	21.5
Progression Factor	1.00	1.00	1.00	0.73	0.66	0.41	0.42	0.62	0.82	0.88	0.90	1.00
Incremental Delay, d2	0.1	3.1	5.4	8.5	0.3	0.1	0.1	0.5	0.2	0.4	1.9	0.0
Delay (s)	39.1	50.3	39.5	32.6	25.2	11.8	9.4	11.7	8.6	26.3	29.4	21.5
Level of Service	D	D	D	C	C	B	A	B	A	C	C	C
Approach Delay (s)		44.1			27.4			10.3			28.2	
Approach LOS		D			C			B			C	

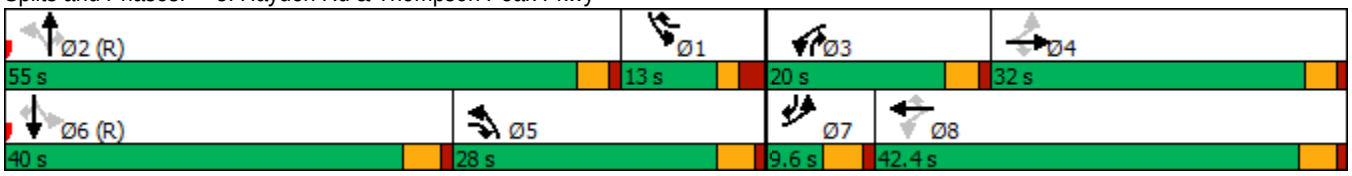
Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

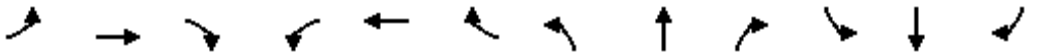
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	13	55	20	32	28	40	9.6	42.4
Maximum Split (%)	10.8%	45.8%	16.7%	26.7%	23.3%	33.3%	8.0%	35.3%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	2	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	75	20	88	108	60	20	88	97.6
End Time (s)	88	75	108	20	88	60	97.6	20
Yield/Force Off (s)	83.5	71	104	16	83.5	55.5	93.1	15.5
Yield/Force Off 170(s)	83.5	47	104	115	83.5	31.5	93.1	114.5
Local Start Time (s)	55	0	68	88	40	0	68	77.6
Local Yield (s)	63.5	51	84	116	63.5	35.5	73.1	115.5
Local Yield 170(s)	63.5	27	84	95	63.5	11.5	73.1	94.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 20 (17%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	76	202	49	43	18	182	1054	125	49	1556	39
Future Volume (vph)	63	76	202	49	43	18	182	1054	125	49	1556	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.48	1.00	1.00	0.95	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	886	3539	1583	3433	5085	1583	353	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	84	224	54	48	20	202	1171	139	54	1729	43
RTOR Reduction (vph)	0	0	188	0	0	18	0	0	50	0	0	18
Lane Group Flow (vph)	70	84	36	54	48	2	202	1171	89	54	1729	25
Turn Type	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4	8		8			2	6		6
Actuated Green, G (s)	6.7	7.0	19.4	17.8	10.3	10.3	12.4	76.5	76.5	70.1	70.1	70.1
Effective Green, g (s)	6.7	7.0	19.4	17.8	10.3	10.3	12.4	76.5	76.5	70.1	70.1	70.1
Actuated g/C Ratio	0.06	0.06	0.16	0.15	0.09	0.09	0.10	0.64	0.64	0.58	0.58	0.58
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	191	206	255	186	303	135	354	3241	1009	277	2970	924
v/s Ratio Prot	c0.02	c0.02	0.01	0.02	0.01		c0.06	0.23		0.01	c0.34	
v/s Ratio Perm			0.01	c0.02		0.00			0.06	0.10		0.02
v/c Ratio	0.37	0.41	0.14	0.29	0.16	0.01	0.57	0.36	0.09	0.19	0.58	0.03
Uniform Delay, d1	54.6	54.5	43.2	44.9	50.8	50.2	51.3	10.2	8.4	11.3	15.7	10.5
Progression Factor	0.95	0.78	0.71	1.00	1.00	1.00	1.43	2.17	9.15	0.89	0.91	1.00
Incremental Delay, d2	1.2	1.3	0.3	0.9	0.2	0.0	1.8	0.3	0.1	0.2	0.6	0.0
Delay (s)	52.8	43.6	30.7	45.8	51.1	50.2	75.1	22.5	76.6	10.4	14.9	10.6
Level of Service	D	D	C	D	D	D	E	C	E	B	B	B
Approach Delay (s)		37.7			48.6			34.5			14.7	
Approach LOS		D			D			C			B	

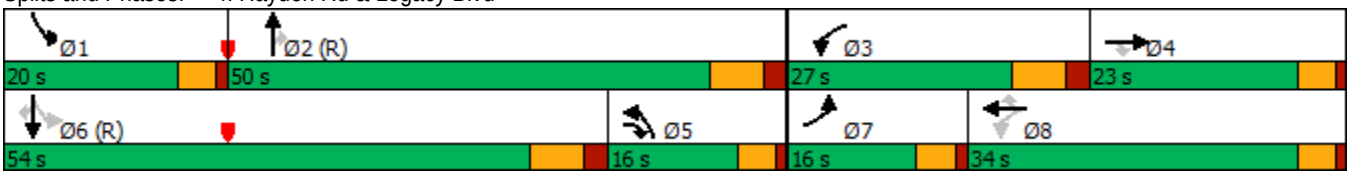
Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

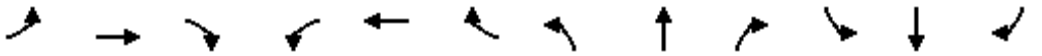
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	50	27	23	16	54	16	34
Maximum Split (%)	16.7%	41.7%	22.5%	19.2%	13.3%	45.0%	13.3%	28.3%
Minimum Split (s)	9.5	32	32	22.5	9.5	32	9.5	22.5
Yellow Time (s)	3.5	4.8	4.8	3.5	3.5	4.8	3.5	3.5
All-Red Time (s)	1	2.2	2.2	1	1	2.2	1	1
Minimum Initial (s)	5	10	6	5	5	10	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		15	10	7		15		7
Flash Dont Walk (s)		10	15	11		10		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	115	45	72	29	95	45	61
End Time (s)	115	45	72	95	45	29	61	95
Yield/Force Off (s)	110.5	38	65	90.5	40.5	22	56.5	90.5
Yield/Force Off 170(s)	110.5	28	50	79.5	40.5	12	56.5	79.5
Local Start Time (s)	100	0	50	77	34	100	50	66
Local Yield (s)	115.5	43	70	95.5	45.5	27	61.5	95.5
Local Yield 170(s)	115.5	33	55	84.5	45.5	17	61.5	84.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 115 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	133	15	518	200	930	0	0	1253	558
Future Volume (vph)	0	0	0	133	15	518	200	930	0	0	1253	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.91			0.81	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1519	1504	1770	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1519	1504	1770	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	148	17	576	222	1033	0	0	1392	620
RTOR Reduction (vph)	0	0	0	0	200	209	0	0	0	0	0	359
Lane Group Flow (vph)	0	0	0	148	99	85	222	1033	0	0	1392	261
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				34.8	34.8	34.8	19.7	35.7			50.5	50.5
Effective Green, g (s)				34.8	34.8	34.8	19.7	35.7			50.5	50.5
Actuated g/C Ratio				0.29	0.29	0.29	0.16	0.30			0.42	0.42
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				995	440	436	290	1512			3174	666
v/s Ratio Prot					c0.07		c0.13	c0.20			c0.18	
v/s Ratio Perm				0.04		0.06						0.16
v/c Ratio				0.15	0.22	0.20	0.77	0.68			0.44	0.39
Uniform Delay, d1				31.6	32.4	32.1	47.9	37.2			24.7	24.1
Progression Factor				1.00	1.00	1.00	0.60	0.25			0.38	0.75
Incremental Delay, d2				0.1	0.3	0.2	10.1	1.1			0.4	1.5
Delay (s)				31.7	32.6	32.3	38.7	10.3			9.6	19.5
Level of Service				C	C	C	D	B			A	B
Approach Delay (s)		0.0			32.3			15.3			12.7	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

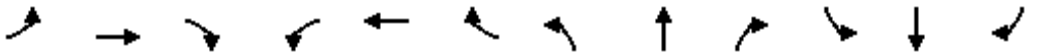
c Critical Lane Group

Phase Number	1	2	4	5	6	8
Node Number	6	5	6	5	5	5
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	C-Max	None
Maximum Split (s)	40	36	44	29	47	44
Maximum Split (%)	33.3%	30.0%	36.7%	24.2%	39.2%	36.7%
Minimum Split (s)	9.5	22.5	22.5	9.5	39	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	4.4	3.5
All-Red Time (s)	1	1	1	1	1.6	1
Minimum Initial (s)	5	5	5	5	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		26	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	26	110	66	110	19	66
End Time (s)	66	26	110	19	66	110
Yield/Force Off (s)	61.5	21.5	105.5	14.5	60	105.5
Yield/Force Off 170(s)	61.5	10.5	94.5	14.5	34	94.5
Local Start Time (s)	7	91	47	91	0	47
Local Yield (s)	42.5	2.5	86.5	115.5	41	86.5
Local Yield 170(s)	42.5	111.5	75.5	115.5	15	75.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 19 (16%), Referenced to phase 6:SBT, Start of Green

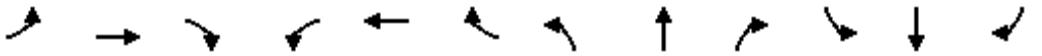
Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	0	579	0	0	0	0	691	59	696	696	0
Future Volume (vph)	433	0	579	0	0	0	0	691	59	696	696	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.86	1.00	0.97	0.91	
Frt	1.00	0.89	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1485	1504					6408	1583	3433	5085	
Flt Permitted	0.95	0.99	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1485	1504					6408	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	481	0	643	0	0	0	0	768	66	773	773	0
RTOR Reduction (vph)	0	99	256	0	0	0	0	0	46	0	0	0
Lane Group Flow (vph)	390	275	104	0	0	0	0	768	20	773	773	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	34.8	34.8	34.8					35.7	35.7	36.0	50.5	
Effective Green, g (s)	34.8	34.8	34.8					35.7	35.7	36.0	50.5	
Actuated g/C Ratio	0.29	0.29	0.29					0.30	0.30	0.30	0.42	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	487	430	436					1906	470	1029	2139	
v/s Ratio Prot								c0.12		c0.23	0.15	
v/s Ratio Perm	c0.23	0.19	0.07						0.01			
v/c Ratio	0.80	0.64	0.24					0.40	0.04	0.75	0.36	
Uniform Delay, d1	39.4	37.1	32.5					33.6	30.0	38.0	23.7	
Progression Factor	0.36	0.18	0.06					1.31	2.98	0.45	0.45	
Incremental Delay, d2	5.1	1.7	0.2					0.1	0.0	2.9	0.4	
Delay (s)	19.2	8.6	2.1					44.3	89.4	19.9	11.1	
Level of Service	B	A	A					D	F	B	B	
Approach Delay (s)		10.2			0.0			47.9			15.5	
Approach LOS		B			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	57	74	10	28	72	131	573	50	302	784	185
Future Volume (vph)	119	57	74	10	28	72	131	573	50	302	784	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.49	1.00	1.00	0.72	1.00	1.00	0.30	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	922	1863	1583	1334	1863	1583	568	3539	1583	639	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	63	82	11	31	80	146	637	56	336	871	206
RTOR Reduction (vph)	0	0	70	0	0	74	0	0	24	0	0	78
Lane Group Flow (vph)	132	63	12	11	31	6	146	637	32	336	871	128
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.5	17.5	17.5	10.7	9.2	9.2	76.4	68.1	68.1	87.5	74.7	74.7
Effective Green, g (s)	23.5	17.5	17.5	10.7	9.2	9.2	76.4	68.1	68.1	87.5	74.7	74.7
Actuated g/C Ratio	0.20	0.15	0.15	0.09	0.08	0.08	0.64	0.57	0.57	0.73	0.62	0.62
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	249	271	230	124	142	121	444	2008	898	606	2203	985
v/s Ratio Prot	c0.04	0.03		0.00	0.02		0.02	0.18		c0.07	0.25	
v/s Ratio Perm	c0.06		0.01	0.01		0.00	0.19		0.02	c0.34		0.08
v/c Ratio	0.53	0.23	0.05	0.09	0.22	0.05	0.33	0.32	0.04	0.55	0.40	0.13
Uniform Delay, d1	42.0	45.3	44.1	50.1	52.0	51.4	8.7	13.7	11.5	6.5	11.3	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.79	1.00	1.59	0.68	0.52
Incremental Delay, d2	2.2	0.4	0.1	0.3	0.8	0.2	0.4	0.4	0.1	1.0	0.5	0.2
Delay (s)	44.2	45.8	44.2	50.4	52.8	51.5	9.5	11.3	11.5	11.3	8.1	5.0
Level of Service	D	D	D	D	D	D	A	B	B	B	A	A
Approach Delay (s)		44.5			51.7			11.0			8.4	
Approach LOS		D			D			B			A	

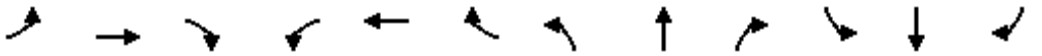
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	30	44.9	22.5	22.6	17.4	57.5	14.6	30.5
Maximum Split (%)	25.0%	37.4%	18.8%	18.8%	14.5%	47.9%	12.2%	25.4%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	24	54	98.9	1.4	24	41.4	98.9	113.5
End Time (s)	54	98.9	1.4	24	41.4	98.9	113.5	24
Yield/Force Off (s)	49.5	94.4	116.9	19.5	36.9	94.4	109	19.5
Yield/Force Off 170(s)	49.5	83.4	105.9	8.5	36.9	83.4	109	8.5
Local Start Time (s)	90	0	44.9	67.4	90	107.4	44.9	59.5
Local Yield (s)	115.5	40.4	62.9	85.5	102.9	40.4	55	85.5
Local Yield 170(s)	115.5	29.4	51.9	74.5	102.9	29.4	55	74.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 54 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	68	99	189	0	62	81	593	222	154	636	54
Future Volume (vph)	48	68	99	189	0	62	81	593	222	154	636	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.34	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	627	3539	1583	671	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	76	110	210	0	69	90	659	247	171	707	60
RTOR Reduction (vph)	0	0	97	0	0	52	0	0	111	0	0	27
Lane Group Flow (vph)	0	129	13	210	0	17	90	659	136	171	707	33
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		18.9	13.9	19.8		28.7	66.3	66.3	66.3	66.3	66.3	66.3
Effective Green, g (s)		18.9	13.9	19.8		28.7	66.3	66.3	66.3	66.3	66.3	66.3
Actuated g/C Ratio		0.16	0.12	0.17		0.24	0.55	0.55	0.55	0.55	0.55	0.55
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		287	183	566		378	346	1955	874	370	1955	874
v/s Ratio Prot		c0.02		c0.06				0.19			0.20	
v/s Ratio Perm		0.05	0.01			0.01	0.14		0.09	c0.25		0.02
v/c Ratio		0.45	0.07	0.37		0.04	0.26	0.34	0.16	0.46	0.36	0.04
Uniform Delay, d1		45.8	47.3	44.6		35.1	14.0	14.8	13.1	16.1	15.0	12.3
Progression Factor		1.00	1.00	1.00		1.00	0.16	0.15	0.01	0.29	0.26	1.00
Incremental Delay, d2		1.1	0.2	0.4		0.0	1.7	0.4	0.4	3.9	0.5	0.1
Delay (s)		47.0	47.4	45.0		35.1	3.9	2.6	0.5	8.5	4.4	12.3
Level of Service		D	D	D		D	A	A	A	A	A	B
Approach Delay (s)		47.2			42.5			2.2			5.7	
Approach LOS		D			D			A			A	

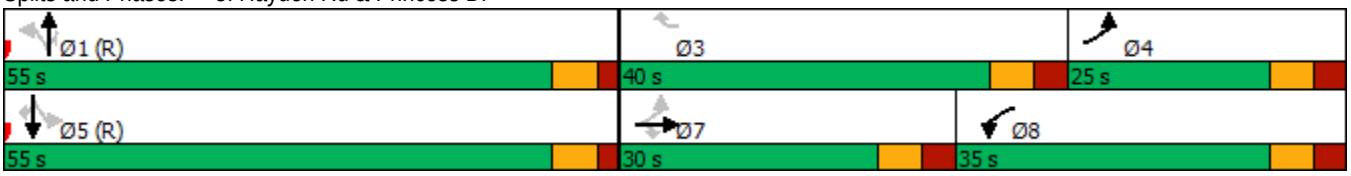
Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

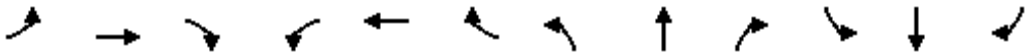
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55	40	25	55	30	35
Maximum Split (%)	45.8%	33.3%	20.8%	45.8%	25.0%	29.2%
Minimum Split (s)	50	40	25	50	30	25
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	95	30	70	95	30	60
End Time (s)	30	70	95	30	60	95
Yield/Force Off (s)	24	63	88	24	53	88
Yield/Force Off 170(s)	13	52	88	13	42	88
Local Start Time (s)	0	55	95	0	55	85
Local Yield (s)	49	88	113	49	78	113
Local Yield 170(s)	38	77	113	38	67	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 95 (79%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	23	240	10	124	31	784	403	168	769	21
Future Volume (vph)	9	8	23	240	10	124	31	784	403	168	769	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3197		1681	1692	1583	1770	3539	1583	1770	3525	
Flt Permitted		0.87		0.73	0.71	1.00	0.25	1.00	1.00	0.30	1.00	
Satd. Flow (perm)		2824		1285	1254	1583	467	3539	1583	557	3525	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	9	26	267	11	138	34	871	448	187	854	23
RTOR Reduction (vph)	0	22	0	0	0	116	0	0	216	0	1	0
Lane Group Flow (vph)	0	23	0	139	139	22	34	871	232	187	876	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		19.1		19.1	19.1	19.1	62.1	62.1	62.1	79.5	78.0	
Effective Green, g (s)		19.1		19.1	19.1	19.1	62.1	62.1	62.1	79.5	78.0	
Actuated g/C Ratio		0.16		0.16	0.16	0.16	0.52	0.52	0.52	0.66	0.65	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		449		204	199	251	289	1831	819	574	2291	
v/s Ratio Prot							0.00	c0.25		0.06	c0.25	
v/s Ratio Perm		0.01		0.11	c0.11	0.01	0.06		0.15	0.16		
v/c Ratio		0.05		0.68	0.70	0.09	0.12	0.48	0.28	0.33	0.38	
Uniform Delay, d1		42.8		47.6	47.7	43.0	15.0	18.5	16.4	12.4	9.8	
Progression Factor		1.00		1.00	1.00	1.00	0.33	0.32	0.45	0.50	0.56	
Incremental Delay, d2		0.0		9.0	10.2	0.2	0.1	0.5	0.5	0.3	0.5	
Delay (s)		42.8		56.6	57.9	43.2	5.1	6.5	7.9	6.6	6.0	
Level of Service		D		E	E	D	A	A	A	A	A	
Approach Delay (s)		42.8			52.6			7.0			6.1	
Approach LOS		D			D			A			A	

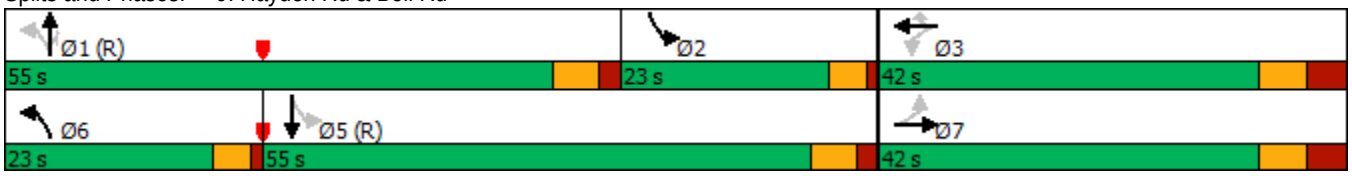
Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55	23	42	55	23	42
Maximum Split (%)	45.8%	19.2%	35.0%	45.8%	19.2%	35.0%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	63	118	21	86	63	21
End Time (s)	118	21	63	21	86	63
Yield/Force Off (s)	112	16.5	55	15	81.5	55
Yield/Force Off 170(s)	101	5.5	44	4	70.5	44
Local Start Time (s)	97	32	55	0	97	55
Local Yield (s)	26	50.5	89	49	115.5	89
Local Yield 170(s)	15	39.5	78	38	104.5	78

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 86 (72%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	30	1095	154	51	2321
Future Volume (vph)	110	30	1095	154	51	2321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.21	1.00
Satd. Flow (perm)	1770	1583	3539	1583	393	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	33	1217	171	57	2579
RTOR Reduction (vph)	0	29	0	31	0	0
Lane Group Flow (vph)	122	4	1217	140	57	2579
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.6	13.6	94.4	94.4	94.4	94.4
Effective Green, g (s)	13.6	13.6	94.4	94.4	94.4	94.4
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	179	2784	1245	309	2784
v/s Ratio Prot	c0.07		0.34			c0.73
v/s Ratio Perm		0.00		0.09	0.15	
v/c Ratio	0.61	0.02	0.44	0.11	0.18	0.93
Uniform Delay, d1	50.7	47.3	4.2	3.0	3.2	10.1
Progression Factor	1.00	1.00	0.09	0.01	1.00	1.00
Incremental Delay, d2	5.2	0.0	0.1	0.0	0.3	6.0
Delay (s)	55.9	47.3	0.5	0.1	3.5	16.1
Level of Service	E	D	A	A	A	B
Approach Delay (s)	54.1		0.4			15.8
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	None	None
Maximum Split (s)	93	27
Maximum Split (%)	77.5%	22.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	116	89
End Time (s)	89	116
Yield/Force Off (s)	83	110
Yield/Force Off 170(s)	77	106
Local Start Time (s)	0	93
Local Yield (s)	87	114
Local Yield 170(s)	81	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 116 (97%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	38	1197	54	45	2378
Future Volume (vph)	114	38	1197	54	45	2378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.18	1.00
Satd. Flow (perm)	1770	1583	3539	1583	342	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	42	1330	60	50	2642
RTOR Reduction (vph)	0	37	0	13	0	0
Lane Group Flow (vph)	127	5	1330	47	50	2642
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.5	13.5	94.5	94.5	94.5	94.5
Effective Green, g (s)	13.5	13.5	94.5	94.5	94.5	94.5
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	178	2786	1246	269	2786
v/s Ratio Prot	c0.07		0.38			c0.75
v/s Ratio Perm		0.00		0.03	0.15	
v/c Ratio	0.64	0.03	0.48	0.04	0.19	0.95
Uniform Delay, d1	50.9	47.4	4.3	2.8	3.2	10.7
Progression Factor	1.00	1.00	1.74	2.86	0.19	0.27
Incremental Delay, d2	6.6	0.1	0.4	0.0	0.6	4.1
Delay (s)	57.5	47.5	7.9	8.0	1.2	7.0
Level of Service	E	D	A	A	A	A
Approach Delay (s)	55.0		8.0			6.9
Approach LOS	D		A			A

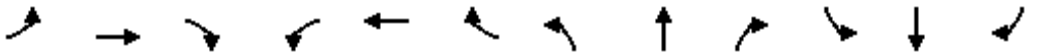
Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	52	29
End Time (s)	29	52
Yield/Force Off (s)	23	46
Yield/Force Off 170(s)	11	35
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 52 (43%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	152	46	540	76	110	27	1195	538	126	2334	452
Future Volume (vph)	258	152	46	540	76	110	27	1195	538	126	2334	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	8.0	8.0	8.0	8.0	8.0	8.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.07	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	128	3539	1583	160	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	287	169	51	600	84	122	30	1328	598	140	2593	502
RTOR Reduction (vph)	0	0	46	0	0	110	0	0	287	0	0	88
Lane Group Flow (vph)	287	169	5	600	84	12	30	1328	311	140	2593	414
Turn Type	Prot	NA	Perm	Prot	NA	custom	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			3	6		6	2		2
Actuated Green, G (s)	15.9	12.0	12.0	12.0	10.6	12.0	62.1	58.1	58.1	74.9	64.5	64.5
Effective Green, g (s)	15.9	12.0	12.0	12.0	10.6	12.0	62.1	58.1	58.1	74.9	64.5	64.5
Actuated g/C Ratio	0.13	0.10	0.10	0.10	0.09	0.10	0.52	0.48	0.48	0.62	0.54	0.54
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	8.0	8.0	8.0	8.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	454	353	158	343	312	158	120	1713	766	239	1902	850
v/s Ratio Prot	0.08	c0.05		c0.17	0.02		0.01	0.38		c0.05	c0.73	
v/s Ratio Perm			0.00			0.01	0.12		0.20	0.31		0.26
v/c Ratio	0.63	0.48	0.03	1.75	0.27	0.08	0.25	0.78	0.41	0.59	1.36	0.49
Uniform Delay, d1	49.3	51.0	48.8	54.0	51.1	49.0	26.6	25.6	19.9	18.5	27.8	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.71	1.19	3.98	1.03	1.34	1.36
Incremental Delay, d2	2.9	1.0	0.1	349.0	0.5	0.2	0.8	2.6	1.2	2.1	165.5	1.2
Delay (s)	52.1	52.1	48.8	403.0	51.5	49.2	46.3	32.9	80.3	21.1	202.6	24.9
Level of Service	D	D	D	F	D	D	D	C	F	C	F	C
Approach Delay (s)		51.8			312.8			47.6			167.2	
Approach LOS		D			F			D			F	

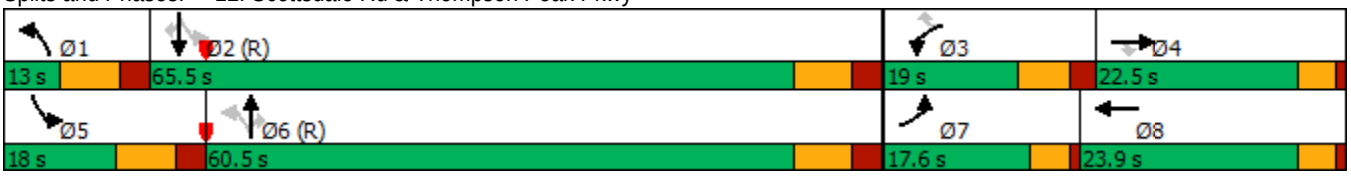
Intersection Summary			
HCM 2000 Control Delay	140.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	111.2%	ICU Level of Service	H
Analysis Period (min)	15		

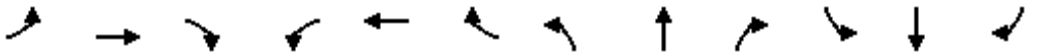
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	13	65.5	19	22.5	18	60.5	17.6	23.9
Maximum Split (%)	10.8%	54.6%	15.8%	18.8%	15.0%	50.4%	14.7%	19.9%
Minimum Split (s)	13	40	13	22.5	13	40	9.5	22.5
Yellow Time (s)	5.3	5.3	4.6	3.5	5.3	5.3	3.5	3.5
All-Red Time (s)	2.7	2.7	2.4	1	2.7	2.7	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		25		11		25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	36	49	114.5	13.5	36	54	114.5	12.1
End Time (s)	49	114.5	13.5	36	54	114.5	12.1	36
Yield/Force Off (s)	41	106.5	6.5	31.5	46	106.5	7.6	31.5
Yield/Force Off 170(s)	41	81.5	6.5	20.5	46	81.5	7.6	20.5
Local Start Time (s)	102	115	60.5	79.5	102	0	60.5	78.1
Local Yield (s)	107	52.5	72.5	97.5	112	52.5	73.6	97.5
Local Yield 170(s)	107	27.5	72.5	86.5	112	27.5	73.6	86.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 54 (45%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	95	28	213	47	34	17	1734	218	47	2947	298
Future Volume (vph)	307	95	28	213	47	34	17	1734	218	47	2947	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	108	5085	1583	115	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	106	31	237	52	38	19	1927	242	52	3274	331
RTOR Reduction (vph)	0	0	28	0	0	35	0	0	57	0	0	61
Lane Group Flow (vph)	341	106	3	237	52	3	19	1927	185	52	3274	270
Turn Type	Prot	NA	Perm	Prot	NA	custom	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			3	6		6	2		2
Actuated Green, G (s)	14.6	9.9	9.9	10.0	7.8	10.0	71.7	69.1	69.1	77.5	72.0	72.0
Effective Green, g (s)	14.6	9.9	9.9	10.0	7.8	10.0	71.7	69.1	69.1	77.5	72.0	72.0
Actuated g/C Ratio	0.12	0.08	0.08	0.08	0.06	0.08	0.60	0.58	0.58	0.65	0.60	0.60
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	417	291	130	286	230	131	100	2928	911	150	3051	949
v/s Ratio Prot	c0.10	c0.03		0.07	0.01		0.00	0.38		c0.02	c0.64	
v/s Ratio Perm			0.00			0.00	0.11		0.12	0.21		0.17
v/c Ratio	0.82	0.36	0.02	0.83	0.23	0.02	0.19	0.66	0.20	0.35	1.07	0.28
Uniform Delay, d1	51.4	52.1	50.6	54.2	53.2	50.5	27.7	17.4	12.2	12.5	24.0	11.6
Progression Factor	1.00	1.00	1.00	0.97	1.06	1.00	1.00	1.18	0.83	1.76	1.29	1.89
Incremental Delay, d2	11.8	0.8	0.1	17.6	0.5	0.1	0.5	0.6	0.3	0.1	33.7	0.1
Delay (s)	63.2	52.9	50.7	70.4	56.9	50.6	28.2	21.1	10.4	22.0	64.5	21.9
Level of Service	E	D	D	E	E	D	C	C	B	C	E	C
Approach Delay (s)		60.1			65.9			20.0			60.1	
Approach LOS		E			E			B			E	

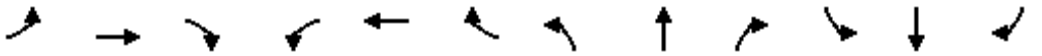
Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	12	68.5	17	22.5	16	64.5	16.8	22.7
Maximum Split (%)	10.0%	57.1%	14.2%	18.8%	13.3%	53.8%	14.0%	18.9%
Minimum Split (s)	12	30	13	22.5	12	30	9.5	22.5
Yellow Time (s)	4.9	4.9	3	3.5	4.9	4.9	3.5	3.5
All-Red Time (s)	2.1	2.1	4	1	2.1	2.1	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		11		16		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	38	50	118.5	15.5	38	54	118.5	15.3
End Time (s)	50	118.5	15.5	38	54	118.5	15.3	38
Yield/Force Off (s)	43	111.5	8.5	33.5	47	111.5	10.8	33.5
Yield/Force Off 170(s)	43	95.5	8.5	22.5	47	95.5	10.8	22.5
Local Start Time (s)	104	116	64.5	81.5	104	0	64.5	81.3
Local Yield (s)	109	57.5	74.5	99.5	113	57.5	76.8	99.5
Local Yield 170(s)	109	41.5	74.5	88.5	113	41.5	76.8	88.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 54 (45%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	655	8	563	431	1432	0	0	2418	756
Future Volume (vph)	0	0	0	655	8	563	431	1432	0	0	2418	756
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.85	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1512	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1512	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	728	9	626	479	1591	0	0	2687	840
RTOR Reduction (vph)	0	0	0	0	233	242	0	0	0	0	0	348
Lane Group Flow (vph)	0	0	0	728	83	77	479	1591	0	0	2687	492
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				29.0	29.0	29.0	16.0	39.0			58.0	58.0
Effective Green, g (s)				29.0	29.0	29.0	16.0	39.0			58.0	58.0
Actuated g/C Ratio				0.24	0.24	0.24	0.13	0.32			0.48	0.48
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				829	365	363	457	1652			3646	765
v/s Ratio Prot					0.06		0.14	c0.31			c0.36	
v/s Ratio Perm				c0.21		0.05						0.31
v/c Ratio				0.88	0.23	0.21	1.05	0.96			0.74	0.64
Uniform Delay, d1				43.8	36.5	36.4	52.0	39.8			24.9	23.2
Progression Factor				0.82	0.72	0.75	0.98	0.32			0.86	2.62
Incremental Delay, d2				9.9	0.3	0.3	47.9	11.4			0.4	1.1
Delay (s)				45.7	26.8	27.6	98.8	24.0			21.6	62.0
Level of Service				D	C	C	F	C			C	E
Approach Delay (s)		0.0			37.1			41.3			31.3	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

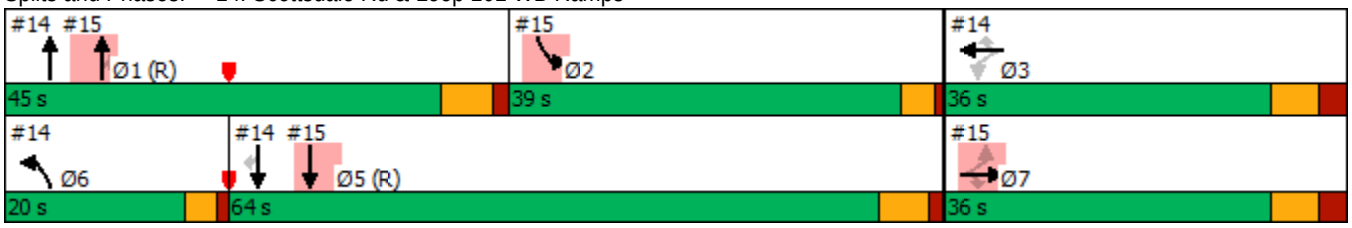
c Critical Lane Group

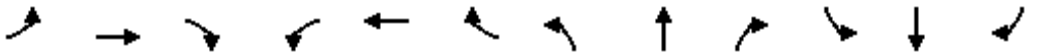
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	Max
Maximum Split (s)	45	39	36	64	20	36
Maximum Split (%)	37.5%	32.5%	30.0%	53.3%	16.7%	30.0%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100	25	64	0	100	64
End Time (s)	25	64	100	64	0	100
Yield/Force Off (s)	19	60	93	58	116	93
Yield/Force Off 170(s)	19	60	93	58	116	93
Local Start Time (s)	100	25	64	0	100	64
Local Yield (s)	19	60	93	58	116	93
Local Yield 170(s)	19	60	93	58	116	93

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	110	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green, Master Intersection

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

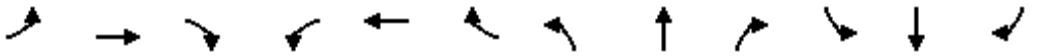




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	774	3	840	0	0	0	0	1102	416	862	2249	0
Future Volume (vph)	774	3	840	0	0	0	0	1102	416	862	2249	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	860	3	933	0	0	0	0	1224	462	958	2499	0
RTOR Reduction (vph)	0	195	195	0	0	0	0	0	294	0	0	0
Lane Group Flow (vph)	860	275	271	0	0	0	0	1224	168	958	2499	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	29.0	29.0	29.0					39.0	39.0	35.0	58.0	
Effective Green, g (s)	29.0	29.0	29.0					39.0	39.0	35.0	58.0	
Actuated g/C Ratio	0.24	0.24	0.24					0.32	0.32	0.29	0.48	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	829	363	363					2451	514	1001	2457	
v/s Ratio Prot		0.18						c0.16		0.28	c0.49	
v/s Ratio Perm	c0.25		0.18						0.11			
v/c Ratio	1.04	0.76	0.75					0.50	0.33	0.96	1.02	
Uniform Delay, d1	45.5	42.2	42.1					32.6	30.6	41.8	31.0	
Progression Factor	1.00	1.00	1.00					0.68	1.10	0.61	0.44	
Incremental Delay, d2	41.3	13.8	13.1					0.5	1.2	14.5	18.9	
Delay (s)	86.8	56.0	55.2					22.7	35.0	39.8	32.4	
Level of Service	F	E	E					C	C	D	C	
Approach Delay (s)		70.6			0.0			26.1			34.4	
Approach LOS		E			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	466	119	303	62	63	172	145	940	97	316	2050	725
Future Volume (vph)	466	119	303	62	63	172	145	940	97	316	2050	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	518	132	337	69	70	191	161	1044	108	351	2278	806
RTOR Reduction (vph)	0	0	101	0	0	112	0	0	80	0	0	226
Lane Group Flow (vph)	518	132	236	69	70	79	161	1044	28	351	2278	580
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3			1			5
Actuated Green, G (s)	27.9	32.0	37.0	6.6	10.7	38.0	5.0	31.6	31.6	27.3	53.9	81.8
Effective Green, g (s)	27.9	32.0	37.0	6.6	10.7	38.0	5.0	31.6	31.6	27.3	53.9	81.8
Actuated g/C Ratio	0.23	0.27	0.31	0.05	0.09	0.32	0.04	0.26	0.26	0.23	0.45	0.68
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	798	1356	488	188	315	501	143	1339	416	781	2284	1138
v/s Ratio Prot	c0.15	0.03	c0.02	c0.02	0.02	0.04	c0.05	0.21		0.10	c0.45	0.12
v/s Ratio Perm			0.13			0.01			0.02			0.25
v/c Ratio	0.65	0.10	0.48	0.37	0.22	0.16	1.13	0.78	0.07	0.45	1.00	0.51
Uniform Delay, d1	41.6	33.1	33.7	54.7	50.8	29.5	57.5	41.0	33.2	39.9	33.0	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.53	0.28	0.35	0.65	0.75	1.25
Incremental Delay, d2	1.8	0.0	0.8	1.2	0.4	0.1	111.7	4.4	0.3	0.5	9.5	0.1
Delay (s)	43.5	33.2	34.5	55.9	51.1	29.6	142.3	15.7	11.9	26.3	34.4	11.8
Level of Service	D	C	C	E	D	C	F	B	B	C	C	B
Approach Delay (s)		39.0			39.7			30.9			28.2	
Approach LOS		D			D			C			C	

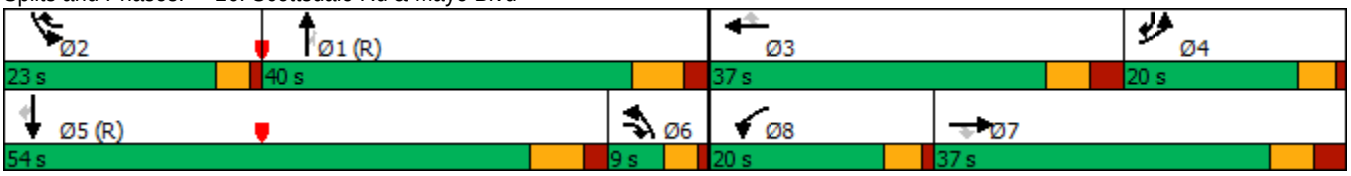
Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

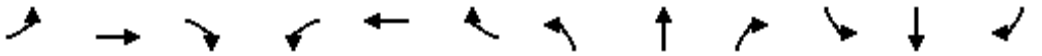
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	40	23	37	20	54	9	37	20
Maximum Split (%)	33.3%	19.2%	30.8%	16.7%	45.0%	7.5%	30.8%	16.7%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	79	56	119	36	56	110	19	119
End Time (s)	119	79	36	56	110	119	56	19
Yield/Force Off (s)	112	75	29	51.5	103	115	49	14.5
Yield/Force Off 170(s)	93	75	6	51.5	84	115	26	14.5
Local Start Time (s)	0	97	40	77	97	31	60	40
Local Yield (s)	33	116	70	92.5	24	36	90	55.5
Local Yield 170(s)	14	116	47	92.5	5	36	67	55.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	140
Offset: 79 (66%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	5	114	10	5	5	154	1105	5	6	2296	147
Future Volume (vph)	96	5	114	10	5	5	154	1105	5	6	2296	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00	1.00	0.05	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1404	3539	1583	1404	3539	1583	93	5085	1583	403	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	6	127	11	6	6	171	1228	6	7	2551	163
RTOR Reduction (vph)	0	0	112	0	0	5	0	0	1	0	0	30
Lane Group Flow (vph)	107	6	15	11	6	1	171	1228	5	7	2551	133
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	14.4	14.4	14.4	14.4	14.4	14.4	91.0	91.0	91.0	80.9	80.9	80.9
Effective Green, g (s)	14.4	14.4	14.4	14.4	14.4	14.4	91.0	91.0	91.0	80.9	80.9	80.9
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.76	0.76	0.76	0.67	0.67	0.67
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168	424	189	168	424	189	227	3856	1200	284	3428	1067
v/s Ratio Prot		0.00			0.00		c0.07	0.24		0.00	c0.50	
v/s Ratio Perm	c0.08		0.01	0.01		0.00	c0.50		0.00	0.02		0.08
v/c Ratio	0.64	0.01	0.08	0.07	0.01	0.00	0.75	0.32	0.00	0.02	0.74	0.12
Uniform Delay, d1	50.3	46.5	46.9	46.8	46.5	46.5	33.9	4.6	3.5	6.5	12.8	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.94	0.19	1.00	0.25	0.42	0.02
Incremental Delay, d2	7.7	0.0	0.2	0.2	0.0	0.0	11.9	0.2	0.0	0.0	0.7	0.1
Delay (s)	58.0	46.6	47.1	47.0	46.6	46.5	77.5	1.1	3.5	1.7	6.0	0.3
Level of Service	E	D	D	D	D	D	E	A	A	A	A	A
Approach Delay (s)		51.9			46.8			10.4			5.7	
Approach LOS		D			D			B			A	

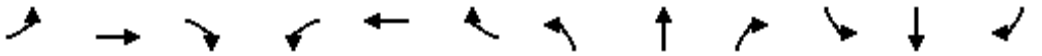
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	10	85	25	21	74	25
Maximum Split (%)	8.3%	70.8%	20.8%	17.5%	61.7%	20.8%
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	8	43	18	43	64	18
End Time (s)	18	8	43	64	18	43
Yield/Force Off (s)	13.5	3.5	38.5	59.5	13.5	38.5
Yield/Force Off 170(s)	13.5	112.5	27.5	59.5	2.5	27.5
Local Start Time (s)	64	99	74	99	0	74
Local Yield (s)	69.5	59.5	94.5	115.5	69.5	94.5
Local Yield 170(s)	69.5	48.5	83.5	115.5	58.5	83.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 64 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	33	289	138	10	188	149	1039	260	271	2059	85
Future Volume (vph)	45	33	289	138	10	188	149	1039	260	271	2059	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.32	1.00	1.00	0.08	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	1397	3063		596	3539	1583	143	5085	1583	311	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	37	321	153	11	209	166	1154	289	301	2288	94
RTOR Reduction (vph)	0	204	0	0	0	103	0	0	142	0	0	53
Lane Group Flow (vph)	50	154	0	153	11	106	166	1154	147	301	2288	41
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	4	3		4	3	2	2	1	4	2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	21.5	12.5		21.5	12.5	38.0	77.5	52.0	61.0	77.5	52.0	52.0
Effective Green, g (s)	21.5	12.5		21.5	12.5	38.0	77.5	52.0	61.0	77.5	52.0	52.0
Actuated g/C Ratio	0.18	0.10		0.18	0.10	0.32	0.65	0.43	0.51	0.65	0.43	0.43
Clearance Time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	278	319		194	368	501	438	2203	804	510	2203	685
v/s Ratio Prot	0.01	0.05		c0.06	0.00	0.04	0.08	0.23	0.01	c0.13	c0.45	
v/s Ratio Perm	0.02			c0.08		0.02	0.16		0.08	0.26		0.03
v/c Ratio	0.18	0.87dr		0.79	0.03	0.21	0.38	0.52	0.18	0.59	1.04	0.06
Uniform Delay, d1	41.6	50.7		44.6	48.3	30.0	21.6	24.9	16.0	12.1	34.0	19.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.63	0.71	2.51	2.06	0.56	0.54
Incremental Delay, d2	0.3	1.1		18.8	0.0	0.2	0.5	0.2	0.1	1.2	26.9	0.0
Delay (s)	41.9	51.8		63.4	48.3	30.2	35.7	18.0	40.2	26.1	46.0	10.7
Level of Service	D	D		E	D	C	D	B	D	C	D	B
Approach Delay (s)		50.6			44.4			23.8			42.5	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

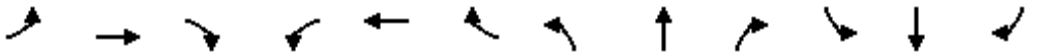
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	WBEBL
Lead/Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None
Maximum Split (s)	58	17	32	13
Maximum Split (%)	48.3%	14.2%	26.7%	10.8%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	9	112	80	67
End Time (s)	67	9	112	80
Yield/Force Off (s)	61	5	105	76
Yield/Force Off 170(s)	51	5	84	76
Local Start Time (s)	17	0	88	75
Local Yield (s)	69	13	113	84
Local Yield 170(s)	59	13	92	84

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 112 (93%), Referenced to phase 2:NBSBL and 6:, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	0	133	35	0	23	46	1359	13	48	2434	28
Future Volume (vph)	71	0	133	35	0	23	46	1359	13	48	2434	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.87			0.57		0.05	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)		1475			1004		93	5085	1583	255	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	0	148	39	0	26	51	1510	14	53	2704	31
RTOR Reduction (vph)	0	54	0	0	54	0	0	0	5	0	0	10
Lane Group Flow (vph)	0	173	0	0	11	0	51	1510	9	53	2704	21
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		19.2			19.2		83.8	79.8	79.8	83.8	79.8	79.8
Effective Green, g (s)		19.2			19.2		83.8	79.8	79.8	83.8	79.8	79.8
Actuated g/C Ratio		0.16			0.16		0.70	0.66	0.66	0.70	0.66	0.66
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		236			160		120	3381	1052	228	3381	1052
v/s Ratio Prot							c0.01	0.30		0.01	c0.53	
v/s Ratio Perm		c0.12			0.01		0.28		0.01	0.15		0.01
v/c Ratio		0.73			0.07		0.42	0.45	0.01	0.23	0.80	0.02
Uniform Delay, d1		48.0			42.8		35.0	9.6	6.8	11.7	14.4	6.8
Progression Factor		1.00			1.00		0.52	0.53	1.00	0.17	0.33	1.00
Incremental Delay, d2		11.2			0.2		7.8	0.3	0.0	0.8	0.7	0.0
Delay (s)		54.2			43.0		26.0	5.4	6.8	2.7	5.4	6.8
Level of Service		D			D		C	A	A	A	A	A
Approach Delay (s)		54.2			43.0			6.1			5.4	
Approach LOS		D			D			A			A	

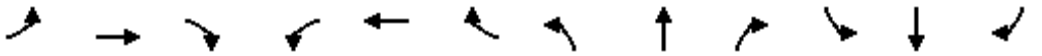
Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	77	8	35
Maximum Split (%)	64.2%	6.7%	29.2%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	48	5	13
End Time (s)	5	13	48
Yield/Force Off (s)	119	9	41
Yield/Force Off 170(s)	116	9	20
Local Start Time (s)	0	77	85
Local Yield (s)	71	81	113
Local Yield 170(s)	68	81	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 48 (40%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	679	1702	466	277	544	272	99	591	189	434	1815	223
Future Volume (vph)	679	1702	466	277	544	272	99	591	189	434	1815	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	754	1891	518	308	604	302	110	657	210	482	2017	248
RTOR Reduction (vph)	0	0	84	0	0	91	0	0	111	0	0	44
Lane Group Flow (vph)	754	1891	434	308	604	211	110	657	99	482	2017	204
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	28.7	41.0	46.0	9.0	21.3	39.3	5.0	30.0	39.0	18.0	43.0	71.7
Effective Green, g (s)	28.7	41.0	46.0	9.0	21.3	39.3	5.0	30.0	39.0	18.0	43.0	71.7
Actuated g/C Ratio	0.24	0.34	0.38	0.08	0.18	0.33	0.04	0.25	0.32	0.15	0.36	0.60
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	821	1737	606	257	902	571	143	1271	514	514	1822	945
v/s Ratio Prot	0.22	c0.37	0.03	c0.09	0.12	0.06	c0.03	0.13	0.01	0.14	c0.40	0.05
v/s Ratio Perm			0.24			0.08			0.05			0.08
v/c Ratio	0.92	1.09	0.72	1.20	0.67	0.37	0.77	0.52	0.19	0.94	1.11	0.22
Uniform Delay, d1	44.5	39.5	31.5	55.5	46.1	30.9	56.9	38.8	29.2	50.4	38.5	11.2
Progression Factor	1.00	1.00	1.00	0.63	0.79	0.54	1.00	1.00	1.00	0.64	0.55	0.74
Incremental Delay, d2	15.0	50.0	4.0	107.1	1.0	0.2	21.7	1.5	0.2	17.4	53.7	0.1
Delay (s)	59.5	89.5	35.5	142.2	37.2	16.8	78.6	40.3	29.4	49.8	75.0	8.3
Level of Service	E	F	D	F	D	B	E	D	C	D	E	A
Approach Delay (s)		73.5			58.8			42.2			64.6	
Approach LOS		E			E			D			E	

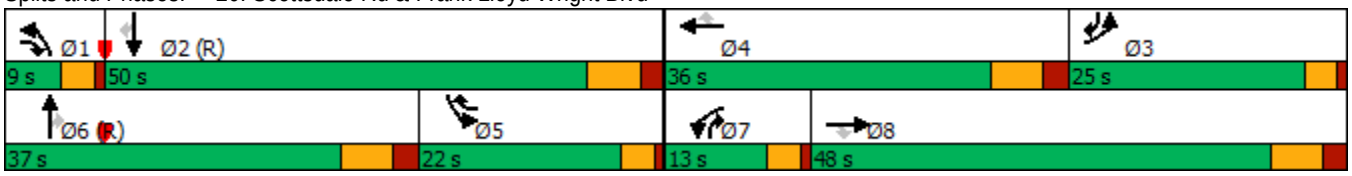
Intersection Summary			
HCM 2000 Control Delay	64.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

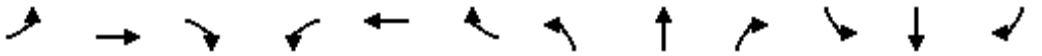
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	9	50	25	36	22	37	13	48
Maximum Split (%)	7.5%	41.7%	20.8%	30.0%	18.3%	30.8%	10.8%	40.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	77	86	52	16	114	77	16	29
End Time (s)	86	16	77	52	16	114	29	77
Yield/Force Off (s)	82	9	73	45	12	107	25	70
Yield/Force Off 170(s)	82	108	73	23	12	86	25	48
Local Start Time (s)	111	0	86	50	28	111	50	63
Local Yield (s)	116	43	107	79	46	21	59	104
Local Yield 170(s)	116	22	107	57	46	0	59	82

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 86 (72%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

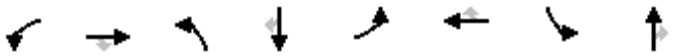




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	586	1459	75	643	1186	265	23	407	284	242	698	339
Future Volume (vph)	586	1459	75	643	1186	265	23	407	284	242	698	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	651	1621	83	714	1318	294	26	452	316	269	776	377
RTOR Reduction (vph)	0	0	61	0	0	170	0	0	217	0	0	204
Lane Group Flow (vph)	651	1621	22	714	1318	124	26	452	99	269	776	173
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	21.0	32.2	32.2	19.0	30.2	30.2	3.0	23.0	23.0	17.8	37.8	37.8
Effective Green, g (s)	21.0	32.2	32.2	19.0	30.2	30.2	3.0	23.0	23.0	17.8	37.8	37.8
Actuated g/C Ratio	0.18	0.27	0.27	0.16	0.25	0.25	0.02	0.19	0.19	0.15	0.31	0.31
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	600	1364	424	543	1279	398	44	678	303	509	1114	498
v/s Ratio Prot	0.19	c0.32		c0.21	0.26		0.01	c0.13		0.08	c0.22	
v/s Ratio Perm			0.01			0.08			0.06			0.11
v/c Ratio	1.08	1.19	0.05	1.31	1.03	0.31	0.59	0.67	0.33	0.53	0.70	0.35
Uniform Delay, d1	49.5	43.9	32.6	50.5	44.9	36.5	57.9	44.9	41.8	47.2	36.1	31.6
Progression Factor	0.94	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.89	0.86
Incremental Delay, d2	45.6	86.6	0.1	154.4	33.3	2.0	19.5	2.5	0.6	1.0	1.9	0.4
Delay (s)	92.0	103.4	32.6	204.9	78.2	38.5	77.3	47.4	42.4	44.0	33.9	27.6
Level of Service	F	F	C	F	E	D	E	D	D	D	C	C
Approach Delay (s)		97.8			112.1			46.4			34.1	
Approach LOS		F			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	83.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

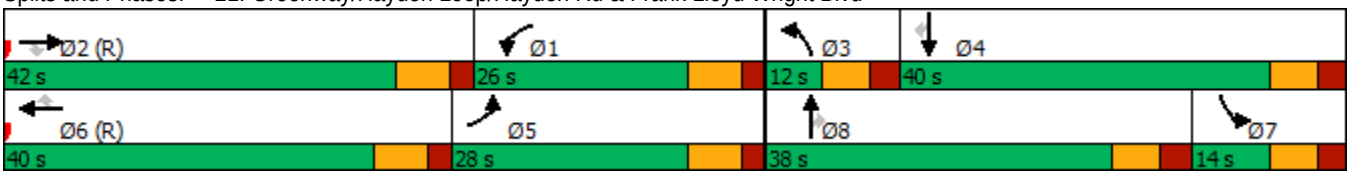
c Critical Lane Group

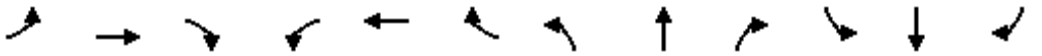


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	26	42	12	40	28	40	14	38
Maximum Split (%)	21.7%	35.0%	10.0%	33.3%	23.3%	33.3%	11.7%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	109	67	15	27	107	67	53	15
End Time (s)	15	109	27	67	15	107	67	53
Yield/Force Off (s)	8	102	20	60	8	100	60	46
Yield/Force Off 170(s)	8	85	20	36	8	83	60	22
Local Start Time (s)	42	0	68	80	40	0	106	68
Local Yield (s)	61	35	73	113	61	33	113	99
Local Yield 170(s)	61	18	73	89	61	16	113	75

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 67 (56%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	426	138	108	360	316	133	1149	6	327	1376	388
Future Volume (vph)	237	426	138	108	360	316	133	1149	6	327	1376	388
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5081		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5081		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	263	473	153	120	400	351	148	1277	7	363	1529	431
RTOR Reduction (vph)	0	0	125	0	0	289	0	1	0	0	0	259
Lane Group Flow (vph)	263	473	28	120	400	62	148	1283	0	363	1529	172
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	13.1	22.3	22.3	11.9	21.1	21.1	15.9	36.0		27.8	47.9	47.9
Effective Green, g (s)	13.1	22.3	22.3	11.9	21.1	21.1	15.9	36.0		27.8	47.9	47.9
Actuated g/C Ratio	0.11	0.19	0.19	0.10	0.18	0.18	0.13	0.30		0.23	0.40	0.40
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	374	657	294	340	622	278	454	1524		795	2029	631
v/s Ratio Prot	0.08	c0.13		0.03	c0.11		0.04	c0.25		0.11	c0.30	
v/s Ratio Perm			0.02			0.04						0.11
v/c Ratio	0.70	0.72	0.10	0.35	0.64	0.22	0.33	0.84		0.46	0.75	0.27
Uniform Delay, d1	51.6	45.9	40.5	50.5	46.0	42.4	47.2	39.3		39.6	31.0	24.3
Progression Factor	0.87	0.87	0.73	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.5	3.5	0.1	0.6	2.3	0.4	1.9	4.4		1.9	1.6	0.2
Delay (s)	50.2	43.6	29.8	51.1	48.2	42.8	49.1	43.7		41.5	32.6	24.5
Level of Service	D	D	C	D	D	D	D	D		D	C	C
Approach Delay (s)		43.2			46.4			44.3			32.5	
Approach LOS		D			D			D			C	

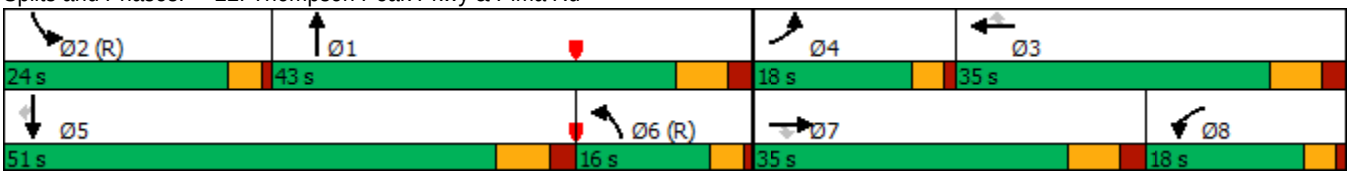
Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

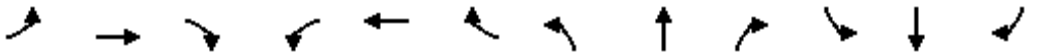
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	43	24	35	18	51	16	35	18
Maximum Split (%)	35.8%	20.0%	29.2%	15.0%	42.5%	13.3%	29.2%	15.0%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	50	26	111	93	26	77	93	8
End Time (s)	93	50	26	111	77	93	8	26
Yield/Force Off (s)	86	46	19	107	70	89	1	22
Yield/Force Off 170(s)	64	46	118	107	48	89	100	22
Local Start Time (s)	93	69	34	16	69	0	16	51
Local Yield (s)	9	89	62	30	113	12	44	65
Local Yield 170(s)	107	89	41	30	91	12	23	65

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 77 (64%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 22: Thompson Peak Pkwy & Pima Rd





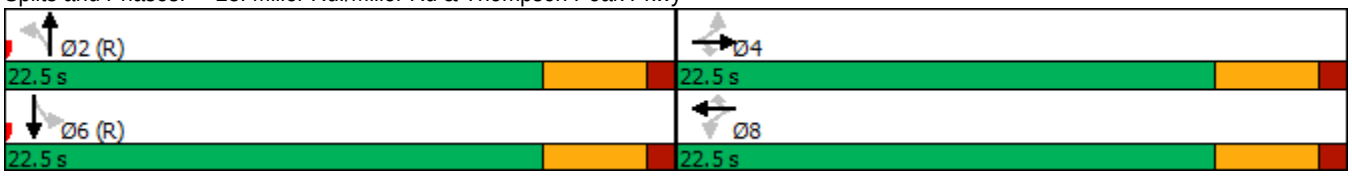
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	731	85	61	195	0	55	0	31	0	0	0
Future Volume (vph)	0	731	85	61	195	0	55	0	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.27	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	504	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	812	94	68	217	0	61	0	34	0	0	0
RTOR Reduction (vph)	0	0	56	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	812	38	68	217	0	61	14	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	201	1415		564	1203				
v/s Ratio Prot		c0.23			0.06			0.00				
v/s Ratio Perm			0.02	0.14			c0.04					
v/c Ratio		0.57	0.06	0.34	0.15		0.11	0.01				
Uniform Delay, d1		10.5	8.3	9.4	8.6		8.5	8.1				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		1.7	0.2	4.5	0.2		0.4	0.0				
Delay (s)		12.2	8.5	13.9	8.9		8.9	8.2				
Level of Service		B	A	B	A		A	A				
Approach Delay (s)		11.8			10.1			8.6			0.0	
Approach LOS		B			B			A			A	

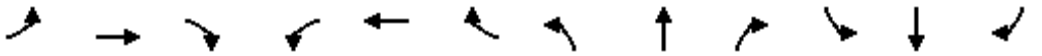
Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd./Miller Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	196	80	81	162	70	56	54	49	27	84	56
Future Volume (vph)	51	196	80	81	162	70	56	54	49	27	84	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.64	1.00	1.00	0.58	1.00	1.00	0.95	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	1189	3539	1583	1074	3539	1583	3433	1863	1583	1337	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	218	89	90	180	78	62	60	54	30	93	62
RTOR Reduction (vph)	0	0	44	0	0	47	0	0	30	0	0	45
Lane Group Flow (vph)	57	218	45	90	180	31	62	60	24	30	93	17
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8			2	6		6
Actuated Green, G (s)	51.6	45.2	60.7	56.4	47.6	47.6	15.5	44.5	53.3	36.0	32.5	32.5
Effective Green, g (s)	51.6	45.2	60.7	56.4	47.6	47.6	15.5	44.5	53.3	36.0	32.5	32.5
Actuated g/C Ratio	0.43	0.38	0.51	0.47	0.40	0.40	0.13	0.37	0.44	0.30	0.27	0.27
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	542	1333	800	555	1403	627	443	690	703	413	504	428
v/s Ratio Prot	0.01	0.06	0.01	c0.01	0.05		c0.02	0.03	0.00	0.00	c0.05	
v/s Ratio Perm	0.04		0.02	c0.06		0.02			0.01	0.02		0.01
v/c Ratio	0.11	0.16	0.06	0.16	0.13	0.05	0.14	0.09	0.03	0.07	0.18	0.04
Uniform Delay, d1	20.1	24.8	15.1	17.8	23.0	22.3	46.3	24.5	18.8	30.1	33.6	32.2
Progression Factor	1.34	1.25	2.89	0.63	0.59	3.56	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3	0.0	0.1	0.2	0.1	0.1	0.2	0.0	0.1	0.8	0.2
Delay (s)	27.2	31.3	43.6	11.4	13.9	79.4	46.5	24.8	18.8	30.1	34.4	32.4
Level of Service	C	C	D	B	B	E	D	C	B	C	C	C
Approach Delay (s)		33.6			27.9			30.6			33.0	
Approach LOS		C			C			C			C	

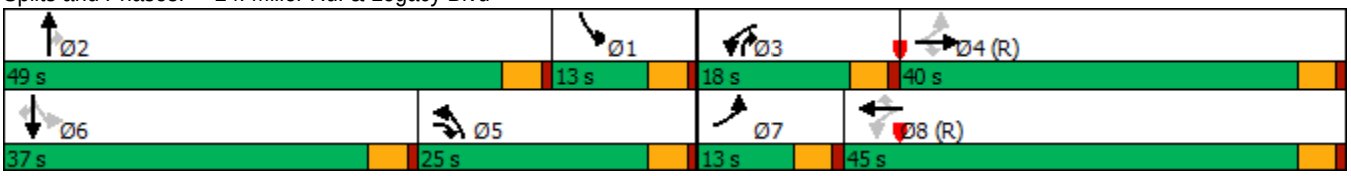
Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

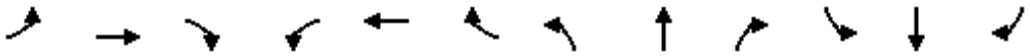
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	13	49	18	40	25	37	13	45
Maximum Split (%)	10.8%	40.8%	15.0%	33.3%	20.8%	30.8%	10.8%	37.5%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
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)	48	119	61	79	36	119	61	74
End Time (s)	61	48	79	119	61	36	74	119
Yield/Force Off (s)	56.5	43.5	74.5	114.5	56.5	31.5	69.5	114.5
Yield/Force Off 170(s)	56.5	32.5	74.5	103.5	56.5	20.5	69.5	103.5
Local Start Time (s)	89	40	102	0	77	40	102	115
Local Yield (s)	97.5	84.5	115.5	35.5	97.5	72.5	110.5	35.5
Local Yield 170(s)	97.5	73.5	115.5	24.5	97.5	61.5	110.5	24.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 79 (66%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 24: Miller Rd. & Legacy Blvd





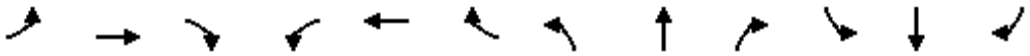
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	78	275	105	64	150	50	65	35	44	41	34	51
Future Volume (veh/h)	78	275	105	64	150	50	65	35	44	41	34	51
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	306	117	71	167	56	72	39	49	46	38	57
Approach Volume (veh/h)		510			294			160			141	
Crossing Volume (veh/h)		155			198			439			310	
High Capacity (veh/h)		1227			1186			980			1086	
High v/c (veh/h)		0.42			0.25			0.16			0.13	
Low Capacity (veh/h)		1018			981			796			890	
Low v/c (veh/h)		0.50			0.30			0.20			0.16	

Intersection Summary				
Maximum v/c High	0.42			
Maximum v/c Low	0.50			
Intersection Capacity Utilization	41.1%	ICU Level of Service	A	

Intersection	
Intersection Delay, s/veh	5.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	510	294	160	141
Demand Flow Rate, veh/h	520	299	163	144
Vehicles Circulating, veh/h	158	202	448	315
Vehicles Exiting, veh/h	301	409	230	186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.5	4.7	4.8	4.1
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.771	0.229	0.809	0.191	0.693	0.307	0.597	0.403
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	401	119	242	57	113	50	86	58
Cap Entry Lane, veh/h	1230	1230	1182	1182	945	945	1066	1066
Entry HV Adj Factor	0.980	0.983	0.982	0.982	0.984	0.980	0.979	0.983
Flow Entry, veh/h	393	117	238	56	111	49	84	57
Cap Entry, veh/h	1205	1209	1160	1161	930	926	1044	1048
V/C Ratio	0.326	0.097	0.205	0.048	0.120	0.053	0.081	0.054
Control Delay, s/veh	6.1	3.8	4.9	3.5	5.0	4.4	4.2	3.9
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	1	0	1	0	0	0	0	0



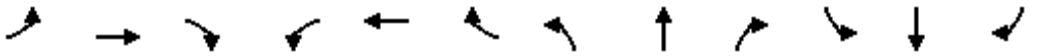
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	0	0	17	0	10	0	79	22	12	80	0
Future Volume (veh/h)	0	0	0	17	0	10	0	79	22	12	80	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	19	0	11	0	88	24	13	89	0
Approach Volume (veh/h)		0			30			112			102	
Crossing Volume (veh/h)		121			88			13			19	
High Capacity (veh/h)		1260			1293			1371			1364	
High v/c (veh/h)		0.00			0.02			0.08			0.07	
Low Capacity (veh/h)		1048			1078			1149			1143	
Low v/c (veh/h)		0.00			0.03			0.10			0.09	

Intersection Summary				
Maximum v/c High	0.08			
Maximum v/c Low	0.10			
Intersection Capacity Utilization	17.3%	ICU Level of Service	A	

Intersection	
Intersection Delay, s/veh	3.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	30	112	102
Demand Flow Rate, veh/h	0	30	114	104
Vehicles Circulating, veh/h	123	90	13	19
Vehicles Exiting, veh/h	0	37	110	101
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	2.8	3.0	3.2
Approach LOS	-	A	A	A

Lane	Left	Left	Right	Left	Right	Left
Designated Moves	T	LT	R	LT	R	LT
Assumed Moves	T	LT	R	LT	R	LT
RT Channelized						
Lane Util	1.000	0.633	0.367	0.789	0.211	1.000
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	0	19	11	90	24	104
Cap Entry Lane, veh/h	1270	1308	1308	1403	1403	1396
Entry HV Adj Factor	1.000	1.000	1.000	0.980	1.000	0.983
Flow Entry, veh/h	0	19	11	88	24	102
Cap Entry, veh/h	1270	1308	1308	1376	1403	1372
V/C Ratio	0.000	0.015	0.008	0.064	0.017	0.075
Control Delay, s/veh	2.8	2.9	2.8	3.1	2.7	3.2
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	0	0	0	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	19	73	41	13	4	76	1150	83	5	518	18
Future Volume (vph)	24	19	73	41	13	4	76	1150	83	5	518	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1801		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.69	1.00		0.44	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1389	1641		1287	1801		811	3539	1583	369	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	21	81	46	14	4	84	1278	92	6	576	20
RTOR Reduction (vph)	0	74	0	0	4	0	0	0	12	0	0	4
Lane Group Flow (vph)	27	28	0	46	14	0	84	1278	80	6	576	16
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	7.8	7.8		7.8	7.8		74.2	74.2	74.2	74.2	74.2	74.2
Effective Green, g (s)	7.8	7.8		7.8	7.8		74.2	74.2	74.2	74.2	74.2	74.2
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.78	0.78	0.78	0.78	0.78	0.78
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	114	134		105	147		633	2764	1236	288	2764	1236
v/s Ratio Prot		0.02			0.01			c0.36			0.16	
v/s Ratio Perm	0.02			c0.04			0.10		0.05	0.02		0.01
v/c Ratio	0.24	0.21		0.44	0.10		0.13	0.46	0.06	0.02	0.21	0.01
Uniform Delay, d1	40.8	40.7		41.5	40.3		2.5	3.6	2.4	2.3	2.7	2.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.8		2.9	0.3		0.4	0.6	0.1	0.1	0.2	0.0
Delay (s)	41.9	41.5		44.4	40.6		3.0	4.1	2.5	2.4	2.9	2.3
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		41.6			43.4			4.0			2.9	
Approach LOS		D			D			A			A	

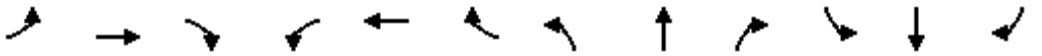
Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	57	38
Maximum Split (%)	60.0%	40.0%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	57
End Time (s)	57	0
Yield/Force Off (s)	51	88
Yield/Force Off 170(s)	47	84
Local Start Time (s)	0	57
Local Yield (s)	51	88
Local Yield 170(s)	47	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	9	69	24	8	13	79	1288	39	13	562	40
Future Volume (vph)	38	9	69	24	8	13	79	1288	39	13	562	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.75	1.00		0.42	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1383	1863	1583	1399	1693		774	3539	1583	303	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	10	77	27	9	14	88	1431	43	14	624	44
RTOR Reduction (vph)	0	0	70	0	13	0	0	0	9	0	0	9
Lane Group Flow (vph)	42	10	7	27	10	0	88	1431	34	14	624	35
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	11.0	11.0	11.0	11.0	11.0		95.0	95.0	95.0	95.0	95.0	95.0
Effective Green, g (s)	11.0	11.0	11.0	11.0	11.0		95.0	95.0	95.0	95.0	95.0	95.0
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.09		0.79	0.79	0.79	0.79	0.79	0.79
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	126	170	145	128	155		612	2801	1253	239	2801	1253
v/s Ratio Prot		0.01			0.01			c0.40			0.18	
v/s Ratio Perm	c0.03		0.00	0.02			0.11		0.02	0.05		0.02
v/c Ratio	0.33	0.06	0.05	0.21	0.07		0.14	0.51	0.03	0.06	0.22	0.03
Uniform Delay, d1	51.1	49.8	49.7	50.5	49.8		2.9	4.4	2.7	2.7	3.2	2.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.32	0.23	0.03	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1	0.1	0.8	0.2		0.3	0.4	0.0	0.5	0.2	0.0
Delay (s)	52.6	49.9	49.9	51.3	50.0		1.2	1.4	0.1	3.2	3.3	2.7
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		50.8			50.7			1.4			3.3	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	83	37
Maximum Split (%)	69.2%	30.8%
Minimum Split (s)	22	36
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	1
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	14	97
End Time (s)	97	14
Yield/Force Off (s)	91	6
Yield/Force Off 170(s)	84	118
Local Start Time (s)	0	83
Local Yield (s)	77	112
Local Yield 170(s)	70	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70
Offset: 14 (12%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	540	343	337	352	169	482	1169	594	224	384	74
Future Volume (vph)	82	540	343	337	352	169	482	1169	594	224	384	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.0	4.5	7.0	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.25	1.00	1.00	0.29	1.00	1.00	0.31	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	897	3539	1583	1032	3539	1583	1135	3539	1583	441	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	91	600	381	374	391	188	536	1299	660	249	427	82
RTOR Reduction (vph)	0	0	90	0	0	57	0	0	48	0	0	52
Lane Group Flow (vph)	91	600	291	374	391	131	536	1299	612	249	427	30
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	25.2	25.2	43.7	39.8	39.3	45.4	49.3	49.3	69.7	38.9	38.9	44.2
Effective Green, g (s)	25.2	25.2	43.7	39.8	39.3	45.4	49.3	49.3	69.7	38.9	38.9	44.2
Actuated g/C Ratio	0.21	0.21	0.36	0.33	0.33	0.38	0.41	0.41	0.58	0.32	0.32	0.37
Clearance Time (s)	4.5	4.0	4.5	4.0	4.5	7.0	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	743	576	750	1159	598	820	1453	972	295	1147	642
v/s Ratio Prot	0.01	c0.17	0.08	0.08	0.11	0.01	0.10	c0.37	c0.11	c0.04	0.12	0.00
v/s Ratio Perm	0.05		0.11	0.08		0.07	0.17		0.28	0.23		0.02
v/c Ratio	0.30	0.81	0.51	0.50	0.34	0.22	0.65	0.89	0.63	0.84	0.37	0.05
Uniform Delay, d1	38.9	45.1	29.7	37.1	30.5	25.3	25.5	32.9	16.6	47.3	31.2	24.4
Progression Factor	1.00	1.00	1.00	0.70	0.61	0.44	0.34	0.45	0.05	0.95	0.90	0.65
Incremental Delay, d2	0.6	6.4	0.7	0.4	0.1	0.2	1.3	6.5	0.9	19.1	0.9	0.0
Delay (s)	39.5	51.5	30.4	26.2	18.8	11.3	10.1	21.2	1.7	63.8	29.1	15.9
Level of Service	D	D	C	C	B	B	B	C	A	E	C	B
Approach Delay (s)		43.0			20.2			13.6			39.1	
Approach LOS		D			C			B			D	

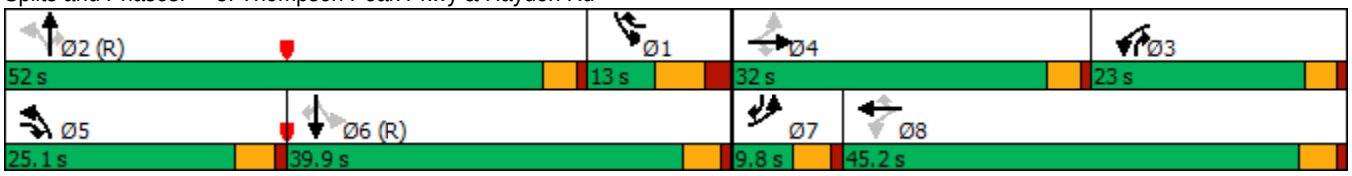
Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

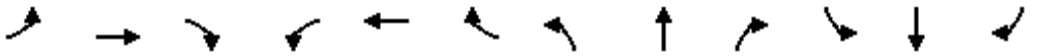
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	13	52	23	32	25.1	39.9	9.8	45.2
Maximum Split (%)	10.8%	43.3%	19.2%	26.7%	20.9%	33.3%	8.2%	37.7%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	105.9	53.9	30.9	118.9	53.9	79	118.9	8.7
End Time (s)	118.9	105.9	53.9	30.9	79	118.9	8.7	53.9
Yield/Force Off (s)	111.9	101.9	49.9	26.9	74.5	114.4	4.2	49.4
Yield/Force Off 170(s)	111.9	77.9	49.9	5.9	74.5	90.4	4.2	28.4
Local Start Time (s)	26.9	94.9	71.9	39.9	94.9	0	39.9	49.7
Local Yield (s)	32.9	22.9	90.9	67.9	115.5	35.4	45.2	90.4
Local Yield 170(s)	32.9	118.9	90.9	46.9	115.5	11.4	45.2	69.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 79 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Thompson Peak Pkwy & Hayden Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	88	298	169	101	60	273	2130	98	34	986	88
Future Volume (vph)	76	88	298	169	101	60	273	2130	98	34	986	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.47	1.00	1.00	0.95	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	876	3539	1583	3433	5085	1583	139	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	98	331	188	112	67	303	2367	109	38	1096	98
RTOR Reduction (vph)	0	0	52	0	0	56	0	0	40	0	0	54
Lane Group Flow (vph)	84	98	279	188	112	11	303	2367	69	38	1096	44
Turn Type	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4	8		8			2	6		6
Actuated Green, G (s)	6.9	9.6	35.4	27.1	15.7	20.1	25.8	75.0	75.0	58.0	53.6	53.6
Effective Green, g (s)	6.9	9.6	35.4	27.1	15.7	20.1	25.8	75.0	75.0	58.0	53.6	53.6
Actuated g/C Ratio	0.06	0.08	0.29	0.23	0.13	0.17	0.22	0.62	0.62	0.48	0.45	0.45
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	197	283	466	294	463	265	738	3178	989	126	2271	707
v/s Ratio Prot	0.02	0.03	c0.13	c0.07	0.03	0.00	0.09	c0.47		0.01	0.22	
v/s Ratio Perm			0.05	c0.08		0.01			0.04	0.13		0.03
v/c Ratio	0.43	0.35	0.60	0.64	0.24	0.04	0.41	0.74	0.07	0.30	0.48	0.06
Uniform Delay, d1	54.6	52.2	36.2	40.3	46.8	41.9	40.6	15.8	8.8	44.8	23.4	18.9
Progression Factor	0.77	0.82	0.36	1.00	1.00	1.00	0.76	0.25	0.12	1.25	0.76	2.07
Incremental Delay, d2	1.5	0.7	2.0	4.5	0.3	0.1	0.1	0.6	0.0	1.2	0.7	0.2
Delay (s)	43.3	43.6	15.0	44.9	47.1	41.9	31.0	4.5	1.1	57.3	18.4	39.2
Level of Service	D	D	B	D	D	D	C	A	A	E	B	D
Approach Delay (s)		25.1			45.0			7.2			21.3	
Approach LOS		C			D			A			C	

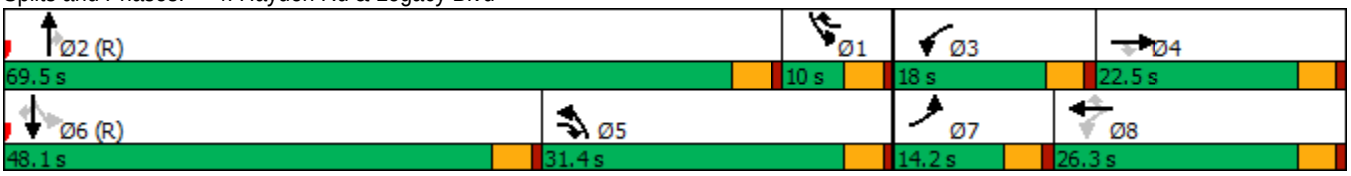
Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

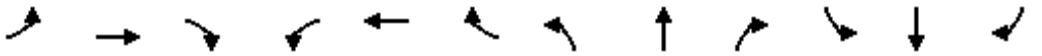
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	10	69.5	18	22.5	31.4	48.1	14.2	26.3
Maximum Split (%)	8.3%	57.9%	15.0%	18.8%	26.2%	40.1%	11.8%	21.9%
Minimum Split (s)	10	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	3	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	Yes	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	27.5	78	37.5	55.5	6.1	78	37.5	51.7
End Time (s)	37.5	27.5	55.5	78	37.5	6.1	51.7	78
Yield/Force Off (s)	33	23	51	73.5	33	1.6	47.2	73.5
Yield/Force Off 170(s)	33	12	51	62.5	33	110.6	47.2	62.5
Local Start Time (s)	69.5	0	79.5	97.5	48.1	0	79.5	93.7
Local Yield (s)	75	65	93	115.5	75	43.6	89.2	115.5
Local Yield 170(s)	75	54	93	104.5	75	32.6	89.2	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 78 (65%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	198	160	912	844	1582	0	0	1217	462
Future Volume (vph)	0	0	0	198	160	912	844	1582	0	0	1217	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1581	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1581	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	220	178	1013	938	1758	0	0	1352	513
RTOR Reduction (vph)	0	0	0	0	73	285	0	0	0	0	0	216
Lane Group Flow (vph)	0	0	0	220	541	292	938	1758	0	0	1352	297
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				39.1	39.1	39.1	32.5	42.1			33.4	33.4
Effective Green, g (s)				39.1	39.1	39.1	32.5	42.1			33.4	33.4
Actuated g/C Ratio				0.33	0.33	0.33	0.27	0.35			0.28	0.28
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1118	515	490	929	1783			2099	440
v/s Ratio Prot					c0.34		0.27	c0.35			0.18	
v/s Ratio Perm				0.06		0.19						c0.19
v/c Ratio				0.20	1.05	0.60	1.01	0.99			0.64	0.68
Uniform Delay, d1				29.1	40.5	33.8	43.8	38.7			38.1	38.5
Progression Factor				1.00	1.00	1.00	0.79	0.44			1.17	1.48
Incremental Delay, d2				0.1	53.3	1.9	24.0	12.6			1.4	7.4
Delay (s)				29.2	93.7	35.8	58.3	29.5			46.1	64.2
Level of Service				C	F	D	E	C			D	E
Approach Delay (s)		0.0			60.0			39.5			51.1	
Approach LOS		A			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

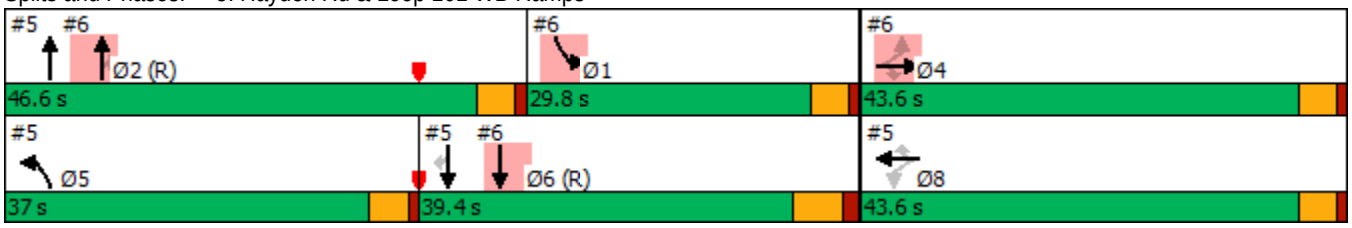
c Critical Lane Group

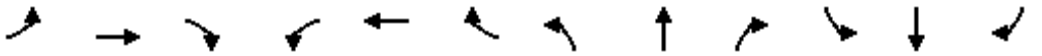
Phase Number	1	2	4	5	6	8
Node Number	6	5	6	5	5	5
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	29.8	46.6	43.6	37	39.4	43.6
Maximum Split (%)	24.8%	38.8%	36.3%	30.8%	32.8%	36.3%
Minimum Split (s)	9.5	22.5	22.5	9.5	39	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	4.4	3.5
All-Red Time (s)	1	1	1	1	1.6	1
Minimum Initial (s)	5	5	5	5	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		26	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	79.6	33	109.4	33	70	109.4
End Time (s)	109.4	79.6	33	70	109.4	33
Yield/Force Off (s)	104.9	75.1	28.5	65.5	103.4	28.5
Yield/Force Off 170(s)	104.9	64.1	17.5	65.5	77.4	17.5
Local Start Time (s)	9.6	83	39.4	83	0	39.4
Local Yield (s)	34.9	5.1	78.5	115.5	33.4	78.5
Local Yield 170(s)	34.9	114.1	67.5	115.5	7.4	67.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110

Offset: 70 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

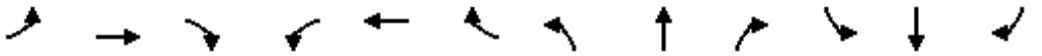




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	707	0	257	0	0	0	0	1763	213	653	779	0
Future Volume (vph)	707	0	257	0	0	0	0	1763	213	653	779	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.86	1.00	0.97	0.91	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1603	1504					6408	1583	3433	5085	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1603	1504					6408	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	786	0	286	0	0	0	0	1959	237	726	866	0
RTOR Reduction (vph)	0	73	173	0	0	0	0	0	142	0	0	0
Lane Group Flow (vph)	409	333	84	0	0	0	0	1959	95	726	866	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	39.1	39.1	39.1					42.1	42.1	25.3	33.4	
Effective Green, g (s)	39.1	39.1	39.1					42.1	42.1	25.3	33.4	
Actuated g/C Ratio	0.33	0.33	0.33					0.35	0.35	0.21	0.28	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	547	522	490					2248	555	723	1415	
v/s Ratio Prot								c0.31		c0.21	0.17	
v/s Ratio Perm	c0.24	0.21	0.06						0.06			
v/c Ratio	0.75	0.64	0.17					0.87	0.17	1.00	0.61	
Uniform Delay, d1	36.1	34.4	28.9					36.4	26.9	47.4	37.7	
Progression Factor	1.00	1.04	1.87					0.93	1.34	0.37	0.37	
Incremental Delay, d2	2.2	1.0	0.1					2.6	0.3	31.4	1.6	
Delay (s)	38.4	36.8	54.2					36.5	36.3	48.8	15.6	
Level of Service	D	D	D					D	D	D	B	
Approach Delay (s)		41.6			0.0			36.4			30.8	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	68	260	45	69	377	200	1200	22	76	697	294
Future Volume (vph)	353	68	260	45	69	377	200	1200	22	76	697	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.67	1.00	1.00	0.68	1.00	1.00	0.36	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	1249	1863	1583	1260	1863	1583	668	3539	1583	229	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	392	76	289	50	77	419	222	1333	24	84	774	327
RTOR Reduction (vph)	0	0	223	0	0	107	0	0	14	0	0	192
Lane Group Flow (vph)	392	76	66	50	77	312	222	1333	10	84	774	135
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.3	9.0	27.3	34.3	9.0	25.8	50.9	50.9	50.9	49.4	49.4	49.4
Effective Green, g (s)	34.3	9.0	27.3	34.3	9.0	25.8	50.9	50.9	50.9	49.4	49.4	49.4
Actuated g/C Ratio	0.29	0.08	0.23	0.29	0.08	0.22	0.42	0.42	0.42	0.41	0.41	0.41
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	466	139	419	467	139	340	451	1501	671	310	1456	651
v/s Ratio Prot	c0.18	0.04	0.02	0.02	0.04	c0.13	0.08	c0.38		0.04	0.22	
v/s Ratio Perm	0.06		0.02	0.01		0.07	0.13		0.01	0.07		0.09
v/c Ratio	0.84	0.55	0.16	0.11	0.55	0.92	0.49	0.89	0.02	0.27	0.53	0.21
Uniform Delay, d1	39.2	53.5	37.1	32.1	53.6	46.1	29.4	31.9	20.0	25.4	26.6	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.36	0.35	1.00	0.78	0.28	0.01
Incremental Delay, d2	12.9	4.3	0.2	0.1	4.7	28.6	0.7	7.1	0.0	0.4	1.2	0.6
Delay (s)	52.1	57.9	37.3	32.2	58.3	74.7	11.4	18.3	20.1	20.1	8.5	0.8
Level of Service	D	E	D	C	E	E	B	B	C	C	A	A
Approach Delay (s)		47.0			68.5			17.3			7.2	
Approach LOS		D			E			B			A	

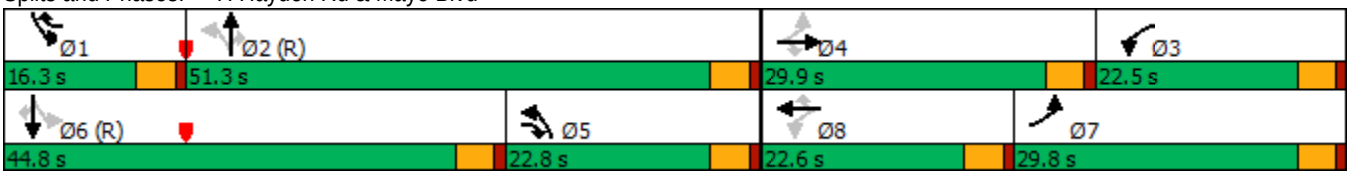
Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

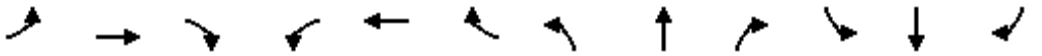
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	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)	16.3	51.3	22.5	29.9	22.8	44.8	29.8	22.6
Maximum Split (%)	13.6%	42.8%	18.8%	24.9%	19.0%	37.3%	24.8%	18.8%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83.7	100	61.2	31.3	8.5	83.7	53.9	31.3
End Time (s)	100	31.3	83.7	61.2	31.3	8.5	83.7	53.9
Yield/Force Off (s)	95.5	26.8	79.2	56.7	26.8	4	79.2	49.4
Yield/Force Off 170(s)	95.5	15.8	68.2	45.7	26.8	113	79.2	38.4
Local Start Time (s)	103.7	0	81.2	51.3	28.5	103.7	73.9	51.3
Local Yield (s)	115.5	46.8	99.2	76.7	46.8	24	99.2	69.4
Local Yield 170(s)	115.5	35.8	88.2	65.7	46.8	13	99.2	58.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 100 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	21	74	253	0	212	148	1162	165	69	846	71
Future Volume (vph)	38	21	74	253	0	212	148	1162	165	69	846	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1804	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.26	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)		1804	1583	3433		1583	480	3539	1583	282	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	23	82	281	0	236	164	1291	183	77	940	79
RTOR Reduction (vph)	0	0	75	0	0	171	0	0	63	0	0	30
Lane Group Flow (vph)	0	65	7	281	0	65	164	1291	120	77	940	49
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		10.6	10.6	15.2		32.8	74.2	74.2	74.2	74.2	74.2	74.2
Effective Green, g (s)		10.6	10.6	15.2		32.8	74.2	74.2	74.2	74.2	74.2	74.2
Actuated g/C Ratio		0.09	0.09	0.13		0.27	0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		159	139	434		432	296	2188	978	174	2188	978
v/s Ratio Prot				c0.08				c0.36			0.27	
v/s Ratio Perm		0.04	0.00			0.04	0.34		0.08	0.27		0.03
v/c Ratio		0.41	0.05	0.65		0.15	0.55	0.59	0.12	0.44	0.43	0.05
Uniform Delay, d1		51.7	50.1	49.9		33.0	13.3	13.8	9.5	12.0	11.9	9.0
Progression Factor		1.00	1.00	1.00		1.00	0.23	0.08	0.00	0.81	0.66	1.00
Incremental Delay, d2		1.7	0.2	3.3		0.2	3.5	0.6	0.1	7.1	0.5	0.1
Delay (s)		53.4	50.3	53.2		33.2	6.6	1.7	0.1	16.8	8.5	9.1
Level of Service		D	D	D		C	A	A	A	B	A	A
Approach Delay (s)		51.7			44.0			2.0			9.1	
Approach LOS		D			D			A			A	

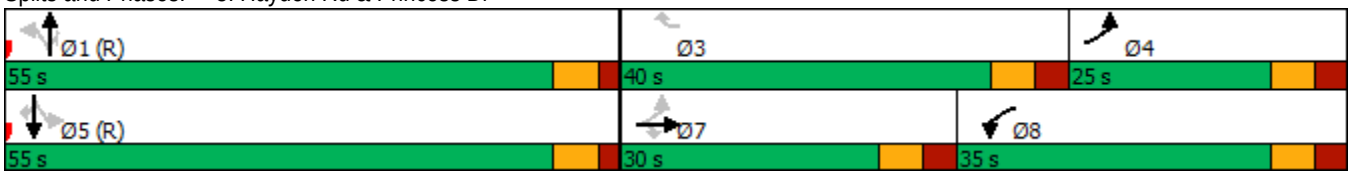
Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

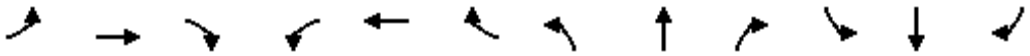
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55	40	25	55	30	35
Maximum Split (%)	45.8%	33.3%	20.8%	45.8%	25.0%	29.2%
Minimum Split (s)	50	40	25	50	30	25
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	45	100	20	45	100	10
End Time (s)	100	20	45	100	10	45
Yield/Force Off (s)	94	13	38	94	3	38
Yield/Force Off 170(s)	83	2	38	83	112	38
Local Start Time (s)	0	55	95	0	55	85
Local Yield (s)	49	88	113	49	78	113
Local Yield 170(s)	38	77	113	38	67	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	125
Offset: 45 (38%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1	23	488	0	164	6	1356	276	171	1035	10
Future Volume (vph)	13	1	23	488	0	164	6	1356	276	171	1035	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3534	
Flt Permitted		0.82		0.73	0.73	1.00	0.13	1.00	1.00	0.08	1.00	
Satd. Flow (perm)		2635		1290	1290	1583	239	3539	1583	146	3534	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1	26	542	0	182	7	1507	307	190	1150	11
RTOR Reduction (vph)	0	20	0	0	0	137	0	0	143	0	0	0
Lane Group Flow (vph)	0	21	0	271	271	45	7	1507	164	190	1161	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		28.9		28.9	28.9	28.9	51.0	51.0	51.0	72.8	71.3	
Effective Green, g (s)		28.9		28.9	28.9	28.9	51.0	51.0	51.0	72.8	71.3	
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.42	0.42	0.42	0.61	0.59	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		634		310	310	381	118	1504	672	380	2099	
v/s Ratio Prot							0.00	c0.43		0.09	c0.33	
v/s Ratio Perm		0.01		c0.21	0.21	0.03	0.02		0.10	0.21		
v/c Ratio		0.03		0.87	0.87	0.12	0.06	1.00	0.24	0.50	0.55	
Uniform Delay, d1		34.9		43.8	43.8	35.6	22.3	34.5	22.1	38.6	14.7	
Progression Factor		1.00		1.00	1.00	1.00	0.81	0.75	1.45	0.59	0.24	
Incremental Delay, d2		0.0		22.8	22.8	0.1	0.0	7.4	0.1	1.0	1.0	
Delay (s)		34.9		66.6	66.6	35.7	18.0	33.4	32.1	23.6	4.5	
Level of Service		C		E	E	D	B	C	C	C	A	
Approach Delay (s)		34.9			54.8			33.1			7.2	
Approach LOS		C			D			C			A	

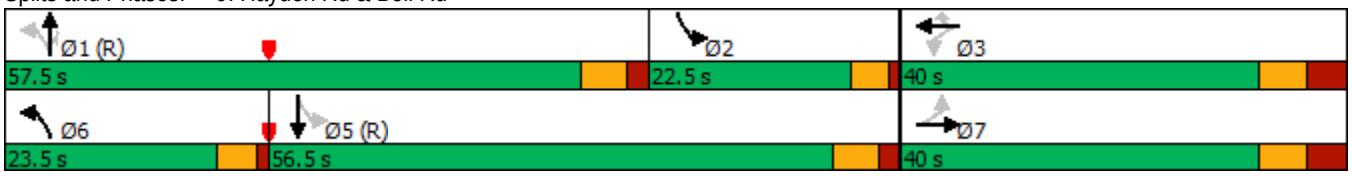
Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	57.5	22.5	40	56.5	23.5	40
Maximum Split (%)	47.9%	18.8%	33.3%	47.1%	19.6%	33.3%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	18.5	76	98.5	42	18.5	98.5
End Time (s)	76	98.5	18.5	98.5	42	18.5
Yield/Force Off (s)	70	94	10.5	92.5	37.5	10.5
Yield/Force Off 170(s)	59	83	119.5	81.5	26.5	119.5
Local Start Time (s)	96.5	34	56.5	0	96.5	56.5
Local Yield (s)	28	52	88.5	50.5	115.5	88.5
Local Yield 170(s)	17	41	77.5	39.5	104.5	77.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 42 (35%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	63	2265	109	20	1219
Future Volume (vph)	132	63	2265	109	20	1219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	80	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	70	2517	121	22	1354
RTOR Reduction (vph)	0	8	0	11	0	0
Lane Group Flow (vph)	147	62	2517	110	22	1354
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	15.2	15.2	92.8	92.8	92.8	92.8
Effective Green, g (s)	15.2	15.2	92.8	92.8	92.8	92.8
Actuated g/C Ratio	0.13	0.13	0.77	0.77	0.77	0.77
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	200	2736	1224	61	2736
v/s Ratio Prot	c0.08		c0.71			0.38
v/s Ratio Perm		0.04		0.07	0.27	
v/c Ratio	0.66	0.31	0.92	0.09	0.36	0.49
Uniform Delay, d1	49.9	47.6	10.7	3.3	4.3	5.0
Progression Factor	1.00	1.00	0.17	0.02	1.00	1.00
Incremental Delay, d2	6.8	0.9	3.0	0.1	15.8	0.6
Delay (s)	56.7	48.5	4.8	0.1	20.1	5.6
Level of Service	E	D	A	A	C	A
Approach Delay (s)	54.0		4.6			5.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	92	28
Maximum Split (%)	76.7%	23.3%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	42	14
End Time (s)	14	42
Yield/Force Off (s)	8	36
Yield/Force Off 170(s)	2	32
Local Start Time (s)	0	92
Local Yield (s)	86	114
Local Yield 170(s)	80	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 42 (35%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	128	69	2276	128	60	1253
Future Volume (vph)	128	69	2276	128	60	1253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	80	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	77	2529	142	67	1392
RTOR Reduction (vph)	0	6	0	16	0	0
Lane Group Flow (vph)	142	71	2529	126	67	1392
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	14.9	14.9	93.1	93.1	93.1	93.1
Effective Green, g (s)	14.9	14.9	93.1	93.1	93.1	93.1
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	219	196	2745	1228	62	2745
v/s Ratio Prot	c0.08		0.71			0.39
v/s Ratio Perm		0.04		0.08	c0.84	
v/c Ratio	0.65	0.36	0.92	0.10	1.08	0.51
Uniform Delay, d1	50.1	48.2	10.6	3.3	13.5	5.0
Progression Factor	1.00	1.00	1.44	0.55	1.02	0.68
Incremental Delay, d2	6.5	1.1	1.9	0.0	131.4	0.6
Delay (s)	56.5	49.3	17.2	1.8	145.1	4.0
Level of Service	E	D	B	A	F	A
Approach Delay (s)	54.0		16.4			10.5
Approach LOS	D		B			B

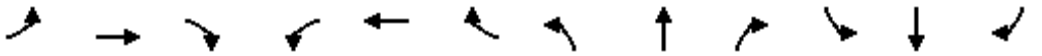
Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	89	31
Maximum Split (%)	74.2%	25.8%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	106	75
End Time (s)	75	106
Yield/Force Off (s)	69	100
Yield/Force Off 170(s)	57	89
Local Start Time (s)	0	89
Local Yield (s)	83	114
Local Yield 170(s)	71	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 106 (88%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	156	71	669	235	205	92	1945	497	157	1397	366
Future Volume (vph)	533	156	71	669	235	205	92	1945	497	157	1397	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	154	5085	1583	152	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	173	79	743	261	228	102	2161	552	174	1552	407
RTOR Reduction (vph)	0	0	69	0	0	71	0	0	84	0	0	50
Lane Group Flow (vph)	592	173	10	743	261	157	102	2161	468	174	1552	357
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	25.2	14.8	14.8	22.0	14.1	21.3	55.2	48.5	70.5	56.2	49.0	74.2
Effective Green, g (s)	25.2	14.8	14.8	22.0	14.1	21.3	55.2	48.5	70.5	56.2	49.0	74.2
Actuated g/C Ratio	0.21	0.12	0.12	0.18	0.12	0.18	0.46	0.40	0.59	0.47	0.41	0.62
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	720	436	195	629	415	280	161	2055	930	168	2076	978
v/s Ratio Prot	c0.17	0.05		c0.22	0.07	0.03	0.04	c0.42	0.09	c0.06	0.31	0.08
v/s Ratio Perm			0.01			0.07	0.26		0.20	0.42		0.15
v/c Ratio	0.82	0.40	0.05	1.18	0.63	0.56	0.63	1.05	0.50	1.04	0.75	0.37
Uniform Delay, d1	45.3	48.5	46.4	49.0	50.5	45.1	22.2	35.8	14.5	30.7	30.2	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.52	0.61	0.28	1.20	1.15	0.77
Incremental Delay, d2	7.5	0.6	0.1	97.2	3.0	2.6	0.7	24.7	0.0	77.4	2.4	0.2
Delay (s)	52.8	49.1	46.5	146.2	53.4	47.7	34.5	46.6	4.0	114.3	37.2	8.9
Level of Service	D	D	D	F	D	D	C	D	A	F	D	A
Approach Delay (s)		51.4			108.3			37.8			38.1	
Approach LOS		D			F			D			D	

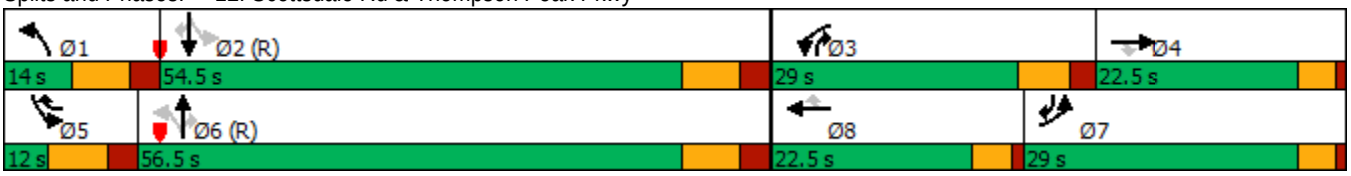
Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

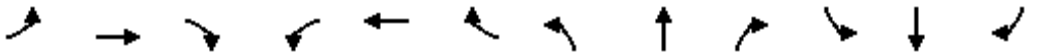
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	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)	14	54.5	29	22.5	12	56.5	29	22.5
Maximum Split (%)	11.7%	45.4%	24.2%	18.8%	10.0%	47.1%	24.2%	18.8%
Minimum Split (s)	9	40	8	22.5	9	40	5.5	22.5
Yellow Time (s)	5.3	5.3	4.6	3.5	5.3	5.3	3.5	3.5
All-Red Time (s)	2.7	2.7	2.4	1	2.7	2.7	1	1
Minimum Initial (s)	1	1	1	1	1	1	1	1
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		25		11		25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	74	88	22.5	51.5	74	86	45	22.5
End Time (s)	88	22.5	51.5	74	86	22.5	74	45
Yield/Force Off (s)	80	14.5	44.5	69.5	78	14.5	69.5	40.5
Yield/Force Off 170(s)	80	109.5	44.5	58.5	78	109.5	69.5	29.5
Local Start Time (s)	106	0	54.5	83.5	106	118	77	54.5
Local Yield (s)	112	46.5	76.5	101.5	110	46.5	101.5	72.5
Local Yield 170(s)	112	21.5	76.5	90.5	110	21.5	101.5	61.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 88 (73%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	104	37	319	148	91	56	2469	275	58	2110	348
Future Volume (vph)	366	104	37	319	148	91	56	2469	275	58	2110	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	132	5085	1583	132	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	116	41	354	164	101	62	2743	306	64	2344	387
RTOR Reduction (vph)	0	0	35	0	0	87	0	0	71	0	0	94
Lane Group Flow (vph)	407	116	6	354	164	14	62	2743	235	64	2344	293
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	20.1	16.5	16.5	12.0	10.9	16.4	60.5	60.5	72.5	62.0	62.0	82.1
Effective Green, g (s)	20.1	16.5	16.5	12.0	10.9	16.4	60.5	60.5	72.5	62.0	62.0	82.1
Actuated g/C Ratio	0.17	0.14	0.14	0.10	0.09	0.14	0.50	0.50	0.60	0.52	0.52	0.68
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	575	486	217	343	321	216	121	2563	1048	143	2627	1142
v/s Ratio Prot	c0.12	0.03		c0.10	0.05	0.00	0.02	c0.54	0.02	0.02	c0.46	0.04
v/s Ratio Perm			0.00			0.01	0.24		0.13	0.21		0.14
v/c Ratio	0.71	0.24	0.03	1.03	0.51	0.06	0.51	1.07	0.22	0.45	0.89	0.26
Uniform Delay, d1	47.2	46.1	44.8	54.0	52.0	45.1	44.5	29.8	10.9	26.4	26.0	7.3
Progression Factor	1.00	1.00	1.00	1.07	1.06	6.90	0.44	0.31	0.03	0.63	0.56	0.00
Incremental Delay, d2	4.0	0.3	0.0	56.9	1.4	0.1	0.9	34.1	0.0	1.5	3.5	0.1
Delay (s)	51.2	46.4	44.8	114.6	56.5	311.6	20.7	43.4	0.3	18.1	18.0	0.1
Level of Service	D	D	D	F	E	F	C	D	A	B	B	A
Approach Delay (s)		49.7			131.3			38.7			15.5	
Approach LOS		D			F			D			B	

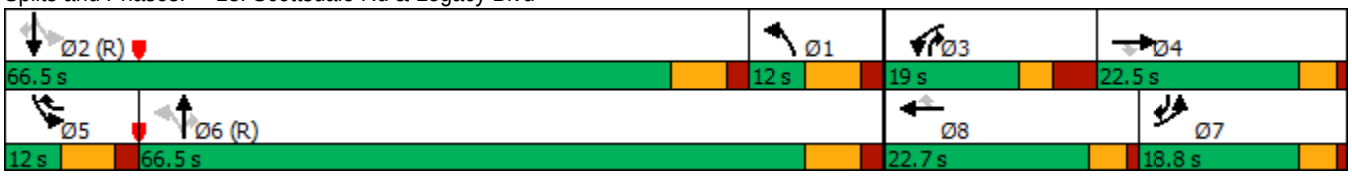
Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

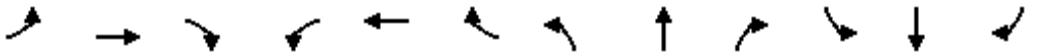
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	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)	12	66.5	19	22.5	12	66.5	18.8	22.7
Maximum Split (%)	10.0%	55.4%	15.8%	18.8%	10.0%	55.4%	15.7%	18.9%
Minimum Split (s)	12	30	13	22.5	12	30	9.5	22.5
Yellow Time (s)	4.9	4.9	3	3.5	4.9	4.9	3.5	3.5
All-Red Time (s)	2.1	2.1	4	1	2.1	2.1	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		11		16		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	96.5	30	108.5	7.5	30	42	11.2	108.5
End Time (s)	108.5	96.5	7.5	30	42	108.5	30	11.2
Yield/Force Off (s)	101.5	89.5	0.5	25.5	35	101.5	25.5	6.7
Yield/Force Off 170(s)	101.5	73.5	0.5	14.5	35	85.5	25.5	115.7
Local Start Time (s)	54.5	108	66.5	85.5	108	0	89.2	66.5
Local Yield (s)	59.5	47.5	78.5	103.5	113	59.5	103.5	84.7
Local Yield 170(s)	59.5	31.5	78.5	92.5	113	43.5	103.5	73.7

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 42 (35%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	748	103	620	1099	2199	0	0	1770	779
Future Volume (vph)	0	0	0	748	103	620	1099	2199	0	0	1770	779
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1578	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1578	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	831	114	689	1221	2443	0	0	1967	866
RTOR Reduction (vph)	0	0	0	0	78	275	0	0	0	0	0	141
Lane Group Flow (vph)	0	0	0	831	332	118	1221	2443	0	0	1967	725
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				24.0	24.0	24.0	34.0	56.0			45.0	45.0
Effective Green, g (s)				24.0	24.0	24.0	34.0	56.0			45.0	45.0
Actuated g/C Ratio				0.20	0.20	0.20	0.28	0.47			0.38	0.38
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				686	315	300	972	2373			2829	593
v/s Ratio Prot					0.21		c0.36	0.48			0.26	
v/s Ratio Perm				c0.24		0.08						c0.46
v/c Ratio				1.21	1.06	0.39	1.26	1.03			0.70	1.22
Uniform Delay, d1				48.0	48.0	41.7	43.0	32.0			31.7	37.5
Progression Factor				1.14	1.21	2.08	0.55	0.43			0.52	0.56
Incremental Delay, d2				100.1	45.5	0.3	119.2	20.9			0.7	107.6
Delay (s)				154.6	103.4	87.2	142.7	34.6			17.2	128.5
Level of Service				F	F	F	F	C			B	F
Approach Delay (s)		0.0			125.5			70.6			51.2	
Approach LOS		A			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	74.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		

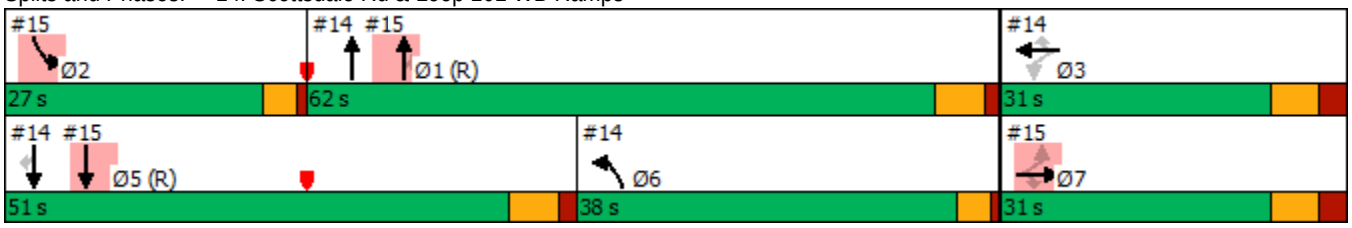
c Critical Lane Group

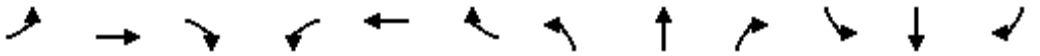
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	62	27	31	51	38	31
Maximum Split (%)	51.7%	22.5%	25.8%	42.5%	31.7%	25.8%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	93	62	93	24	62
End Time (s)	62	0	93	24	62	93
Yield/Force Off (s)	56	116	86	18	58	86
Yield/Force Off 170(s)	56	116	86	18	58	86
Local Start Time (s)	0	93	62	93	24	62
Local Yield (s)	56	116	86	18	58	86
Local Yield 170(s)	56	116	86	18	58	86

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	130	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green, Master Intersection

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

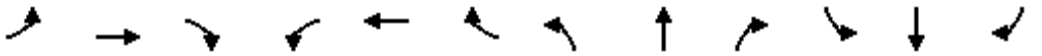




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	617	0	949	0	0	0	0	2696	778	604	2018	0
Future Volume (vph)	617	0	949	0	0	0	0	2696	778	604	2018	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	686	0	1054	0	0	0	0	2996	864	671	2242	0
RTOR Reduction (vph)	0	382	382	0	0	0	0	0	299	0	0	0
Lane Group Flow (vph)	686	145	145	0	0	0	0	2996	565	671	2242	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	24.0	24.0	24.0					56.0	56.0	23.0	45.0	
Effective Green, g (s)	24.0	24.0	24.0					56.0	56.0	23.0	45.0	
Actuated g/C Ratio	0.20	0.20	0.20					0.47	0.47	0.19	0.38	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	686	300	300					3520	738	657	1906	
v/s Ratio Prot		0.10						c0.40		0.20	c0.44	
v/s Ratio Perm	c0.20		0.10						0.36			
v/c Ratio	1.00	0.48	0.48					0.85	0.77	1.02	1.18	
Uniform Delay, d1	48.0	42.5	42.5					28.3	26.5	48.5	37.5	
Progression Factor	1.00	1.00	1.00					0.54	0.42	0.95	0.38	
Incremental Delay, d2	34.4	1.2	1.2					0.3	0.7	31.6	82.7	
Delay (s)	82.4	43.7	43.7					15.7	11.9	77.5	96.9	
Level of Service	F	D	D					B	B	E	F	
Approach Delay (s)		59.0			0.0			14.8			92.4	
Approach LOS		E			A			B			F	

Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	742	139	214	177	194	539	415	2229	136	430	1711	808
Future Volume (vph)	742	139	214	177	194	539	415	2229	136	430	1711	808
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	824	154	238	197	216	599	461	2477	151	478	1901	898
RTOR Reduction (vph)	0	0	81	0	0	107	0	0	99	0	0	100
Lane Group Flow (vph)	824	154	157	197	216	492	461	2477	52	478	1901	798
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3			1			5
Actuated Green, G (s)	31.0	34.3	51.3	12.2	15.5	25.5	17.0	41.0	41.0	10.0	34.0	65.0
Effective Green, g (s)	31.0	34.3	51.3	12.2	15.5	25.5	17.0	41.0	41.0	10.0	34.0	65.0
Actuated g/C Ratio	0.26	0.29	0.43	0.10	0.13	0.21	0.14	0.34	0.34	0.08	0.28	0.54
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	886	1453	676	349	457	389	486	1737	540	286	1440	857
v/s Ratio Prot	0.24	0.03	c0.03	0.06	0.06	c0.11	0.13	c0.49		c0.14	c0.37	c0.24
v/s Ratio Perm			0.07			0.21			0.03			0.26
v/c Ratio	0.93	0.11	0.23	0.56	0.47	1.26	0.95	1.43	0.10	1.67	1.32	0.93
Uniform Delay, d1	43.4	31.6	21.8	51.4	48.5	47.2	51.1	39.5	26.9	55.0	43.0	25.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.75	2.03	0.61	0.45	1.88
Incremental Delay, d2	15.9	0.0	0.2	2.1	0.8	138.1	22.5	193.9	0.2	303.5	144.5	2.1
Delay (s)	59.4	31.6	22.0	53.5	49.2	185.4	60.2	223.4	54.9	337.3	164.1	49.8
Level of Service	E	C	C	D	D	F	E	F	D	F	F	D
Approach Delay (s)		48.5			130.6			190.8			158.0	
Approach LOS		D			F			F			F	

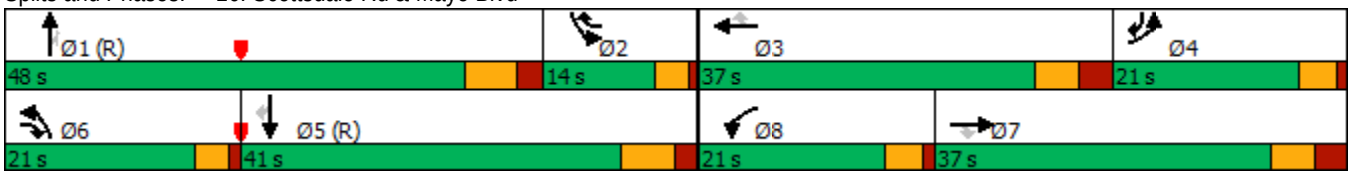
Intersection Summary			
HCM 2000 Control Delay	151.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		

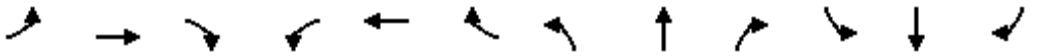
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	48	14	37	21	41	21	37	21
Maximum Split (%)	40.0%	11.7%	30.8%	17.5%	34.2%	17.5%	30.8%	17.5%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	106	34	48	85	7	106	69	48
End Time (s)	34	48	85	106	48	7	106	69
Yield/Force Off (s)	27	44	78	101.5	41	3	99	64.5
Yield/Force Off 170(s)	8	44	55	101.5	22	3	76	64.5
Local Start Time (s)	99	27	41	78	0	99	62	41
Local Yield (s)	20	37	71	94.5	34	116	92	57.5
Local Yield 170(s)	1	37	48	94.5	15	116	69	57.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 7 (6%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1	144	16	5	5	168	2627	8	10	2169	101
Future Volume (vph)	143	1	144	16	5	5	168	2627	8	10	2169	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00	1.00	0.76	1.00	1.00	0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	1404	3539	1583	1410	3539	1583	92	5085	1583	97	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	1	160	18	6	6	187	2919	9	11	2410	112
RTOR Reduction (vph)	0	0	128	0	0	5	0	0	2	0	0	34
Lane Group Flow (vph)	159	1	32	18	6	1	187	2919	7	11	2410	78
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	17.5	17.5	17.5	17.5	17.5	17.5	93.5	88.0	88.0	77.7	76.7	76.7
Effective Green, g (s)	17.5	17.5	17.5	17.5	17.5	17.5	93.5	88.0	88.0	77.7	76.7	76.7
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.78	0.73	0.73	0.65	0.64	0.64
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	204	516	230	205	516	230	243	3729	1160	76	3250	1011
v/s Ratio Prot		0.00			0.00		c0.08	c0.57		0.00	0.47	
v/s Ratio Perm	c0.11		0.02	0.01		0.00	0.52		0.00	0.09		0.05
v/c Ratio	0.78	0.00	0.14	0.09	0.01	0.00	0.77	0.78	0.01	0.14	0.74	0.08
Uniform Delay, d1	49.4	43.8	44.7	44.3	43.9	43.8	35.2	10.0	4.3	11.8	14.9	8.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.81	0.50	1.00	1.04	0.80	0.20
Incremental Delay, d2	17.0	0.0	0.3	0.2	0.0	0.0	1.4	0.2	0.0	0.1	0.1	0.0
Delay (s)	66.4	43.8	45.0	44.5	43.9	43.8	65.1	5.1	4.3	12.4	12.1	1.7
Level of Service	E	D	D	D	D	D	E	A	A	B	B	A
Approach Delay (s)		54.6			44.3			8.7			11.6	
Approach LOS		D			D			A			B	

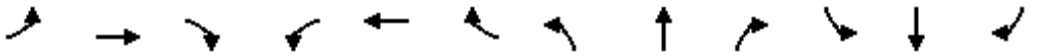
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	9.5	85.5	25	20	75	25
Maximum Split (%)	7.9%	71.3%	20.8%	16.7%	62.5%	20.8%
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	26	35.5	1	26	46	1
End Time (s)	35.5	1	26	46	1	26
Yield/Force Off (s)	31	116.5	21.5	41.5	116.5	21.5
Yield/Force Off 170(s)	31	105.5	10.5	41.5	105.5	10.5
Local Start Time (s)	100	109.5	75	100	0	75
Local Yield (s)	105	70.5	95.5	115.5	70.5	95.5
Local Yield 170(s)	105	59.5	84.5	115.5	59.5	84.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 46 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	15	282	324	45	355	292	2338	250	215	2027	80
Future Volume (vph)	63	15	282	324	45	355	292	2338	250	215	2027	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3036		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.72	1.00		0.38	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1346	3036		699	3539	1583	138	5085	1583	138	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	17	313	360	50	394	324	2598	278	239	2252	89
RTOR Reduction (vph)	0	167	0	0	0	43	0	0	107	0	0	49
Lane Group Flow (vph)	70	163	0	360	50	351	324	2598	171	239	2252	40
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	4	3		4	3	2	2	1	4	2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	18.6	13.6		18.6	13.6	40.0	80.4	54.0	59.0	80.4	54.0	54.0
Effective Green, g (s)	18.6	13.6		18.6	13.6	40.0	80.4	54.0	59.0	80.4	54.0	54.0
Actuated g/C Ratio	0.16	0.11		0.16	0.11	0.33	0.67	0.45	0.49	0.67	0.45	0.45
Clearance Time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	344		152	401	527	451	2288	778	451	2288	712
v/s Ratio Prot	0.01	0.05		c0.10	0.01	0.15	c0.16	c0.51	0.01	0.12	0.44	
v/s Ratio Perm	0.04			c0.27		0.08	0.32		0.10	0.24		0.03
v/c Ratio	0.31	0.91dr		2.37	0.12	0.67	0.72	1.14	0.22	0.53	0.98	0.06
Uniform Delay, d1	44.6	49.9		49.8	47.8	34.3	33.2	33.0	17.4	28.2	32.6	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.54	0.38	0.38	0.80	1.19	2.58
Incremental Delay, d2	0.8	1.0		635.6	0.1	3.2	2.4	62.5	0.0	3.0	12.3	0.1
Delay (s)	45.4	50.9		685.4	48.0	37.5	53.6	74.9	6.7	25.7	51.2	48.2
Level of Service	D	D		F	D	D	D	E	A	C	D	D
Approach Delay (s)		49.9			328.3			66.8			48.7	
Approach LOS		D			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	89.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

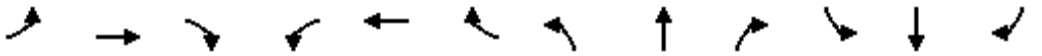
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	WBEBL
Lead/Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None
Maximum Split (s)	60	16	35	9
Maximum Split (%)	50.0%	13.3%	29.2%	7.5%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	3	107	72	63
End Time (s)	63	3	107	72
Yield/Force Off (s)	57	119	100	68
Yield/Force Off 170(s)	47	119	79	68
Local Start Time (s)	0	104	69	60
Local Yield (s)	54	116	97	65
Local Yield 170(s)	44	116	76	65

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 3 (3%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	3	139	108	9	66	125	2748	30	65	2531	95
Future Volume (vph)	76	3	139	108	9	66	125	2748	30	65	2531	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.59		0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)		1372			1048		103	5085	1583	103	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	3	154	120	10	73	139	3053	33	72	2812	106
RTOR Reduction (vph)	0	54	0	0	17	0	0	0	13	0	0	33
Lane Group Flow (vph)	0	187	0	0	186	0	139	3053	20	72	2812	73
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		23.3			23.3		79.7	72.0	72.0	79.7	72.0	72.0
Effective Green, g (s)		23.3			23.3		79.7	72.0	72.0	79.7	72.0	72.0
Actuated g/C Ratio		0.19			0.19		0.66	0.60	0.60	0.66	0.60	0.60
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		266			203		175	3051	949	175	3051	949
v/s Ratio Prot							c0.05	c0.60		0.03	0.55	
v/s Ratio Perm		0.14			c0.18		0.47		0.01	0.25		0.05
v/c Ratio		0.70			0.92		0.79	1.00	0.02	0.41	0.92	0.08
Uniform Delay, d1		45.1			47.4		32.7	24.0	9.7	27.1	21.5	10.1
Progression Factor		1.00			1.00		1.68	0.31	1.00	1.73	0.78	0.38
Incremental Delay, d2		8.2			40.3		3.4	5.0	0.0	0.6	0.6	0.0
Delay (s)		53.3			54.7		58.2	12.4	9.7	47.6	17.3	3.8
Level of Service		D			D		E	B	A	D	B	A
Approach Delay (s)		53.3			54.7			14.3			17.6	
Approach LOS		D			D			B			B	

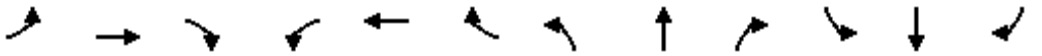
Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lag	Lead	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	78	10	32
Maximum Split (%)	65.0%	8.3%	26.7%
Minimum Split (s)	11	8	13
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)			
Flash Dont Walk (s)			
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	62	52	20
End Time (s)	20	62	52
Yield/Force Off (s)	14	58	45
Yield/Force Off 170(s)	14	58	45
Local Start Time (s)	0	110	78
Local Yield (s)	72	116	103
Local Yield 170(s)	72	116	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 62 (52%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	410	728	243	260	1713	610	579	1963	313	473	1728	612
Future Volume (vph)	410	728	243	260	1713	610	579	1963	313	473	1728	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	456	809	270	289	1903	678	643	2181	348	526	1920	680
RTOR Reduction (vph)	0	0	91	0	0	84	0	0	39	0	0	80
Lane Group Flow (vph)	456	809	179	289	1903	594	643	2181	309	526	1920	600
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	10.0	30.6	44.6	14.4	35.0	46.0	14.0	42.0	56.4	11.0	39.0	49.0
Effective Green, g (s)	10.0	30.6	44.6	14.4	35.0	46.0	14.0	42.0	56.4	11.0	39.0	49.0
Actuated g/C Ratio	0.08	0.26	0.37	0.12	0.29	0.38	0.12	0.35	0.47	0.09	0.32	0.41
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	1296	588	411	1483	606	400	1779	744	314	1652	646
v/s Ratio Prot	c0.13	0.16	0.04	0.08	c0.37	0.09	c0.19	c0.43	0.05	c0.15	0.38	0.08
v/s Ratio Perm			0.08			0.29			0.15			0.30
v/c Ratio	1.59	0.62	0.30	0.70	1.28	0.98	1.61	1.23	0.42	1.68	1.16	0.93
Uniform Delay, d1	55.0	39.6	26.7	50.7	42.5	36.6	53.0	39.0	20.9	54.5	40.5	33.8
Progression Factor	1.00	1.00	1.00	1.00	0.69	0.72	1.00	1.00	1.00	0.70	1.07	1.45
Incremental Delay, d2	283.4	0.9	0.3	0.5	127.9	7.2	284.8	106.9	0.4	309.7	76.1	10.0
Delay (s)	338.4	40.6	27.0	51.4	157.4	33.6	337.8	145.9	21.3	347.7	119.3	58.9
Level of Service	F	D	C	D	F	C	F	F	C	F	F	E
Approach Delay (s)		126.7			117.5			171.1			144.6	
Approach LOS		F			F			F			F	

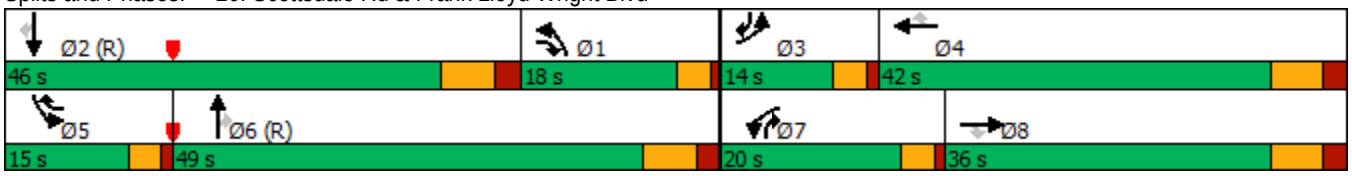
Intersection Summary			
HCM 2000 Control Delay	142.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

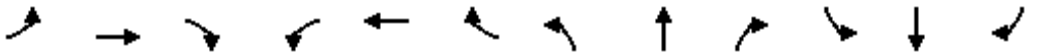
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	18	46	14	42	15	49	20	36
Maximum Split (%)	15.0%	38.3%	11.7%	35.0%	12.5%	40.8%	16.7%	30.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	77	31	95	109	31	46	95	115
End Time (s)	95	77	109	31	46	95	115	31
Yield/Force Off (s)	91	70	105	24	42	88	111	24
Yield/Force Off 170(s)	91	49	105	2	42	67	111	2
Local Start Time (s)	31	105	49	63	105	0	49	69
Local Yield (s)	45	24	59	98	116	42	65	98
Local Yield 170(s)	45	3	59	76	116	21	65	76

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 46 (38%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

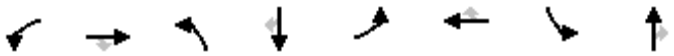




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	505	1307	73	407	1928	467	114	602	633	380	779	723
Future Volume (vph)	505	1307	73	407	1928	467	114	602	633	380	779	723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	561	1452	81	452	2142	519	127	669	703	422	866	803
RTOR Reduction (vph)	0	0	57	0	0	112	0	0	246	0	0	190
Lane Group Flow (vph)	561	1452	24	452	2142	407	127	669	457	422	866	613
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	12.0	35.0	35.0	15.0	38.0	38.0	6.0	32.0	32.0	10.0	36.0	36.0
Effective Green, g (s)	12.0	35.0	35.0	15.0	38.0	38.0	6.0	32.0	32.0	10.0	36.0	36.0
Actuated g/C Ratio	0.10	0.29	0.29	0.12	0.32	0.32	0.05	0.27	0.27	0.08	0.30	0.30
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	1483	461	429	1610	501	88	943	422	286	1061	474
v/s Ratio Prot	c0.16	0.29		0.13	c0.42		0.07	0.19		c0.12	0.24	
v/s Ratio Perm			0.01			0.26			0.29			c0.39
v/c Ratio	1.64	0.98	0.05	1.05	1.33	0.81	1.44	0.71	1.08	1.48	0.82	1.29
Uniform Delay, d1	54.0	42.1	30.6	52.5	41.0	37.7	57.0	39.8	44.0	55.0	38.9	42.0
Progression Factor	0.95	0.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.85
Incremental Delay, d2	294.8	14.8	0.1	58.3	153.1	13.4	252.1	2.5	68.2	230.0	4.4	145.6
Delay (s)	346.2	40.0	30.7	110.8	194.1	51.1	309.1	42.3	112.2	285.3	38.2	181.3
Level of Service	F	D	C	F	F	D	F	D	F	F	D	F
Approach Delay (s)		121.6			158.1			97.7			143.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	135.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

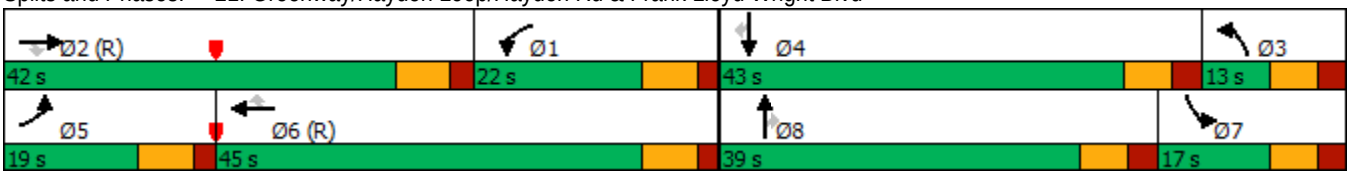
c Critical Lane Group

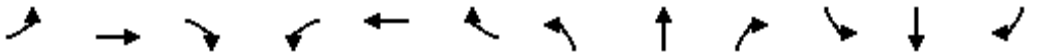


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	42	13	43	19	45	17	39
Maximum Split (%)	18.3%	35.0%	10.8%	35.8%	15.8%	37.5%	14.2%	32.5%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	81	39	26	103	39	58	22	103
End Time (s)	103	81	39	26	58	103	39	22
Yield/Force Off (s)	96	74	32	19	51	96	32	15
Yield/Force Off 170(s)	96	57	32	115	51	79	32	111
Local Start Time (s)	23	101	88	45	101	0	84	45
Local Yield (s)	38	16	94	81	113	38	94	77
Local Yield 170(s)	38	119	94	57	113	21	94	53

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 58 (48%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	595	540	143	99	351	401	238	1685	11	363	1092	322
Future Volume (vph)	595	540	143	99	351	401	238	1685	11	363	1092	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5080		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5080		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	661	600	159	110	390	446	264	1872	12	403	1213	358
RTOR Reduction (vph)	0	0	94	0	0	82	0	1	0	0	0	76
Lane Group Flow (vph)	661	600	65	110	390	364	264	1883	0	403	1213	282
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	24.0	25.2	49.2	12.8	14.0	30.0	24.0	44.0		16.0	36.0	60.0
Effective Green, g (s)	24.0	25.2	49.2	12.8	14.0	30.0	24.0	44.0		16.0	36.0	60.0
Actuated g/C Ratio	0.20	0.21	0.41	0.11	0.12	0.25	0.20	0.37		0.13	0.30	0.50
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	686	743	649	366	412	395	686	1862		457	1525	791
v/s Ratio Prot	c0.19	0.17	0.02	0.03	c0.11	c0.12	0.08	c0.37		0.12	0.24	0.07
v/s Ratio Perm			0.02			0.11						0.11
v/c Ratio	0.96	0.81	0.10	0.30	0.95	0.92	0.38	1.01		0.88	0.80	0.36
Uniform Delay, d1	47.6	45.1	21.8	49.5	52.6	43.9	41.6	38.0		51.1	38.6	18.3
Progression Factor	0.74	0.77	0.75	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.0	4.5	0.0	0.5	30.7	26.7	1.6	23.7		21.1	4.4	0.3
Delay (s)	55.4	39.0	16.3	49.9	83.4	70.6	43.2	61.7		72.1	43.0	18.5
Level of Service	E	D	B	D	F	E	D	E		E	D	B
Approach Delay (s)		44.1			73.4			59.4			44.5	
Approach LOS		D			E			E			D	

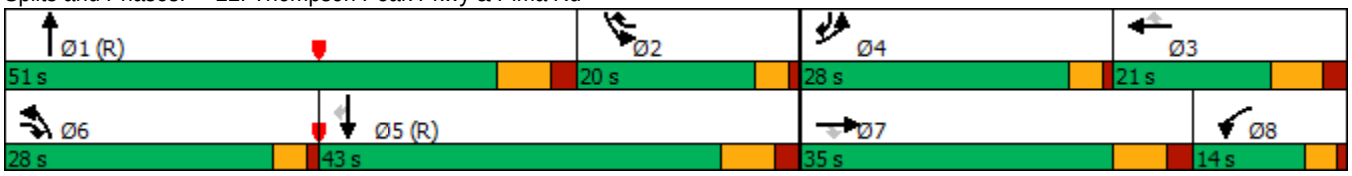
Intersection Summary			
HCM 2000 Control Delay	53.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

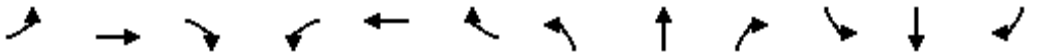
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	51	20	21	28	43	28	35	14
Maximum Split (%)	42.5%	16.7%	17.5%	23.3%	35.8%	23.3%	29.2%	11.7%
Minimum Split (s)	12	10	17	10	12	10	17	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								
Flash Dont Walk (s)								
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	37	88	16	108	65	37	108	23
End Time (s)	88	108	37	16	108	65	23	37
Yield/Force Off (s)	81	104	30	12	101	61	16	33
Yield/Force Off 170(s)	81	104	30	12	101	61	16	33
Local Start Time (s)	92	23	71	43	0	92	43	78
Local Yield (s)	16	39	85	67	36	116	71	88
Local Yield 170(s)	16	39	85	67	36	116	71	88

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 65 (54%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Thompson Peak Pkwy & Pima Rd





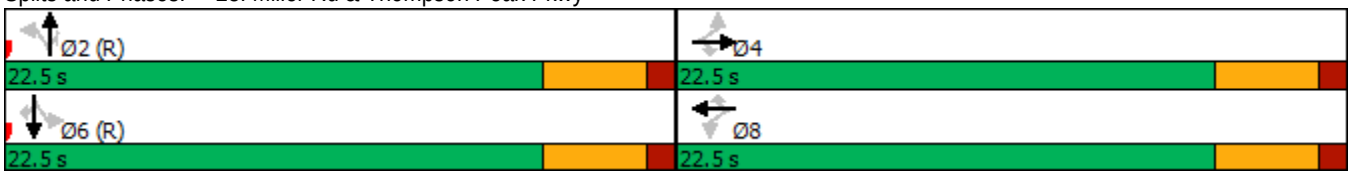
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	701	109	74	310	0	149	0	107	0	0	0
Future Volume (vph)	0	701	109	74	310	0	149	0	107	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)		3539	1583	1770	3539		1770		1583			
Flt Permitted		1.00	1.00	0.29	1.00		0.76		1.00			
Satd. Flow (perm)		3539	1583	537	3539		1410		1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	779	121	82	344	0	166	0	119	0	0	0
RTOR Reduction (vph)	0	0	73	0	0	0	0	0	49	0	0	0
Lane Group Flow (vph)	0	779	48	82	344	0	166	0	70	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40		0.40			
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Grp Cap (vph)		1415	633	214	1415		564		633			
v/s Ratio Prot		c0.22			0.10							
v/s Ratio Perm			0.03	0.15			c0.12		0.04			
v/c Ratio		0.55	0.08	0.38	0.24		0.29		0.11			
Uniform Delay, d1		10.4	8.4	9.6	9.0		9.2		8.5			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		1.5	0.2	5.1	0.4		1.3		0.4			
Delay (s)		11.9	8.6	14.7	9.4		10.5		8.8			
Level of Service		B	A	B	A		B		A			
Approach Delay (s)		11.5			10.4			9.8			0.0	
Approach LOS		B			B			A			A	

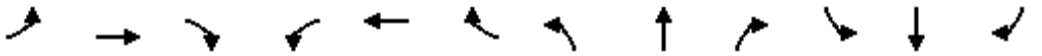
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	45
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	330	136	117	270	34	158	173	157	79	142	70
Future Volume (vph)	70	330	136	117	270	34	158	173	157	79	142	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.57	1.00	1.00	0.42	1.00	1.00	0.95	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	1059	3539	1583	781	3539	1583	3433	1863	1583	1127	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	367	151	130	300	38	176	192	174	88	158	78
RTOR Reduction (vph)	0	0	86	0	0	23	0	0	97	0	0	52
Lane Group Flow (vph)	78	367	65	130	300	15	176	192	77	88	158	26
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8			2	6		6
Actuated Green, G (s)	45.6	40.4	51.9	55.5	45.8	45.8	11.5	42.3	52.9	48.2	39.5	39.5
Effective Green, g (s)	45.6	40.4	51.9	55.5	45.8	45.8	11.5	42.3	52.9	48.2	39.5	39.5
Actuated g/C Ratio	0.38	0.34	0.43	0.46	0.38	0.38	0.10	0.35	0.44	0.40	0.33	0.33
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	433	1191	744	448	1350	604	328	656	757	499	613	521
v/s Ratio Prot	0.01	c0.10	0.01	c0.03	0.08		c0.05	c0.10	0.01	0.01	0.08	
v/s Ratio Perm	0.06		0.03	0.11		0.01			0.04	0.06		0.02
v/c Ratio	0.18	0.31	0.09	0.29	0.22	0.02	0.54	0.29	0.10	0.18	0.26	0.05
Uniform Delay, d1	24.1	29.5	20.1	19.1	25.1	23.2	51.7	28.0	19.6	22.6	29.5	27.4
Progression Factor	1.28	1.25	1.11	0.73	0.63	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.7	0.1	0.4	0.4	0.1	1.7	1.1	0.1	0.2	1.0	0.2
Delay (s)	31.1	37.6	22.4	14.4	16.2	23.2	53.4	29.2	19.7	22.8	30.5	27.6
Level of Service	C	D	C	B	B	C	D	C	B	C	C	C
Approach Delay (s)		32.9			16.3			34.0			27.7	
Approach LOS		C			B			C			C	

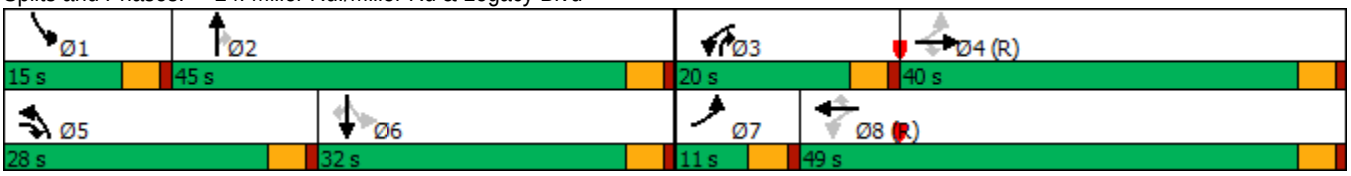
Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

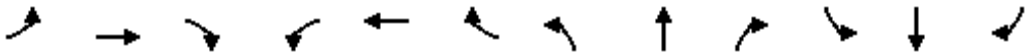
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	15	45	20	40	28	32	11	49
Maximum Split (%)	12.5%	37.5%	16.7%	33.3%	23.3%	26.7%	9.2%	40.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
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)	102	117	42	62	102	10	42	53
End Time (s)	117	42	62	102	10	42	53	102
Yield/Force Off (s)	112.5	37.5	57.5	97.5	5.5	37.5	48.5	97.5
Yield/Force Off 170(s)	112.5	26.5	57.5	86.5	5.5	26.5	48.5	86.5
Local Start Time (s)	40	55	100	0	40	68	100	111
Local Yield (s)	50.5	95.5	115.5	35.5	63.5	95.5	106.5	35.5
Local Yield 170(s)	50.5	84.5	115.5	24.5	63.5	84.5	106.5	24.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 62 (52%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 24: Miller Rd./Miller Rd & Legacy Blvd





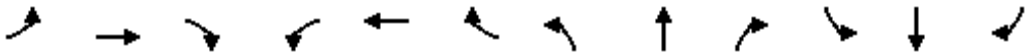
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	153	281	171	118	383	94	197	69	119	118	68	179
Future Volume (veh/h)	153	281	171	118	383	94	197	69	119	118	68	179
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	170	312	190	131	426	104	219	77	132	131	76	199
Approach Volume (veh/h)		672			661			428			406	
Crossing Volume (veh/h)		338			466			613			776	
High Capacity (veh/h)		1062			959			853			747	
High v/c (veh/h)		0.63			0.69			0.50			0.54	
Low Capacity (veh/h)		869			777			683			591	
Low v/c (veh/h)		0.77			0.85			0.63			0.69	

Intersection Summary				
Maximum v/c High	0.69			
Maximum v/c Low	0.85			
Intersection Capacity Utilization	70.6%	ICU Level of Service	C	

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	672	661	428	406
Demand Flow Rate, veh/h	685	675	437	415
Vehicles Circulating, veh/h	346	475	625	792
Vehicles Exiting, veh/h	861	587	406	358
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.0	12.0	8.3	9.1
Approach LOS	A	B	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.717	0.283	0.843	0.157	0.691	0.309	0.511	0.489
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	491	194	569	106	302	135	212	203
Cap Entry Lane, veh/h	1036	1036	922	922	804	804	691	691
Entry HV Adj Factor	0.981	0.979	0.980	0.981	0.982	0.978	0.979	0.980
Flow Entry, veh/h	482	190	557	104	296	132	207	199
Cap Entry, veh/h	1017	1015	903	904	789	786	676	677
V/C Ratio	0.474	0.187	0.617	0.115	0.376	0.168	0.307	0.294
Control Delay, s/veh	9.1	5.3	13.3	5.1	9.2	6.3	9.2	9.0
LOS	A	A	B	A	A	A	A	A
95th %tile Queue, veh	3	1	4	0	2	1	1	1



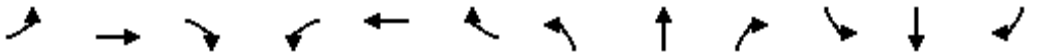
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	0	0	52	0	31	0	148	38	22	178	0
Future Volume (veh/h)	0	0	0	52	0	31	0	148	38	22	178	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	58	0	34	0	164	42	24	198	0
Approach Volume (veh/h)		0			92			206			222	
Crossing Volume (veh/h)		280			164			24			58	
High Capacity (veh/h)		1112			1218			1359			1323	
High v/c (veh/h)		0.00			0.08			0.15			0.17	
Low Capacity (veh/h)		914			1010			1138			1105	
Low v/c (veh/h)		0.00			0.09			0.18			0.20	

Intersection Summary				
Maximum v/c High	0.17			
Maximum v/c Low	0.20			
Intersection Capacity Utilization	24.2%	ICU Level of Service	A	

Intersection	
Intersection Delay, s/veh	3.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	92	206	222
Demand Flow Rate, veh/h	0	94	210	226
Vehicles Circulating, veh/h	285	167	24	59
Vehicles Exiting, veh/h	0	67	261	202
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.4	3.5	4.1
Approach LOS	-	A	A	A

Lane	Left	Left	Right	Left	Right	Left
Designated Moves	T	LT	R	LT	R	LT
Assumed Moves	T	LT	R	LT	R	LT
RT Channelized						
Lane Util	1.000	0.628	0.372	0.795	0.205	1.000
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	0	59	35	167	43	226
Cap Entry Lane, veh/h	1096	1220	1220	1389	1389	1346
Entry HV Adj Factor	1.000	0.983	0.971	0.980	0.977	0.982
Flow Entry, veh/h	0	58	34	164	42	222
Cap Entry, veh/h	1096	1199	1185	1362	1357	1322
V/C Ratio	0.000	0.048	0.029	0.120	0.031	0.168
Control Delay, s/veh	3.3	3.4	3.3	3.6	2.9	4.1
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	0	0	0	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	13	70	73	14	3	69	635	19	4	748	38
Future Volume (vph)	30	13	70	73	14	3	69	635	19	4	748	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.87		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1626		1770	1819		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.70	1.00		0.33	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1388	1626		1299	1819		619	3539	1583	714	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	14	78	81	16	3	77	706	21	4	831	42
RTOR Reduction (vph)	0	70	0	0	3	0	0	0	5	0	0	10
Lane Group Flow (vph)	33	22	0	81	16	0	77	706	16	4	831	32
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	10.1	10.1		10.1	10.1		71.9	71.9	71.9	71.9	71.9	71.9
Effective Green, g (s)	10.1	10.1		10.1	10.1		71.9	71.9	71.9	71.9	71.9	71.9
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.76	0.76	0.76	0.76	0.76	0.76
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	147	172		138	193		468	2678	1198	540	2678	1198
v/s Ratio Prot		0.01			0.01			0.20			c0.23	
v/s Ratio Perm	0.02			c0.06			0.12		0.01	0.01		0.02
v/c Ratio	0.22	0.13		0.59	0.08		0.16	0.26	0.01	0.01	0.31	0.03
Uniform Delay, d1	38.9	38.5		40.5	38.3		3.2	3.5	2.8	2.8	3.7	2.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		6.2	0.2		0.8	0.2	0.0	0.0	0.3	0.0
Delay (s)	39.6	38.8		46.7	38.5		4.0	3.7	2.9	2.8	4.0	2.9
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		39.0			45.1			3.7			3.9	
Approach LOS		D			D			A			A	

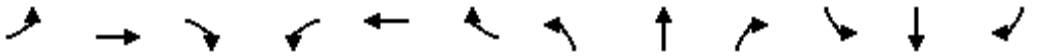
Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	54	41
Maximum Split (%)	56.8%	43.2%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	54
End Time (s)	54	0
Yield/Force Off (s)	48	88
Yield/Force Off 170(s)	44	84
Local Start Time (s)	0	54
Local Yield (s)	48	88
Local Yield 170(s)	44	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	3	105	53	9	21	41	662	10	4	869	40
Future Volume (vph)	35	3	105	53	9	21	41	662	10	4	869	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1668		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.76	1.00		0.28	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	1370	1863	1583	1408	1668		524	3539	1583	682	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	3	117	59	10	23	46	736	11	4	966	44
RTOR Reduction (vph)	0	0	52	0	20	0	0	0	2	0	0	10
Lane Group Flow (vph)	39	3	65	59	13	0	46	736	9	4	966	34
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	13.1	13.1	13.1	13.1	13.1		92.9	92.9	92.9	92.9	92.9	92.9
Effective Green, g (s)	13.1	13.1	13.1	13.1	13.1		92.9	92.9	92.9	92.9	92.9	92.9
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.77	0.77	0.77	0.77	0.77	0.77
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	203	172	153	182		405	2739	1225	527	2739	1225
v/s Ratio Prot		0.00			0.01			0.21			c0.27	
v/s Ratio Perm	0.03		0.04	c0.04			0.09		0.01	0.01		0.02
v/c Ratio	0.26	0.01	0.38	0.39	0.07		0.11	0.27	0.01	0.01	0.35	0.03
Uniform Delay, d1	49.0	47.7	49.7	49.7	48.0		3.4	3.9	3.1	3.1	4.2	3.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.54	0.58	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.0	1.4	1.6	0.2		0.6	0.2	0.0	0.0	0.4	0.0
Delay (s)	50.0	47.7	51.1	51.3	48.1		2.4	2.5	3.1	3.1	4.6	3.2
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		50.7			50.2			2.5			4.5	
Approach LOS		D			D			A			A	

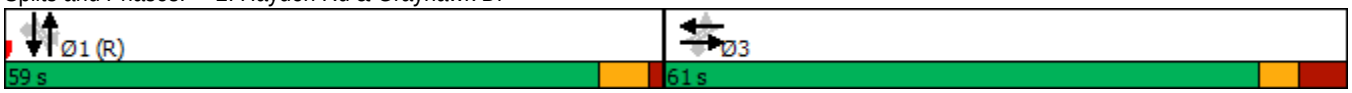
Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

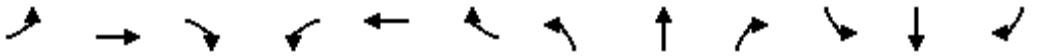
c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	59	61
Maximum Split (%)	49.2%	50.8%
Minimum Split (s)	30	60
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	58	117
End Time (s)	117	58
Yield/Force Off (s)	111	50
Yield/Force Off 170(s)	104	42
Local Start Time (s)	0	59
Local Yield (s)	53	112
Local Yield 170(s)	46	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 58 (48%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	370	503	557	412	103	223	543	405	240	729	68
Future Volume (vph)	44	370	503	557	412	103	223	543	405	240	729	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.0	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.49	1.00	1.00	0.22	1.00	1.00	0.20	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1764	3539	1583	801	3539	1583	740	3539	1583	1205	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	411	559	619	458	114	248	603	450	267	810	76
RTOR Reduction (vph)	0	0	58	0	0	76	0	0	43	0	0	46
Lane Group Flow (vph)	49	411	501	619	458	38	248	603	407	267	810	30
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.6	20.5	43.6	40.4	31.8	39.9	70.6	58.5	74.9	51.1	43.0	47.1
Effective Green, g (s)	24.6	20.5	43.6	40.4	31.8	39.9	70.6	58.5	74.9	51.1	43.0	47.1
Actuated g/C Ratio	0.21	0.17	0.36	0.34	0.27	0.33	0.59	0.49	0.62	0.43	0.36	0.39
Clearance Time (s)	4.5	4.0	4.5	4.0	4.5	4.5	4.5	4.0	4.0	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	418	604	575	629	937	526	953	1725	988	663	1268	621
v/s Ratio Prot	0.00	0.12	c0.17	c0.13	0.13	0.00	0.05	0.17	0.06	0.03	c0.23	0.00
v/s Ratio Perm	0.02		0.15	c0.20		0.02	0.10		0.20	0.14		0.02
v/c Ratio	0.12	0.68	0.87	0.98	0.49	0.07	0.26	0.35	0.41	0.40	0.64	0.05
Uniform Delay, d1	38.5	46.7	35.6	34.3	37.2	27.4	24.6	19.0	11.4	30.8	32.0	22.6
Progression Factor	1.00	1.00	1.00	0.62	0.66	0.43	1.58	1.52	1.59	0.89	0.91	2.79
Incremental Delay, d2	0.1	3.2	13.6	29.0	0.3	0.1	0.1	0.5	0.3	0.4	2.4	0.0
Delay (s)	38.6	49.8	49.2	50.1	24.8	12.0	39.1	29.4	18.4	27.8	31.4	63.0
Level of Service	D	D	D	D	C	B	D	C	B	C	C	E
Approach Delay (s)		48.9			36.7			27.4			32.7	
Approach LOS		D			D			C			C	

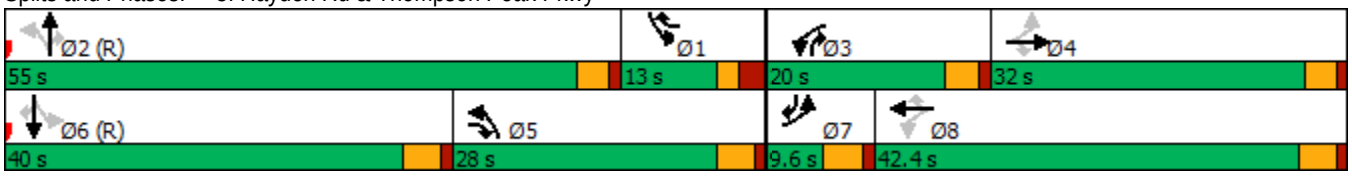
Intersection Summary			
HCM 2000 Control Delay	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

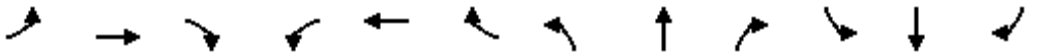
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	13	55	20	32	28	40	9.6	42.4
Maximum Split (%)	10.8%	45.8%	16.7%	26.7%	23.3%	33.3%	8.0%	35.3%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	2	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	63	8	76	96	48	8	76	85.6
End Time (s)	76	63	96	8	76	48	85.6	8
Yield/Force Off (s)	71.5	59	92	4	71.5	43.5	81.1	3.5
Yield/Force Off 170(s)	71.5	35	92	103	71.5	19.5	81.1	102.5
Local Start Time (s)	55	0	68	88	40	0	68	77.6
Local Yield (s)	63.5	51	84	116	63.5	35.5	73.1	115.5
Local Yield 170(s)	63.5	27	84	95	63.5	11.5	73.1	94.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Hayden Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	98	333	113	74	18	299	1108	147	49	1708	80
Future Volume (vph)	89	98	333	113	74	18	299	1108	147	49	1708	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.5	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.51	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	957	3539	1583	3433	5085	1583	294	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	109	370	126	82	20	332	1231	163	54	1898	89
RTOR Reduction (vph)	0	0	148	0	0	18	0	0	71	0	0	43
Lane Group Flow (vph)	99	109	222	126	82	2	332	1231	92	54	1898	46
Turn Type	Prot	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4	8		8			2	6		6
Actuated Green, G (s)	12.0	10.0	22.5	26.1	13.3	13.3	12.5	68.0	68.0	61.7	61.7	61.7
Effective Green, g (s)	12.0	10.0	22.5	26.1	13.3	13.3	12.5	68.0	68.0	61.7	61.7	61.7
Actuated g/C Ratio	0.10	0.08	0.19	0.22	0.11	0.11	0.10	0.57	0.57	0.51	0.51	0.51
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	4.5	4.5	7.0	7.0	4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	294	296	294	392	175	357	2881	897	227	2614	813
v/s Ratio Prot	0.03	0.03	c0.08	c0.05	0.02		c0.10	0.24		0.01	c0.37	
v/s Ratio Perm			0.06	c0.05		0.00			0.06	0.11		0.03
v/c Ratio	0.29	0.37	0.75	0.43	0.21	0.01	0.93	0.43	0.10	0.24	0.73	0.06
Uniform Delay, d1	50.0	52.0	46.1	39.6	48.6	47.5	53.3	14.9	12.0	15.7	22.6	14.6
Progression Factor	0.83	0.78	0.45	1.00	1.00	1.00	0.68	0.47	0.32	0.93	1.03	1.00
Incremental Delay, d2	0.5	0.8	10.1	1.0	0.3	0.0	28.7	0.4	0.2	0.3	1.1	0.1
Delay (s)	42.0	41.3	30.8	40.6	48.8	47.5	65.1	7.4	4.0	14.8	24.3	14.7
Level of Service	D	D	C	D	D	D	E	A	A	B	C	B
Approach Delay (s)		34.7			44.2			18.2			23.6	
Approach LOS		C			D			B			C	

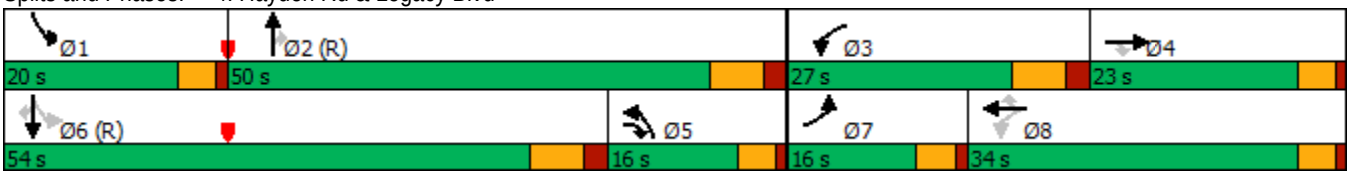
Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

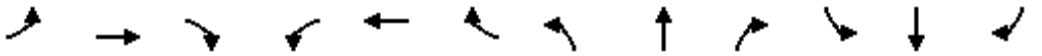
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	20	50	27	23	16	54	16	34
Maximum Split (%)	16.7%	41.7%	22.5%	19.2%	13.3%	45.0%	13.3%	28.3%
Minimum Split (s)	9.5	32	32	22.5	9.5	32	9.5	22.5
Yellow Time (s)	3.5	4.8	4.8	3.5	3.5	4.8	3.5	3.5
All-Red Time (s)	1	2.2	2.2	1	1	2.2	1	1
Minimum Initial (s)	5	10	6	5	5	10	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		15	10	7		15		7
Flash Dont Walk (s)		10	15	11		10		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83	103	33	60	17	83	33	49
End Time (s)	103	33	60	83	33	17	49	83
Yield/Force Off (s)	98.5	26	53	78.5	28.5	10	44.5	78.5
Yield/Force Off 170(s)	98.5	16	38	67.5	28.5	0	44.5	67.5
Local Start Time (s)	100	0	50	77	34	100	50	66
Local Yield (s)	115.5	43	70	95.5	45.5	27	61.5	95.5
Local Yield 170(s)	115.5	33	55	84.5	45.5	17	61.5	84.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 103 (86%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Future Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.91			0.81	1.00
Frt				1.00	0.88	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1553	1504	1770	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1553	1504	1770	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	148	86	820	359	1383	0	0	1637	654
RTOR Reduction (vph)	0	0	0	0	133	314	0	0	0	0	0	312
Lane Group Flow (vph)	0	0	0	148	330	129	359	1383	0	0	1637	342
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				34.9	34.9	34.9	27.4	37.1			42.7	42.7
Effective Green, g (s)				34.9	34.9	34.9	27.4	37.1			42.7	42.7
Actuated g/C Ratio				0.29	0.29	0.29	0.23	0.31			0.36	0.36
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				998	451	437	404	1572			2684	563
v/s Ratio Prot					c0.21		0.20	c0.27			c0.22	
v/s Ratio Perm				0.04		0.09						0.22
v/c Ratio				0.15	0.73	0.29	0.89	0.88			0.61	0.61
Uniform Delay, d1				31.5	38.3	33.0	44.8	39.3			31.8	31.8
Progression Factor				1.00	1.00	1.00	0.40	0.31			0.94	2.38
Incremental Delay, d2				0.1	6.1	0.4	15.7	4.4			0.8	3.8
Delay (s)				31.6	44.4	33.4	33.6	16.7			30.7	79.5
Level of Service				C	D	C	C	B			C	E
Approach Delay (s)		0.0			38.0			20.2			44.7	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

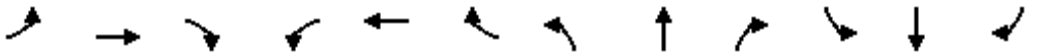
c Critical Lane Group

Phase Number	1	2	4	5	6	8
Node Number	6	5	6	5	5	5
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	C-Max	None
Maximum Split (s)	39	41	40	34.1	45.9	40
Maximum Split (%)	32.5%	34.2%	33.3%	28.4%	38.3%	33.3%
Minimum Split (s)	9.5	22.5	22.5	9.5	39	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	4.4	3.5
All-Red Time (s)	1	1	1	1	1.6	1
Minimum Initial (s)	5	5	5	5	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		26	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	88.9	47.9	7.9	47.9	82	7.9
End Time (s)	7.9	88.9	47.9	82	7.9	47.9
Yield/Force Off (s)	3.4	84.4	43.4	77.5	1.9	43.4
Yield/Force Off 170(s)	3.4	73.4	32.4	77.5	95.9	32.4
Local Start Time (s)	6.9	85.9	45.9	85.9	0	45.9
Local Yield (s)	41.4	2.4	81.4	115.5	39.9	81.4
Local Yield 170(s)	41.4	111.4	70.4	115.5	13.9	70.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90

Offset: 82 (68%), Referenced to phase 6:SBT, Start of Green

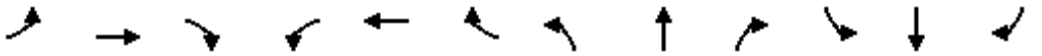
Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Future Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.86	1.00	0.97	0.91	
Frt	1.00	0.93	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1533	1504					6408	1583	3433	5085	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1533	1504					6408	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	672	11	643	0	0	0	0	1063	66	909	883	0
RTOR Reduction (vph)	0	29	301	0	0	0	0	0	46	0	0	0
Lane Group Flow (vph)	457	416	123	0	0	0	0	1063	20	909	883	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	34.9	34.9	34.9					37.1	37.1	34.5	42.7	
Effective Green, g (s)	34.9	34.9	34.9					37.1	37.1	34.5	42.7	
Actuated g/C Ratio	0.29	0.29	0.29					0.31	0.31	0.29	0.36	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	488	445	437					1981	489	986	1809	
v/s Ratio Prot								c0.17		c0.26	0.17	
v/s Ratio Perm	c0.27	0.27	0.08						0.01			
v/c Ratio	0.94	0.93	0.28					0.54	0.04	0.92	0.49	
Uniform Delay, d1	41.5	41.4	32.9					34.3	29.0	41.4	30.1	
Progression Factor	0.52	0.47	0.23					0.62	0.26	0.24	0.22	
Incremental Delay, d2	12.1	12.8	0.1					0.3	0.0	11.7	0.8	
Delay (s)	33.8	32.3	7.7					21.5	7.6	21.7	7.4	
Level of Service	C	C	A					C	A	C	A	
Approach Delay (s)		24.9			0.0			20.7			14.7	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	57	83	10	28	72	149	821	50	302	868	200
Future Volume (vph)	137	57	83	10	28	72	149	821	50	302	868	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.49	1.00	1.00	0.72	1.00	1.00	0.29	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	922	1863	1583	1334	1863	1583	549	3539	1583	392	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	152	63	92	11	31	80	166	912	56	336	964	222
RTOR Reduction (vph)	0	0	78	0	0	74	0	0	27	0	0	81
Lane Group Flow (vph)	152	63	14	11	31	6	166	912	29	336	964	141
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.7	17.7	17.7	10.7	9.2	9.2	69.8	61.1	61.1	87.3	74.1	74.1
Effective Green, g (s)	23.7	17.7	17.7	10.7	9.2	9.2	69.8	61.1	61.1	87.3	74.1	74.1
Actuated g/C Ratio	0.20	0.15	0.15	0.09	0.08	0.08	0.58	0.51	0.51	0.73	0.62	0.62
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	252	274	233	124	142	121	407	1801	806	534	2185	977
v/s Ratio Prot	c0.05	0.03		0.00	0.02		0.03	0.26		c0.11	0.27	
v/s Ratio Perm	c0.07		0.01	0.01		0.00	0.21		0.02	c0.34		0.09
v/c Ratio	0.60	0.23	0.06	0.09	0.22	0.05	0.41	0.51	0.04	0.63	0.44	0.14
Uniform Delay, d1	42.4	45.1	44.0	50.1	52.0	51.4	11.6	19.5	14.7	10.0	12.1	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.22	0.66	1.00	0.75	1.23	2.72
Incremental Delay, d2	4.0	0.4	0.1	0.3	0.8	0.2	0.6	1.0	0.1	1.9	0.5	0.3
Delay (s)	46.4	45.6	44.1	50.4	52.8	51.5	14.8	13.8	14.8	9.4	15.4	26.4
Level of Service	D	D	D	D	D	D	B	B	B	A	B	C
Approach Delay (s)		45.5			51.7			14.0			15.7	
Approach LOS		D			D			B			B	

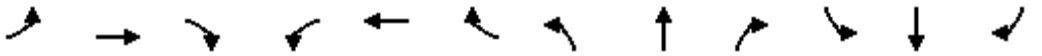
Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	30	44.9	22.5	22.6	17.4	57.5	14.6	30.5
Maximum Split (%)	25.0%	37.4%	18.8%	18.8%	14.5%	47.9%	12.2%	25.4%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	12	42	86.9	109.4	12	29.4	86.9	101.5
End Time (s)	42	86.9	109.4	12	29.4	86.9	101.5	12
Yield/Force Off (s)	37.5	82.4	104.9	7.5	24.9	82.4	97	7.5
Yield/Force Off 170(s)	37.5	71.4	93.9	116.5	24.9	71.4	97	116.5
Local Start Time (s)	90	0	44.9	67.4	90	107.4	44.9	59.5
Local Yield (s)	115.5	40.4	62.9	85.5	102.9	40.4	55	85.5
Local Yield 170(s)	115.5	29.4	51.9	74.5	102.9	29.4	55	74.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 42 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	68	102	189	0	62	83	859	222	154	729	54
Future Volume (vph)	48	68	102	189	0	62	83	859	222	154	729	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1825	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.98	1.00	0.95		1.00	0.29	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)		1825	1583	3433		1583	541	3539	1583	434	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	76	113	210	0	69	92	954	247	171	810	60
RTOR Reduction (vph)	0	0	100	0	0	52	0	0	111	0	0	27
Lane Group Flow (vph)	0	129	13	210	0	17	92	954	136	171	810	33
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		18.9	13.9	19.8		28.7	66.3	66.3	66.3	66.3	66.3	66.3
Effective Green, g (s)		18.9	13.9	19.8		28.7	66.3	66.3	66.3	66.3	66.3	66.3
Actuated g/C Ratio		0.16	0.12	0.17		0.24	0.55	0.55	0.55	0.55	0.55	0.55
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		287	183	566		378	298	1955	874	239	1955	874
v/s Ratio Prot		c0.02		c0.06				0.27			0.23	
v/s Ratio Perm		0.05	0.01			0.01	0.17		0.09	c0.39		0.02
v/c Ratio		0.45	0.07	0.37		0.04	0.31	0.49	0.16	0.72	0.41	0.04
Uniform Delay, d1		45.8	47.3	44.6		35.1	14.5	16.5	13.1	19.9	15.6	12.3
Progression Factor		1.00	1.00	1.00		1.00	0.17	0.15	0.01	0.52	0.17	1.00
Incremental Delay, d2		1.1	0.2	0.4		0.0	0.5	0.2	0.1	9.1	0.1	0.0
Delay (s)		47.0	47.5	45.0		35.1	2.9	2.6	0.2	19.4	2.7	12.3
Level of Service		D	D	D		D	A	A	A	B	A	B
Approach Delay (s)		47.2			42.5			2.2			6.0	
Approach LOS		D			D			A			A	

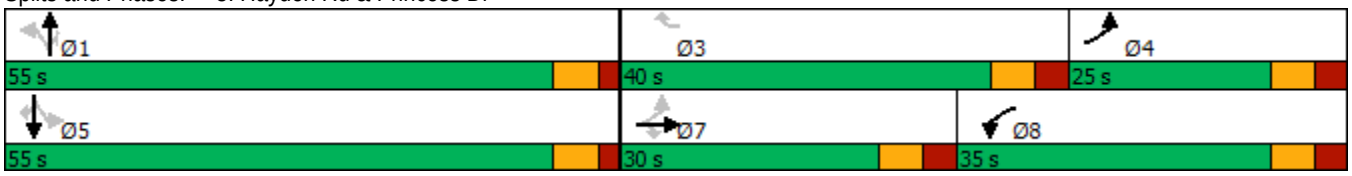
Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

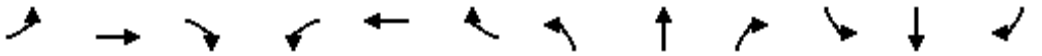
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	55	40	25	55	30	35
Maximum Split (%)	45.8%	33.3%	20.8%	45.8%	25.0%	29.2%
Minimum Split (s)	50	40	25	50	30	25
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	83	18	58	83	18	48
End Time (s)	18	58	83	18	48	83
Yield/Force Off (s)	12	51	76	12	41	76
Yield/Force Off 170(s)	1	40	76	1	30	76
Local Start Time (s)	0	55	95	0	55	85
Local Yield (s)	49	88	113	49	78	113
Local Yield 170(s)	38	77	113	38	67	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	125
Offset: 83 (69%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	23	240	10	154	31	1021	403	185	848	21
Future Volume (vph)	9	8	23	240	10	154	31	1021	403	185	848	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3197		1681	1692	1583	1770	3539	1583	1770	3527	
Flt Permitted		0.87		0.73	0.71	1.00	0.29	1.00	1.00	0.17	1.00	
Satd. Flow (perm)		2824		1285	1254	1583	542	3539	1583	318	3527	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	9	26	267	11	171	34	1134	448	206	942	23
RTOR Reduction (vph)	0	22	0	0	0	144	0	0	189	0	1	0
Lane Group Flow (vph)	0	23	0	139	139	27	34	1134	259	206	964	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		19.1		19.1	19.1	19.1	73.4	69.4	69.4	86.9	78.4	
Effective Green, g (s)		19.1		19.1	19.1	19.1	73.4	69.4	69.4	86.9	78.4	
Actuated g/C Ratio		0.16		0.16	0.16	0.16	0.61	0.58	0.58	0.72	0.65	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		449		204	199	251	372	2046	915	387	2304	
v/s Ratio Prot							0.00	c0.32		c0.06	0.27	
v/s Ratio Perm		0.01		0.11	c0.11	0.02	0.05		0.16	0.33		
v/c Ratio		0.05		0.68	0.70	0.11	0.09	0.55	0.28	0.53	0.42	
Uniform Delay, d1		42.8		47.6	47.7	43.2	9.2	15.7	12.8	9.3	9.9	
Progression Factor		1.00		1.00	1.00	1.00	0.22	0.29	0.03	3.12	1.02	
Incremental Delay, d2		0.0		9.0	10.2	0.2	0.0	0.4	0.3	1.4	0.5	
Delay (s)		42.8		56.6	57.9	43.4	2.1	4.9	0.6	30.5	10.6	
Level of Service		D		E	E	D	A	A	A	C	B	
Approach Delay (s)		42.8			52.0			3.7			14.1	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	57	23	40	51	29	40
Maximum Split (%)	47.5%	19.2%	33.3%	42.5%	24.2%	33.3%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	55	32	112	61	32	112
End Time (s)	112	55	32	112	61	32
Yield/Force Off (s)	106	50.5	24	106	56.5	24
Yield/Force Off 170(s)	95	39.5	13	95	45.5	13
Local Start Time (s)	114	91	51	0	91	51
Local Yield (s)	45	109.5	83	45	115.5	83
Local Yield 170(s)	34	98.5	72	34	104.5	72

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	115
Offset: 61 (51%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	30	1148	154	51	2426
Future Volume (vph)	110	30	1148	154	51	2426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.20	1.00
Satd. Flow (perm)	1770	1583	3539	1583	365	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	33	1276	171	57	2696
RTOR Reduction (vph)	0	29	0	30	0	0
Lane Group Flow (vph)	122	4	1276	141	57	2696
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.6	13.6	94.4	94.4	94.4	94.4
Effective Green, g (s)	13.6	13.6	94.4	94.4	94.4	94.4
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	179	2784	1245	287	2784
v/s Ratio Prot	c0.07		0.36			c0.76
v/s Ratio Perm		0.00		0.09	0.16	
v/c Ratio	0.61	0.02	0.46	0.11	0.20	0.97
Uniform Delay, d1	50.7	47.3	4.3	3.0	3.2	11.5
Progression Factor	1.00	1.00	0.09	0.01	1.00	1.00
Incremental Delay, d2	5.2	0.0	0.1	0.0	0.3	10.6
Delay (s)	55.9	47.3	0.5	0.1	3.6	22.1
Level of Service	E	D	A	A	A	C
Approach Delay (s)	54.1		0.4			21.7
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	None	None
Maximum Split (s)	93	27
Maximum Split (%)	77.5%	22.5%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	104	77
End Time (s)	77	104
Yield/Force Off (s)	71	98
Yield/Force Off 170(s)	65	94
Local Start Time (s)	0	93
Local Yield (s)	87	114
Local Yield 170(s)	81	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 104 (87%), Referenced to phase 2: and 6:, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	38	1250	54	45	2483
Future Volume (vph)	114	38	1250	54	45	2483
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.17	1.00
Satd. Flow (perm)	1770	1583	3539	1583	318	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	42	1389	60	50	2759
RTOR Reduction (vph)	0	37	0	13	0	0
Lane Group Flow (vph)	127	5	1389	47	50	2759
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	13.5	13.5	94.5	94.5	94.5	94.5
Effective Green, g (s)	13.5	13.5	94.5	94.5	94.5	94.5
Actuated g/C Ratio	0.11	0.11	0.79	0.79	0.79	0.79
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	178	2786	1246	250	2786
v/s Ratio Prot	c0.07		0.39			c0.78
v/s Ratio Perm		0.00		0.03	0.16	
v/c Ratio	0.64	0.03	0.50	0.04	0.20	0.99
Uniform Delay, d1	50.9	47.4	4.5	2.8	3.2	12.3
Progression Factor	1.00	1.00	2.20	2.11	0.18	0.26
Incremental Delay, d2	6.6	0.1	0.4	0.0	0.6	7.9
Delay (s)	57.5	47.5	10.2	5.9	1.2	11.1
Level of Service	E	D	B	A	A	B
Approach Delay (s)	55.0		10.0			11.0
Approach LOS	D		B			B

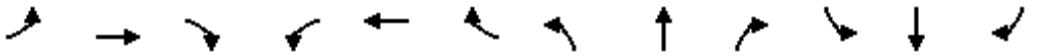
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	97	23
Maximum Split (%)	80.8%	19.2%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	40	17
End Time (s)	17	40
Yield/Force Off (s)	11	34
Yield/Force Off 170(s)	119	23
Local Start Time (s)	0	97
Local Yield (s)	91	114
Local Yield 170(s)	79	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 40 (33%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Future Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	8.0	8.0	8.0	8.0	8.0	8.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	153	3539	1583	200	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	287	300	77	600	134	150	58	1359	599	206	2644	502
RTOR Reduction (vph)	0	0	67	0	0	135	0	0	239	0	0	95
Lane Group Flow (vph)	287	300	10	600	134	15	58	1359	360	206	2644	407
Turn Type	Prot	NA	Perm	Prot	NA	custom	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			3	6		6	2		2
Actuated Green, G (s)	19.7	15.1	15.1	12.0	9.9	12.0	53.8	53.8	53.8	60.3	60.3	60.3
Effective Green, g (s)	19.7	15.1	15.1	12.0	9.9	12.0	53.8	53.8	53.8	60.3	60.3	60.3
Actuated g/C Ratio	0.16	0.13	0.13	0.10	0.08	0.10	0.45	0.45	0.45	0.50	0.50	0.50
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	8.0	8.0	8.0	8.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	563	445	199	343	291	158	137	1586	709	252	1778	795
v/s Ratio Prot	c0.08	c0.08		c0.17	0.04		0.02	c0.38		0.08	c0.75	
v/s Ratio Perm			0.01			0.01	0.17		0.23	0.33		0.26
v/c Ratio	0.51	0.67	0.05	1.75	0.46	0.09	0.42	0.86	0.51	0.82	1.49	0.51
Uniform Delay, d1	45.7	50.1	46.1	54.0	52.5	49.1	27.5	29.7	23.6	39.3	29.9	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.55	0.21	0.18	0.96	0.91	0.98
Incremental Delay, d2	0.7	4.0	0.1	349.0	1.2	0.3	1.4	4.2	1.7	10.3	220.8	1.2
Delay (s)	46.5	54.1	46.2	403.0	53.7	49.3	16.6	10.3	5.8	47.9	248.0	20.8
Level of Service	D	D	D	F	D	D	B	B	A	D	F	C
Approach Delay (s)		49.9			290.0			9.2			201.7	
Approach LOS		D			F			A			F	

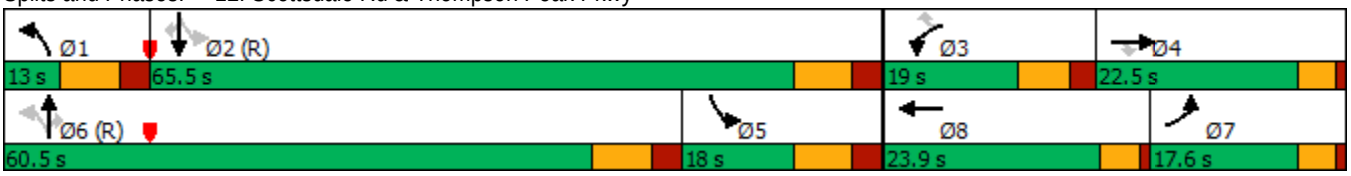
Intersection Summary			
HCM 2000 Control Delay	142.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	113.7%	ICU Level of Service	H
Analysis Period (min)	15		

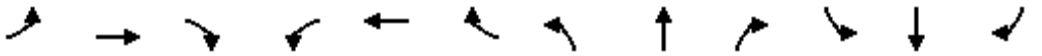
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	13	65.5	19	22.5	18	60.5	17.6	23.9
Maximum Split (%)	10.8%	54.6%	15.8%	18.8%	15.0%	50.4%	14.7%	19.9%
Minimum Split (s)	13	40	13	22.5	13	40	9.5	22.5
Yellow Time (s)	5.3	5.3	4.6	3.5	5.3	5.3	3.5	3.5
All-Red Time (s)	2.7	2.7	2.4	1	2.7	2.7	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		25		11		25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	80	93	38.5	57.5	20.5	80	62.4	38.5
End Time (s)	93	38.5	57.5	80	38.5	20.5	80	62.4
Yield/Force Off (s)	85	30.5	50.5	75.5	30.5	12.5	75.5	57.9
Yield/Force Off 170(s)	85	5.5	50.5	64.5	30.5	107.5	75.5	46.9
Local Start Time (s)	107	0	65.5	84.5	47.5	107	89.4	65.5
Local Yield (s)	112	57.5	77.5	102.5	57.5	39.5	102.5	84.9
Local Yield 170(s)	112	32.5	77.5	91.5	57.5	14.5	102.5	73.9

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 93 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Future Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.07	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	136	5085	1583	121	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	203	31	354	93	81	26	1943	483	129	3274	331
RTOR Reduction (vph)	0	0	28	0	0	70	0	0	145	0	0	73
Lane Group Flow (vph)	341	203	3	354	93	11	26	1943	338	129	3274	258
Turn Type	Prot	NA	Perm	Prot	NA	custom	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			3	6		6	2		2
Actuated Green, G (s)	22.9	12.2	12.2	16.7	8.5	16.7	57.7	54.7	54.7	72.6	62.6	62.6
Effective Green, g (s)	22.9	12.2	12.2	16.7	8.5	16.7	57.7	54.7	54.7	72.6	62.6	62.6
Actuated g/C Ratio	0.19	0.10	0.10	0.14	0.07	0.14	0.48	0.46	0.46	0.60	0.52	0.52
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	655	359	160	477	250	220	106	2317	721	222	2652	825
v/s Ratio Prot	c0.10	c0.06		c0.10	0.03		0.01	0.38		c0.05	c0.64	
v/s Ratio Perm			0.00			0.01	0.11		0.21	0.30		0.16
v/c Ratio	0.52	0.57	0.02	0.74	0.37	0.05	0.25	0.84	0.47	0.58	1.23	0.31
Uniform Delay, d1	43.6	51.4	48.5	49.6	53.2	44.8	54.0	28.8	22.6	38.8	28.7	16.4
Progression Factor	1.00	1.00	1.00	1.16	0.89	24.02	0.27	0.32	0.08	0.84	0.58	0.24
Incremental Delay, d2	0.7	2.0	0.0	6.1	0.9	0.1	0.4	1.4	0.8	0.4	105.9	0.1
Delay (s)	44.4	53.4	48.6	63.7	48.0	1076.0	14.9	10.4	2.5	32.9	122.5	4.0
Level of Service	D	D	D	E	D	F	B	B	A	C	F	A
Approach Delay (s)		47.8			216.2			8.9			108.9	
Approach LOS		D			F			A			F	

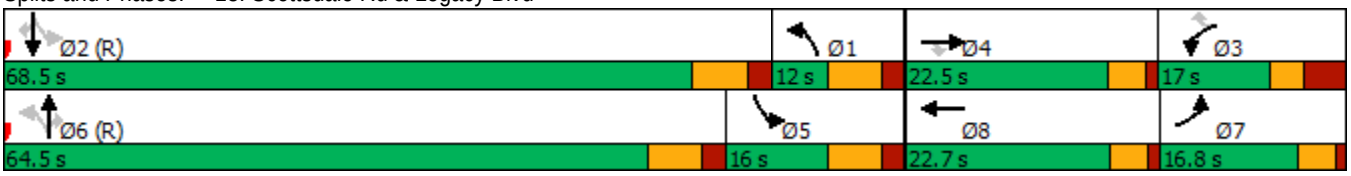
Intersection Summary			
HCM 2000 Control Delay	78.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

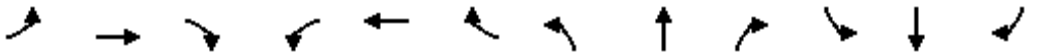
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	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)	12	68.5	17	22.5	16	64.5	16.8	22.7
Maximum Split (%)	10.0%	57.1%	14.2%	18.8%	13.3%	53.8%	14.0%	18.9%
Minimum Split (s)	12	30	13	22.5	12	30	9.5	22.5
Yellow Time (s)	4.9	4.9	3	3.5	4.9	4.9	3.5	3.5
All-Red Time (s)	2.1	2.1	4	1	2.1	2.1	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		11		16		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	102.5	34	17	114.5	98.5	34	17.2	114.5
End Time (s)	114.5	102.5	34	17	114.5	98.5	34	17.2
Yield/Force Off (s)	107.5	95.5	27	12.5	107.5	91.5	29.5	12.7
Yield/Force Off 170(s)	107.5	79.5	27	1.5	107.5	75.5	29.5	1.7
Local Start Time (s)	68.5	0	103	80.5	64.5	0	103.2	80.5
Local Yield (s)	73.5	61.5	113	98.5	73.5	57.5	115.5	98.7
Local Yield 170(s)	73.5	45.5	113	87.5	73.5	41.5	115.5	87.7

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 34 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Future Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1568	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1568	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	819	94	668	486	1813	0	0	2732	911
RTOR Reduction (vph)	0	0	0	0	94	277	0	0	0	0	0	254
Lane Group Flow (vph)	0	0	0	819	294	97	486	1813	0	0	2732	657
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				31.0	31.0	31.0	15.0	41.0			57.0	57.0
Effective Green, g (s)				31.0	31.0	31.0	15.0	41.0			57.0	57.0
Actuated g/C Ratio				0.26	0.26	0.26	0.12	0.34			0.48	0.48
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				886	405	388	429	1737			3583	751
v/s Ratio Prot					0.19		c0.14	c0.36			0.36	
v/s Ratio Perm				c0.24		0.06						c0.41
v/c Ratio				0.92	0.73	0.25	1.13	1.04			0.76	0.87
Uniform Delay, d1				43.4	40.6	35.3	52.5	39.5			25.9	28.3
Progression Factor				1.00	1.00	1.00	0.84	0.74			0.28	0.46
Incremental Delay, d2				15.0	6.3	0.3	76.9	29.8			0.1	1.5
Delay (s)				58.4	47.0	35.6	120.9	58.9			7.4	14.6
Level of Service				E	D	D	F	E			A	B
Approach Delay (s)		0.0			50.2			72.0			9.2	
Approach LOS		A			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

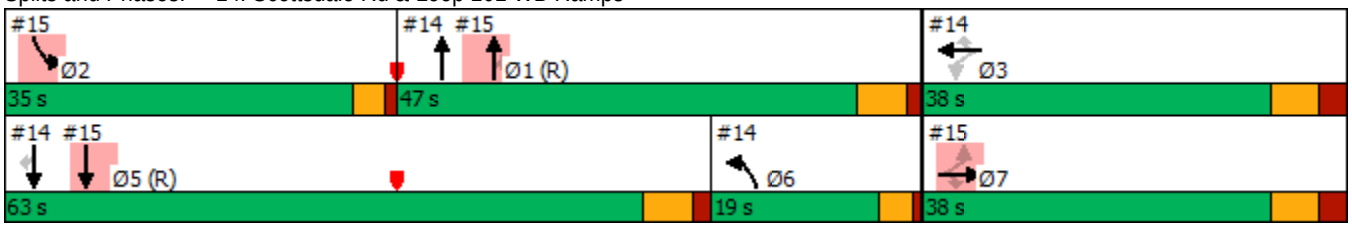
c Critical Lane Group

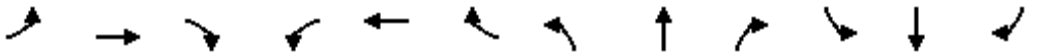
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	Max
Maximum Split (s)	47	35	38	63	19	38
Maximum Split (%)	39.2%	29.2%	31.7%	52.5%	15.8%	31.7%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	85	47	85	28	47
End Time (s)	47	0	85	28	47	85
Yield/Force Off (s)	41	116	78	22	43	78
Yield/Force Off 170(s)	41	116	78	22	43	78
Local Start Time (s)	0	85	47	85	28	47
Local Yield (s)	41	116	78	22	43	78
Local Yield 170(s)	41	116	78	22	43	78

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	120	

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green, Master Intersection

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

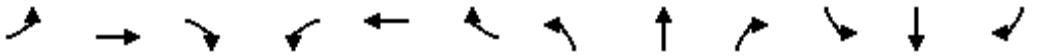




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Future Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	986	3	969	0	0	0	0	1328	473	981	2612	0
RTOR Reduction (vph)	0	159	159	0	0	0	0	0	277	0	0	0
Lane Group Flow (vph)	986	329	325	0	0	0	0	1328	196	981	2612	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	31.0	31.0	31.0					41.0	41.0	31.0	57.0	
Effective Green, g (s)	31.0	31.0	31.0					41.0	41.0	31.0	57.0	
Actuated g/C Ratio	0.26	0.26	0.26					0.34	0.34	0.26	0.48	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	886	389	388					2577	540	886	2415	
v/s Ratio Prot		0.22						c0.18		0.29	c0.51	
v/s Ratio Perm	c0.29		0.22						0.12			
v/c Ratio	1.11	0.84	0.84					0.52	0.36	1.11	1.08	
Uniform Delay, d1	44.5	42.2	42.1					31.6	29.7	44.5	31.5	
Progression Factor	1.00	1.00	1.00					0.57	2.57	0.91	0.54	
Incremental Delay, d2	66.2	19.6	18.9					0.3	0.7	58.4	41.8	
Delay (s)	110.7	61.8	61.0					18.4	77.1	99.1	59.0	
Level of Service	F	E	E					B	E	F	E	
Approach Delay (s)		86.2			0.0			33.8			69.9	
Approach LOS		F			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Future Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	529	219	337	74	108	198	161	1141	108	387	2380	817
RTOR Reduction (vph)	0	0	107	0	0	79	0	0	82	0	0	202
Lane Group Flow (vph)	529	219	230	74	108	119	161	1141	26	387	2380	615
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3			1			5
Actuated Green, G (s)	15.5	22.3	27.3	6.8	13.6	52.9	5.0	29.1	29.1	39.3	63.4	78.9
Effective Green, g (s)	15.5	22.3	27.3	6.8	13.6	52.9	5.0	29.1	29.1	39.3	63.4	78.9
Actuated g/C Ratio	0.13	0.19	0.23	0.06	0.11	0.44	0.04	0.24	0.24	0.33	0.53	0.66
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	443	944	360	194	401	697	143	1233	383	1124	2686	1040
v/s Ratio Prot	c0.15	0.04	c0.03	0.02	0.03	0.06	c0.05	c0.22		0.11	c0.47	0.08
v/s Ratio Perm			0.12			0.02			0.02			0.31
v/c Ratio	1.19	0.23	0.64	0.38	0.27	0.17	1.13	0.93	0.07	0.34	0.89	0.59
Uniform Delay, d1	52.2	41.6	41.9	54.6	48.7	20.3	57.5	44.4	35.0	30.6	25.1	11.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.47	0.10	0.95	1.32	3.42
Incremental Delay, d2	107.6	0.1	3.7	1.3	0.4	0.1	111.4	12.6	0.3	0.1	0.5	0.1
Delay (s)	159.9	41.7	45.6	55.8	49.0	20.4	143.4	33.4	3.7	29.3	33.5	39.5
Level of Service	F	D	D	E	D	C	F	C	A	C	C	D
Approach Delay (s)		100.5			35.4			43.7			34.4	
Approach LOS		F			D			D			C	

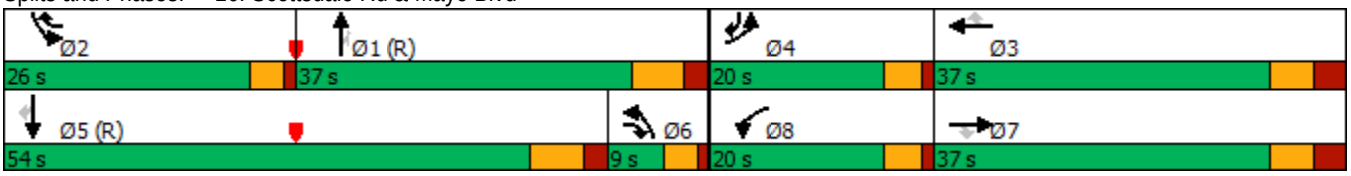
Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

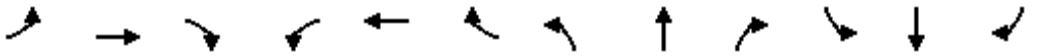
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	37	26	37	20	54	9	37	20
Maximum Split (%)	30.8%	21.7%	30.8%	16.7%	45.0%	7.5%	30.8%	16.7%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	70	44	7	107	44	98	7	107
End Time (s)	107	70	44	7	98	107	44	7
Yield/Force Off (s)	100	66	37	2.5	91	103	37	2.5
Yield/Force Off 170(s)	81	66	14	2.5	72	103	14	2.5
Local Start Time (s)	0	94	57	37	94	28	57	37
Local Yield (s)	30	116	87	52.5	21	33	87	52.5
Local Yield 170(s)	11	116	64	52.5	2	33	64	52.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 70 (58%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	5	114	10	5	5	154	1192	5	6	2393	147
Future Volume (vph)	96	5	114	10	5	5	154	1192	5	6	2393	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00	1.00	0.75	1.00	1.00	0.05	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1404	3539	1583	1404	3539	1583	93	5085	1583	364	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	6	127	11	6	6	171	1324	6	7	2659	163
RTOR Reduction (vph)	0	0	112	0	0	5	0	0	1	0	0	29
Lane Group Flow (vph)	107	6	15	11	6	1	171	1324	5	7	2659	134
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	14.4	14.4	14.4	14.4	14.4	14.4	91.0	91.0	91.0	80.9	80.9	80.9
Effective Green, g (s)	14.4	14.4	14.4	14.4	14.4	14.4	91.0	91.0	91.0	80.9	80.9	80.9
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.76	0.76	0.76	0.67	0.67	0.67
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168	424	189	168	424	189	227	3856	1200	258	3428	1067
v/s Ratio Prot		0.00			0.00		c0.07	0.26		0.00	c0.52	
v/s Ratio Perm	c0.08		0.01	0.01		0.00	0.50		0.00	0.02		0.08
v/c Ratio	0.64	0.01	0.08	0.07	0.01	0.00	0.75	0.34	0.00	0.03	0.78	0.13
Uniform Delay, d1	50.3	46.5	46.9	46.8	46.5	46.5	34.6	4.7	3.5	6.5	13.4	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.96	0.18	1.00	0.26	0.40	0.03
Incremental Delay, d2	7.7	0.0	0.2	0.2	0.0	0.0	11.7	0.2	0.0	0.0	1.0	0.1
Delay (s)	58.0	46.6	47.1	47.0	46.6	46.5	79.4	1.1	3.5	1.7	6.3	0.3
Level of Service	E	D	D	D	D	D	E	A	A	A	A	A
Approach Delay (s)		51.9			46.8			10.0			6.0	
Approach LOS		D			D			B			A	

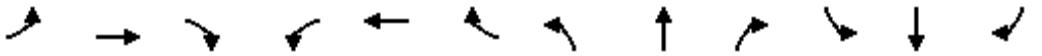
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	10	85	25	21	74	25
Maximum Split (%)	8.3%	70.8%	20.8%	17.5%	61.7%	20.8%
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	116	31	6	31	52	6
End Time (s)	6	116	31	52	6	31
Yield/Force Off (s)	1.5	111.5	26.5	47.5	1.5	26.5
Yield/Force Off 170(s)	1.5	100.5	15.5	47.5	110.5	15.5
Local Start Time (s)	64	99	74	99	0	74
Local Yield (s)	69.5	59.5	94.5	115.5	69.5	94.5
Local Yield 170(s)	69.5	48.5	83.5	115.5	58.5	83.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 52 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Future Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3063		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00		0.32	1.00	1.00	0.08	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	1397	3063		601	3539	1583	141	5085	1583	268	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	37	321	199	11	209	166	1251	414	301	2396	94
RTOR Reduction (vph)	0	186	0	0	0	62	0	0	214	0	0	52
Lane Group Flow (vph)	50	172	0	199	11	147	166	1251	200	301	2396	42
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	4	3		4	3	2	2	1	4	2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	18.6	13.6		18.6	13.6	41.0	80.4	53.0	58.0	80.4	53.0	53.0
Effective Green, g (s)	18.6	13.6		18.6	13.6	41.0	80.4	53.0	58.0	80.4	53.0	53.0
Actuated g/C Ratio	0.16	0.11		0.16	0.11	0.34	0.67	0.44	0.48	0.67	0.44	0.44
Clearance Time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	232	347		141	401	540	466	2245	765	522	2245	699
v/s Ratio Prot	0.01	0.06		c0.06	0.00	0.06	0.08	0.25	0.01	c0.13	c0.47	
v/s Ratio Perm	0.02			c0.16		0.03	0.16		0.12	0.25		0.03
v/c Ratio	0.22	0.88dr		1.41	0.03	0.27	0.36	0.56	0.26	0.58	1.07	0.06
Uniform Delay, d1	44.1	50.0		49.6	47.3	28.7	21.1	24.8	18.3	14.8	33.5	19.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.78	0.58	1.74	1.39	0.79	0.99
Incremental Delay, d2	0.5	1.1		221.7	0.0	0.3	0.4	0.3	0.2	1.0	36.9	0.0
Delay (s)	44.6	51.1		271.3	47.3	28.9	38.0	14.6	32.0	21.6	63.2	19.0
Level of Service	D	D		F	D	C	D	B	C	C	E	B
Approach Delay (s)		50.3			144.5			20.6			57.2	
Approach LOS		D			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	51.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

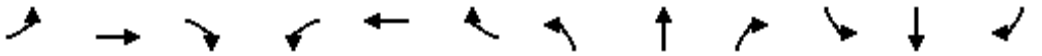
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	WBEBL
Lead/Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None
Maximum Split (s)	59	17	35	9
Maximum Split (%)	49.2%	14.2%	29.2%	7.5%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	118	101	66	57
End Time (s)	57	118	101	66
Yield/Force Off (s)	51	114	94	62
Yield/Force Off 170(s)	41	114	73	62
Local Start Time (s)	17	0	85	76
Local Yield (s)	70	13	113	81
Local Yield 170(s)	60	13	92	81

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	120
Offset: 101 (84%), Referenced to phase 2:NBSBL and 6:, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Future Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.87			0.57		0.05	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)		1475			1004		93	5085	1583	189	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	0	148	39	0	26	51	1731	14	53	2859	31
RTOR Reduction (vph)	0	54	0	0	54	0	0	0	5	0	0	10
Lane Group Flow (vph)	0	173	0	0	11	0	51	1731	9	53	2859	21
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		19.2			19.2		83.8	79.8	79.8	83.8	79.8	79.8
Effective Green, g (s)		19.2			19.2		83.8	79.8	79.8	83.8	79.8	79.8
Actuated g/C Ratio		0.16			0.16		0.70	0.66	0.66	0.70	0.66	0.66
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		236			160		120	3381	1052	184	3381	1052
v/s Ratio Prot							c0.01	0.34		0.01	c0.56	
v/s Ratio Perm		c0.12			0.01		0.28		0.01	0.19		0.01
v/c Ratio		0.73			0.07		0.42	0.51	0.01	0.29	0.85	0.02
Uniform Delay, d1		48.0			42.8		38.9	10.2	6.8	14.6	15.4	6.8
Progression Factor		1.00			1.00		0.51	0.39	1.00	0.32	0.36	1.00
Incremental Delay, d2		11.2			0.2		6.8	0.4	0.0	0.9	0.7	0.0
Delay (s)		54.2			43.0		26.8	4.3	6.8	5.6	6.2	6.8
Level of Service		D			D		C	A	A	A	A	A
Approach Delay (s)		54.2			43.0			5.0			6.2	
Approach LOS		D			D			A			A	

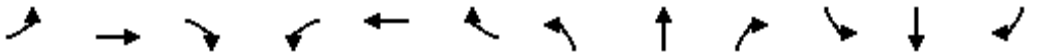
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lead	Lag	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	77	8	35
Maximum Split (%)	64.2%	6.7%	29.2%
Minimum Split (s)	16	8	35
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7		7
Flash Dont Walk (s)	3		21
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	43	0	8
End Time (s)	0	8	43
Yield/Force Off (s)	114	4	36
Yield/Force Off 170(s)	111	4	15
Local Start Time (s)	0	77	85
Local Yield (s)	71	81	113
Local Yield 170(s)	68	81	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	100
Offset: 43 (36%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Future Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	799	1944	518	308	618	310	110	826	237	503	2114	283
RTOR Reduction (vph)	0	0	84	0	0	91	0	0	111	0	0	44
Lane Group Flow (vph)	799	1944	434	308	618	219	110	826	126	503	2114	239
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	27.4	41.0	46.0	8.0	21.6	39.6	5.0	31.0	39.0	18.0	44.0	71.4
Effective Green, g (s)	27.4	41.0	46.0	8.0	21.6	39.6	5.0	31.0	39.0	18.0	44.0	71.4
Actuated g/C Ratio	0.23	0.34	0.38	0.07	0.18	0.33	0.04	0.26	0.32	0.15	0.37	0.60
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	783	1737	606	228	915	575	143	1313	514	514	1864	941
v/s Ratio Prot	0.23	c0.38	0.03	c0.09	0.12	0.06	0.03	c0.16	0.02	0.15	c0.42	0.06
v/s Ratio Perm			0.24			0.08			0.06			0.09
v/c Ratio	1.02	1.12	0.72	1.35	0.68	0.38	0.77	0.63	0.25	0.98	1.13	0.25
Uniform Delay, d1	46.3	39.5	31.5	56.0	45.9	30.8	56.9	39.4	29.7	50.8	38.0	11.6
Progression Factor	1.00	1.00	1.00	0.44	0.57	0.09	1.00	1.00	1.00	0.70	0.63	0.93
Incremental Delay, d2	37.4	62.0	4.0	171.9	1.0	0.2	21.7	2.3	0.3	23.7	64.5	0.1
Delay (s)	83.7	101.5	35.5	196.8	27.0	2.9	78.6	41.7	30.0	59.4	88.6	10.9
Level of Service	F	F	D	F	C	A	E	D	C	E	F	B
Approach Delay (s)		86.7			63.3			42.8			75.9	
Approach LOS		F			E			D			E	

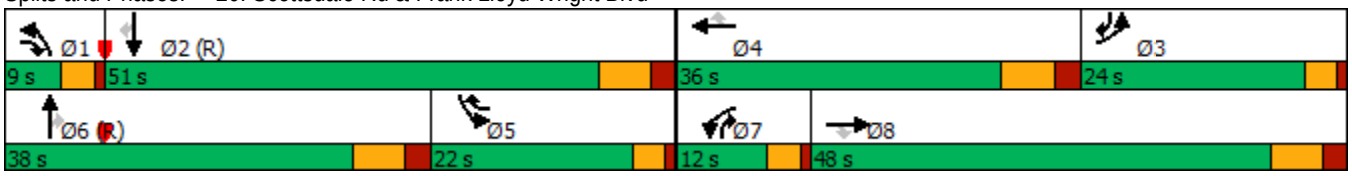
Intersection Summary			
HCM 2000 Control Delay	73.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

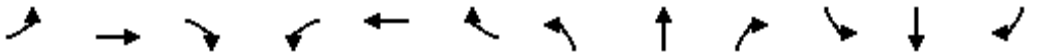
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	9	51	24	36	22	38	12	48
Maximum Split (%)	7.5%	42.5%	20.0%	30.0%	18.3%	31.7%	10.0%	40.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	66	75	42	6	104	66	6	18
End Time (s)	75	6	66	42	6	104	18	66
Yield/Force Off (s)	71	119	62	35	2	97	14	59
Yield/Force Off 170(s)	71	98	62	13	2	76	14	37
Local Start Time (s)	111	0	87	51	29	111	51	63
Local Yield (s)	116	44	107	80	47	22	59	104
Local Yield 170(s)	116	23	107	58	47	1	59	82

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 75 (63%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Future Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	731	1627	98	714	1322	384	29	547	316	309	809	390
RTOR Reduction (vph)	0	0	73	0	0	170	0	0	174	0	0	202
Lane Group Flow (vph)	731	1627	25	714	1322	214	29	547	142	309	809	188
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.0	31.2	31.2	19.0	30.2	30.2	3.0	25.8	25.8	16.0	38.8	38.8
Effective Green, g (s)	20.0	31.2	31.2	19.0	30.2	30.2	3.0	25.8	25.8	16.0	38.8	38.8
Actuated g/C Ratio	0.17	0.26	0.26	0.16	0.25	0.25	0.02	0.22	0.22	0.13	0.32	0.32
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	1322	411	543	1279	398	44	760	340	457	1144	511
v/s Ratio Prot	c0.21	c0.32		0.21	0.26		0.02	c0.15		0.09	c0.23	
v/s Ratio Perm			0.02			0.14			0.09			0.12
v/c Ratio	1.28	1.23	0.06	1.31	1.03	0.54	0.66	0.72	0.42	0.68	0.71	0.37
Uniform Delay, d1	50.0	44.4	33.4	50.5	44.9	38.9	58.0	43.7	40.6	49.5	35.6	31.2
Progression Factor	1.17	0.65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.78	0.73
Incremental Delay, d2	126.4	104.5	0.0	154.4	34.2	5.1	30.4	3.3	0.8	3.8	1.9	0.4
Delay (s)	185.1	133.3	33.4	204.9	79.1	44.0	88.4	47.0	41.4	44.7	29.9	23.3
Level of Service	F	F	C	F	E	D	F	D	D	D	C	C
Approach Delay (s)		144.7			110.7			46.4			31.2	
Approach LOS		F			F			D			C	

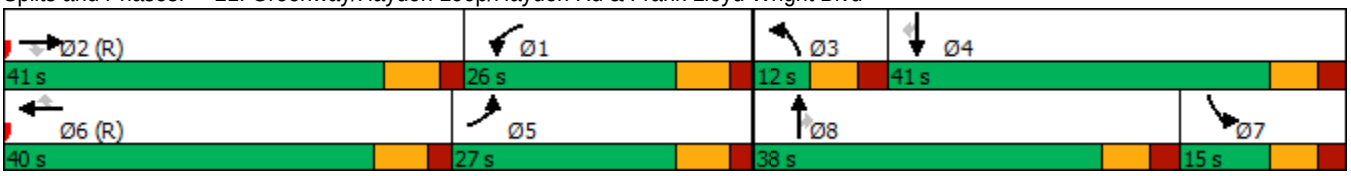
Intersection Summary			
HCM 2000 Control Delay	97.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

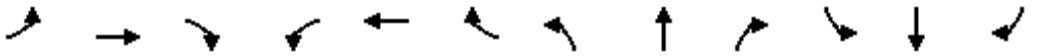
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	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)	26	41	12	41	27	40	15	38
Maximum Split (%)	21.7%	34.2%	10.0%	34.2%	22.5%	33.3%	12.5%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	111	70	17	29	110	70	55	17
End Time (s)	17	111	29	70	17	110	70	55
Yield/Force Off (s)	10	104	22	63	10	103	63	48
Yield/Force Off 170(s)	10	87	22	39	10	86	63	24
Local Start Time (s)	41	0	67	79	40	0	105	67
Local Yield (s)	60	34	72	113	60	33	113	98
Local Yield 170(s)	60	17	72	89	60	16	113	74

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 70 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Future Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	297	518	153	131	487	351	148	1292	11	363	1563	494
RTOR Reduction (vph)	0	0	123	0	0	282	0	1	0	0	0	224
Lane Group Flow (vph)	297	518	30	131	487	69	148	1302	0	363	1563	270
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	14.1	23.6	23.6	14.1	23.6	23.6	14.2	36.0		24.3	46.1	46.1
Effective Green, g (s)	14.1	23.6	23.6	14.1	23.6	23.6	14.2	36.0		24.3	46.1	46.1
Actuated g/C Ratio	0.12	0.20	0.20	0.12	0.20	0.20	0.12	0.30		0.20	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	403	696	311	403	696	311	406	1523		695	1953	608
v/s Ratio Prot	c0.09	c0.15		0.04	0.14		0.04	c0.26		0.11	c0.31	
v/s Ratio Perm			0.02			0.04						0.17
v/c Ratio	0.74	0.74	0.10	0.33	0.70	0.22	0.36	0.86		0.52	0.80	0.44
Uniform Delay, d1	51.2	45.4	39.5	48.6	44.9	40.5	48.7	39.5		42.7	32.9	27.4
Progression Factor	0.93	0.67	0.61	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	4.0	0.1	0.5	3.1	0.4	2.5	4.9		2.8	2.4	0.5
Delay (s)	53.7	34.1	24.1	49.1	48.0	40.9	51.3	44.5		45.5	35.3	28.0
Level of Service	D	C	C	D	D	D	D	D		D	D	C
Approach Delay (s)		38.6			45.5			45.2			35.3	
Approach LOS		D			D			D			D	

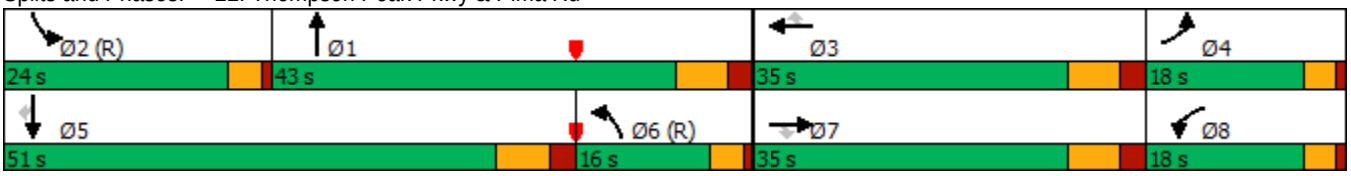
Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

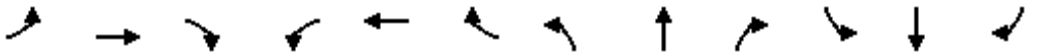
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	43	24	35	18	51	16	35	18
Maximum Split (%)	35.8%	20.0%	29.2%	15.0%	42.5%	13.3%	29.2%	15.0%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	52	28	95	10	28	79	95	10
End Time (s)	95	52	10	28	79	95	10	28
Yield/Force Off (s)	88	48	3	24	72	91	3	24
Yield/Force Off 170(s)	66	48	102	24	50	91	102	24
Local Start Time (s)	93	69	16	51	69	0	16	51
Local Yield (s)	9	89	44	65	113	12	44	65
Local Yield 170(s)	107	89	23	65	91	12	23	65

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 79 (66%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 22: Thompson Peak Pkwy & Pima Rd





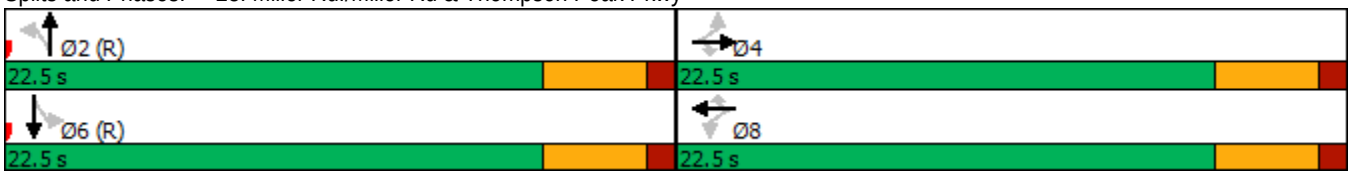
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	810	185	116	216	0	103	0	60	0	0	0
Future Volume (vph)	0	810	185	116	216	0	103	0	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	0.95				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1583	1770	3539		1770	3008				
Flt Permitted		1.00	1.00	0.23	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1583	421	3539		1410	3008				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	900	206	129	240	0	114	0	67	0	0	0
RTOR Reduction (vph)	0	0	124	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	900	82	129	240	0	114	35	0	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0	18.0				
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40	0.40				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Grp Cap (vph)		1415	633	168	1415		564	1203				
v/s Ratio Prot		0.25			0.07			0.01				
v/s Ratio Perm			0.05	c0.31			c0.08					
v/c Ratio		0.64	0.13	0.77	0.17		0.20	0.03				
Uniform Delay, d1		10.9	8.5	11.7	8.7		8.8	8.2				
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2		2.2	0.4	28.0	0.3		0.8	0.0				
Delay (s)		13.1	9.0	39.6	8.9		9.6	8.2				
Level of Service		B	A	D	A		A	A				
Approach Delay (s)		12.3			19.7			9.1			0.0	
Approach LOS		B			B			A			A	

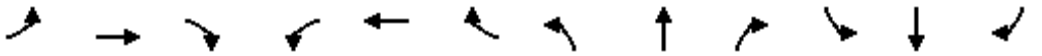
Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd./Miller Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	388	262	106	264	90	136	111	77	69	197	56
Future Volume (vph)	51	388	262	106	264	90	136	111	77	69	197	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.57	1.00	1.00	0.39	1.00	1.00	0.95	1.00	1.00	0.66	1.00	1.00
Satd. Flow (perm)	1067	3539	1583	724	3539	1583	3433	1863	1583	1223	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	431	291	118	293	100	151	123	86	77	219	62
RTOR Reduction (vph)	0	0	147	0	0	62	0	0	47	0	0	45
Lane Group Flow (vph)	57	431	144	118	293	38	151	123	39	77	219	17
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8			2	6		6
Actuated Green, G (s)	48.8	42.3	59.4	56.0	45.9	45.9	17.1	44.5	54.6	37.6	32.5	32.5
Effective Green, g (s)	48.8	42.3	59.4	56.0	45.9	45.9	17.1	44.5	54.6	37.6	32.5	32.5
Actuated g/C Ratio	0.41	0.35	0.49	0.47	0.38	0.38	0.14	0.37	0.46	0.31	0.27	0.27
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	471	1247	783	425	1353	605	489	690	720	406	504	428
v/s Ratio Prot	0.01	c0.12	0.03	c0.02	0.08		c0.04	0.07	0.00	0.01	c0.12	
v/s Ratio Perm	0.04		0.06	0.11		0.02			0.02	0.05		0.01
v/c Ratio	0.12	0.35	0.18	0.28	0.22	0.06	0.31	0.18	0.05	0.19	0.43	0.04
Uniform Delay, d1	21.8	28.6	16.8	18.8	24.9	23.4	46.1	25.4	18.3	30.9	36.2	32.2
Progression Factor	0.48	0.62	0.88	0.93	0.70	0.59	0.95	0.89	3.06	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	0.1	0.3	0.3	0.2	0.4	0.6	0.0	0.2	2.7	0.2
Delay (s)	10.6	18.5	14.8	17.9	17.8	14.0	44.3	23.3	56.0	31.1	38.9	32.4
Level of Service	B	B	B	B	B	B	D	C	E	C	D	C
Approach Delay (s)		16.6			17.0			39.9			36.1	
Approach LOS		B			B			D			D	

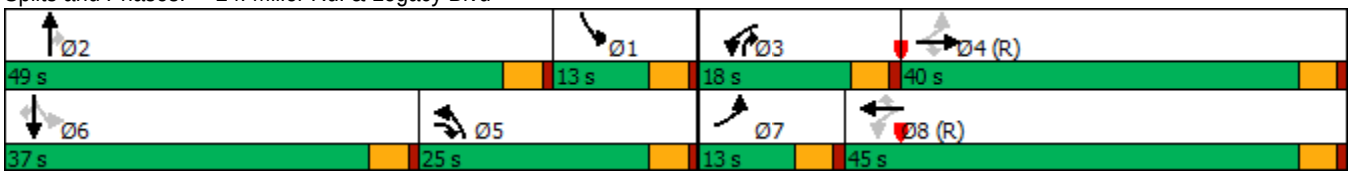
Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

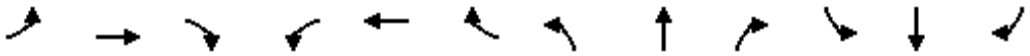
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	13	49	18	40	25	37	13	45
Maximum Split (%)	10.8%	40.8%	15.0%	33.3%	20.8%	30.8%	10.8%	37.5%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
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)	36	107	49	67	24	107	49	62
End Time (s)	49	36	67	107	49	24	62	107
Yield/Force Off (s)	44.5	31.5	62.5	102.5	44.5	19.5	57.5	102.5
Yield/Force Off 170(s)	44.5	20.5	62.5	91.5	44.5	8.5	57.5	91.5
Local Start Time (s)	89	40	102	0	77	40	102	115
Local Yield (s)	97.5	84.5	115.5	35.5	97.5	72.5	110.5	35.5
Local Yield 170(s)	97.5	73.5	115.5	24.5	97.5	61.5	110.5	24.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 67 (56%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 24: Miller Rd. & Legacy Blvd





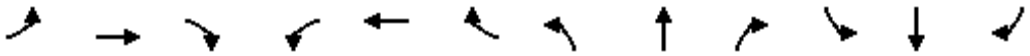
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	170	293	105	64	165	68	65	150	44	50	78	81
Future Volume (veh/h)	170	293	105	64	165	68	65	150	44	50	78	81
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	189	326	117	71	183	76	72	167	49	56	87	90
Approach Volume (veh/h)		632			330			288			233	
Crossing Volume (veh/h)		214			428			571			326	
High Capacity (veh/h)		1171			989			882			1072	
High v/c (veh/h)		0.54			0.33			0.33			0.22	
Low Capacity (veh/h)		967			804			709			878	
Low v/c (veh/h)		0.65			0.41			0.41			0.27	

Intersection Summary				
Maximum v/c High	0.54			
Maximum v/c Low	0.65			
Intersection Capacity Utilization	52.0%	ICU Level of Service	A	

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	632	330	288	233
Demand Flow Rate, veh/h	645	337	293	238
Vehicles Circulating, veh/h	218	436	583	332
Vehicles Exiting, veh/h	352	440	280	441
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.2	6.2	7.2	4.6
Approach LOS	A	A	A	A

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.816	0.184	0.769	0.231	0.829	0.171	0.613	0.387
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	526	119	259	78	243	50	146	92
Cap Entry Lane, veh/h	1165	1165	955	955	835	835	1050	1050
Entry HV Adj Factor	0.980	0.983	0.982	0.974	0.982	0.980	0.981	0.978
Flow Entry, veh/h	515	117	254	76	239	49	143	90
Cap Entry, veh/h	1141	1145	938	930	820	819	1030	1027
V/C Ratio	0.452	0.102	0.271	0.082	0.291	0.060	0.139	0.088
Control Delay, s/veh	8.0	4.0	6.6	4.6	7.6	5.0	4.8	4.3
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	2	0	1	0	1	0	0	0



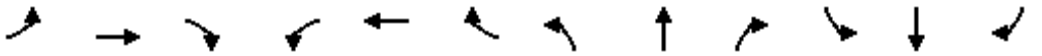
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	170	293	105	64	165	68	25	192	22	50	78	81
Future Volume (veh/h)	170	293	105	64	165	68	25	192	22	50	78	81
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	189	326	117	71	183	76	28	213	24	56	87	90
Approach Volume (veh/h)		632			330			265			233	
Crossing Volume (veh/h)		214			430			571			282	
High Capacity (veh/h)		1171			987			882			1110	
High v/c (veh/h)		0.54			0.33			0.30			0.21	
Low Capacity (veh/h)		967			802			709			912	
Low v/c (veh/h)		0.65			0.41			0.37			0.26	

Intersection Summary				
Maximum v/c High	0.54			
Maximum v/c Low	0.65			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	632	330	265	233
Demand Flow Rate, veh/h	645	337	270	238
Vehicles Circulating, veh/h	218	439	583	288
Vehicles Exiting, veh/h	308	414	280	488
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.2	6.2	7.4	4.4
Approach LOS	A	A	A	A

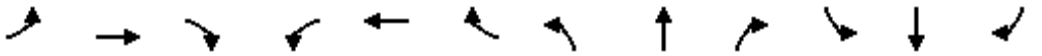
Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.816	0.184	0.769	0.231	0.911	0.089	0.613	0.387
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	526	119	259	78	246	24	146	92
Cap Entry Lane, veh/h	1165	1165	952	952	835	835	1093	1093
Entry HV Adj Factor	0.980	0.983	0.982	0.974	0.979	1.000	0.981	0.978
Flow Entry, veh/h	515	117	254	76	241	24	143	90
Cap Entry, veh/h	1141	1145	935	928	818	835	1072	1069
V/C Ratio	0.452	0.102	0.272	0.082	0.294	0.029	0.134	0.084
Control Delay, s/veh	8.0	4.0	6.6	4.6	7.7	4.6	4.5	4.1
LOS	A	A	A	A	A	A	A	A
95th %tile Queue, veh	2	0	1	0	1	0	0	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	0	0	11	0	183	22	32	172	30
Future Volume (Veh/h)	0	0	4	0	0	11	0	183	22	32	172	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	4	0	0	12	0	203	24	36	191	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								242			973	
pX, platoon unblocked												
vC, conflicting volume	478	490	191	470	499	203	224			227		
vC1, stage 1 conf vol	263	263		203	203							
vC2, stage 2 conf vol	215	227		267	296							
vCu, unblocked vol	478	490	191	470	499	203	224			227		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			97		
cM capacity (veh/h)	632	592	851	647	594	838	1345			1341		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	4	12	203	24	36	191	33
Volume Left	0	0	0	0	36	0	0
Volume Right	4	12	0	24	0	0	33
cSH	851	838	1700	1700	1341	1700	1700
Volume to Capacity	0.00	0.01	0.12	0.01	0.03	0.11	0.02
Queue Length 95th (ft)	0	1	0	0	2	0	0
Control Delay (s)	9.3	9.4	0.0	0.0	7.8	0.0	0.0
Lane LOS	A	A			A		
Approach Delay (s)	9.3	9.4	0.0		1.1		
Approach LOS	A	A					

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	19.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	122	103	198	53	59	43	0	55	25	41	29
Future Volume (vph)	24	122	103	198	53	59	43	0	55	25	41	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770		1583	1770	1863	1583
Flt Permitted	0.72	1.00	1.00	0.67	1.00	1.00	0.73		1.00	0.76	1.00	1.00
Satd. Flow (perm)	1338	1863	1583	1248	1863	1583	1354		1583	1410	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	136	114	220	59	66	48	0	61	28	46	32
RTOR Reduction (vph)	0	0	56	0	0	32	0	0	40	0	0	21
Lane Group Flow (vph)	27	136	58	220	59	34	48	0	21	28	46	11
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	30.5	30.5	30.5	30.5	30.5	30.5	20.5		20.5	20.5	20.5	20.5
Effective Green, g (s)	30.5	30.5	30.5	30.5	30.5	30.5	20.5		20.5	20.5	20.5	20.5
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.34		0.34	0.34	0.34	0.34
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	680	947	804	634	947	804	462		540	481	636	540
v/s Ratio Prot		0.07			0.03						0.02	
v/s Ratio Perm	0.02		0.04	c0.18		0.02	c0.04		0.01	0.02		0.01
v/c Ratio	0.04	0.14	0.07	0.35	0.06	0.04	0.10		0.04	0.06	0.07	0.02
Uniform Delay, d1	7.4	7.8	7.5	8.8	7.5	7.4	13.5		13.2	13.3	13.3	13.1
Progression Factor	0.57	0.61	0.20	0.63	0.63	0.55	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3	0.2	1.5	0.1	0.1	0.5		0.1	0.2	0.2	0.1
Delay (s)	4.3	5.1	1.7	7.0	4.9	4.2	13.9		13.3	13.5	13.6	13.2
Level of Service	A	A	A	A	A	A	B		B	B	B	B
Approach Delay (s)		3.6			6.1			13.6			13.4	
Approach LOS		A			A			B			B	

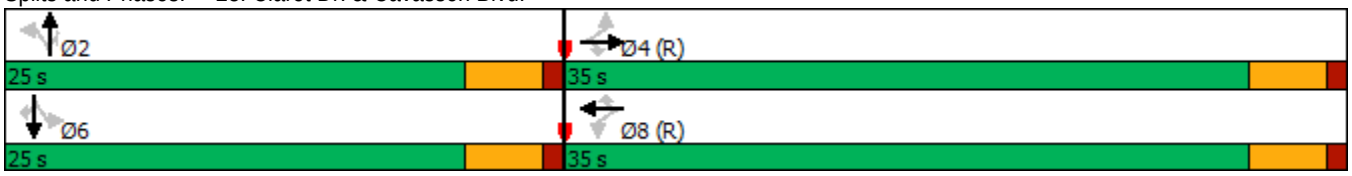
Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

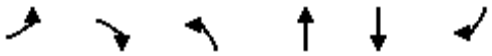
c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	C-Max	Max	C-Max
Maximum Split (s)	25	35	25	35
Maximum Split (%)	41.7%	58.3%	41.7%	58.3%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	29	54	29	54
End Time (s)	54	29	54	29
Yield/Force Off (s)	49.5	24.5	49.5	24.5
Yield/Force Off 170(s)	38.5	13.5	38.5	13.5
Local Start Time (s)	35	0	35	0
Local Yield (s)	55.5	30.5	55.5	30.5
Local Yield 170(s)	44.5	19.5	44.5	19.5

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Coordinated
Natural Cycle	45
Offset: 54 (90%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 28: Claret Dr. & Cavasson Blvd.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	89	244	1561	2033	163
Future Volume (vph)	83	89	244	1561	2033	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	2787	3433	5085	5085	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	2787	3433	5085	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	99	271	1734	2259	181
RTOR Reduction (vph)	0	8	0	0	0	52
Lane Group Flow (vph)	92	91	271	1734	2259	129
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	8.6	25.1	16.5	102.4	81.4	81.4
Effective Green, g (s)	8.6	25.1	16.5	102.4	81.4	81.4
Actuated g/C Ratio	0.07	0.21	0.14	0.85	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	246	687	472	4339	3449	1073
v/s Ratio Prot	c0.03	0.02	c0.08	0.34	c0.44	
v/s Ratio Perm		0.01				0.08
v/c Ratio	0.37	0.13	0.57	0.40	0.65	0.12
Uniform Delay, d1	53.1	38.6	48.5	2.0	11.2	6.8
Progression Factor	0.95	0.91	0.54	0.57	2.13	3.08
Incremental Delay, d2	1.0	0.1	1.0	0.2	0.7	0.2
Delay (s)	51.6	35.3	27.0	1.3	24.4	21.0
Level of Service	D	D	C	A	C	C
Approach Delay (s)	43.2			4.8	24.2	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	C-Max	None	None	C-Max
Maximum Split (s)	97	23	21	76
Maximum Split (%)	80.8%	19.2%	17.5%	63.3%
Minimum Split (s)	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		7
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	16	113	92	16
End Time (s)	113	16	113	92
Yield/Force Off (s)	108.5	11.5	108.5	87.5
Yield/Force Off 170(s)	97.5	0.5	108.5	76.5
Local Start Time (s)	0	97	76	0
Local Yield (s)	92.5	115.5	92.5	71.5
Local Yield 170(s)	81.5	104.5	92.5	60.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 16 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd & Cavasson Blvd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	72	243	91	158	359
Future Volume (vph)	53	72	243	91	158	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.52	1.00
Satd. Flow (perm)	1770	1583	3539	1583	962	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	59	80	270	101	176	399
RTOR Reduction (vph)	0	71	0	44	0	0
Lane Group Flow (vph)	59	9	270	57	176	399
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	6.4	6.4	33.8	33.8	44.6	44.6
Effective Green, g (s)	6.4	6.4	33.8	33.8	44.6	44.6
Actuated g/C Ratio	0.11	0.11	0.56	0.56	0.74	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	188	168	1993	891	799	2630
v/s Ratio Prot	c0.03		0.08		c0.02	0.11
v/s Ratio Perm		0.01		0.04	c0.14	
v/c Ratio	0.31	0.05	0.14	0.06	0.22	0.15
Uniform Delay, d1	24.8	24.1	6.2	5.9	2.4	2.2
Progression Factor	0.88	1.10	1.00	1.00	1.11	1.11
Incremental Delay, d2	1.0	0.1	0.1	0.1	0.1	0.1
Delay (s)	22.9	26.7	6.3	6.1	2.8	2.6
Level of Service	C	C	A	A	A	A
Approach Delay (s)	25.1		6.3			2.7
Approach LOS	C		A			A

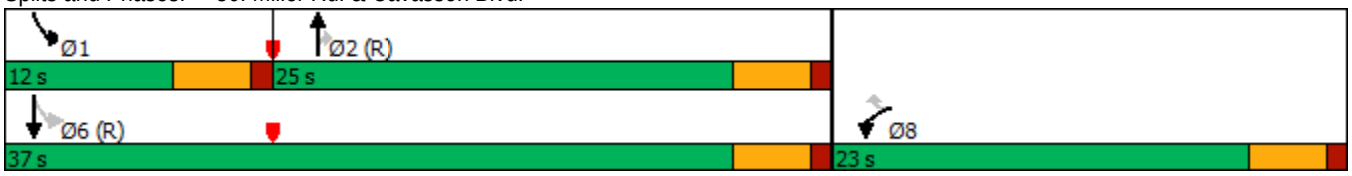
Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	C-Max	None
Maximum Split (s)	12	25	37	23
Maximum Split (%)	20.0%	41.7%	61.7%	38.3%
Minimum Split (s)	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	29	41	29	6
End Time (s)	41	6	6	29
Yield/Force Off (s)	36.5	1.5	1.5	24.5
Yield/Force Off 170(s)	36.5	50.5	50.5	13.5
Local Start Time (s)	48	0	48	25
Local Yield (s)	55.5	20.5	20.5	43.5
Local Yield 170(s)	55.5	9.5	9.5	32.5

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 41 (68%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

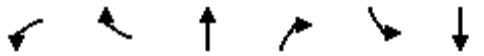
Splits and Phases: 30: Miller Rd. & Cavasson Blvd.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	29	305	80	106	305
Future Volume (Veh/h)	25	29	305	80	106	305
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	32	339	89	118	339
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						440
pX, platoon unblocked						
vC, conflicting volume	744	170			428	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	744	170			428	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	96			90	
cM capacity (veh/h)	313	845			1128	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	32	170	170	89	118	170	170
Volume Left	28	0	0	0	0	118	0	0
Volume Right	0	32	0	0	89	0	0	0
cSH	313	845	1700	1700	1700	1128	1700	1700
Volume to Capacity	0.09	0.04	0.10	0.10	0.05	0.10	0.10	0.10
Queue Length 95th (ft)	7	3	0	0	0	9	0	0
Control Delay (s)	17.6	9.4	0.0	0.0	0.0	8.6	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s)	13.2		0.0			2.2		
Approach LOS	B							

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	50	273	41	49	516
Future Volume (Veh/h)	0	50	273	41	49	516
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	56	303	46	54	573
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			690			817
pX, platoon unblocked						
vC, conflicting volume	720	174			349	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	720	174			349	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			96	
cM capacity (veh/h)	346	839			1207	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	56	202	147	54	286	286
Volume Left	0	0	0	54	0	0
Volume Right	56	0	46	0	0	0
cSH	839	1700	1700	1207	1700	1700
Volume to Capacity	0.07	0.12	0.09	0.04	0.17	0.17
Queue Length 95th (ft)	5	0	0	4	0	0
Control Delay (s)	9.6	0.0	0.0	8.1	0.0	0.0
Lane LOS	A			A		
Approach Delay (s)	9.6	0.0		0.7		
Approach LOS	A					

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	456	78	54	408	52	29
Future Volume (Veh/h)	456	78	54	408	52	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	507	87	60	453	58	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	824					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			594		854	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			452		726	91
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		82	96
cM capacity (veh/h)			1044		320	896

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	254	254	87	60	226	226	58	32
Volume Left	0	0	0	60	0	0	58	0
Volume Right	0	0	87	0	0	0	0	32
cSH	1700	1700	1700	1044	1700	1700	320	896
Volume to Capacity	0.15	0.15	0.05	0.06	0.13	0.13	0.18	0.04
Queue Length 95th (ft)	0	0	0	5	0	0	16	3
Control Delay (s)	0.0	0.0	0.0	8.7	0.0	0.0	18.7	9.2
Lane LOS				A			C	A
Approach Delay (s)	0.0			1.0			15.3	
Approach LOS							C	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	430	55	53	424	38	28
Future Volume (Veh/h)	430	55	53	424	38	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	478	61	59	471	42	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			539		832	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			539		832	239
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		86	96
cM capacity (veh/h)			1025		290	762

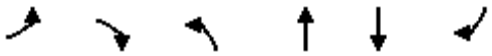
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	239	239	61	59	236	236	42	31
Volume Left	0	0	0	59	0	0	42	0
Volume Right	0	0	61	0	0	0	0	31
cSH	1700	1700	1700	1025	1700	1700	290	762
Volume to Capacity	0.14	0.14	0.04	0.06	0.14	0.14	0.14	0.04
Queue Length 95th (ft)	0	0	0	5	0	0	12	3
Control Delay (s)	0.0	0.0	0.0	8.7	0.0	0.0	19.5	9.9
Lane LOS				A			C	A
Approach Delay (s)	0.0			1.0			15.4	
Approach LOS							C	

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	418	40	58	445	32	31
Future Volume (Veh/h)	418	40	58	445	32	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	464	44	64	494	36	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				749		
pX, platoon unblocked						
vC, conflicting volume			508		861	254
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			508		861	254
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		87	95
cM capacity (veh/h)			1053		277	745

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	309	199	64	247	247	36	34
Volume Left	0	0	64	0	0	36	0
Volume Right	0	44	0	0	0	0	34
cSH	1700	1700	1053	1700	1700	277	745
Volume to Capacity	0.18	0.12	0.06	0.15	0.15	0.13	0.05
Queue Length 95th (ft)	0	0	5	0	0	11	4
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	19.9	10.1
Lane LOS			A			C	B
Approach Delay (s)	0.0		1.0			15.1	
Approach LOS						C	

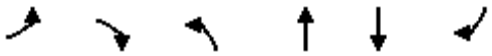
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	89	1555	2145	8
Future Volume (Veh/h)	0	50	89	1555	2145	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	56	99	1728	2383	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				531	838	
pX, platoon unblocked	0.74	0.70	0.70			
vC, conflicting volume	3157	794	2392			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2058	0	1506			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	68			
cM capacity (veh/h)	24	763	310			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	56	99	576	576	576	794	794	794	9
Volume Left	0	99	0	0	0	0	0	0	0
Volume Right	56	0	0	0	0	0	0	0	9
cSH	763	310	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.32	0.34	0.34	0.34	0.47	0.47	0.47	0.01
Queue Length 95th (ft)	6	33	0	0	0	0	0	0	0
Control Delay (s)	10.1	21.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	C							
Approach Delay (s)	10.1	1.2				0.0			
Approach LOS	B								

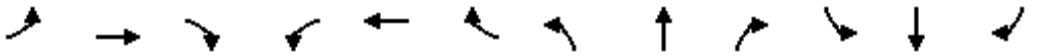
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	37	93	1805	2020	102
Future Volume (Veh/h)	0	37	93	1805	2020	102
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	41	103	2006	2244	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				653	620	
pX, platoon unblocked	0.86	0.74	0.74			
vC, conflicting volume	3119	748	2357			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	971	0	1591			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	66			
cM capacity (veh/h)	141	799	301			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	41	103	669	669	669	748	748	748	113
Volume Left	0	103	0	0	0	0	0	0	0
Volume Right	41	0	0	0	0	0	0	0	113
cSH	799	301	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.34	0.39	0.39	0.39	0.44	0.44	0.44	0.07
Queue Length 95th (ft)	4	37	0	0	0	0	0	0	0
Control Delay (s)	9.8	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	C							
Approach Delay (s)	9.8	1.1				0.0			
Approach LOS	A								

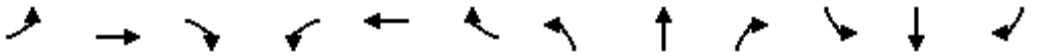
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	37	48	0	36	92	13	89	115	149	68
Future Volume (Veh/h)	50	0	37	48	0	36	92	13	89	115	149	68
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	56	0	41	53	0	40	102	14	99	128	166	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								644			571	
pX, platoon unblocked												
vC, conflicting volume	680	739	166	681	716	14	242			113		
vC1, stage 1 conf vol	422	422		218	218							
vC2, stage 2 conf vol	258	317		463	498							
vCu, unblocked vol	680	739	166	681	716	14	242			113		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	100	95	86	100	96	92			91		
cM capacity (veh/h)	455	421	878	389	381	1066	1324			1476		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	97	93	102	14	99	128	166	76
Volume Left	56	53	102	0	0	128	0	0
Volume Right	41	40	0	0	99	0	0	76
cSH	572	535	1324	1700	1700	1476	1700	1700
Volume to Capacity	0.17	0.17	0.08	0.01	0.06	0.09	0.10	0.04
Queue Length 95th (ft)	15	16	6	0	0	7	0	0
Control Delay (s)	12.6	13.1	7.9	0.0	0.0	7.7	0.0	0.0
Lane LOS	B	B	A			A		
Approach Delay (s)	12.6	13.1	3.8			2.7		
Approach LOS	B	B						

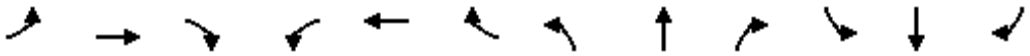
Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	29.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	80	112	111	227	69	48	0	61	32	0	36
Future Volume (Veh/h)	10	80	112	111	227	69	48	0	61	32	0	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	89	124	123	252	77	53	0	68	36	0	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		777			608							
pX, platoon unblocked												
vC, conflicting volume	329			213			649	686	89	677	733	252
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329			213			649	686	89	677	733	252
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			84	100	93	89	100	95
cM capacity (veh/h)	1231			1357			336	334	969	315	313	787

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	11	89	124	123	252	77	76	45	36	40
Volume Left	11	0	0	123	0	0	53	0	36	0
Volume Right	0	0	124	0	0	77	23	45	0	40
cSH	1231	1700	1700	1357	1700	1700	418	969	315	787
Volume to Capacity	0.01	0.05	0.07	0.09	0.15	0.05	0.18	0.05	0.11	0.05
Queue Length 95th (ft)	1	0	0	7	0	0	16	4	10	4
Control Delay (s)	8.0	0.0	0.0	7.9	0.0	0.0	15.5	8.9	17.9	9.8
Lane LOS	A			A			C	A	C	A
Approach Delay (s)	0.4			2.2			13.0		13.6	
Approach LOS							B		B	

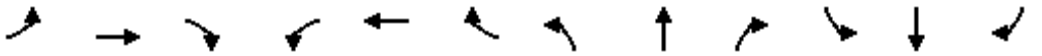
Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	28.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	15	0	0	8	0	90	9	0	317	25
Future Volume (Veh/h)	0	0	15	0	0	8	0	90	9	0	317	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	17	0	0	9	0	100	10	0	352	28
Pedestrians											15	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											3.5	
Percent Blockage											1	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								897			318	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	495	476	366	488	485	120	380			110		
vC1, stage 1 conf vol	366	366		105	105							
vC2, stage 2 conf vol	129	110		383	380							
vCu, unblocked vol	438	418	302	431	428	120	317			110		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	99	100			100		
cM capacity (veh/h)	629	599	698	611	592	918	1177			1480		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	9	110	380
Volume Left	0	0	0	0
Volume Right	17	9	10	28
cSH	698	918	1700	1700
Volume to Capacity	0.02	0.01	0.06	0.22
Queue Length 95th (ft)	2	1	0	0
Control Delay (s)	10.3	9.0	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	10.3	9.0	0.0	0.0
Approach LOS	B	A		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	19	73	41	13	4	76	1192	83	5	543	18
Future Volume (vph)	24	19	73	41	13	4	76	1192	83	5	543	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1641		1770	1801		1770	3539	1583	1770	3539	1583
Flt Permitted	0.75	1.00		0.69	1.00		0.42	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1389	1641		1287	1801		790	3539	1583	349	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	21	81	46	14	4	84	1324	92	6	603	20
RTOR Reduction (vph)	0	74	0	0	4	0	0	0	12	0	0	4
Lane Group Flow (vph)	27	28	0	46	14	0	84	1324	80	6	603	16
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)	7.8	7.8		7.8	7.8		74.2	74.2	74.2	74.2	74.2	74.2
Effective Green, g (s)	7.8	7.8		7.8	7.8		74.2	74.2	74.2	74.2	74.2	74.2
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.78	0.78	0.78	0.78	0.78	0.78
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	114	134		105	147		617	2764	1236	272	2764	1236
v/s Ratio Prot		0.02			0.01			c0.37			0.17	
v/s Ratio Perm	0.02			c0.04			0.11		0.05	0.02		0.01
v/c Ratio	0.24	0.21		0.44	0.10		0.14	0.48	0.06	0.02	0.22	0.01
Uniform Delay, d1	40.8	40.7		41.5	40.3		2.5	3.6	2.4	2.3	2.7	2.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.8		2.9	0.3		0.5	0.6	0.1	0.1	0.2	0.0
Delay (s)	41.9	41.5		44.4	40.6		3.0	4.2	2.5	2.5	2.9	2.3
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		41.6			43.4			4.1			2.9	
Approach LOS		D			D			A			A	

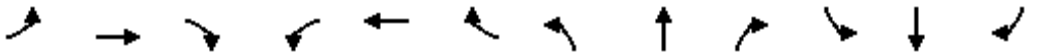
Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	57	38
Maximum Split (%)	60.0%	40.0%
Minimum Split (s)	40	38
Yellow Time (s)	4.8	3.6
All-Red Time (s)	1.2	3.4
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	6	20
Flash Dont Walk (s)	4	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	57
End Time (s)	57	0
Yield/Force Off (s)	51	88
Yield/Force Off 170(s)	47	84
Local Start Time (s)	0	57
Local Yield (s)	51	88
Local Yield 170(s)	47	84

Intersection Summary	
Cycle Length	95
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 1: Hayden Rd & Deer Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	9	69	24	8	13	79	1330	39	13	587	40
Future Volume (vph)	38	9	69	24	8	13	79	1330	39	13	587	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1693		1770	3539	1583	1770	3539	1583
Flt Permitted	0.74	1.00	1.00	0.75	1.00		0.40	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	1383	1863	1583	1399	1693		753	3539	1583	285	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	10	77	27	9	14	88	1478	43	14	652	44
RTOR Reduction (vph)	0	0	70	0	13	0	0	0	9	0	0	9
Lane Group Flow (vph)	42	10	7	27	10	0	88	1478	34	14	652	35
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		3			3			1			1	
Permitted Phases	3		3	3			1		1	1		1
Actuated Green, G (s)	11.0	11.0	11.0	11.0	11.0		95.0	95.0	95.0	95.0	95.0	95.0
Effective Green, g (s)	11.0	11.0	11.0	11.0	11.0		95.0	95.0	95.0	95.0	95.0	95.0
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.09		0.79	0.79	0.79	0.79	0.79	0.79
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	126	170	145	128	155		596	2801	1253	225	2801	1253
v/s Ratio Prot		0.01			0.01			c0.42			0.18	
v/s Ratio Perm	c0.03		0.00	0.02			0.12		0.02	0.05		0.02
v/c Ratio	0.33	0.06	0.05	0.21	0.07		0.15	0.53	0.03	0.06	0.23	0.03
Uniform Delay, d1	51.1	49.8	49.7	50.5	49.8		2.9	4.5	2.7	2.7	3.2	2.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.37	0.28	0.03	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1	0.1	0.8	0.2		0.3	0.4	0.0	0.5	0.2	0.0
Delay (s)	52.6	49.9	49.9	51.3	50.0		1.4	1.6	0.1	3.3	3.4	2.7
Level of Service	D	D	D	D	D		A	A	A	A	A	A
Approach Delay (s)		50.8			50.7			1.6			3.3	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	83	37
Maximum Split (%)	69.2%	30.8%
Minimum Split (s)	22	36
Yellow Time (s)	4.5	3.6
All-Red Time (s)	1.5	4.4
Minimum Initial (s)	15	1
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	9	20
Flash Dont Walk (s)	7	8
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	2	85
End Time (s)	85	2
Yield/Force Off (s)	79	114
Yield/Force Off 170(s)	72	106
Local Start Time (s)	0	83
Local Yield (s)	77	112
Local Yield 170(s)	70	104

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 2 (2%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 2: Hayden Rd & Grayhawk Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	598	389	405	381	169	538	1193	704	224	402	81
Future Volume (vph)	100	598	389	405	381	169	538	1193	704	224	402	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.0	4.5	7.0	4.5	4.0	4.0	7.0	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.24	1.00	1.00	0.23	1.00	1.00	0.28	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	861	3539	1583	835	3539	1583	994	3539	1583	475	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	664	432	450	423	188	598	1326	782	249	447	90
RTOR Reduction (vph)	0	0	70	0	0	56	0	0	49	0	0	59
Lane Group Flow (vph)	111	664	362	450	423	132	598	1326	733	249	447	31
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	26.5	26.5	46.1	41.2	40.7	46.7	48.0	48.0	68.5	36.4	36.4	41.7
Effective Green, g (s)	26.5	26.5	46.1	41.2	40.7	46.7	48.0	48.0	68.5	36.4	36.4	41.7
Actuated g/C Ratio	0.22	0.22	0.38	0.34	0.34	0.39	0.40	0.40	0.57	0.30	0.30	0.35
Clearance Time (s)	4.5	4.0	4.5	4.0	4.5	7.0	4.5	4.0	4.0	7.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	303	781	608	730	1200	616	795	1415	956	291	1073	609
v/s Ratio Prot	0.02	c0.19	0.10	0.11	0.12	0.01	0.12	c0.37	c0.13	c0.04	0.13	0.00
v/s Ratio Perm	0.06		0.13	0.11		0.07	0.18		0.33	0.22		0.02
v/c Ratio	0.37	0.85	0.60	0.62	0.35	0.21	0.75	0.94	0.77	0.86	0.42	0.05
Uniform Delay, d1	38.2	44.8	29.5	38.7	29.8	24.4	27.1	34.6	19.7	49.1	33.3	26.0
Progression Factor	1.00	1.00	1.00	0.72	0.62	0.58	0.47	0.53	0.09	0.95	0.91	0.72
Incremental Delay, d2	0.8	8.8	1.6	1.1	0.1	0.1	2.5	8.9	2.3	20.9	1.2	0.0
Delay (s)	39.0	53.6	31.1	29.1	18.5	14.4	15.4	27.2	4.1	67.7	31.5	18.8
Level of Service	D	D	C	C	B	B	B	C	A	E	C	B
Approach Delay (s)		44.2			22.2			17.9			41.5	
Approach LOS		D			C			B			D	

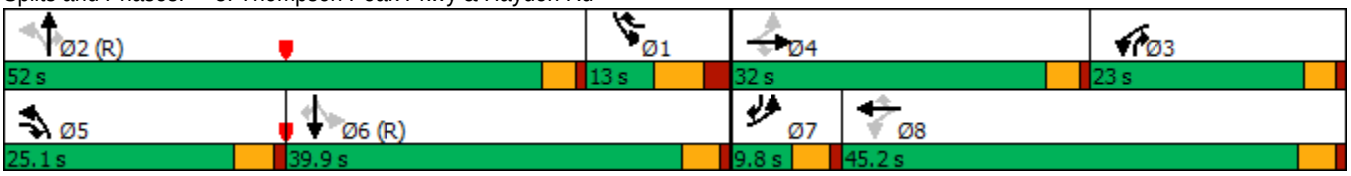
Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

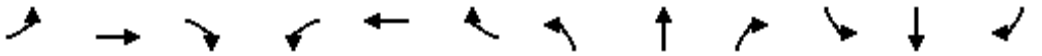
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	13	52	23	32	25.1	39.9	9.8	45.2
Maximum Split (%)	10.8%	43.3%	19.2%	26.7%	20.9%	33.3%	8.2%	37.7%
Minimum Split (s)	12	36	8	32	9.5	36.5	9.5	32.5
Yellow Time (s)	4.5	3	3	3	3.5	3.5	3.5	3.5
All-Red Time (s)	2.5	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	4	5	5	10	5	10
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		8		7		8		7
Flash Dont Walk (s)		24		21		24		21
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	93.9	41.9	18.9	106.9	41.9	67	106.9	116.7
End Time (s)	106.9	93.9	41.9	18.9	67	106.9	116.7	41.9
Yield/Force Off (s)	99.9	89.9	37.9	14.9	62.5	102.4	112.2	37.4
Yield/Force Off 170(s)	99.9	65.9	37.9	113.9	62.5	78.4	112.2	16.4
Local Start Time (s)	26.9	94.9	71.9	39.9	94.9	0	39.9	49.7
Local Yield (s)	32.9	22.9	90.9	67.9	115.5	35.4	45.2	90.4
Local Yield 170(s)	32.9	118.9	90.9	46.9	115.5	11.4	45.2	69.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 67 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 3: Thompson Peak Pkwy & Hayden Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	133	445	201	131	60	415	2265	154	34	1078	128
Future Volume (vph)	130	133	445	201	131	60	415	2265	154	34	1078	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.45	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	835	3539	1583	3433	5085	1583	146	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	144	148	494	223	146	67	461	2517	171	38	1198	142
RTOR Reduction (vph)	0	0	38	0	0	56	0	0	61	0	0	78
Lane Group Flow (vph)	144	148	456	223	146	11	461	2517	110	38	1198	64
Turn Type	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4	8		8			2	6		6
Actuated Green, G (s)	9.2	10.4	37.4	28.0	14.6	19.0	27.0	73.8	73.8	55.6	51.2	51.2
Effective Green, g (s)	9.2	10.4	37.4	28.0	14.6	19.0	27.0	73.8	73.8	55.6	51.2	51.2
Actuated g/C Ratio	0.08	0.09	0.31	0.23	0.12	0.16	0.22	0.61	0.61	0.46	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	263	306	493	299	430	250	772	3127	973	127	2169	675
v/s Ratio Prot	0.04	0.04	c0.21	c0.08	0.04	0.00	0.13	c0.49		0.01	0.24	
v/s Ratio Perm			0.08	0.09		0.01			0.07	0.13		0.04
v/c Ratio	0.55	0.48	0.93	0.75	0.34	0.04	0.60	0.80	0.11	0.30	0.55	0.09
Uniform Delay, d1	53.4	52.2	39.9	40.5	48.3	42.8	41.6	17.6	9.6	50.8	25.8	20.6
Progression Factor	0.78	0.85	0.58	1.00	1.00	1.00	0.92	0.45	0.37	1.09	0.80	1.03
Incremental Delay, d2	2.2	1.2	22.7	9.7	0.5	0.1	0.9	1.6	0.2	1.1	0.9	0.2
Delay (s)	44.0	45.4	46.0	50.2	48.8	42.9	39.3	9.6	3.7	56.6	21.5	21.5
Level of Service	D	D	D	D	D	D	D	A	A	E	C	C
Approach Delay (s)		45.5			48.6			13.6			22.5	
Approach LOS		D			D			B			C	

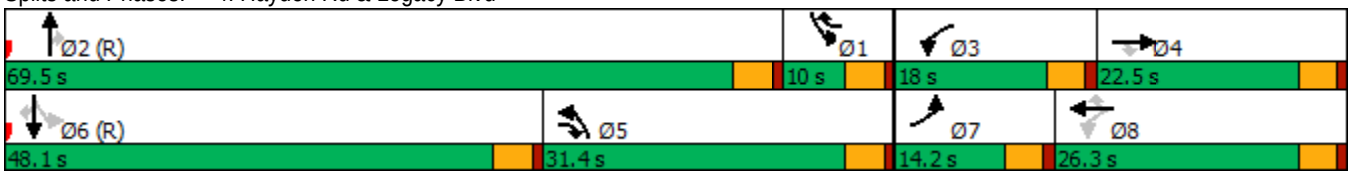
Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

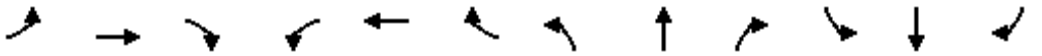
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBT	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	10	69.5	18	22.5	31.4	48.1	14.2	26.3
Maximum Split (%)	8.3%	57.9%	15.0%	18.8%	26.2%	40.1%	11.8%	21.9%
Minimum Split (s)	10	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	3	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	Yes	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	15.5	66	25.5	43.5	114.1	66	25.5	39.7
End Time (s)	25.5	15.5	43.5	66	25.5	114.1	39.7	66
Yield/Force Off (s)	21	11	39	61.5	21	109.6	35.2	61.5
Yield/Force Off 170(s)	21	0	39	50.5	21	98.6	35.2	50.5
Local Start Time (s)	69.5	0	79.5	97.5	48.1	0	79.5	93.7
Local Yield (s)	75	65	93	115.5	75	43.6	89.2	115.5
Local Yield 170(s)	75	54	93	104.5	75	32.6	89.2	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 66 (55%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 4: Hayden Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Future Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1580	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1580	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	220	206	1191	996	2052	0	0	1922	564
RTOR Reduction (vph)	0	0	0	0	75	323	0	0	0	0	0	188
Lane Group Flow (vph)	0	0	0	220	643	356	996	2052	0	0	1922	376
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				38.5	38.5	38.5	27.5	39.5			39.0	39.0
Effective Green, g (s)				38.5	38.5	38.5	27.5	39.5			39.0	39.0
Actuated g/C Ratio				0.32	0.32	0.32	0.23	0.33			0.32	0.32
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1101	506	482	786	1673			2451	514
v/s Ratio Prot					c0.41		0.29	c0.40			c0.25	
v/s Ratio Perm				0.06		0.24						0.24
v/c Ratio				0.20	1.27	0.74	1.27	1.23			0.78	0.73
Uniform Delay, d1				29.6	40.8	36.3	46.2	40.2			36.7	35.9
Progression Factor				1.00	1.00	1.00	0.95	0.59			0.71	0.40
Incremental Delay, d2				0.1	137.0	5.9	122.8	103.3			2.4	8.1
Delay (s)				29.7	177.7	42.2	166.9	126.9			28.5	22.4
Level of Service				C	F	D	F	F			C	C
Approach Delay (s)		0.0			100.6			140.0			27.1	
Approach LOS		A			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	91.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

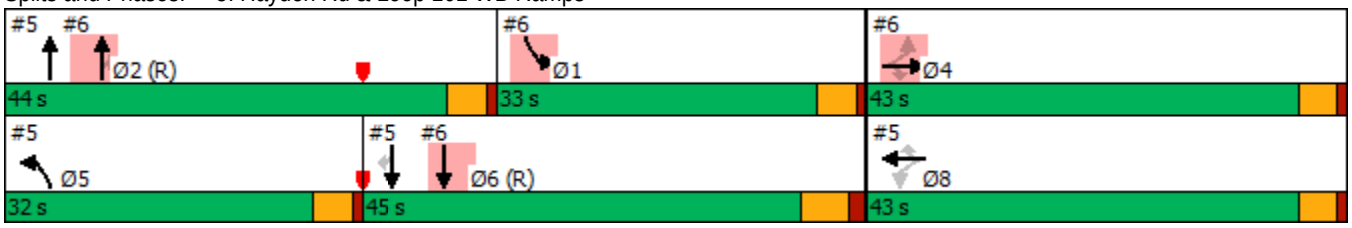
c Critical Lane Group

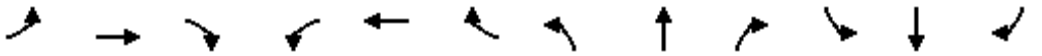
Phase Number	1	2	4	5	6	8
Node Number	6	5	6	5	5	5
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	33	44	43	32	45	43
Maximum Split (%)	27.5%	36.7%	35.8%	26.7%	37.5%	35.8%
Minimum Split (s)	9.5	22.5	22.5	9.5	39	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	4.4	3.5
All-Red Time (s)	1	1	1	1	1.6	1
Minimum Initial (s)	5	5	5	5	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		26	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	58	14	91	14	46	91
End Time (s)	91	58	14	46	91	14
Yield/Force Off (s)	86.5	53.5	9.5	41.5	85	9.5
Yield/Force Off 170(s)	86.5	42.5	118.5	41.5	59	118.5
Local Start Time (s)	12	88	45	88	0	45
Local Yield (s)	40.5	7.5	83.5	115.5	39	83.5
Local Yield 170(s)	40.5	116.5	72.5	115.5	13	72.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130

Offset: 46 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps

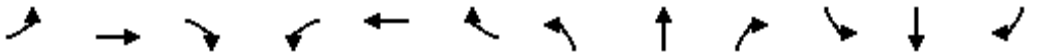




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Future Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.86	1.00	0.97	0.91	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1605	1504					6408	1583	3433	5085	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1605	1504					6408	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	934	6	286	0	0	0	0	2162	237	1041	1120	0
RTOR Reduction (vph)	0	2	175	0	0	0	0	0	129	0	0	0
Lane Group Flow (vph)	486	481	82	0	0	0	0	2162	108	1041	1120	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	38.5	38.5	38.5					39.5	39.5	28.5	39.0	
Effective Green, g (s)	38.5	38.5	38.5					39.5	39.5	28.5	39.0	
Actuated g/C Ratio	0.32	0.32	0.32					0.33	0.33	0.24	0.32	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	539	514	482					2109	521	815	1652	
v/s Ratio Prot								c0.34		c0.30	0.22	
v/s Ratio Perm	0.29	0.30	0.05						0.07			
v/c Ratio	0.90	0.94	0.17					1.03	0.21	1.28	0.68	
Uniform Delay, d1	38.9	39.5	29.3					40.2	29.0	45.8	35.1	
Progression Factor	0.69	0.69	0.29					0.85	0.68	0.36	0.38	
Incremental Delay, d2	10.2	14.6	0.1					18.1	0.3	131.4	1.5	
Delay (s)	37.1	42.1	8.7					52.1	19.9	147.8	15.0	
Level of Service	D	D	A					D	B	F	B	
Approach Delay (s)		33.1			0.0			49.0			79.0	
Approach LOS		C			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	56.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	68	289	45	69	377	209	1368	22	76	888	332
Future Volume (vph)	368	68	289	45	69	377	209	1368	22	76	888	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.68	1.00	1.00	0.70	1.00	1.00	0.28	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	1272	1863	1583	1297	1863	1583	528	3539	1583	206	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	76	321	50	77	419	232	1520	24	84	987	369
RTOR Reduction (vph)	0	0	282	0	0	74	0	0	14	0	0	160
Lane Group Flow (vph)	409	76	39	50	77	345	232	1520	10	84	987	209
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	38.7	14.6	14.6	28.6	9.0	26.2	50.6	50.6	50.6	53.3	53.3	53.3
Effective Green, g (s)	38.7	14.6	14.6	28.6	9.0	26.2	50.6	50.6	50.6	53.3	53.3	53.3
Actuated g/C Ratio	0.32	0.12	0.12	0.24	0.08	0.22	0.42	0.42	0.42	0.44	0.44	0.44
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	514	226	192	386	139	345	372	1492	667	315	1571	703
v/s Ratio Prot	c0.17	0.04		0.02	0.04	c0.14	0.08	c0.43		0.04	0.28	
v/s Ratio Perm	0.09		0.02	0.01		0.07	0.19		0.01	0.08		0.13
v/c Ratio	0.80	0.34	0.20	0.13	0.55	1.00	0.62	1.02	0.02	0.27	0.63	0.30
Uniform Delay, d1	35.8	48.3	47.5	36.3	53.6	46.9	31.4	34.7	20.2	24.0	25.7	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.42	0.40	1.00	0.34	0.35	0.31
Incremental Delay, d2	8.3	0.9	0.5	0.2	4.7	47.9	2.5	25.4	0.0	0.4	1.5	0.9
Delay (s)	44.2	49.1	48.0	36.4	58.3	94.8	15.8	39.3	20.2	8.6	10.4	7.4
Level of Service	D	D	D	D	E	F	B	D	C	A	B	A
Approach Delay (s)		46.2			84.3			36.0			9.5	
Approach LOS		D			F			D			A	

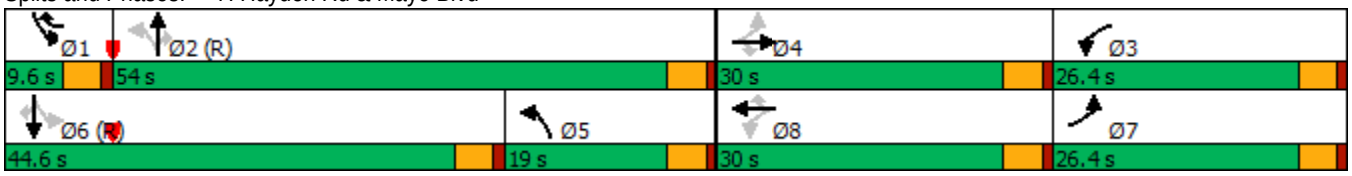
Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

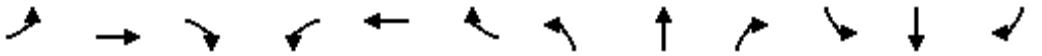
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	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)	9.6	54	26.4	30	19	44.6	26.4	30
Maximum Split (%)	8.0%	45.0%	22.0%	25.0%	15.8%	37.2%	22.0%	25.0%
Minimum Split (s)	9.5	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7	7	7		7		7
Flash Dont Walk (s)		11	11	11		11		11
Dual Entry	No	Yes	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	77.4	87	51	21	2	77.4	51	21
End Time (s)	87	21	77.4	51	21	2	77.4	51
Yield/Force Off (s)	82.5	16.5	72.9	46.5	16.5	117.5	72.9	46.5
Yield/Force Off 170(s)	82.5	5.5	61.9	35.5	16.5	106.5	72.9	35.5
Local Start Time (s)	110.4	0	84	54	35	110.4	84	54
Local Yield (s)	115.5	49.5	105.9	79.5	49.5	30.5	105.9	79.5
Local Yield 170(s)	115.5	38.5	94.9	68.5	49.5	19.5	105.9	68.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 87 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 7: Hayden Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	21	81	253	0	212	149	1338	165	69	1066	71
Future Volume (vph)	38	21	81	253	0	212	149	1338	165	69	1066	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00	0.97		1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00		0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1804	1583	3433		1583	1770	3539	1583	1770	3539	1583
Flt Permitted		0.97	1.00	0.95		1.00	0.18	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)		1804	1583	3433		1583	335	3539	1583	198	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	23	90	281	0	236	166	1487	183	77	1184	79
RTOR Reduction (vph)	0	0	82	0	0	171	0	0	63	0	0	30
Lane Group Flow (vph)	0	65	8	281	0	65	166	1487	120	77	1184	49
Turn Type	pm+pt	NA	Perm	Prot		Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	7		8				1			5	
Permitted Phases	7		7			3	1		1	5		5
Actuated Green, G (s)		10.6	10.6	15.2		32.8	74.2	74.2	74.2	74.2	74.2	74.2
Effective Green, g (s)		10.6	10.6	15.2		32.8	74.2	74.2	74.2	74.2	74.2	74.2
Actuated g/C Ratio		0.09	0.09	0.13		0.27	0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)		7.0	7.0	7.0		7.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		159	139	434		432	207	2188	978	122	2188	978
v/s Ratio Prot				c0.08				0.42			0.33	
v/s Ratio Perm		0.04	0.01			0.04	c0.50		0.08	0.39		0.03
v/c Ratio		0.41	0.06	0.65		0.15	0.80	0.68	0.12	0.63	0.54	0.05
Uniform Delay, d1		51.7	50.1	49.9		33.0	17.3	15.1	9.5	14.3	13.1	9.0
Progression Factor		1.00	1.00	1.00		1.00	0.37	0.11	0.00	0.94	0.86	1.00
Incremental Delay, d2		1.7	0.2	3.3		0.2	11.9	0.7	0.1	18.6	0.8	0.1
Delay (s)		53.4	50.3	53.2		33.2	18.3	2.3	0.1	32.0	12.1	9.1
Level of Service		D	D	D		C	B	A	A	C	B	A
Approach Delay (s)		51.6			44.0			3.5			13.0	
Approach LOS		D			D			A			B	

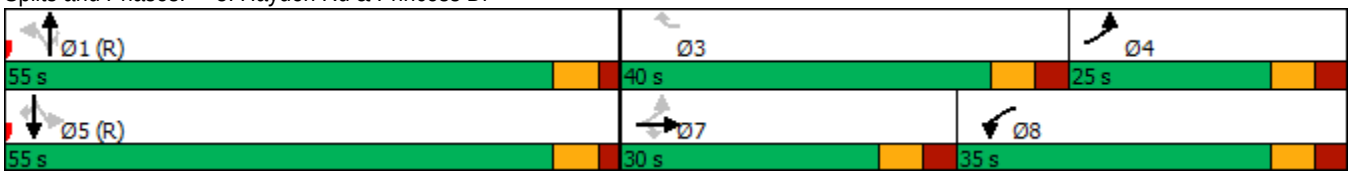
Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

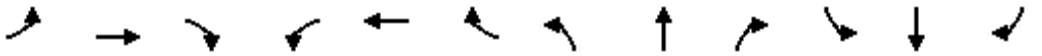
c Critical Lane Group

Phase Number	1	3	4	5	7	8
Movement	NBTL	WBR	EBL	SBTL	EBTL	WBL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	55	40	25	55	30	35
Maximum Split (%)	45.8%	33.3%	20.8%	45.8%	25.0%	29.2%
Minimum Split (s)	50	40	25	50	30	25
Yellow Time (s)	4	4	4	4	4	4
All-Red Time (s)	2	3	3	2	3	3
Minimum Initial (s)	10	8	5	10	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7		7	7	
Flash Dont Walk (s)	11	11		11	11	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	35	90	10	35	90	0
End Time (s)	90	10	35	90	0	35
Yield/Force Off (s)	84	3	28	84	113	28
Yield/Force Off 170(s)	73	112	28	73	102	28
Local Start Time (s)	0	55	95	0	55	85
Local Yield (s)	49	88	113	49	78	113
Local Yield 170(s)	38	77	113	38	67	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 35 (29%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 8: Hayden Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1	23	488	0	186	6	1511	276	212	1221	10
Future Volume (vph)	13	1	23	488	0	186	6	1511	276	212	1221	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		0.95		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3149		1681	1681	1583	1770	3539	1583	1770	3535	
Flt Permitted		0.82		0.73	0.73	1.00	0.08	1.00	1.00	0.07	1.00	
Satd. Flow (perm)		2641		1290	1290	1583	145	3539	1583	139	3535	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1	26	542	0	207	7	1679	307	236	1357	11
RTOR Reduction (vph)	0	20	0	0	0	155	0	0	124	0	0	0
Lane Group Flow (vph)	0	21	0	271	271	52	7	1679	183	236	1368	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		7			3		6	1		2	5	
Permitted Phases	7			3		3	1		1	5		
Actuated Green, G (s)		29.9		29.9	29.9	29.9	53.5	53.5	53.5	71.8	70.3	
Effective Green, g (s)		29.9		29.9	29.9	29.9	53.5	53.5	53.5	71.8	70.3	
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.45	0.45	0.45	0.60	0.59	
Clearance Time (s)		8.0		8.0	8.0	8.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		658		321	321	394	82	1577	705	329	2070	
v/s Ratio Prot							0.00	c0.47		c0.11	0.39	
v/s Ratio Perm		0.01		c0.21	0.21	0.03	0.04		0.12	0.32		
v/c Ratio		0.03		0.84	0.84	0.13	0.09	1.06	0.26	0.72	0.66	
Uniform Delay, d1		34.1		42.8	42.8	35.0	22.7	33.2	20.8	43.9	16.8	
Progression Factor		1.00		1.00	1.00	1.00	0.81	0.73	1.09	0.60	0.39	
Incremental Delay, d2		0.0		18.0	18.0	0.2	0.0	30.7	0.1	6.6	1.5	
Delay (s)		34.1		60.8	60.8	35.1	18.5	55.1	22.8	32.9	8.1	
Level of Service		C		E	E	D	B	E	C	C	A	
Approach Delay (s)		34.1			53.7			50.0			11.7	
Approach LOS		C			D			D			B	

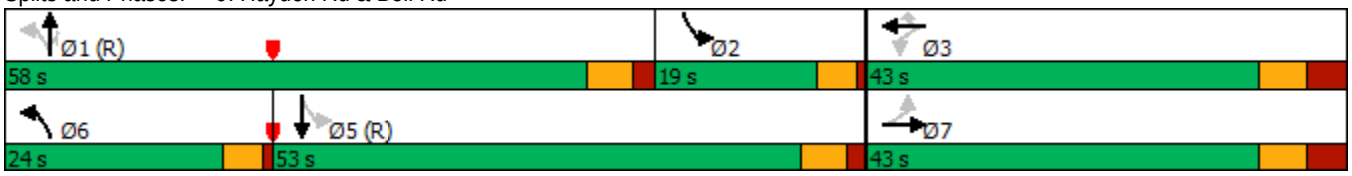
Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	5	6	7
Movement	NBTL	SBL	WBTL	SBTL	NBL	EBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None	None
Maximum Split (s)	58	19	43	53	24	43
Maximum Split (%)	48.3%	15.8%	35.8%	44.2%	20.0%	35.8%
Minimum Split (s)	50	22.5	40	50	22.5	30
Yellow Time (s)	4.1	3.5	4.3	4.1	3.5	4.3
All-Red Time (s)	1.9	1	3.7	1.9	1	3.7
Minimum Initial (s)	10	5	8	10	5	6
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7	7	7	7	7	7
Flash Dont Walk (s)	11	11	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	6	64	83	30	6	83
End Time (s)	64	83	6	83	30	6
Yield/Force Off (s)	58	78.5	118	77	25.5	118
Yield/Force Off 170(s)	47	67.5	107	66	14.5	107
Local Start Time (s)	96	34	53	0	96	53
Local Yield (s)	28	48.5	88	47	115.5	88
Local Yield 170(s)	17	37.5	77	36	104.5	77

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	125
Offset: 30 (25%), Referenced to phase 1:NBTL and 5:SBTL, Start of Green	

Splits and Phases: 9: Hayden Rd & Bell Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	63	2389	109	20	1292
Future Volume (vph)	132	63	2389	109	20	1292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	80	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	70	2654	121	22	1436
RTOR Reduction (vph)	0	6	0	11	0	0
Lane Group Flow (vph)	147	64	2654	110	22	1436
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	15.0	15.0	93.0	93.0	93.0	93.0
Effective Green, g (s)	15.0	15.0	93.0	93.0	93.0	93.0
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	197	2742	1226	62	2742
v/s Ratio Prot	c0.08		c0.75			0.41
v/s Ratio Perm		0.04		0.07	0.27	
v/c Ratio	0.67	0.32	0.97	0.09	0.35	0.52
Uniform Delay, d1	50.1	47.9	12.2	3.3	4.2	5.1
Progression Factor	1.00	1.00	1.25	1.55	1.00	1.00
Incremental Delay, d2	7.3	1.0	5.0	0.0	15.2	0.7
Delay (s)	57.4	48.8	20.2	5.1	19.4	5.8
Level of Service	E	D	C	A	B	A
Approach Delay (s)	54.7		19.5			6.0
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	94	26
Maximum Split (%)	78.3%	21.7%
Minimum Split (s)	24	18
Yellow Time (s)	4.8	4.2
All-Red Time (s)	1.2	1.8
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	12	8
Flash Dont Walk (s)	6	4
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	96	70
End Time (s)	70	96
Yield/Force Off (s)	64	90
Yield/Force Off 170(s)	58	86
Local Start Time (s)	0	94
Local Yield (s)	88	114
Local Yield 170(s)	82	110

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 96 (80%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 10: Scottsdale Rd & Deer Valley Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	128	69	2400	128	60	1326
Future Volume (vph)	128	69	2400	128	60	1326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1770	1583	3539	1583	80	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	142	77	2667	142	67	1473
RTOR Reduction (vph)	0	4	0	15	0	0
Lane Group Flow (vph)	142	73	2667	127	67	1473
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	3		1			1
Permitted Phases		3		1	1	
Actuated Green, G (s)	14.9	14.9	93.1	93.1	93.1	93.1
Effective Green, g (s)	14.9	14.9	93.1	93.1	93.1	93.1
Actuated g/C Ratio	0.12	0.12	0.78	0.78	0.78	0.78
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	219	196	2745	1228	62	2745
v/s Ratio Prot	c0.08		0.75			0.42
v/s Ratio Perm		0.05		0.08	c0.84	
v/c Ratio	0.65	0.37	0.97	0.10	1.08	0.54
Uniform Delay, d1	50.1	48.2	12.2	3.3	13.5	5.2
Progression Factor	1.00	1.00	0.96	0.62	1.60	1.04
Incremental Delay, d2	6.5	1.2	1.8	0.0	130.1	0.7
Delay (s)	56.5	49.4	13.6	2.0	151.7	6.0
Level of Service	E	D	B	A	F	A
Approach Delay (s)	54.0		13.0			12.3
Approach LOS	D		B			B

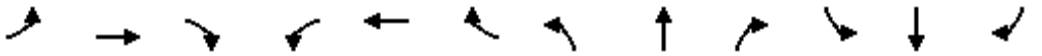
Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	3
Movement	NBSB	WBL
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	C-Max	None
Maximum Split (s)	89	31
Maximum Split (%)	74.2%	25.8%
Minimum Split (s)	32	23
Yellow Time (s)	4.7	4
All-Red Time (s)	1.3	2
Minimum Initial (s)	10	6
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)	14	6
Flash Dont Walk (s)	12	11
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	93	62
End Time (s)	62	93
Yield/Force Off (s)	56	87
Yield/Force Off 170(s)	44	76
Local Start Time (s)	0	89
Local Yield (s)	83	114
Local Yield 170(s)	71	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 93 (78%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 11: Scottsdale Rd & Grayhawk Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Future Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	157	5085	1583	167	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	259	101	743	381	296	167	2231	557	219	1589	407
RTOR Reduction (vph)	0	0	89	0	0	68	0	0	38	0	0	49
Lane Group Flow (vph)	592	259	12	743	381	228	167	2231	519	219	1589	358
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	21.7	14.1	14.1	23.9	18.8	25.8	57.5	47.5	71.4	51.5	44.5	66.2
Effective Green, g (s)	21.7	14.1	14.1	23.9	18.8	25.8	57.5	47.5	71.4	51.5	44.5	66.2
Actuated g/C Ratio	0.18	0.12	0.12	0.20	0.16	0.22	0.48	0.40	0.60	0.43	0.37	0.55
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	620	415	186	683	554	340	209	2012	1034	165	1885	873
v/s Ratio Prot	c0.17	0.07		c0.22	0.11	0.04	c0.07	0.44	0.10	c0.08	0.31	0.07
v/s Ratio Perm			0.01			0.11	0.32		0.23	c0.49		0.15
v/c Ratio	0.95	0.62	0.06	1.09	0.69	0.67	0.80	1.11	0.50	1.33	0.84	0.41
Uniform Delay, d1	48.7	50.4	47.1	48.0	47.8	43.2	43.5	36.2	14.0	53.3	34.6	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.62	0.04	1.07	1.02	0.92
Incremental Delay, d2	25.2	2.9	0.1	60.8	3.5	5.2	2.0	49.8	0.0	181.1	4.5	0.3
Delay (s)	73.9	53.3	47.2	108.8	51.4	48.4	43.3	72.4	0.6	238.1	39.9	14.7
Level of Service	E	D	D	F	D	D	D	E	A	F	D	B
Approach Delay (s)		65.5			80.8			57.2			54.9	
Approach LOS		E			F			E			D	

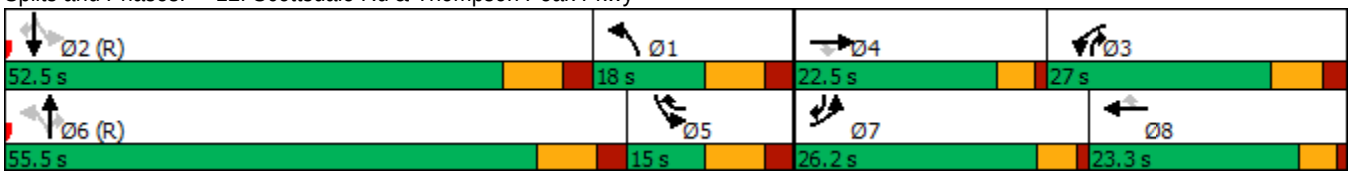
Intersection Summary			
HCM 2000 Control Delay	62.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

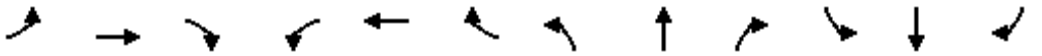
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	18	52.5	27	22.5	15	55.5	26.2	23.3
Maximum Split (%)	15.0%	43.8%	22.5%	18.8%	12.5%	46.3%	21.8%	19.4%
Minimum Split (s)	9	40	8	22.5	9	40	5.5	22.5
Yellow Time (s)	5.3	5.3	4.6	3.5	5.3	5.3	3.5	3.5
All-Red Time (s)	2.7	2.7	2.4	1	2.7	2.7	1	1
Minimum Initial (s)	1	1	1	1	1	1	1	1
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		25		11		25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	88.5	36	9	106.5	91.5	36	106.5	12.7
End Time (s)	106.5	88.5	36	9	106.5	91.5	12.7	36
Yield/Force Off (s)	98.5	80.5	29	4.5	98.5	83.5	8.2	31.5
Yield/Force Off 170(s)	98.5	55.5	29	113.5	98.5	58.5	8.2	20.5
Local Start Time (s)	52.5	0	93	70.5	55.5	0	70.5	96.7
Local Yield (s)	62.5	44.5	113	88.5	62.5	47.5	92.2	115.5
Local Yield 170(s)	62.5	19.5	113	77.5	62.5	22.5	92.2	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 36 (30%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Future Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	148	5085	1583	148	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	183	41	613	260	192	81	2791	479	123	2344	387
RTOR Reduction (vph)	0	0	37	0	0	111	0	0	70	0	0	66
Lane Group Flow (vph)	407	183	4	613	260	81	81	2791	409	123	2344	321
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	17.1	11.5	11.5	23.5	20.4	25.4	54.5	54.5	78.0	55.5	55.5	72.6
Effective Green, g (s)	17.1	11.5	11.5	23.5	20.4	25.4	54.5	54.5	78.0	55.5	55.5	72.6
Actuated g/C Ratio	0.14	0.10	0.10	0.20	0.17	0.21	0.45	0.45	0.65	0.46	0.46	0.60
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	339	151	672	601	335	121	2309	1028	136	2351	957
v/s Ratio Prot	c0.12	0.05		c0.18	0.07	0.01	0.02	c0.55	0.08	0.04	c0.46	0.05
v/s Ratio Perm			0.00			0.04	0.28		0.18	0.38		0.16
v/c Ratio	0.83	0.54	0.03	0.91	0.43	0.24	0.67	1.21	0.40	0.90	1.00	0.34
Uniform Delay, d1	50.1	51.7	49.2	47.2	44.6	39.3	51.1	32.8	9.9	28.3	32.2	11.7
Progression Factor	1.00	1.00	1.00	0.94	0.83	0.52	1.29	1.34	2.05	1.15	0.44	0.87
Incremental Delay, d2	11.5	1.7	0.1	15.8	0.5	0.3	1.3	94.3	0.0	35.9	14.0	0.1
Delay (s)	61.6	53.4	49.2	60.2	37.5	20.7	67.1	138.1	20.4	68.4	28.3	10.3
Level of Service	E	D	D	E	D	C	E	F	C	E	C	B
Approach Delay (s)		58.4			47.6			119.6			27.6	
Approach LOS		E			D			F			C	

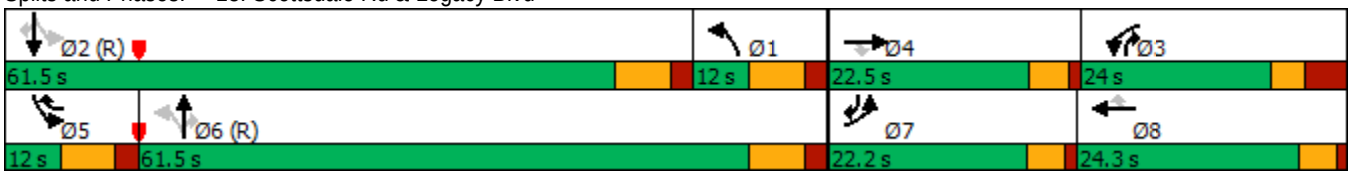
Intersection Summary			
HCM 2000 Control Delay	71.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

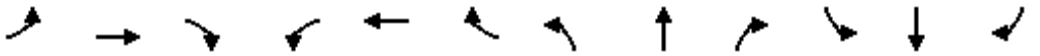
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	12	61.5	24	22.5	12	61.5	22.2	24.3
Maximum Split (%)	10.0%	51.3%	20.0%	18.8%	10.0%	51.3%	18.5%	20.3%
Minimum Split (s)	12	30	13	22.5	12	30	9.5	22.5
Yellow Time (s)	4.9	4.9	3	3.5	4.9	4.9	3.5	3.5
All-Red Time (s)	2.1	2.1	4	1	2.1	2.1	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		11		16		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	12.5	71	47	24.5	71	83	24.5	46.7
End Time (s)	24.5	12.5	71	47	83	24.5	46.7	71
Yield/Force Off (s)	17.5	5.5	64	42.5	76	17.5	42.2	66.5
Yield/Force Off 170(s)	17.5	109.5	64	31.5	76	1.5	42.2	55.5
Local Start Time (s)	49.5	108	84	61.5	108	0	61.5	83.7
Local Yield (s)	54.5	42.5	101	79.5	113	54.5	79.2	103.5
Local Yield 170(s)	54.5	26.5	101	68.5	113	38.5	79.2	92.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 83 (69%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Future Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.93	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1651	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1651	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1047	319	776	1237	2597	0	0	2069	1022
RTOR Reduction (vph)	0	0	0	0	24	349	0	0	0	0	0	45
Lane Group Flow (vph)	0	0	0	1047	551	171	1237	2597	0	0	2069	977
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				26.0	26.0	26.0	28.0	42.0			49.0	49.0
Effective Green, g (s)				26.0	26.0	26.0	28.0	42.0			49.0	49.0
Actuated g/C Ratio				0.22	0.22	0.22	0.23	0.35			0.41	0.41
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				743	357	325	801	1779			3080	646
v/s Ratio Prot					c0.33		c0.36	0.51			0.27	
v/s Ratio Perm				0.30		0.11						c0.62
v/c Ratio				1.41	1.54	0.53	1.54	1.46			0.67	1.51
Uniform Delay, d1				47.0	47.0	41.5	46.0	39.0			28.9	35.5
Progression Factor				1.00	1.00	1.00	1.00	0.56			0.34	0.36
Incremental Delay, d2				192.1	257.8	1.5	245.5	207.2			0.5	233.7
Delay (s)				239.1	304.8	43.1	291.3	229.1			10.3	246.4
Level of Service				F	F	D	F	F			B	F
Approach Delay (s)		0.0			209.1			249.2			88.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	184.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

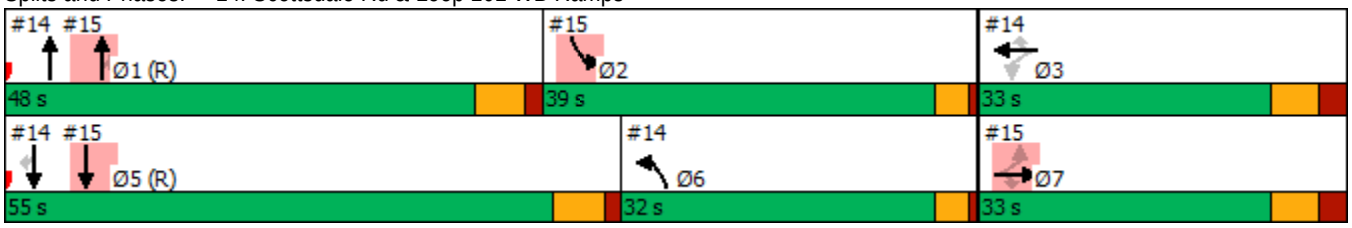
c Critical Lane Group

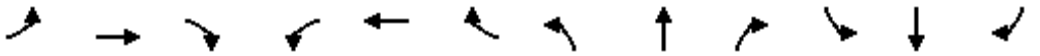
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	48	39	33	55	32	33
Maximum Split (%)	40.0%	32.5%	27.5%	45.8%	26.7%	27.5%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	48	87	0	55	87
End Time (s)	48	87	0	55	87	0
Yield/Force Off (s)	42	83	113	49	83	113
Yield/Force Off 170(s)	42	83	113	49	83	113
Local Start Time (s)	0	48	87	0	55	87
Local Yield (s)	42	83	113	49	83	113
Local Yield 170(s)	42	83	113	49	83	113

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150

Offset: 0 (0%), Referenced to phase 1:NBT and 5:SBT, Start of Green, Master Intersection

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

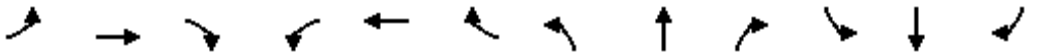




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Future Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	766	0	1068	0	0	0	0	3084	870	729	2502	0
RTOR Reduction (vph)	0	337	337	0	0	0	0	0	348	0	0	0
Lane Group Flow (vph)	766	197	197	0	0	0	0	3084	522	729	2502	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	26.0	26.0	26.0					42.0	42.0	35.0	49.0	
Effective Green, g (s)	26.0	26.0	26.0					42.0	42.0	35.0	49.0	
Actuated g/C Ratio	0.22	0.22	0.22					0.35	0.35	0.29	0.41	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	743	325	325					2640	554	1001	2076	
v/s Ratio Prot		0.13						0.41		c0.21	c0.49	
v/s Ratio Perm	c0.22		0.13						0.33			
v/c Ratio	1.03	0.61	0.61					1.17	0.94	0.73	1.21	
Uniform Delay, d1	47.0	42.4	42.4					39.0	37.8	38.2	35.5	
Progression Factor	1.00	1.00	1.00					0.91	1.61	1.14	0.53	
Incremental Delay, d2	41.2	3.2	3.2					76.1	4.1	2.1	94.5	
Delay (s)	88.2	45.6	45.6					111.8	65.0	45.6	113.3	
Level of Service	F	D	D					F	E	D	F	
Approach Delay (s)		63.4			0.0			101.5			98.0	
Approach LOS		E			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	92.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Future Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	832	214	238	213	306	614	461	2548	151	491	2136	922
RTOR Reduction (vph)	0	0	104	0	0	94	0	0	98	0	0	74
Lane Group Flow (vph)	832	214	134	213	306	520	461	2548	53	491	2136	848
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3			1			5
Actuated Green, G (s)	15.5	13.8	27.8	19.4	17.7	40.0	14.0	42.0	42.0	22.3	50.3	65.8
Effective Green, g (s)	15.5	13.8	27.8	19.4	17.7	40.0	14.0	42.0	42.0	22.3	50.3	65.8
Actuated g/C Ratio	0.13	0.12	0.23	0.16	0.15	0.33	0.12	0.35	0.35	0.19	0.42	0.55
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	443	584	419	555	522	527	400	1779	554	637	2131	868
v/s Ratio Prot	c0.24	0.04	0.04	0.06	0.09	c0.18	0.13	c0.50		0.14	c0.42	0.13
v/s Ratio Perm			0.05			0.15			0.03			0.41
v/c Ratio	1.88	0.37	0.32	0.38	0.59	0.99	1.15	1.43	0.10	0.77	1.00	0.98
Uniform Delay, d1	52.2	49.1	38.2	45.0	47.7	39.7	53.0	39.0	26.2	46.4	34.9	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.78	1.16	0.85	0.50	0.98
Incremental Delay, d2	403.7	0.4	0.4	0.4	1.7	35.4	85.5	196.6	0.2	0.8	6.4	5.1
Delay (s)	455.9	49.5	38.7	45.4	49.4	75.2	128.7	227.0	30.5	40.3	23.8	30.9
Level of Service	F	D	D	D	D	E	F	F	C	D	C	C
Approach Delay (s)		310.8			62.6			203.3			27.9	
Approach LOS		F			E			F			C	

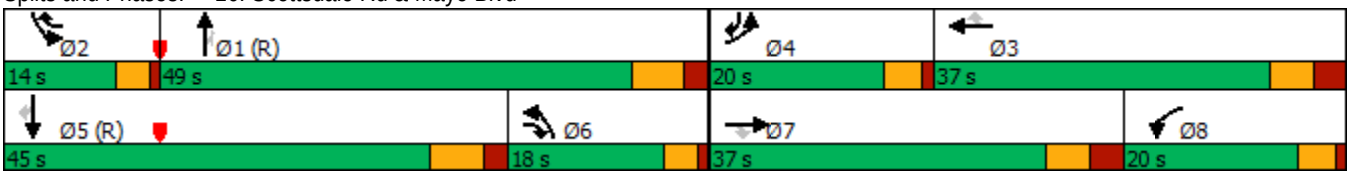
Intersection Summary			
HCM 2000 Control Delay	132.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

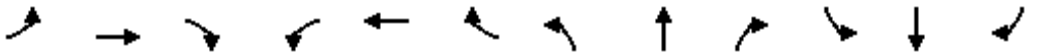
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	49	14	37	20	45	18	37	20
Maximum Split (%)	40.8%	11.7%	30.8%	16.7%	37.5%	15.0%	30.8%	16.7%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	56	42	5	105	42	87	105	22
End Time (s)	105	56	42	5	87	105	22	42
Yield/Force Off (s)	98	52	35	0.5	80	101	15	37.5
Yield/Force Off 170(s)	79	52	12	0.5	61	101	112	37.5
Local Start Time (s)	0	106	69	49	106	31	49	86
Local Yield (s)	42	116	99	64.5	24	45	79	101.5
Local Yield 170(s)	23	116	76	64.5	5	45	56	101.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 56 (47%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1	144	16	5	5	168	2691	8	10	2395	101
Future Volume (vph)	143	1	144	16	5	5	168	2691	8	10	2395	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.75	1.00	1.00	0.76	1.00	1.00	0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	1404	3539	1583	1410	3539	1583	99	5085	1583	99	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	1	160	18	6	6	187	2990	9	11	2661	112
RTOR Reduction (vph)	0	0	136	0	0	5	0	0	2	0	0	22
Lane Group Flow (vph)	159	1	24	18	6	1	187	2990	7	11	2661	90
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	18.2	18.2	18.2	18.2	18.2	18.2	87.0	87.0	87.0	76.6	76.6	76.6
Effective Green, g (s)	18.2	18.2	18.2	18.2	18.2	18.2	87.0	87.0	87.0	76.6	76.6	76.6
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.64	0.64	0.64
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	212	536	240	213	536	240	234	3686	1147	81	3245	1010
v/s Ratio Prot		0.00			0.00		0.08	c0.59		0.00	c0.52	
v/s Ratio Perm	c0.11		0.02	0.01		0.00	0.50		0.00	0.08		0.06
v/c Ratio	0.75	0.00	0.10	0.08	0.01	0.00	0.80	0.81	0.01	0.14	0.82	0.09
Uniform Delay, d1	48.7	43.2	43.9	43.7	43.3	43.2	36.2	11.0	4.6	24.4	16.5	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.67	0.50	1.00	0.25	0.51	0.03
Incremental Delay, d2	13.8	0.0	0.2	0.2	0.0	0.0	6.1	0.7	0.0	0.4	1.3	0.1
Delay (s)	62.6	43.2	44.0	43.9	43.3	43.2	66.8	6.2	4.6	6.5	9.6	0.3
Level of Service	E	D	D	D	D	D	E	A	A	A	A	A
Approach Delay (s)		53.2			43.6			9.7			9.2	
Approach LOS		D			D			A			A	

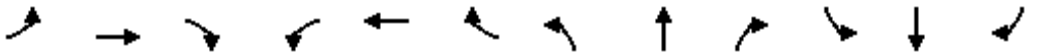
Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	11	81	28	18	74	28
Maximum Split (%)	9.2%	67.5%	23.3%	15.0%	61.7%	23.3%
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	103	22	114	22	40	114
End Time (s)	114	103	22	40	114	22
Yield/Force Off (s)	109.5	98.5	17.5	35.5	109.5	17.5
Yield/Force Off 170(s)	109.5	87.5	6.5	35.5	98.5	6.5
Local Start Time (s)	63	102	74	102	0	74
Local Yield (s)	69.5	58.5	97.5	115.5	69.5	97.5
Local Yield 170(s)	69.5	47.5	86.5	115.5	58.5	86.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 40 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 17: Scottsdale Rd & Chauncey Ln



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Future Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3036		1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.72	1.00		0.36	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1346	3036		668	3539	1583	120	5085	1583	120	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	17	313	472	50	394	324	2669	367	239	2503	89
RTOR Reduction (vph)	0	197	0	0	0	108	0	0	97	0	0	43
Lane Group Flow (vph)	70	133	0	472	50	286	324	2669	270	239	2503	46
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	4	3		4	3	2	2	1	4	2	1	
Permitted Phases	3			3		3	1		1	1		1
Actuated Green, G (s)	22.7	12.7		22.7	12.7	26.7	76.3	62.3	72.3	76.3	62.3	62.3
Effective Green, g (s)	22.7	12.7		22.7	12.7	26.7	76.3	62.3	72.3	76.3	62.3	62.3
Actuated g/C Ratio	0.19	0.11		0.19	0.11	0.22	0.64	0.52	0.60	0.64	0.52	0.52
Clearance Time (s)	4.0	7.0		4.0	7.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	289	321		218	374	352	268	2639	953	268	2639	821
v/s Ratio Prot	0.02	0.04		c0.18	0.01	0.09	c0.14	0.52	0.02	0.10	0.49	
v/s Ratio Perm	0.03			c0.23		0.09	c0.63		0.15	0.46		0.03
v/c Ratio	0.24	0.86dr		2.17	0.13	0.81	1.21	1.01	0.28	0.89	0.95	0.06
Uniform Delay, d1	41.1	50.2		46.7	48.7	44.3	47.7	28.9	11.4	48.7	27.3	14.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.86	0.36	0.55	1.24	0.65	1.08
Incremental Delay, d2	0.4	0.9		539.2	0.2	13.3	102.4	11.5	0.0	19.2	5.4	0.0
Delay (s)	41.5	51.1		585.9	48.8	57.6	143.5	21.8	6.3	79.8	23.3	15.5
Level of Service	D	D		F	D	E	F	C	A	E	C	B
Approach Delay (s)		49.4			329.3			31.8			27.8	
Approach LOS		D			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	67.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		

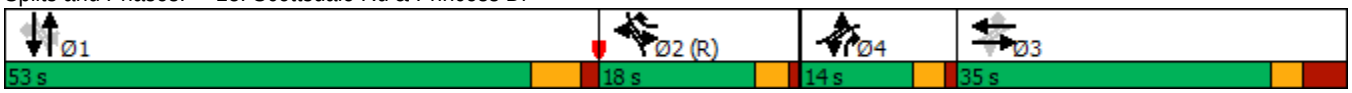
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

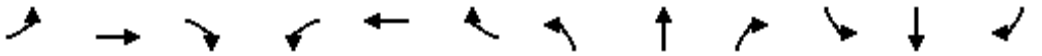
c Critical Lane Group

Phase Number	1	2	3	4
Movement	NBSB	NBSBL	EBWB	WBEBL
Lead/Lag	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None
Maximum Split (s)	53	18	35	14
Maximum Split (%)	44.2%	15.0%	29.2%	11.7%
Minimum Split (s)	23	8	35	8
Yellow Time (s)	4.4	3	2.9	3
All-Red Time (s)	1.6	1	4.1	1
Minimum Initial (s)	5	4	6	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7		7	
Flash Dont Walk (s)	10		21	
Dual Entry	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	118	51	83	69
End Time (s)	51	69	118	83
Yield/Force Off (s)	45	65	111	79
Yield/Force Off 170(s)	35	65	90	79
Local Start Time (s)	67	0	32	18
Local Yield (s)	114	14	60	28
Local Yield 170(s)	104	14	39	28

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 51 (43%), Referenced to phase 2:NBSBL and 6:, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Future Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.57		0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1372			1018		98	5085	1583	98	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	3	154	120	10	73	139	3214	33	72	3176	106
RTOR Reduction (vph)	0	53	0	0	17	0	0	0	12	0	0	29
Lane Group Flow (vph)	0	188	0	0	187	0	139	3214	21	72	3176	77
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		3			3		2	1		2	1	
Permitted Phases	3			3			1		1	1		1
Actuated Green, G (s)		21.0			21.0		82.0	76.0	76.0	82.0	76.0	76.0
Effective Green, g (s)		21.0			21.0		82.0	76.0	76.0	82.0	76.0	76.0
Actuated g/C Ratio		0.18			0.18		0.68	0.63	0.63	0.68	0.63	0.63
Clearance Time (s)		7.0			7.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		240			178		150	3220	1002	150	3220	1002
v/s Ratio Prot							c0.05	c0.63		0.02	0.62	
v/s Ratio Perm		0.14			c0.18		0.58		0.01	0.30		0.05
v/c Ratio		0.78			1.05		0.93	1.00	0.02	0.48	0.99	0.08
Uniform Delay, d1		47.3			49.5		37.6	21.9	8.2	28.7	21.5	8.5
Progression Factor		1.00			1.00		1.43	0.55	1.00	1.70	1.42	0.83
Incremental Delay, d2		15.3			80.6		10.4	4.4	0.0	1.0	2.6	0.0
Delay (s)		62.7			130.1		64.1	16.4	8.2	49.8	33.0	7.0
Level of Service		E			F		E	B	A	D	C	A
Approach Delay (s)		62.7			130.1			18.3			32.6	
Approach LOS		E			F			B			C	

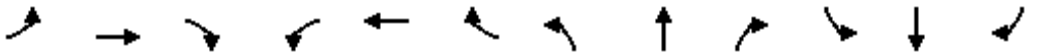
Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3
Movement	NBSB	NBSBL	EBWB
Lead/Lag	Lag	Lead	
Lead-Lag Optimize	Yes	Yes	
Recall Mode	C-Max	Max	None
Maximum Split (s)	82	10	28
Maximum Split (%)	68.3%	8.3%	23.3%
Minimum Split (s)	11	8	13
Yellow Time (s)	4.7	3	2.9
All-Red Time (s)	1.3	1	4.1
Minimum Initial (s)	5	4	6
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)			
Flash Dont Walk (s)			
Dual Entry	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes
Start Time (s)	51	41	13
End Time (s)	13	51	41
Yield/Force Off (s)	7	47	34
Yield/Force Off 170(s)	7	47	34
Local Start Time (s)	0	110	82
Local Yield (s)	76	116	103
Local Yield 170(s)	76	116	103

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 51 (43%), Referenced to phase 1:NBSB, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Future Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	486	847	270	289	1932	683	643	2307	358	573	2150	766
RTOR Reduction (vph)	0	0	70	0	0	100	0	0	73	0	0	78
Lane Group Flow (vph)	486	847	200	289	1932	583	643	2307	285	573	2150	688
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	10.0	30.6	42.6	14.4	35.0	47.0	12.0	41.0	55.4	12.0	41.0	51.0
Effective Green, g (s)	10.0	30.6	42.6	14.4	35.0	47.0	12.0	41.0	55.4	12.0	41.0	51.0
Actuated g/C Ratio	0.08	0.26	0.36	0.12	0.29	0.39	0.10	0.34	0.46	0.10	0.34	0.42
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	1296	561	411	1483	620	343	1737	730	343	1737	725
v/s Ratio Prot	c0.14	0.17	0.04	0.08	c0.38	0.09	c0.19	c0.45	0.05	c0.17	0.42	0.08
v/s Ratio Perm			0.09			0.27			0.13			0.36
v/c Ratio	1.70	0.65	0.36	0.70	1.30	0.94	1.87	1.33	0.39	1.67	1.24	0.95
Uniform Delay, d1	55.0	40.0	28.6	50.7	42.5	35.2	54.0	39.5	21.2	54.0	39.5	33.2
Progression Factor	1.00	1.00	1.00	0.92	0.59	0.56	1.00	1.00	1.00	0.71	1.12	1.37
Incremental Delay, d2	329.3	1.2	0.4	0.5	136.7	3.3	404.5	151.7	0.3	305.4	108.5	8.6
Delay (s)	384.3	41.2	29.0	47.2	161.8	22.9	458.5	191.2	21.6	343.6	152.9	54.3
Level of Service	F	D	C	D	F	C	F	F	C	F	F	D
Approach Delay (s)		143.1			117.7			224.8			162.6	
Approach LOS		F			F			F			F	

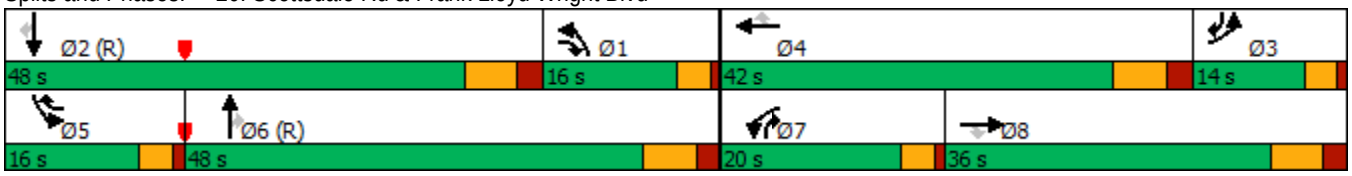
Intersection Summary			
HCM 2000 Control Delay	166.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		

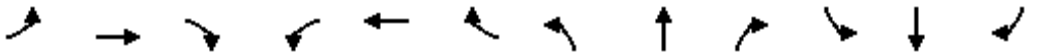
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	16	48	14	42	16	48	20	36
Maximum Split (%)	13.3%	40.0%	11.7%	35.0%	13.3%	40.0%	16.7%	30.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	72	24	10	88	24	40	88	108
End Time (s)	88	72	24	10	40	88	108	24
Yield/Force Off (s)	84	65	20	3	36	81	104	17
Yield/Force Off 170(s)	84	44	20	101	36	60	104	115
Local Start Time (s)	32	104	90	48	104	0	48	68
Local Yield (s)	44	25	100	83	116	41	64	97
Local Yield 170(s)	44	4	100	61	116	20	64	75

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 40 (33%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

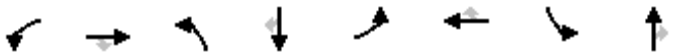




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Future Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	609	1467	114	452	2143	580	131	732	703	518	947	832
RTOR Reduction (vph)	0	0	78	0	0	116	0	0	165	0	0	194
Lane Group Flow (vph)	609	1467	36	452	2143	464	131	732	538	518	947	638
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	12.0	38.0	38.0	10.0	36.0	36.0	7.0	33.0	33.0	11.0	37.0	37.0
Effective Green, g (s)	12.0	38.0	38.0	10.0	36.0	36.0	7.0	33.0	33.0	11.0	37.0	37.0
Actuated g/C Ratio	0.10	0.32	0.32	0.08	0.30	0.30	0.06	0.28	0.28	0.09	0.31	0.31
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	1610	501	286	1525	474	103	973	435	314	1091	488
v/s Ratio Prot	c0.18	0.29		0.13	c0.42		0.07	0.21		c0.15	0.27	
v/s Ratio Perm			0.02			0.29			0.34			c0.40
v/c Ratio	1.78	0.91	0.07	1.58	1.41	0.98	1.27	0.75	1.24	1.65	0.87	1.31
Uniform Delay, d1	54.0	39.4	28.7	55.0	42.0	41.6	56.5	39.8	43.5	54.5	39.2	41.5
Progression Factor	0.94	0.55	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.86	0.79
Incremental Delay, d2	356.4	6.3	0.2	277.3	186.4	36.3	178.4	3.3	124.7	304.2	6.5	150.3
Delay (s)	407.1	27.9	14.6	332.3	228.4	78.0	234.9	43.1	168.2	358.4	40.0	183.2
Level of Service	F	C	B	F	F	E	F	D	F	F	D	F
Approach Delay (s)		132.6			215.7			115.3			163.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	166.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		

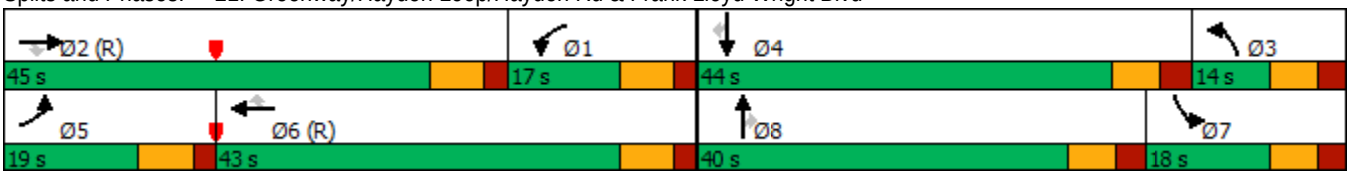
c Critical Lane Group

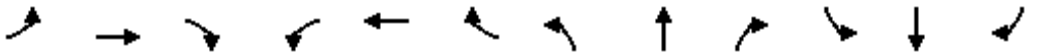


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	17	45	14	44	19	43	18	40
Maximum Split (%)	14.2%	37.5%	11.7%	36.7%	15.8%	35.8%	15.0%	33.3%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	75	30	16	92	30	49	12	92
End Time (s)	92	75	30	16	49	92	30	12
Yield/Force Off (s)	85	68	23	9	42	85	23	5
Yield/Force Off 170(s)	85	51	23	105	42	68	23	101
Local Start Time (s)	26	101	87	43	101	0	83	43
Local Yield (s)	36	19	94	80	113	36	94	76
Local Yield 170(s)	36	2	94	56	113	19	94	52

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 49 (41%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Future Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	741	706	159	116	452	446	264	1907	21	403	1236	403
RTOR Reduction (vph)	0	0	94	0	0	83	0	1	0	0	0	65
Lane Group Flow (vph)	741	706	65	116	452	363	264	1927	0	403	1236	338
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	25.0	28.7	48.7	11.3	15.0	29.0	20.0	44.0		14.0	38.0	63.0
Effective Green, g (s)	25.0	28.7	48.7	11.3	15.0	29.0	20.0	44.0		14.0	38.0	63.0
Actuated g/C Ratio	0.21	0.24	0.41	0.09	0.12	0.24	0.17	0.37		0.12	0.32	0.52
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	715	846	642	323	442	382	572	1861		400	1610	831
v/s Ratio Prot	c0.22	0.20	0.02	0.03	c0.13	0.11	0.08	c0.38		c0.12	0.24	0.08
v/s Ratio Perm			0.02			0.12						0.13
v/c Ratio	1.04	0.83	0.10	0.36	1.02	0.95	0.46	1.04		1.01	0.77	0.41
Uniform Delay, d1	47.5	43.4	22.1	51.0	52.5	44.8	45.1	38.0		53.0	37.0	17.2
Progression Factor	0.78	0.76	0.53	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	35.2	4.2	0.0	0.7	48.7	33.5	2.7	30.7		46.9	3.6	0.3
Delay (s)	72.5	37.1	11.8	51.6	101.2	78.3	47.8	68.7		99.9	40.6	17.5
Level of Service	E	D	B	D	F	E	D	E		F	D	B
Approach Delay (s)		50.9			85.4			66.2			47.7	
Approach LOS		D			F			E			D	

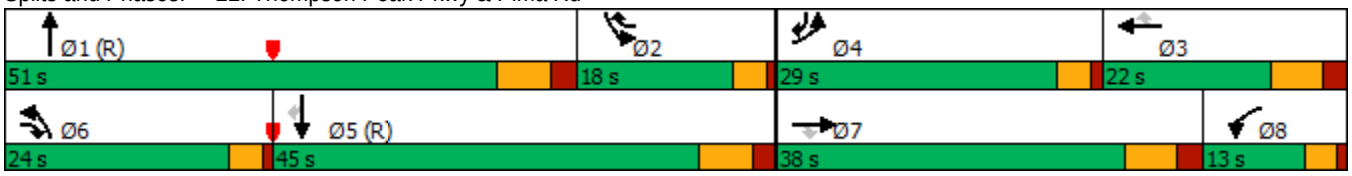
Intersection Summary			
HCM 2000 Control Delay	60.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

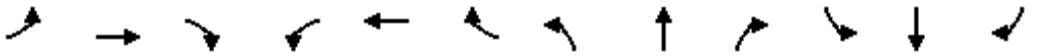
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	51	18	22	29	45	24	38	13
Maximum Split (%)	42.5%	15.0%	18.3%	24.2%	37.5%	20.0%	31.7%	10.8%
Minimum Split (s)	12	10	17	10	12	10	17	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								
Flash Dont Walk (s)								
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	22	73	0	91	46	22	91	9
End Time (s)	73	91	22	0	91	46	9	22
Yield/Force Off (s)	66	87	15	116	84	42	2	18
Yield/Force Off 170(s)	66	87	15	116	84	42	2	18
Local Start Time (s)	96	27	74	45	0	96	45	83
Local Yield (s)	20	41	89	70	38	116	76	92
Local Yield 170(s)	20	41	89	70	38	116	76	92

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 46 (38%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Thompson Peak Pkwy & Pima Rd





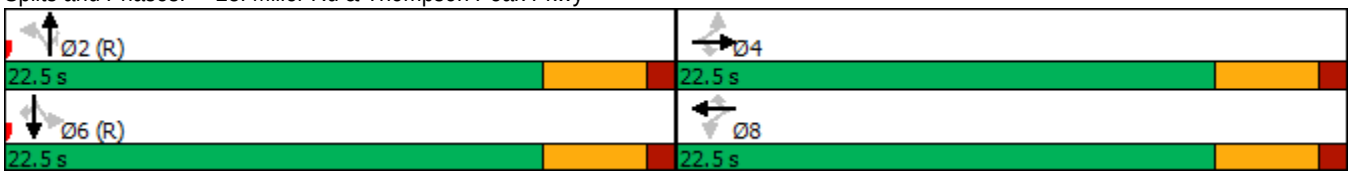
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	751	179	110	366	0	262	0	179	0	0	0
Future Volume (vph)	0	751	179	110	366	0	262	0	179	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)		3539	1583	1770	3539		1770		1583			
Flt Permitted		1.00	1.00	0.26	1.00		0.76		1.00			
Satd. Flow (perm)		3539	1583	482	3539		1410		1583			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	834	199	122	407	0	291	0	199	0	0	0
RTOR Reduction (vph)	0	0	119	0	0	0	0	0	40	0	0	0
Lane Group Flow (vph)	0	834	80	122	407	0	291	0	159	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Effective Green, g (s)		18.0	18.0	18.0	18.0		18.0		18.0			
Actuated g/C Ratio		0.40	0.40	0.40	0.40		0.40		0.40			
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5		4.5			
Lane Grp Cap (vph)		1415	633	192	1415		564		633			
v/s Ratio Prot		0.24			0.11							
v/s Ratio Perm			0.05	c0.25			c0.21		0.10			
v/c Ratio		0.59	0.13	0.64	0.29		0.52		0.25			
Uniform Delay, d1		10.6	8.5	10.9	9.2		10.2		9.0			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		1.8	0.4	15.0	0.5		3.4		0.9			
Delay (s)		12.4	8.9	25.8	9.7		13.6		10.0			
Level of Service		B	A	C	A		B		A			
Approach Delay (s)		11.7			13.4			12.1			0.0	
Approach LOS		B			B			B			A	

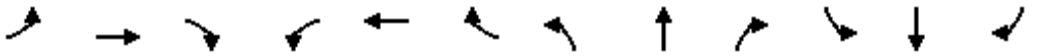
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	22.5	22.5	22.5	22.5
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	22.5	0	22.5
End Time (s)	22.5	0	22.5	0
Yield/Force Off (s)	18	40.5	18	40.5
Yield/Force Off 170(s)	7	29.5	7	29.5
Local Start Time (s)	0	22.5	0	22.5
Local Yield (s)	18	40.5	18	40.5
Local Yield 170(s)	7	29.5	7	29.5

Intersection Summary	
Cycle Length	45
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 23: Miller Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	501	235	141	478	75	350	317	209	116	211	70
Future Volume (vph)	70	501	235	141	478	75	350	317	209	116	211	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.43	1.00	1.00	0.28	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	792	3539	1583	529	3539	1583	3433	1863	1583	858	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	557	261	157	531	83	389	352	232	129	234	78
RTOR Reduction (vph)	0	0	134	0	0	51	0	0	99	0	0	57
Lane Group Flow (vph)	78	557	127	157	531	32	389	352	133	129	234	21
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases	4		4	8		8			2	6		6
Actuated Green, G (s)	44.4	39.2	58.2	55.5	45.8	45.8	19.0	41.4	53.2	41.6	32.0	32.0
Effective Green, g (s)	44.4	39.2	58.2	55.5	45.8	45.8	19.0	41.4	53.2	41.6	32.0	32.0
Actuated g/C Ratio	0.37	0.33	0.49	0.46	0.38	0.38	0.16	0.34	0.44	0.35	0.27	0.27
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	335	1156	827	366	1350	604	543	642	761	370	496	422
v/s Ratio Prot	0.01	c0.16	0.02	c0.04	0.15		c0.11	c0.19	0.02	0.03	0.13	
v/s Ratio Perm	0.08		0.06	0.16		0.02			0.07	0.09		0.01
v/c Ratio	0.23	0.48	0.15	0.43	0.39	0.05	0.72	0.55	0.18	0.35	0.47	0.05
Uniform Delay, d1	24.9	32.3	17.2	20.3	27.0	23.4	47.9	31.7	20.2	27.8	36.9	32.7
Progression Factor	0.77	0.86	4.42	0.95	0.73	1.83	0.92	0.93	1.22	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.3	0.1	0.8	0.8	0.2	4.3	3.2	0.1	0.6	3.2	0.2
Delay (s)	19.6	29.1	76.0	20.1	20.5	43.1	48.5	32.6	24.7	28.3	40.1	32.9
Level of Service	B	C	E	C	C	D	D	C	C	C	D	C
Approach Delay (s)		41.9			22.8			37.1			35.4	
Approach LOS		D			C			D			D	

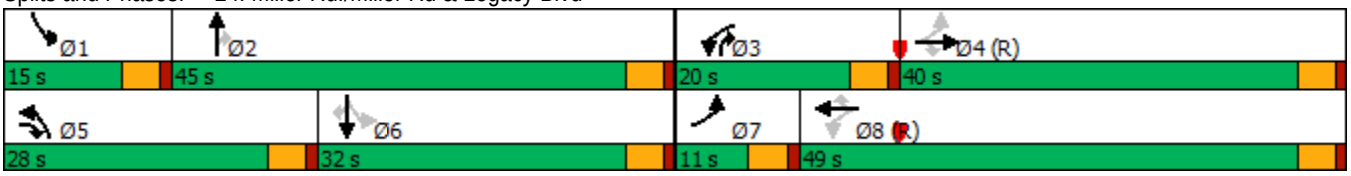
Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

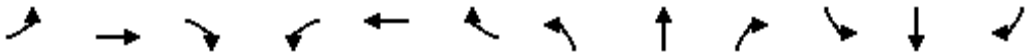
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	C-Max	None	Max	None	C-Max
Maximum Split (s)	15	45	20	40	28	32	11	49
Maximum Split (%)	12.5%	37.5%	16.7%	33.3%	23.3%	26.7%	9.2%	40.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
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)	90	105	30	50	90	118	30	41
End Time (s)	105	30	50	90	118	30	41	90
Yield/Force Off (s)	100.5	25.5	45.5	85.5	113.5	25.5	36.5	85.5
Yield/Force Off 170(s)	100.5	14.5	45.5	74.5	113.5	14.5	36.5	74.5
Local Start Time (s)	40	55	100	0	40	68	100	111
Local Yield (s)	50.5	95.5	115.5	35.5	63.5	95.5	106.5	35.5
Local Yield 170(s)	50.5	84.5	115.5	24.5	63.5	84.5	106.5	24.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	65
Offset: 50 (42%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 24: Miller Rd./Miller Rd & Legacy Blvd





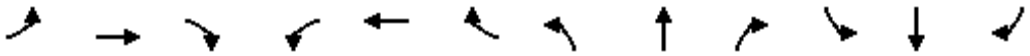
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	204	296	171	118	421	103	197	150	119	147	176	251
Future Volume (veh/h)	204	296	171	118	421	103	197	150	119	147	176	251
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	227	329	190	131	468	114	219	167	132	163	196	279
Approach Volume (veh/h)		746			713			518			638	
Crossing Volume (veh/h)		490			613			719			818	
High Capacity (veh/h)		941			853			783			722	
High v/c (veh/h)		0.79			0.84			0.66			0.88	
Low Capacity (veh/h)		761			683			622			569	
Low v/c (veh/h)		0.98			1.04			0.83			1.12	

Intersection Summary				
Maximum v/c High	0.88			
Maximum v/c Low	1.12			
Intersection Capacity Utilization	82.2%	ICU Level of Service	E	

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	713	518	638
Demand Flow Rate, veh/h	762	727	528	651
Vehicles Circulating, veh/h	500	625	734	834
Vehicles Exiting, veh/h	985	637	528	518
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.0	18.8	11.9	13.5
Approach LOS	B	C	B	B

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.745	0.255	0.840	0.160	0.744	0.256	0.562	0.438
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	568	194	611	116	393	135	366	285
Cap Entry Lane, veh/h	901	901	804	804	728	728	665	665
Entry HV Adj Factor	0.980	0.979	0.980	0.983	0.981	0.978	0.981	0.979
Flow Entry, veh/h	556	190	599	114	386	132	359	279
Cap Entry, veh/h	883	882	788	790	715	712	652	651
V/C Ratio	0.630	0.215	0.760	0.144	0.540	0.185	0.551	0.429
Control Delay, s/veh	13.9	6.3	21.3	6.0	13.5	7.1	14.8	11.8
LOS	B	A	C	A	B	A	B	B
95th %tile Queue, veh	5	1	7	1	3	1	3	2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	204	296	171	118	421	103	35	228	38	147	176	251
Future Volume (veh/h)	204	296	171	118	421	103	35	228	38	147	176	251
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	227	329	190	131	468	114	39	253	42	163	196	279
Approach Volume (veh/h)		746			713			334			638	
Crossing Volume (veh/h)		490			519			719			638	
High Capacity (veh/h)		941			919			783			836	
High v/c (veh/h)		0.79			0.78			0.43			0.76	
Low Capacity (veh/h)		761			742			622			668	
Low v/c (veh/h)		0.98			0.96			0.54			0.96	

Intersection Summary				
Maximum v/c High	0.79			
Maximum v/c Low	0.98			
Intersection Capacity Utilization	77.0%	ICU Level of Service	D	

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

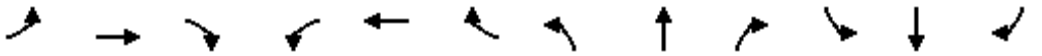
Approach	EB	WB	NB	SB
Entry Lanes	2	2	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	713	334	638
Demand Flow Rate, veh/h	762	727	341	651
Vehicles Circulating, veh/h	500	530	734	651
Vehicles Exiting, veh/h	802	545	528	606
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.0	14.9	9.9	10.2
Approach LOS	B	B	A	B

Lane	Left	Right	Left	Right	Left	Right	Left	Right
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized								
Lane Util	0.745	0.255	0.840	0.160	0.874	0.126	0.562	0.438
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544
Entry Flow, veh/h	568	194	611	116	298	43	366	285
Cap Entry Lane, veh/h	901	901	877	877	728	728	785	785
Entry HV Adj Factor	0.980	0.979	0.980	0.983	0.980	0.977	0.981	0.979
Flow Entry, veh/h	556	190	599	114	292	42	359	279
Cap Entry, veh/h	883	882	859	862	713	711	770	769
V/C Ratio	0.630	0.215	0.697	0.132	0.409	0.059	0.466	0.363
Control Delay, s/veh	13.9	6.3	16.7	5.5	10.5	5.7	11.0	9.1
LOS	B	A	C	A	B	A	B	A
95th %tile Queue, veh	5	1	6	0	2	0	2	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	27	0	0	30	0	72	13	15	402	11
Future Volume (Veh/h)	0	0	27	0	0	30	0	72	13	15	402	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	30	0	0	33	0	80	14	17	447	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								252			963	
pX, platoon unblocked												
vC, conflicting volume	594	575	447	591	573	80	459			94		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	594	575	447	591	573	80	459			94		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	95	100	100	97	100			99		
cM capacity (veh/h)	399	424	612	395	425	980	1102			1500		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	30	33	80	14	17	447	12
Volume Left	0	0	0	0	17	0	0
Volume Right	30	33	0	14	0	0	12
cSH	612	980	1700	1700	1500	1700	1700
Volume to Capacity	0.05	0.03	0.05	0.01	0.01	0.26	0.01
Queue Length 95th (ft)	4	3	0	0	1	0	0
Control Delay (s)	11.2	8.8	0.0	0.0	7.4	0.0	0.0
Lane LOS	B	A			A		
Approach Delay (s)	11.2	8.8	0.0		0.3		
Approach LOS	B	A					

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	31.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	48	130	157	65	130	0	138	48	82	58
Future Volume (vph)	26	64	48	130	157	65	130	0	138	48	82	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770		1583	1770	1863	1583
Flt Permitted	0.65	1.00	1.00	0.71	1.00	1.00	0.70		1.00	0.76	1.00	1.00
Satd. Flow (perm)	1206	1863	1583	1324	1863	1583	1300		1583	1410	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	71	53	144	174	72	144	0	153	53	91	64
RTOR Reduction (vph)	0	0	33	0	0	45	0	0	80	0	0	34
Lane Group Flow (vph)	29	71	20	144	174	27	144	0	73	53	91	30
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.5	22.5	22.5	22.5	22.5	22.5	28.5		28.5	28.5	28.5	28.5
Effective Green, g (s)	22.5	22.5	22.5	22.5	22.5	22.5	28.5		28.5	28.5	28.5	28.5
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38	0.38	0.48		0.48	0.48	0.48	0.48
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	698	593	496	698	593	617		751	669	884	751
v/s Ratio Prot		0.04			0.09						0.05	
v/s Ratio Perm	0.02		0.01	c0.11		0.02	c0.11		0.05	0.04		0.02
v/c Ratio	0.06	0.10	0.03	0.29	0.25	0.05	0.23		0.10	0.08	0.10	0.04
Uniform Delay, d1	12.0	12.2	11.9	13.2	12.9	11.9	9.3		8.7	8.6	8.7	8.4
Progression Factor	0.61	0.64	0.23	0.77	0.77	0.46	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.1	1.5	0.9	0.1	0.9		0.3	0.2	0.2	0.1
Delay (s)	7.6	8.1	2.8	11.6	10.8	5.7	10.2		8.9	8.8	8.9	8.5
Level of Service	A	A	A	B	B	A	B		A	A	A	A
Approach Delay (s)		6.2			10.1			9.5			8.8	
Approach LOS		A			B			A			A	

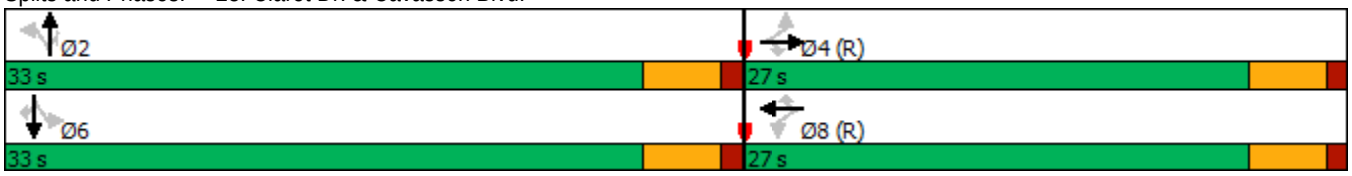
Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

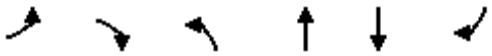
c Critical Lane Group

Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	C-Max	Max	C-Max
Maximum Split (s)	33	27	33	27
Maximum Split (%)	55.0%	45.0%	55.0%	45.0%
Minimum Split (s)	22.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	32	5	32	5
End Time (s)	5	32	5	32
Yield/Force Off (s)	0.5	27.5	0.5	27.5
Yield/Force Off 170(s)	49.5	16.5	49.5	16.5
Local Start Time (s)	27	0	27	0
Local Yield (s)	55.5	22.5	55.5	22.5
Local Yield 170(s)	44.5	11.5	44.5	11.5

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Coordinated
Natural Cycle	45
Offset: 5 (8%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	

Splits and Phases: 28: Claret Dr. & Cavasson Blvd.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	214	224	165	2717	1721	94
Future Volume (vph)	214	224	165	2717	1721	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	2787	3433	5085	5085	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	2787	3433	5085	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	249	183	3019	1912	104
RTOR Reduction (vph)	0	23	0	0	0	34
Lane Group Flow (vph)	238	226	183	3019	1912	70
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	13.6	26.1	12.5	97.4	80.4	80.4
Effective Green, g (s)	13.6	26.1	12.5	97.4	80.4	80.4
Actuated g/C Ratio	0.11	0.22	0.10	0.81	0.67	0.67
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	389	710	357	4127	3406	1060
v/s Ratio Prot	c0.07	0.03	0.05	c0.59	0.38	
v/s Ratio Perm		0.05				0.04
v/c Ratio	0.61	0.32	0.51	0.73	0.56	0.07
Uniform Delay, d1	50.7	39.5	50.9	5.2	10.5	6.8
Progression Factor	0.98	0.97	0.93	0.87	1.87	4.83
Incremental Delay, d2	2.8	0.3	0.1	0.1	0.5	0.1
Delay (s)	52.3	38.4	47.3	4.7	20.1	33.1
Level of Service	D	D	D	A	C	C
Approach Delay (s)	45.2			7.1	20.8	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	5	6
Movement	NBT	EBL	NBL	SBT
Lead/Lag			Lag	Lead
Lead-Lag Optimize			Yes	Yes
Recall Mode	C-Max	None	None	C-Max
Maximum Split (s)	97	23	17	80
Maximum Split (%)	80.8%	19.2%	14.2%	66.7%
Minimum Split (s)	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7		7
Flash Dont Walk (s)	11	11		11
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	15	112	95	15
End Time (s)	112	15	112	95
Yield/Force Off (s)	107.5	10.5	107.5	90.5
Yield/Force Off 170(s)	96.5	119.5	107.5	79.5
Local Start Time (s)	0	97	80	0
Local Yield (s)	92.5	115.5	92.5	75.5
Local Yield 170(s)	81.5	104.5	92.5	64.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 15 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green	

Splits and Phases: 29: Hayden Rd & Cavasson Blvd.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	139	206	617	52	86	447
Future Volume (vph)	139	206	617	52	86	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.31	1.00
Satd. Flow (perm)	1770	1583	3539	1583	573	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	154	229	686	58	96	497
RTOR Reduction (vph)	0	189	0	29	0	0
Lane Group Flow (vph)	154	40	686	29	96	497
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	10.5	10.5	30.4	30.4	40.5	40.5
Effective Green, g (s)	10.5	10.5	30.4	30.4	40.5	40.5
Actuated g/C Ratio	0.18	0.18	0.51	0.51	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	309	277	1793	802	498	2388
v/s Ratio Prot	c0.09		c0.19		0.02	c0.14
v/s Ratio Perm		0.03		0.02	0.11	
v/c Ratio	0.50	0.14	0.38	0.04	0.19	0.21
Uniform Delay, d1	22.4	20.9	9.1	7.4	3.9	3.7
Progression Factor	1.03	2.81	1.00	1.00	0.63	0.60
Incremental Delay, d2	1.3	0.2	0.6	0.1	0.2	0.2
Delay (s)	24.2	59.1	9.7	7.5	2.6	2.4
Level of Service	C	E	A	A	A	A
Approach Delay (s)	45.1		9.5			2.4
Approach LOS	D		A			A

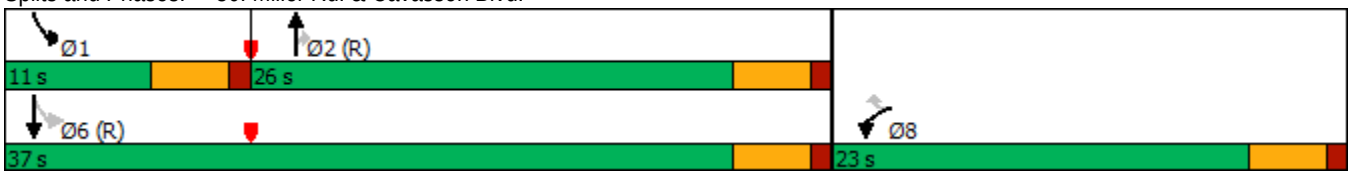
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	6	8
Movement	SBL	NBT	SBTL	WBL
Lead/Lag	Lead	Lag		
Lead-Lag Optimize	Yes	Yes		
Recall Mode	None	C-Max	C-Max	None
Maximum Split (s)	11	26	37	23
Maximum Split (%)	18.3%	43.3%	61.7%	38.3%
Minimum Split (s)	9.5	22.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	5	5	5	5
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)		7	7	7
Flash Dont Walk (s)		11	11	11
Dual Entry	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	35	46	35	12
End Time (s)	46	12	12	35
Yield/Force Off (s)	41.5	7.5	7.5	30.5
Yield/Force Off 170(s)	41.5	56.5	56.5	19.5
Local Start Time (s)	49	0	49	26
Local Yield (s)	55.5	21.5	21.5	44.5
Local Yield 170(s)	55.5	10.5	10.5	33.5

Intersection Summary	
Cycle Length	60
Control Type	Actuated-Coordinated
Natural Cycle	55
Offset: 46 (77%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 30: Miller Rd. & Cavasson Blvd.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	61	69	599	29	38	548
Future Volume (Veh/h)	61	69	599	29	38	548
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	68	77	666	32	42	609
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						440
pX, platoon unblocked	0.99					
vC, conflicting volume	1054	333			698	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1034	333			698	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	88			95	
cM capacity (veh/h)	215	663			894	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	68	77	333	333	32	42	304	304
Volume Left	68	0	0	0	0	42	0	0
Volume Right	0	77	0	0	32	0	0	0
cSH	215	663	1700	1700	1700	894	1700	1700
Volume to Capacity	0.32	0.12	0.20	0.20	0.02	0.05	0.18	0.18
Queue Length 95th (ft)	32	10	0	0	0	4	0	0
Control Delay (s)	29.3	11.1	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	D	B				A		
Approach Delay (s)	19.7		0.0			0.6		
Approach LOS	C							

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	99	778	45	53	534
Future Volume (Veh/h)	0	99	778	45	53	534
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	110	864	50	59	593
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			690			817
pX, platoon unblocked	0.91	0.91			0.91	
vC, conflicting volume	1304	457			914	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1133	202			705	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	85			93	
cM capacity (veh/h)	166	732			808	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	110	576	338	59	296	296
Volume Left	0	0	0	59	0	0
Volume Right	110	0	50	0	0	0
cSH	732	1700	1700	808	1700	1700
Volume to Capacity	0.15	0.34	0.20	0.07	0.17	0.17
Queue Length 95th (ft)	13	0	0	6	0	0
Control Delay (s)	10.8	0.0	0.0	9.8	0.0	0.0
Lane LOS	B			A		
Approach Delay (s)	10.8	0.0		0.9		
Approach LOS	B					

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	742	85	59	591	103	57
Future Volume (Veh/h)	742	85	59	591	103	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	824	94	66	657	114	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	807					
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			918		1284	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			674		1084	109
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		35	92
cM capacity (veh/h)			817		174	827

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	412	412	94	66	328	328	114	63
Volume Left	0	0	0	66	0	0	114	0
Volume Right	0	0	94	0	0	0	0	63
cSH	1700	1700	1700	817	1700	1700	174	827
Volume to Capacity	0.24	0.24	0.06	0.08	0.19	0.19	0.65	0.08
Queue Length 95th (ft)	0	0	0	7	0	0	95	6
Control Delay (s)	0.0	0.0	0.0	9.8	0.0	0.0	58.1	9.7
Lane LOS				A			F	A
Approach Delay (s)	0.0			0.9			40.9	
Approach LOS							E	

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	739	60	57	575	75	55
Future Volume (Veh/h)	739	60	57	575	75	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	821	67	63	639	83	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			888		1266	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			888		1266	410
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		44	90
cM capacity (veh/h)			758		147	590

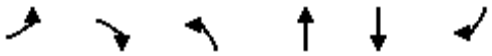
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	410	410	67	63	320	320	83	61
Volume Left	0	0	0	63	0	0	83	0
Volume Right	0	0	67	0	0	0	0	61
cSH	1700	1700	1700	758	1700	1700	147	590
Volume to Capacity	0.24	0.24	0.04	0.08	0.19	0.19	0.56	0.10
Queue Length 95th (ft)	0	0	0	7	0	0	71	9
Control Delay (s)	0.0	0.0	0.0	10.2	0.0	0.0	57.0	11.8
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.9			37.9	
Approach LOS							E	

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	751	43	63	570	62	62
Future Volume (Veh/h)	751	43	63	570	62	62
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	834	48	70	633	69	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				749		
pX, platoon unblocked						
vC, conflicting volume			882		1290	417
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			882		1290	417
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		51	88
cM capacity (veh/h)			762		141	585

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	417	417	48	70	316	316	69	69
Volume Left	0	0	0	70	0	0	69	0
Volume Right	0	0	48	0	0	0	0	69
cSH	1700	1700	1700	762	1700	1700	141	585
Volume to Capacity	0.25	0.25	0.03	0.09	0.19	0.19	0.49	0.12
Queue Length 95th (ft)	0	0	0	8	0	0	57	10
Control Delay (s)	0.0	0.0	0.0	10.2	0.0	0.0	52.9	12.0
Lane LOS				B			F	B
Approach Delay (s)	0.0			1.0			32.5	
Approach LOS							D	

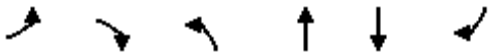
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	99	97	2835	1716	9
Future Volume (Veh/h)	0	99	97	2835	1716	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	110	108	3150	1907	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				580	796	
pX, platoon unblocked	0.74	0.83	0.83			
vC, conflicting volume	3173	636	1917			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1141	0	1389			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	88	73			
cM capacity (veh/h)	105	900	406			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	110	108	1050	1050	1050	636	636	636	10
Volume Left	0	108	0	0	0	0	0	0	0
Volume Right	110	0	0	0	0	0	0	0	10
cSH	900	406	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.12	0.27	0.62	0.62	0.62	0.37	0.37	0.37	0.01
Queue Length 95th (ft)	10	26	0	0	0	0	0	0	0
Control Delay (s)	9.6	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	C							
Approach Delay (s)	9.6	0.6				0.0			
Approach LOS	A								

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	116	44	2882	1897	48
Future Volume (Veh/h)	0	116	44	2882	1897	48
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	129	49	3202	2108	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				653	613	
pX, platoon unblocked	0.78	0.80	0.80			
vC, conflicting volume	3273	703	2161			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1205	0	1572			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	85			
cM capacity (veh/h)	118	866	332			

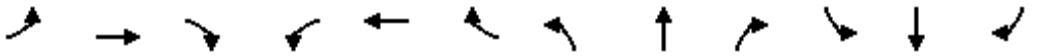
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	129	49	1067	1067	1067	703	703	703	53
Volume Left	0	49	0	0	0	0	0	0	0
Volume Right	129	0	0	0	0	0	0	0	53
cSH	866	332	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.15	0.15	0.63	0.63	0.63	0.41	0.41	0.41	0.03
Queue Length 95th (ft)	13	13	0	0	0	0	0	0	0
Control Delay (s)	9.9	17.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	C							
Approach Delay (s)	9.9	0.3				0.0			
Approach LOS	A								

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	0	88	148	0	104	33	37	32	55	192	25
Future Volume (Veh/h)	121	0	88	148	0	104	33	37	32	55	192	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	134	0	98	164	0	116	37	41	36	61	213	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)								653			562	
pX, platoon unblocked												
vC, conflicting volume	566	486	213	548	478	41	241			77		
vC1, stage 1 conf vol	335	335		115	115							
vC2, stage 2 conf vol	231	151		433	363							
vCu, unblocked vol	566	486	213	548	478	41	241			77		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	75	100	88	64	100	89	97			96		
cM capacity (veh/h)	526	566	827	457	541	1030	1326			1522		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	232	280	37	41	36	61	213	28
Volume Left	134	164	37	0	0	61	0	0
Volume Right	98	116	0	0	36	0	0	28
cSH	622	594	1326	1700	1700	1522	1700	1700
Volume to Capacity	0.37	0.47	0.03	0.02	0.02	0.04	0.13	0.02
Queue Length 95th (ft)	43	63	2	0	0	3	0	0
Control Delay (s)	14.2	16.3	7.8	0.0	0.0	7.5	0.0	0.0
Lane LOS	B	C	A			A		
Approach Delay (s)	14.2	16.3	2.5			1.5		
Approach LOS	B	C						

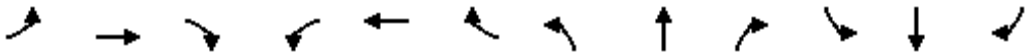
Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	41.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	186	53	52	131	75	150	0	190	62	0	70
Future Volume (Veh/h)	11	186	53	52	131	75	150	0	190	62	0	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	207	59	58	146	83	167	0	211	69	0	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		777			616							
pX, platoon unblocked												
vC, conflicting volume	229			266			571	576	207	704	552	146
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	229			266			571	576	207	704	552	146
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			56	100	75	73	100	91
cM capacity (veh/h)	1339			1298			378	405	833	252	418	901

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	12	207	59	58	146	83	237	141	69	78
Volume Left	12	0	0	58	0	0	167	0	69	0
Volume Right	0	0	59	0	0	83	70	141	0	78
cSH	1339	1700	1700	1298	1700	1700	451	833	252	901
Volume to Capacity	0.01	0.12	0.03	0.04	0.09	0.05	0.53	0.17	0.27	0.09
Queue Length 95th (ft)	1	0	0	4	0	0	75	15	27	7
Control Delay (s)	7.7	0.0	0.0	7.9	0.0	0.0	21.5	10.2	24.6	9.4
Lane LOS	A			A			C	B	C	A
Approach Delay (s)	0.3			1.6			17.3		16.5	
Approach LOS							C		C	

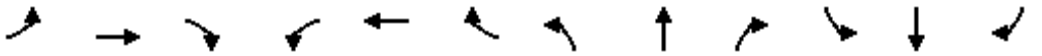
Intersection Summary				
Average Delay	8.7			
Intersection Capacity Utilization	35.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	20	0	0	15	0	253	8	0	251	9
Future Volume (Veh/h)	0	0	20	0	0	15	0	253	8	0	251	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	22	0	0	17	0	281	9	0	279	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								917			298	
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97					
vC, conflicting volume	586	574	284	592	574	286	289			290		
vC1, stage 1 conf vol	284	284		286	286							
vC2, stage 2 conf vol	302	290		306	289							
vCu, unblocked vol	554	541	240	559	541	286	245			290		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	100	100	98	100			100		
cM capacity (veh/h)	599	581	771	595	581	754	1275			1272		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	17	290	289
Volume Left	0	0	0	0
Volume Right	22	17	9	10
cSH	771	754	1700	1700
Volume to Capacity	0.03	0.02	0.17	0.17
Queue Length 95th (ft)	2	2	0	0
Control Delay (s)	9.8	9.9	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	9.8	9.9	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Future Volume (vph)	0	0	0	133	77	738	323	1245	0	0	1473	589
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	1.00	0.91			0.81	1.00
Frt				1.00	0.88	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1553	1504	1770	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1553	1504	1770	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	148	86	820	359	1383	0	0	1637	654
RTOR Reduction (vph)	0	0	0	0	133	314	0	0	0	0	0	312
Lane Group Flow (vph)	0	0	0	148	330	129	359	1383	0	0	1637	342
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				34.9	34.9	34.9	27.4	37.1			42.7	42.7
Effective Green, g (s)				34.9	34.9	34.9	27.4	37.1			42.7	42.7
Actuated g/C Ratio				0.29	0.29	0.29	0.23	0.31			0.36	0.36
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				998	451	437	404	1572			2684	563
v/s Ratio Prot					c0.21		0.20	c0.27			c0.22	
v/s Ratio Perm				0.04		0.09						0.22
v/c Ratio				0.15	0.73	0.29	0.89	0.88			0.61	0.61
Uniform Delay, d1				31.5	38.3	33.0	44.8	39.3			31.8	31.8
Progression Factor				1.00	1.00	1.00	0.40	0.31			0.94	2.38
Incremental Delay, d2				0.1	6.1	0.4	15.7	4.4			0.8	3.8
Delay (s)				31.6	44.4	33.4	33.5	16.6			30.7	79.5
Level of Service				C	D	C	C	B			C	E
Approach Delay (s)		0.0			38.0			20.1			44.7	
Approach LOS		A			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

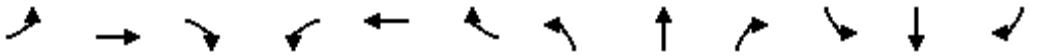
c Critical Lane Group

Phase Number	1	2	4	5	6	8
Node Number	6	5	6	5	5	5
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	C-Max	None
Maximum Split (s)	39	41	40	34.1	45.9	40
Maximum Split (%)	32.5%	34.2%	33.3%	28.4%	38.3%	33.3%
Minimum Split (s)	9.5	22.5	22.5	9.5	39	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	4.4	3.5
All-Red Time (s)	1	1	1	1	1.6	1
Minimum Initial (s)	5	5	5	5	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		26	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	6.9	85.9	45.9	85.9	0	45.9
End Time (s)	45.9	6.9	85.9	0	45.9	85.9
Yield/Force Off (s)	41.4	2.4	81.4	115.5	39.9	81.4
Yield/Force Off 170(s)	41.4	111.4	70.4	115.5	13.9	70.4
Local Start Time (s)	6.9	85.9	45.9	85.9	0	45.9
Local Yield (s)	41.4	2.4	81.4	115.5	39.9	81.4
Local Yield 170(s)	41.4	111.4	70.4	115.5	13.9	70.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90

Offset: 0 (0%), Referenced to phase 6:SBT, Start of Green, Master Intersection

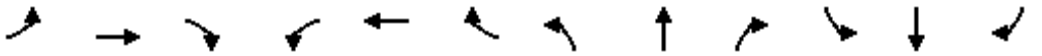
Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Future Volume (vph)	605	10	579	0	0	0	0	957	59	818	795	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.86	1.00	0.97	0.91	
Frt	1.00	0.93	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1533	1504					6408	1583	3433	5085	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1533	1504					6408	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	672	11	643	0	0	0	0	1063	66	909	883	0
RTOR Reduction (vph)	0	29	301	0	0	0	0	0	46	0	0	0
Lane Group Flow (vph)	457	416	123	0	0	0	0	1063	20	909	883	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	34.9	34.9	34.9					37.1	37.1	34.5	42.7	
Effective Green, g (s)	34.9	34.9	34.9					37.1	37.1	34.5	42.7	
Actuated g/C Ratio	0.29	0.29	0.29					0.31	0.31	0.29	0.36	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	488	445	437					1981	489	986	1809	
v/s Ratio Prot								c0.17		c0.26	0.17	
v/s Ratio Perm	c0.27	0.27	0.08						0.01			
v/c Ratio	0.94	0.93	0.28					0.54	0.04	0.92	0.49	
Uniform Delay, d1	41.5	41.4	32.9					34.3	29.0	41.4	30.1	
Progression Factor	0.52	0.47	0.11					0.66	0.26	0.24	0.22	
Incremental Delay, d2	14.9	15.7	0.2					0.3	0.0	11.7	0.8	
Delay (s)	36.6	35.3	3.7					22.7	7.6	21.7	7.4	
Level of Service	D	D	A					C	A	C	A	
Approach Delay (s)		25.6			0.0			21.9			14.7	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Future Volume (vph)	258	270	69	540	121	135	52	1223	539	185	2380	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	178	5085	1583	197	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	287	300	77	600	134	150	58	1359	599	206	2644	502
RTOR Reduction (vph)	0	0	67	0	0	87	0	0	75	0	0	127
Lane Group Flow (vph)	287	300	10	600	134	63	58	1359	524	206	2644	375
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	29.1	15.1	15.1	21.4	9.9	24.0	45.9	41.9	63.3	64.0	52.0	81.1
Effective Green, g (s)	29.1	15.1	15.1	21.4	9.9	24.0	45.9	41.9	63.3	64.0	52.0	81.1
Actuated g/C Ratio	0.24	0.13	0.13	0.18	0.08	0.20	0.38	0.35	0.53	0.53	0.43	0.68
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	832	445	199	612	291	422	121	1775	927	289	2203	1129
v/s Ratio Prot	0.08	c0.08		c0.17	0.04	0.02	0.02	0.27	0.10	c0.08	c0.52	0.08
v/s Ratio Perm			0.01			0.02	0.17		0.23	0.30		0.16
v/c Ratio	0.34	0.67	0.05	0.98	0.46	0.15	0.48	0.77	0.57	0.71	1.20	0.33
Uniform Delay, d1	37.6	50.1	46.1	49.1	52.5	39.6	53.9	34.7	19.1	36.3	34.0	8.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.21	0.60	0.25	0.80	0.83	0.52
Incremental Delay, d2	0.3	4.0	0.1	31.3	1.2	0.2	1.9	2.1	0.5	4.3	92.6	0.1
Delay (s)	37.8	54.1	46.2	80.4	53.7	39.7	67.0	22.9	5.3	33.5	120.8	4.3
Level of Service	D	D	D	F	D	D	E	C	A	C	F	A
Approach Delay (s)		46.2			69.4			18.9			98.0	
Approach LOS		D			E			B			F	

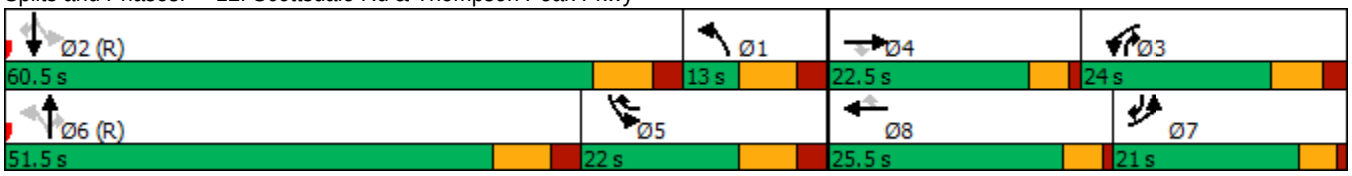
Intersection Summary			
HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

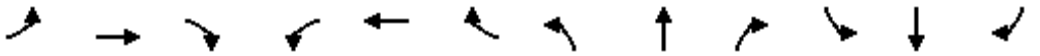
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	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)	13	60.5	24	22.5	22	51.5	21	25.5
Maximum Split (%)	10.8%	50.4%	20.0%	18.8%	18.3%	42.9%	17.5%	21.3%
Minimum Split (s)	13	40	13	22.5	13	40	9.5	22.5
Yellow Time (s)	5.3	5.3	4.6	3.5	5.3	5.3	3.5	3.5
All-Red Time (s)	2.7	2.7	2.4	1	2.7	2.7	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		25		11		25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	100.5	40	16	113.5	91.5	40	19	113.5
End Time (s)	113.5	100.5	40	16	113.5	91.5	40	19
Yield/Force Off (s)	105.5	92.5	33	11.5	105.5	83.5	35.5	14.5
Yield/Force Off 170(s)	105.5	67.5	33	0.5	105.5	58.5	35.5	3.5
Local Start Time (s)	60.5	0	96	73.5	51.5	0	99	73.5
Local Yield (s)	65.5	52.5	113	91.5	65.5	43.5	115.5	94.5
Local Yield 170(s)	65.5	27.5	113	80.5	65.5	18.5	115.5	83.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 40 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Future Volume (vph)	307	183	28	319	84	73	23	1749	435	116	2947	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	119	5085	1583	109	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	341	203	31	354	93	81	26	1943	483	129	3274	331
RTOR Reduction (vph)	0	0	28	0	0	74	0	0	127	0	0	66
Lane Group Flow (vph)	341	203	3	354	93	7	26	1943	356	129	3274	265
Turn Type	Prot	NA	Perm	Prot	NA	custom	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			3	6		6	2		2
Actuated Green, G (s)	12.3	12.2	12.2	10.0	12.4	10.0	66.6	62.7	62.7	78.0	68.4	68.4
Effective Green, g (s)	12.3	12.2	12.2	10.0	12.4	10.0	66.6	62.7	62.7	78.0	68.4	68.4
Actuated g/C Ratio	0.10	0.10	0.10	0.08	0.10	0.08	0.55	0.52	0.52	0.65	0.57	0.57
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	351	359	160	286	365	131	119	2656	827	203	2898	902
v/s Ratio Prot	0.10	c0.06		c0.10	0.03		0.01	0.38		c0.05	c0.64	
v/s Ratio Perm			0.00			0.00	0.11		0.22	0.36		0.17
v/c Ratio	0.97	0.57	0.02	1.24	0.25	0.05	0.22	0.73	0.43	0.64	1.13	0.29
Uniform Delay, d1	53.7	51.4	48.5	55.0	49.5	50.6	26.6	22.1	17.7	23.7	25.8	13.3
Progression Factor	1.00	1.00	1.00	1.16	1.03	21.20	0.90	0.31	0.07	1.51	0.22	0.08
Incremental Delay, d2	40.2	2.0	0.0	133.1	0.4	0.2	0.1	0.2	0.1	1.7	59.7	0.2
Delay (s)	93.9	53.4	48.6	196.6	51.2	1073.8	24.1	7.0	1.3	37.5	65.5	1.3
Level of Service	F	D	D	F	D	F	C	A	A	D	E	A
Approach Delay (s)		77.2			305.6			6.1			58.8	
Approach LOS		E			F			A			E	

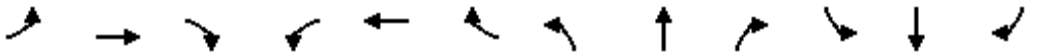
Intersection Summary			
HCM 2000 Control Delay	60.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	12	68.5	17	22.5	16	64.5	16.8	22.7
Maximum Split (%)	10.0%	57.1%	14.2%	18.8%	13.3%	53.8%	14.0%	18.9%
Minimum Split (s)	12	30	13	22.5	12	30	9.5	22.5
Yellow Time (s)	4.9	4.9	3	3.5	4.9	4.9	3.5	3.5
All-Red Time (s)	2.1	2.1	4	1	2.1	2.1	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		11		16		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	64	76	24.5	41.5	64	80	24.5	41.3
End Time (s)	76	24.5	41.5	64	80	24.5	41.3	64
Yield/Force Off (s)	69	17.5	34.5	59.5	73	17.5	36.8	59.5
Yield/Force Off 170(s)	69	1.5	34.5	48.5	73	1.5	36.8	48.5
Local Start Time (s)	104	116	64.5	81.5	104	0	64.5	81.3
Local Yield (s)	109	57.5	74.5	99.5	113	57.5	76.8	99.5
Local Yield 170(s)	109	41.5	74.5	88.5	113	41.5	76.8	88.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 80 (67%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Future Volume (vph)	0	0	0	737	85	601	437	1632	0	0	2459	820
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1568	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1568	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	819	94	668	486	1813	0	0	2732	911
RTOR Reduction (vph)	0	0	0	0	94	271	0	0	0	0	0	272
Lane Group Flow (vph)	0	0	0	819	294	103	486	1813	0	0	2732	639
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				33.0	33.0	33.0	17.0	35.0			53.0	53.0
Effective Green, g (s)				33.0	33.0	33.0	17.0	35.0			53.0	53.0
Actuated g/C Ratio				0.28	0.28	0.28	0.14	0.29			0.44	0.44
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				944	431	413	486	1483			3331	699
v/s Ratio Prot					0.19		0.14	c0.36			0.36	
v/s Ratio Perm				c0.24		0.07						c0.40
v/c Ratio				0.87	0.68	0.25	1.00	1.22			0.82	0.91
Uniform Delay, d1				41.4	38.8	33.9	51.5	42.5			29.3	31.4
Progression Factor				1.00	1.00	1.00	0.76	0.68			0.47	0.55
Incremental Delay, d2				8.5	4.4	0.3	31.2	103.9			0.2	2.3
Delay (s)				49.9	43.3	34.2	70.3	132.7			13.9	19.4
Level of Service				D	D	C	E	F			B	B
Approach Delay (s)		0.0			44.6			119.5			15.3	
Approach LOS		A			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

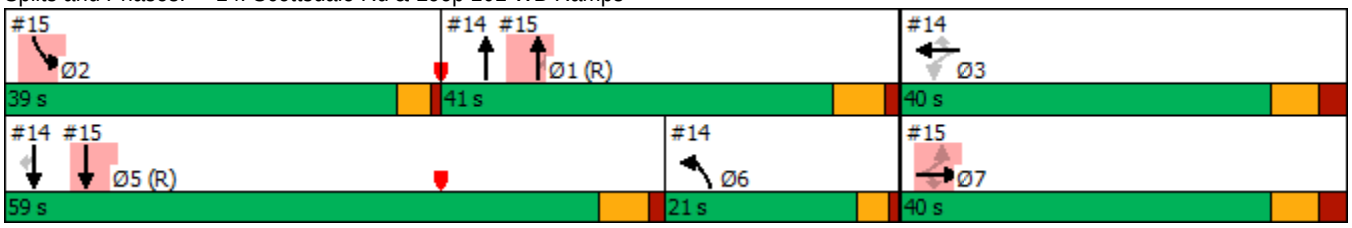
c Critical Lane Group

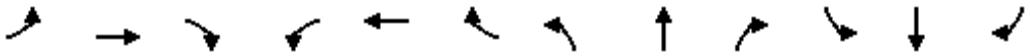
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lag	Lead		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	Max
Maximum Split (s)	41	39	40	59	21	40
Maximum Split (%)	34.2%	32.5%	33.3%	49.2%	17.5%	33.3%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	46	7	87	7	66	87
End Time (s)	87	46	7	66	87	7
Yield/Force Off (s)	81	42	0	60	83	0
Yield/Force Off 170(s)	81	42	0	60	83	0
Local Start Time (s)	0	81	41	81	20	41
Local Yield (s)	35	116	74	14	37	74
Local Yield 170(s)	35	116	74	14	37	74

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	120	

Offset: 46 (38%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

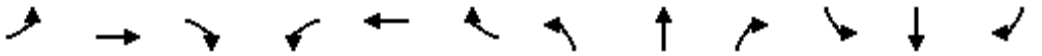




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Future Volume (vph)	887	3	872	0	0	0	0	1195	426	883	2351	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1506	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1506	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	986	3	969	0	0	0	0	1328	473	981	2612	0
RTOR Reduction (vph)	0	186	186	0	0	0	0	0	277	0	0	0
Lane Group Flow (vph)	986	302	298	0	0	0	0	1328	196	981	2612	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	33.0	33.0	33.0					35.0	35.0	35.0	53.0	
Effective Green, g (s)	33.0	33.0	33.0					35.0	35.0	35.0	53.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.29	0.29	0.29	0.44	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	944	414	413					2200	461	1001	2245	
v/s Ratio Prot		0.20						c0.18		0.29	c0.51	
v/s Ratio Perm	c0.29		0.20						0.12			
v/c Ratio	1.04	0.73	0.72					0.60	0.43	0.98	1.16	
Uniform Delay, d1	43.5	39.5	39.4					36.5	34.4	42.2	33.5	
Progression Factor	1.00	1.00	1.00					0.82	2.72	0.84	0.52	
Incremental Delay, d2	41.6	10.8	10.5					0.5	1.1	16.7	76.5	
Delay (s)	85.1	50.3	49.8					30.5	94.7	52.1	93.8	
Level of Service	F	D	D					C	F	D	F	
Approach Delay (s)		67.7			0.0			47.4			82.4	
Approach LOS		E			A			D			F	

Intersection Summary			
HCM 2000 Control Delay	69.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Future Volume (vph)	476	197	303	67	97	178	145	1027	97	348	2142	735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	529	219	337	74	108	198	161	1141	108	387	2380	817
RTOR Reduction (vph)	0	0	107	0	0	79	0	0	82	0	0	202
Lane Group Flow (vph)	529	219	230	74	108	119	161	1141	26	387	2380	615
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3			1			5
Actuated Green, G (s)	15.5	22.3	27.3	6.8	13.6	52.9	5.0	29.1	29.1	39.3	63.4	78.9
Effective Green, g (s)	15.5	22.3	27.3	6.8	13.6	52.9	5.0	29.1	29.1	39.3	63.4	78.9
Actuated g/C Ratio	0.13	0.19	0.23	0.06	0.11	0.44	0.04	0.24	0.24	0.33	0.53	0.66
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	443	944	360	194	401	697	143	1233	383	1124	2686	1040
v/s Ratio Prot	c0.15	0.04	c0.03	0.02	0.03	0.06	c0.05	c0.22		0.11	c0.47	0.08
v/s Ratio Perm			0.12			0.02			0.02			0.31
v/c Ratio	1.19	0.23	0.64	0.38	0.27	0.17	1.13	0.93	0.07	0.34	0.89	0.59
Uniform Delay, d1	52.2	41.6	41.9	54.6	48.7	20.3	57.5	44.4	35.0	30.6	25.1	11.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.67	0.36	0.76	1.19	4.52
Incremental Delay, d2	107.6	0.1	3.7	1.3	0.4	0.1	111.4	12.6	0.3	0.1	0.5	0.1
Delay (s)	159.9	41.7	45.6	55.8	49.0	20.4	151.4	42.4	12.9	23.4	30.5	52.2
Level of Service	F	D	D	E	D	C	F	D	B	C	C	D
Approach Delay (s)		100.5			35.4			52.6			34.6	
Approach LOS		F			D			D			C	

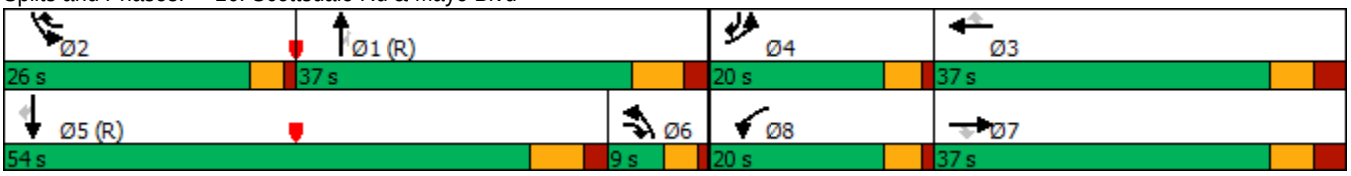
Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

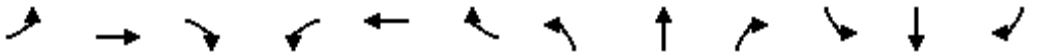
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	37	26	37	20	54	9	37	20
Maximum Split (%)	30.8%	21.7%	30.8%	16.7%	45.0%	7.5%	30.8%	16.7%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	103	77	40	20	77	11	40	20
End Time (s)	20	103	77	40	11	20	77	40
Yield/Force Off (s)	13	99	70	35.5	4	16	70	35.5
Yield/Force Off 170(s)	114	99	47	35.5	105	16	47	35.5
Local Start Time (s)	0	94	57	37	94	28	57	37
Local Yield (s)	30	116	87	52.5	21	33	87	52.5
Local Yield 170(s)	11	116	64	52.5	2	33	64	52.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 103 (86%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Future Volume (vph)	45	33	289	179	10	188	149	1126	373	271	2156	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.91	1.00	1.00	1.00	1.00	1.00	0.06	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	1693	3539	1583	3614	3539	1583	110	5085	1583	308	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	37	321	199	11	209	166	1251	414	301	2396	94
RTOR Reduction (vph)	0	0	113	0	0	67	0	0	130	0	0	41
Lane Group Flow (vph)	50	37	208	199	11	142	166	1251	284	301	2396	53
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	19.0	4.4	20.6	16.9	3.1	20.2	83.9	67.7	81.5	85.2	68.1	68.1
Effective Green, g (s)	19.0	4.4	20.6	16.9	3.1	20.2	83.9	67.7	81.5	85.2	68.1	68.1
Actuated g/C Ratio	0.16	0.04	0.17	0.14	0.03	0.17	0.70	0.56	0.68	0.71	0.57	0.57
Clearance Time (s)	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	129	271	488	91	266	301	2868	1075	427	2885	898
v/s Ratio Prot	0.02	0.01	c0.10	c0.05	0.00	0.08	0.07	0.25	0.03	0.10	c0.47	
v/s Ratio Perm	0.01		0.03	0.01		0.01	0.31		0.15	0.40		0.03
v/c Ratio	0.18	0.29	0.77	0.41	0.12	0.53	0.55	0.44	0.26	0.70	0.83	0.06
Uniform Delay, d1	43.8	56.3	47.4	45.9	57.1	45.6	28.5	15.1	7.5	10.0	21.2	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.66	0.39	1.12	2.07	0.64	1.12
Incremental Delay, d2	0.3	1.2	12.3	0.6	0.6	2.0	2.0	0.4	0.1	3.4	1.9	0.1
Delay (s)	44.1	57.5	59.8	46.4	57.7	47.6	49.3	6.3	8.6	24.0	15.5	13.1
Level of Service	D	E	E	D	E	D	D	A	A	C	B	B
Approach Delay (s)		57.6			47.3			10.7			16.4	
Approach LOS		E			D			B			B	

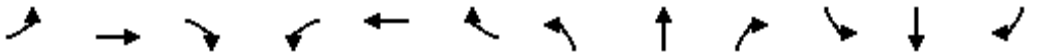
Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	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)	28.2	59.6	17.6	14.6	21.3	66.5	9.6	22.6
Maximum Split (%)	23.5%	49.7%	14.7%	12.2%	17.8%	55.4%	8.0%	18.8%
Minimum Split (s)	9.5	8	9.5	8	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3	3.5	3	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	5	4	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)						7		7
Flash Dont Walk (s)						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)	5.8	34	108.2	93.6	5.8	27.1	116.2	93.6
End Time (s)	34	93.6	5.8	108.2	27.1	93.6	5.8	116.2
Yield/Force Off (s)	29.5	89.6	1.3	104.2	22.6	89.1	1.3	111.7
Yield/Force Off 170(s)	29.5	89.6	1.3	104.2	22.6	78.1	1.3	100.7
Local Start Time (s)	91.8	0	74.2	59.6	91.8	113.1	82.2	59.6
Local Yield (s)	115.5	55.6	87.3	70.2	108.6	55.1	87.3	77.7
Local Yield 170(s)	115.5	55.6	87.3	70.2	108.6	44.1	87.3	66.7

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 34 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Future Volume (vph)	71	0	133	35	0	23	46	1558	13	48	2573	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.0	4.0	4.5	4.5	4.5
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1670			1711		1770	5085	1583	1770	5085	1583
Flt Permitted		0.87			0.56		0.05	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)		1476			986		93	5085	1583	177	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	0	148	39	0	26	51	1731	14	53	2859	31
RTOR Reduction (vph)	0	82	0	0	56	0	0	0	4	0	0	9
Lane Group Flow (vph)	0	145	0	0	9	0	51	1731	10	53	2859	22
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		16.8			16.8		84.6	84.6	84.6	85.3	85.3	85.3
Effective Green, g (s)		16.8			16.8		84.6	84.6	84.6	85.3	85.3	85.3
Actuated g/C Ratio		0.14			0.14		0.70	0.70	0.70	0.71	0.71	0.71
Clearance Time (s)		4.5			4.5		4.5	4.0	4.0	4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		206			138		127	3584	1116	200	3614	1125
v/s Ratio Prot							0.01	c0.34		0.01	c0.56	
v/s Ratio Perm		c0.10			0.01		0.27		0.01	0.18		0.01
v/c Ratio		0.71			0.07		0.40	0.48	0.01	0.27	0.79	0.02
Uniform Delay, d1		49.2			44.8		29.2	7.9	5.3	7.3	11.5	5.1
Progression Factor		1.00			1.00		0.41	0.35	1.00	0.33	0.48	0.00
Incremental Delay, d2		10.5			0.2		1.3	0.3	0.0	0.4	1.2	0.0
Delay (s)		54.7			45.0		13.3	3.0	5.3	2.8	6.7	0.0
Level of Service		D			D		B	A	A	A	A	A
Approach Delay (s)		54.7			45.0			3.3			6.5	
Approach LOS		D			D			A			A	

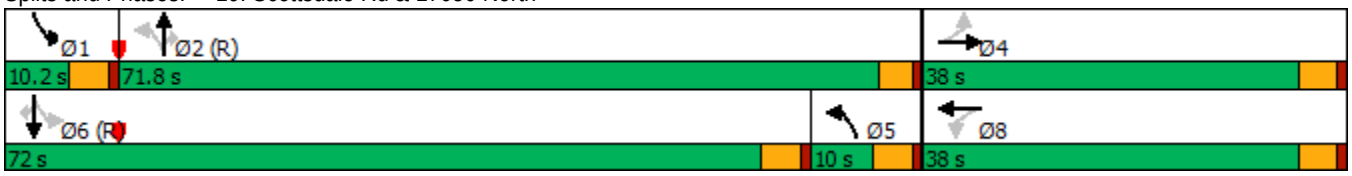
Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

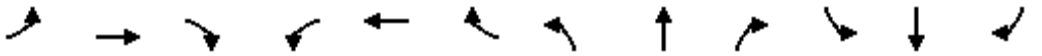
c Critical Lane Group

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	10.2	71.8	38	10	72	38
Maximum Split (%)	8.5%	59.8%	31.7%	8.3%	60.0%	31.7%
Minimum Split (s)	9.5	8	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	4	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			7		7	7
Flash Dont Walk (s)			11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	75.8	86	37.8	27.8	75.8	37.8
End Time (s)	86	37.8	75.8	37.8	27.8	75.8
Yield/Force Off (s)	81.5	33.8	71.3	33.3	23.3	71.3
Yield/Force Off 170(s)	81.5	33.8	60.3	33.3	12.3	60.3
Local Start Time (s)	109.8	0	71.8	61.8	109.8	71.8
Local Yield (s)	115.5	67.8	105.3	67.3	57.3	105.3
Local Yield 170(s)	115.5	67.8	94.3	67.3	46.3	94.3

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90
Offset: 86 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Future Volume (vph)	719	1750	466	277	556	279	99	743	213	453	1903	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	799	1944	518	308	618	310	110	826	237	503	2114	283
RTOR Reduction (vph)	0	0	84	0	0	91	0	0	111	0	0	44
Lane Group Flow (vph)	799	1944	434	308	618	219	110	826	126	503	2114	239
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	27.4	41.0	46.0	8.0	21.6	39.6	5.0	31.0	39.0	18.0	44.0	71.4
Effective Green, g (s)	27.4	41.0	46.0	8.0	21.6	39.6	5.0	31.0	39.0	18.0	44.0	71.4
Actuated g/C Ratio	0.23	0.34	0.38	0.07	0.18	0.33	0.04	0.26	0.32	0.15	0.37	0.60
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	783	1737	606	228	915	575	143	1313	514	514	1864	941
v/s Ratio Prot	0.23	c0.38	0.03	c0.09	0.12	0.06	0.03	c0.16	0.02	0.15	c0.42	0.06
v/s Ratio Perm			0.24			0.08			0.06			0.09
v/c Ratio	1.02	1.12	0.72	1.35	0.68	0.38	0.77	0.63	0.25	0.98	1.13	0.25
Uniform Delay, d1	46.3	39.5	31.5	56.0	45.9	30.8	56.9	39.4	29.7	50.8	38.0	11.6
Progression Factor	1.00	1.00	1.00	0.60	0.78	0.50	1.00	1.00	1.00	0.74	0.65	0.67
Incremental Delay, d2	37.4	62.0	4.0	171.9	1.0	0.2	21.7	2.3	0.3	25.9	65.1	0.1
Delay (s)	83.7	101.5	35.5	205.8	36.7	15.8	78.6	41.7	30.0	63.3	89.7	7.8
Level of Service	F	F	D	F	D	B	E	D	C	E	F	A
Approach Delay (s)		86.7			73.6			42.8			77.1	
Approach LOS		F			E			D			E	

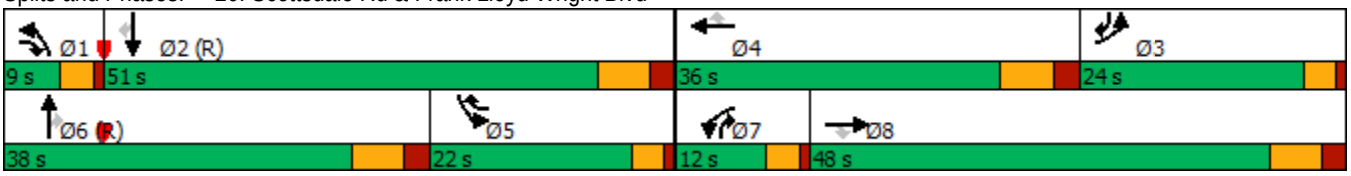
Intersection Summary			
HCM 2000 Control Delay	75.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

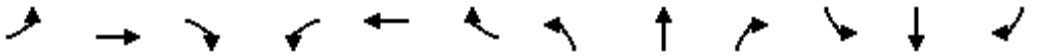
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	9	51	24	36	22	38	12	48
Maximum Split (%)	7.5%	42.5%	20.0%	30.0%	18.3%	31.7%	10.0%	40.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	102	111	78	42	20	102	42	54
End Time (s)	111	42	102	78	42	20	54	102
Yield/Force Off (s)	107	35	98	71	38	13	50	95
Yield/Force Off 170(s)	107	14	98	49	38	112	50	73
Local Start Time (s)	111	0	87	51	29	111	51	63
Local Yield (s)	116	44	107	80	47	22	59	104
Local Yield 170(s)	116	23	107	58	47	1	59	82

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 111 (93%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Future Volume (vph)	658	1464	88	643	1190	346	26	492	284	278	728	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	731	1627	98	714	1322	384	29	547	316	309	809	390
RTOR Reduction (vph)	0	0	73	0	0	170	0	0	174	0	0	202
Lane Group Flow (vph)	731	1627	25	714	1322	214	29	547	142	309	809	188
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	20.0	31.2	31.2	19.0	30.2	30.2	3.0	25.8	25.8	16.0	38.8	38.8
Effective Green, g (s)	20.0	31.2	31.2	19.0	30.2	30.2	3.0	25.8	25.8	16.0	38.8	38.8
Actuated g/C Ratio	0.17	0.26	0.26	0.16	0.25	0.25	0.02	0.22	0.22	0.13	0.32	0.32
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	572	1322	411	543	1279	398	44	760	340	457	1144	511
v/s Ratio Prot	c0.21	c0.32		0.21	0.26		0.02	c0.15		0.09	c0.23	
v/s Ratio Perm			0.02			0.14			0.09			0.12
v/c Ratio	1.28	1.23	0.06	1.31	1.03	0.54	0.66	0.72	0.42	0.68	0.71	0.37
Uniform Delay, d1	50.0	44.4	33.4	50.5	44.9	38.9	58.0	43.7	40.6	49.5	35.6	31.2
Progression Factor	0.95	0.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.86	0.84
Incremental Delay, d2	126.4	104.5	0.0	154.4	34.2	5.1	30.4	3.3	0.8	3.8	1.9	0.4
Delay (s)	174.1	123.1	33.4	204.9	79.1	44.0	88.4	47.0	41.4	47.7	32.5	26.5
Level of Service	F	F	C	F	E	D	F	D	D	D	C	C
Approach Delay (s)		134.7			110.7			46.4			34.1	
Approach LOS		F			F			D			C	

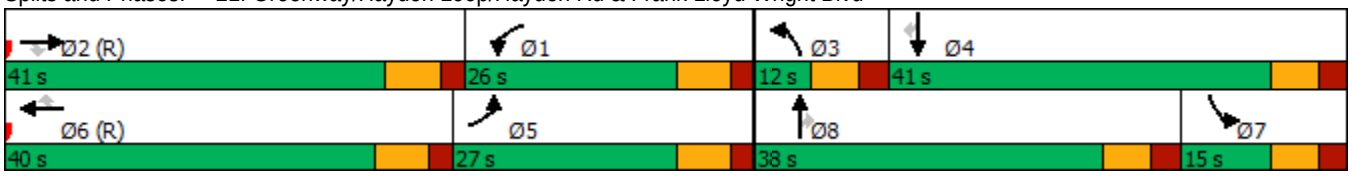
Intersection Summary			
HCM 2000 Control Delay	95.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

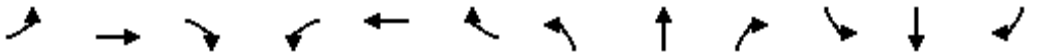
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	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)	26	41	12	41	27	40	15	38
Maximum Split (%)	21.7%	34.2%	10.0%	34.2%	22.5%	33.3%	12.5%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	15	94	41	53	14	94	79	41
End Time (s)	41	15	53	94	41	14	94	79
Yield/Force Off (s)	34	8	46	87	34	7	87	72
Yield/Force Off 170(s)	34	111	46	63	34	110	87	48
Local Start Time (s)	41	0	67	79	40	0	105	67
Local Yield (s)	60	34	72	113	60	33	113	98
Local Yield 170(s)	60	17	72	89	60	16	113	74

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 94 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Future Volume (vph)	267	466	138	118	438	316	133	1163	10	327	1407	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5079		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	297	518	153	131	487	351	148	1292	11	363	1563	494
RTOR Reduction (vph)	0	0	123	0	0	282	0	1	0	0	0	251
Lane Group Flow (vph)	297	518	30	131	487	69	148	1302	0	363	1563	243
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	7		8	3		6	1		2	5	
Permitted Phases			7			3						5
Actuated Green, G (s)	13.5	23.6	23.6	13.6	23.7	23.7	14.1	36.1		24.7	46.7	46.7
Effective Green, g (s)	13.5	23.6	23.6	13.6	23.7	23.7	14.1	36.1		24.7	46.7	46.7
Actuated g/C Ratio	0.11	0.20	0.20	0.11	0.20	0.20	0.12	0.30		0.21	0.39	0.39
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	386	696	311	389	698	312	403	1527		706	1978	616
v/s Ratio Prot	0.09	c0.15		0.04	c0.14		0.04	c0.26		0.11	c0.31	
v/s Ratio Perm			0.02			0.04						0.15
v/c Ratio	0.77	0.74	0.10	0.34	0.70	0.22	0.37	0.85		0.51	0.79	0.39
Uniform Delay, d1	51.7	45.4	39.5	49.0	44.8	40.4	48.8	39.5		42.3	32.3	26.4
Progression Factor	0.83	0.81	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.2	4.0	0.1	0.5	3.1	0.4	2.6	4.8		2.7	2.2	0.4
Delay (s)	51.3	40.8	39.2	49.6	47.9	40.8	51.4	44.3		45.0	34.6	26.9
Level of Service	D	D	D	D	D	D	D	D		D	C	C
Approach Delay (s)		43.8			45.5			45.0			34.6	
Approach LOS		D			D			D			C	

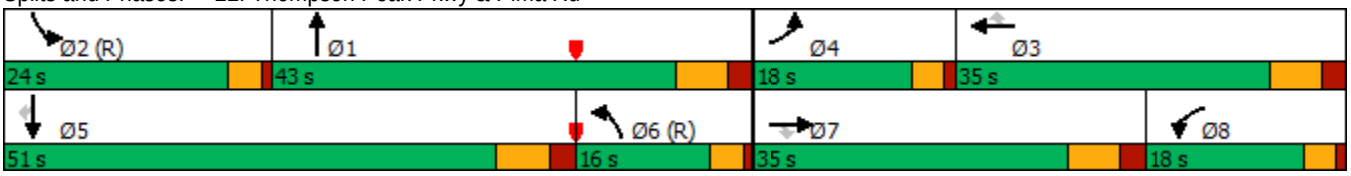
Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

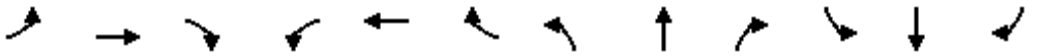
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	43	24	35	18	51	16	35	18
Maximum Split (%)	35.8%	20.0%	29.2%	15.0%	42.5%	13.3%	29.2%	15.0%
Minimum Split (s)	36	10	35	10	36	10	35	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	22		21		22		21	
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	76	52	17	119	52	103	119	34
End Time (s)	119	76	52	17	103	119	34	52
Yield/Force Off (s)	112	72	45	13	96	115	27	48
Yield/Force Off 170(s)	90	72	24	13	74	115	6	48
Local Start Time (s)	93	69	34	16	69	0	16	51
Local Yield (s)	9	89	62	30	113	12	44	65
Local Yield 170(s)	107	89	41	30	91	12	23	65

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	95
Offset: 103 (86%), Referenced to phase 2:SBL and 6:NBL, Start of Green	

Splits and Phases: 22: Thompson Peak Pkwy & Pima Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Future Volume (vph)	0	0	0	198	185	1072	896	1847	0	0	1730	508
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.89	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1580	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1580	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	220	206	1191	996	2052	0	0	1922	564
RTOR Reduction (vph)	0	0	0	0	75	311	0	0	0	0	0	188
Lane Group Flow (vph)	0	0	0	220	643	368	996	2052	0	0	1922	376
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				38.5	38.5	38.5	27.5	39.5			39.0	39.0
Effective Green, g (s)				38.5	38.5	38.5	27.5	39.5			39.0	39.0
Actuated g/C Ratio				0.32	0.32	0.32	0.23	0.33			0.32	0.32
Clearance Time (s)				4.5	4.5	4.5	4.5	4.5			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1101	506	482	786	1673			2451	514
v/s Ratio Prot					c0.41		c0.29	c0.40			0.25	
v/s Ratio Perm				0.06		0.24						0.24
v/c Ratio				0.20	1.27	0.76	1.27	1.23			0.78	0.73
Uniform Delay, d1				29.6	40.8	36.7	46.2	40.2			36.7	35.9
Progression Factor				1.00	1.00	1.00	1.27	0.83			0.71	0.49
Incremental Delay, d2				0.1	137.0	7.1	122.8	103.3			2.4	8.1
Delay (s)				29.7	177.7	43.7	181.5	136.9			28.4	25.8
Level of Service				C	F	D	F	F			C	C
Approach Delay (s)		0.0			101.3			151.5			27.8	
Approach LOS		A			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	97.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

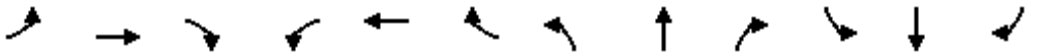
c Critical Lane Group

Phase Number	1	2	4	5	6	8
Node Number	6	5	6	5	5	5
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	33	44	43	32	45	43
Maximum Split (%)	27.5%	36.7%	35.8%	26.7%	37.5%	35.8%
Minimum Split (s)	9.5	22.5	22.5	9.5	39	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	4.4	3.5
All-Red Time (s)	1	1	1	1	1.6	1
Minimum Initial (s)	5	5	5	5	6	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7		7	7
Flash Dont Walk (s)		11	11		26	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	87	0	44	87	119	44
End Time (s)	0	44	87	119	44	87
Yield/Force Off (s)	115.5	39.5	82.5	114.5	38	82.5
Yield/Force Off 170(s)	115.5	28.5	71.5	114.5	12	71.5
Local Start Time (s)	87	0	44	87	119	44
Local Yield (s)	115.5	39.5	82.5	114.5	38	82.5
Local Yield 170(s)	115.5	28.5	71.5	114.5	12	71.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

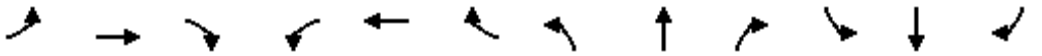
Splits and Phases: 5: Hayden Rd & Loop 101 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Future Volume (vph)	841	5	257	0	0	0	0	1946	213	937	1008	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Lane Util. Factor	0.95	0.91	0.95					0.86	1.00	0.97	0.91	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1605	1504					6408	1583	3433	5085	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1605	1504					6408	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	934	6	286	0	0	0	0	2162	237	1041	1120	0
RTOR Reduction (vph)	0	2	175	0	0	0	0	0	129	0	0	0
Lane Group Flow (vph)	486	481	82	0	0	0	0	2162	108	1041	1120	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	38.5	38.5	38.5					39.5	39.5	28.5	39.0	
Effective Green, g (s)	38.5	38.5	38.5					39.5	39.5	28.5	39.0	
Actuated g/C Ratio	0.32	0.32	0.32					0.33	0.33	0.24	0.32	
Clearance Time (s)	4.5	4.5	4.5					4.5	4.5	4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	539	514	482					2109	521	815	1652	
v/s Ratio Prot								c0.34		c0.30	0.22	
v/s Ratio Perm	0.29	0.30	0.05						0.07			
v/c Ratio	0.90	0.94	0.17					1.03	0.21	1.28	0.68	
Uniform Delay, d1	38.9	39.5	29.3					40.2	29.0	45.8	35.1	
Progression Factor	0.80	0.80	0.50					1.05	1.58	1.57	0.49	
Incremental Delay, d2	10.2	14.6	0.1					18.1	0.3	131.4	1.5	
Delay (s)	41.1	46.2	14.8					60.2	46.1	203.2	18.7	
Level of Service	D	D	B					E	D	F	B	
Approach Delay (s)		37.6			0.0			58.8			107.6	
Approach LOS		D			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	72.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Future Volume (vph)	533	233	91	669	343	266	150	2008	501	197	1430	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	155	5085	1583	152	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	259	101	743	381	296	167	2231	557	219	1589	407
RTOR Reduction (vph)	0	0	87	0	0	85	0	0	46	0	0	36
Lane Group Flow (vph)	592	259	14	743	381	211	167	2231	511	219	1589	371
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	20.5	17.0	17.0	18.0	17.0	26.5	56.5	48.0	66.0	58.5	49.0	69.5
Effective Green, g (s)	20.5	17.0	17.0	18.0	17.0	26.5	56.5	48.0	66.0	58.5	49.0	69.5
Actuated g/C Ratio	0.17	0.14	0.14	0.15	0.14	0.22	0.47	0.40	0.55	0.49	0.41	0.58
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	8.0	8.0	8.0	7.0	8.0	8.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	586	501	224	514	501	349	187	2034	870	202	2076	916
v/s Ratio Prot	0.17	0.07		c0.22	c0.11	0.05	0.06	0.44	0.09	c0.09	0.31	0.07
v/s Ratio Perm			0.01			0.09	0.36		0.23	c0.44		0.17
v/c Ratio	1.01	0.52	0.06	1.45	0.76	0.60	0.89	1.10	0.59	1.08	0.77	0.40
Uniform Delay, d1	49.8	47.7	44.6	51.0	49.5	42.0	25.8	36.0	17.9	34.3	30.6	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.56	1.61	1.54	1.22	1.06	0.80
Incremental Delay, d2	39.7	0.9	0.1	211.3	6.7	3.0	5.4	44.5	0.1	85.7	2.6	0.3
Delay (s)	89.5	48.6	44.7	262.3	56.2	45.0	45.7	102.3	27.7	127.4	35.0	11.3
Level of Service	F	D	D	F	E	D	D	F	C	F	D	B
Approach Delay (s)		73.6			161.7			85.1			39.8	
Approach LOS		E			F			F			D	

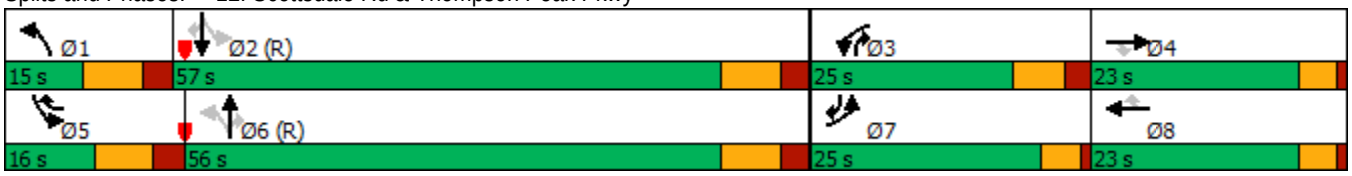
Intersection Summary			
HCM 2000 Control Delay	84.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.5
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

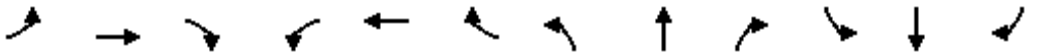
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	15	57	25	23	16	56	25	23
Maximum Split (%)	12.5%	47.5%	20.8%	19.2%	13.3%	46.7%	20.8%	19.2%
Minimum Split (s)	9	40	8	22.5	9	40	5.5	22.5
Yellow Time (s)	5.3	5.3	4.6	3.5	5.3	5.3	3.5	3.5
All-Red Time (s)	2.7	2.7	2.4	1	2.7	2.7	1	1
Minimum Initial (s)	1	1	1	1	1	1	1	1
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		25		11		25		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	104	119	56	81	104	0	56	81
End Time (s)	119	56	81	104	0	56	81	104
Yield/Force Off (s)	111	48	74	99.5	112	48	76.5	99.5
Yield/Force Off 170(s)	111	23	74	88.5	112	23	76.5	88.5
Local Start Time (s)	104	119	56	81	104	0	56	81
Local Yield (s)	111	48	74	99.5	112	48	76.5	99.5
Local Yield 170(s)	111	23	74	88.5	112	23	76.5	88.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 12: Scottsdale Rd & Thompson Peak Pkwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Future Volume (vph)	366	165	37	552	234	173	73	2512	431	111	2110	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	144	5085	1583	144	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	407	183	41	613	260	192	81	2791	479	123	2344	387
RTOR Reduction (vph)	0	0	37	0	0	113	0	0	79	0	0	57
Lane Group Flow (vph)	407	183	4	613	260	79	81	2791	400	123	2344	330
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8	5	1	6	3	5	2	7
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	17.1	12.3	12.3	17.0	14.7	24.1	55.8	55.8	72.8	61.2	61.2	78.3
Effective Green, g (s)	17.1	12.3	12.3	17.0	14.7	24.1	55.8	55.8	72.8	61.2	61.2	78.3
Actuated g/C Ratio	0.14	0.10	0.10	0.14	0.12	0.20	0.46	0.46	0.61	0.51	0.51	0.65
Clearance Time (s)	4.5	4.5	4.5	7.0	4.5	7.0	7.0	7.0	7.0	7.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	362	162	486	433	317	121	2364	1052	200	2593	1032
v/s Ratio Prot	0.12	0.05		c0.18	c0.07	0.02	0.02	c0.55	0.05	0.05	c0.46	0.05
v/s Ratio Perm			0.00			0.03	0.29		0.20	0.26		0.16
v/c Ratio	0.83	0.51	0.03	1.26	0.60	0.25	0.67	1.18	0.38	0.61	0.90	0.32
Uniform Delay, d1	50.1	51.0	48.5	51.5	49.9	40.3	45.8	32.1	12.1	25.7	26.7	9.2
Progression Factor	1.00	1.00	1.00	1.13	1.31	1.62	0.70	0.61	0.76	1.56	1.67	1.59
Incremental Delay, d2	11.5	1.1	0.1	132.3	2.2	0.4	1.3	81.7	0.0	3.1	3.4	0.1
Delay (s)	61.6	52.1	48.5	190.7	67.4	65.8	33.2	101.4	9.2	43.2	48.1	14.6
Level of Service	E	D	D	F	E	E	C	F	A	D	D	B
Approach Delay (s)		58.0			138.0			86.6			43.3	
Approach LOS		E			F			F			D	

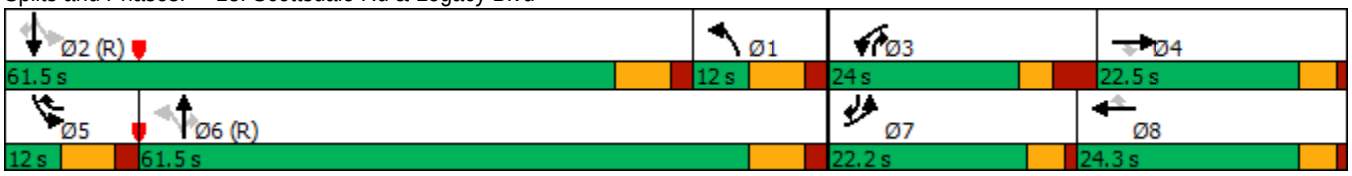
Intersection Summary			
HCM 2000 Control Delay	75.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

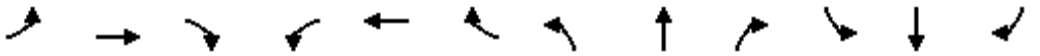
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBTL	WBL	EBT	SBL	NBTL	EBL	WBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	12	61.5	24	22.5	12	61.5	22.2	24.3
Maximum Split (%)	10.0%	51.3%	20.0%	18.8%	10.0%	51.3%	18.5%	20.3%
Minimum Split (s)	12	30	13	22.5	12	30	9.5	22.5
Yellow Time (s)	4.9	4.9	3	3.5	4.9	4.9	3.5	3.5
All-Red Time (s)	2.1	2.1	4	1	2.1	2.1	1	1
Minimum Initial (s)	5	5	6	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		16		11		16		11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	49.5	108	61.5	85.5	108	0	61.5	83.7
End Time (s)	61.5	49.5	85.5	108	0	61.5	83.7	108
Yield/Force Off (s)	54.5	42.5	78.5	103.5	113	54.5	79.2	103.5
Yield/Force Off 170(s)	54.5	26.5	78.5	92.5	113	38.5	79.2	92.5
Local Start Time (s)	49.5	108	61.5	85.5	108	0	61.5	83.7
Local Yield (s)	54.5	42.5	78.5	103.5	113	54.5	79.2	103.5
Local Yield 170(s)	54.5	26.5	78.5	92.5	113	38.5	79.2	92.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	

Splits and Phases: 13: Scottsdale Rd & Legacy Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Future Volume (vph)	0	0	0	942	287	698	1113	2337	0	0	1862	920
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Lane Util. Factor				0.97	0.95	0.95	0.97	0.91			0.81	1.00
Frt				1.00	0.93	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1651	1504	3433	5085			7544	1583
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1651	1504	3433	5085			7544	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1047	319	776	1237	2597	0	0	2069	1022
RTOR Reduction (vph)	0	0	0	0	24	349	0	0	0	0	0	45
Lane Group Flow (vph)	0	0	0	1047	551	171	1237	2597	0	0	2069	977
Turn Type				Perm	NA	Perm	Prot	NA			NA	Perm
Protected Phases					3		6	1			5	
Permitted Phases				3		3						5
Actuated Green, G (s)				26.0	26.0	26.0	28.0	42.0			49.0	49.0
Effective Green, g (s)				26.0	26.0	26.0	28.0	42.0			49.0	49.0
Actuated g/C Ratio				0.22	0.22	0.22	0.23	0.35			0.41	0.41
Clearance Time (s)				7.0	7.0	7.0	4.0	6.0			6.0	6.0
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				743	357	325	801	1779			3080	646
v/s Ratio Prot					c0.33		c0.36	0.51			0.27	
v/s Ratio Perm				0.30		0.11						c0.62
v/c Ratio				1.41	1.54	0.53	1.54	1.46			0.67	1.51
Uniform Delay, d1				47.0	47.0	41.5	46.0	39.0			28.9	35.5
Progression Factor				1.00	1.00	1.00	1.00	0.56			0.97	0.97
Incremental Delay, d2				192.1	257.8	1.5	245.5	207.2			0.4	233.7
Delay (s)				239.1	304.8	43.1	291.3	229.1			28.4	268.0
Level of Service				F	F	D	F	F			C	F
Approach Delay (s)		0.0			209.1			249.2			107.6	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	191.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

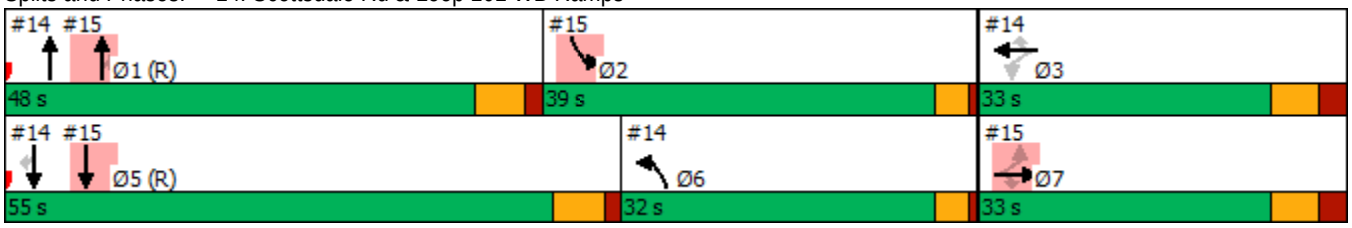
c Critical Lane Group

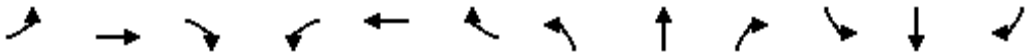
Phase Number	1	2	3	5	6	7
Node Number	14	15	14	14	14	15
Movement	NBT	SBL	WBTL	SBT	NBL	EBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	C-Max	Max	None	C-Max	Max	None
Maximum Split (s)	48	39	33	55	32	33
Maximum Split (%)	40.0%	32.5%	27.5%	45.8%	26.7%	27.5%
Minimum Split (s)	16	9	14	16	9	14
Yellow Time (s)	4.5	3	4.3	4.5	3	4.3
All-Red Time (s)	1.5	1	2.7	1.5	1	2.7
Minimum Initial (s)	10	5	7	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						
Flash Dont Walk (s)						
Dual Entry	Yes	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	67	115	34	67	2	34
End Time (s)	115	34	67	2	34	67
Yield/Force Off (s)	109	30	60	116	30	60
Yield/Force Off 170(s)	109	30	60	116	30	60
Local Start Time (s)	0	48	87	0	55	87
Local Yield (s)	42	83	113	49	83	113
Local Yield 170(s)	42	83	113	49	83	113

Intersection Summary		
Cycle Length	120	
Control Type	Actuated-Coordinated	
Natural Cycle	150	

Offset: 67 (56%), Referenced to phase 1:NBT and 5:SBT, Start of Green

Splits and Phases: 14: Scottsdale Rd & Loop 101 WB Ramps

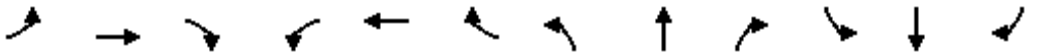




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Future Volume (vph)	689	0	961	0	0	0	0	2776	783	656	2252	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Lane Util. Factor	0.97	0.95	0.95					0.81	1.00	0.97	0.91	
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1504	1504					7544	1583	3433	5085	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1504	1504					7544	1583	3433	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	766	0	1068	0	0	0	0	3084	870	729	2502	0
RTOR Reduction (vph)	0	337	337	0	0	0	0	0	348	0	0	0
Lane Group Flow (vph)	766	197	197	0	0	0	0	3084	522	729	2502	0
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		7						1		2	5	
Permitted Phases	7		7						1			
Actuated Green, G (s)	26.0	26.0	26.0					42.0	42.0	35.0	49.0	
Effective Green, g (s)	26.0	26.0	26.0					42.0	42.0	35.0	49.0	
Actuated g/C Ratio	0.22	0.22	0.22					0.35	0.35	0.29	0.41	
Clearance Time (s)	7.0	7.0	7.0					6.0	6.0	4.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	743	325	325					2640	554	1001	2076	
v/s Ratio Prot		0.13						0.41		c0.21	c0.49	
v/s Ratio Perm	c0.22		0.13						0.33			
v/c Ratio	1.03	0.61	0.61					1.17	0.94	0.73	1.21	
Uniform Delay, d1	47.0	42.4	42.4					39.0	37.8	38.2	35.5	
Progression Factor	1.00	1.00	1.00					0.56	0.92	1.16	0.52	
Incremental Delay, d2	41.2	3.2	3.2					76.1	4.1	2.1	94.5	
Delay (s)	88.2	45.6	45.6					97.9	39.1	46.5	112.9	
Level of Service	F	D	D					F	D	D	F	
Approach Delay (s)		63.4			0.0			84.9			97.9	
Approach LOS		E			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	85.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Future Volume (vph)	749	193	214	192	275	553	415	2293	136	442	1922	830
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	832	214	238	213	306	614	461	2548	151	491	2136	922
RTOR Reduction (vph)	0	0	104	0	0	94	0	0	98	0	0	74
Lane Group Flow (vph)	832	214	134	213	306	520	461	2548	53	491	2136	848
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3			1			5
Actuated Green, G (s)	15.5	13.8	27.8	19.4	17.7	40.0	14.0	42.0	42.0	22.3	50.3	65.8
Effective Green, g (s)	15.5	13.8	27.8	19.4	17.7	40.0	14.0	42.0	42.0	22.3	50.3	65.8
Actuated g/C Ratio	0.13	0.12	0.23	0.16	0.15	0.33	0.12	0.35	0.35	0.19	0.42	0.55
Clearance Time (s)	4.5	7.0	4.0	4.5	7.0	4.0	4.0	7.0	7.0	4.0	7.0	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	443	584	419	555	522	527	400	1779	554	637	2131	868
v/s Ratio Prot	c0.24	0.04	0.04	0.06	0.09	c0.18	0.13	c0.50		0.14	c0.42	0.13
v/s Ratio Perm			0.05			0.15			0.03			0.41
v/c Ratio	1.88	0.37	0.32	0.38	0.59	0.99	1.15	1.43	0.10	0.77	1.00	0.98
Uniform Delay, d1	52.2	49.1	38.2	45.0	47.7	39.7	53.0	39.0	26.2	46.4	34.9	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.76	0.95	0.53	0.98	1.99
Incremental Delay, d2	403.7	0.4	0.4	0.4	1.7	35.4	85.5	196.6	0.2	0.8	6.4	5.1
Delay (s)	455.9	49.5	38.7	45.4	49.4	75.2	128.1	226.2	25.2	25.3	40.6	57.6
Level of Service	F	D	D	D	D	E	F	F	C	C	D	E
Approach Delay (s)		310.8			62.6			202.3			42.9	
Approach LOS		F			E			F			D	

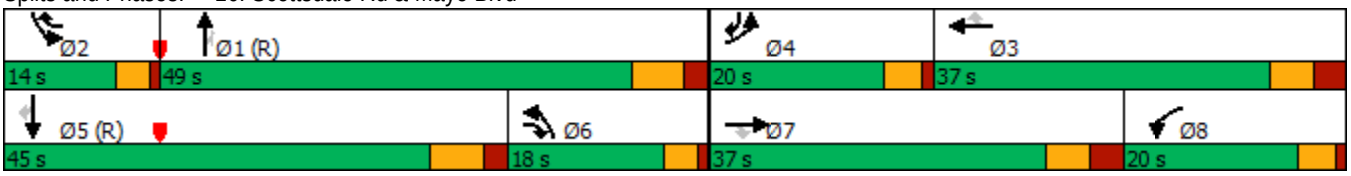
Intersection Summary			
HCM 2000 Control Delay	138.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

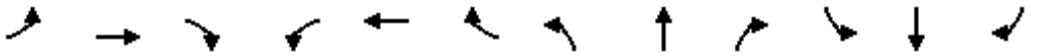
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	49	14	37	20	45	18	37	20
Maximum Split (%)	40.8%	11.7%	30.8%	16.7%	37.5%	15.0%	30.8%	16.7%
Minimum Split (s)	33	9	37	9.5	33	9	37	9.5
Yellow Time (s)	4.8	3	3.9	3.5	4.8	3	3.9	3.5
All-Red Time (s)	2.2	1	3.1	1	2.2	1	3.1	1
Minimum Initial (s)	5	5	4	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)	7		7		7		7	
Flash Dont Walk (s)	19		23		19		23	
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	24	10	93	73	10	55	73	110
End Time (s)	73	24	10	93	55	73	110	10
Yield/Force Off (s)	66	20	3	88.5	48	69	103	5.5
Yield/Force Off 170(s)	47	20	100	88.5	29	69	80	5.5
Local Start Time (s)	0	106	69	49	106	31	49	86
Local Yield (s)	42	116	99	64.5	24	45	79	101.5
Local Yield 170(s)	23	116	76	64.5	5	45	56	101.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 24 (20%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 16: Scottsdale Rd & Mayo Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Future Volume (vph)	63	15	282	425	45	355	292	2402	330	215	2253	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	1.00	1.00	1.00	0.65	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1863	3539	1583	2331	3539	1583	151	5085	1583	152	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	17	313	472	50	394	324	2669	367	239	2503	89
RTOR Reduction (vph)	0	0	113	0	0	71	0	0	78	0	0	41
Lane Group Flow (vph)	70	17	200	472	50	323	324	2669	289	239	2503	48
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	6.2	2.2	20.5	23.9	15.4	30.7	67.8	67.8	85.5	64.3	64.3	64.3
Effective Green, g (s)	6.2	2.2	20.5	23.9	15.4	30.7	67.8	67.8	85.5	64.3	64.3	64.3
Actuated g/C Ratio	0.05	0.02	0.17	0.20	0.13	0.26	0.56	0.56	0.71	0.54	0.54	0.54
Clearance Time (s)	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	93	64	270	626	454	464	332	2873	1127	287	2724	848
v/s Ratio Prot	0.03	0.00	0.11	c0.11	0.01	c0.09	0.15	c0.52	0.04	0.11	c0.49	
v/s Ratio Perm	0.01		0.01	0.04		0.12	c0.40		0.14	0.34		0.03
v/c Ratio	0.75	0.27	0.74	0.75	0.11	0.70	0.98	0.93	0.26	0.83	0.92	0.06
Uniform Delay, d1	56.0	58.1	47.2	44.6	46.2	40.4	42.2	23.9	6.1	34.2	25.5	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.57	0.26	0.25	1.53	0.24	0.15
Incremental Delay, d2	28.6	2.2	10.5	5.1	0.1	4.5	21.7	2.4	0.0	11.6	4.0	0.1
Delay (s)	84.6	60.3	57.7	49.8	46.3	45.0	45.8	8.7	1.5	64.0	10.2	2.1
Level of Service	F	E	E	D	D	D	D	A	A	E	B	A
Approach Delay (s)		62.5			47.5			11.5			14.5	
Approach LOS		E			D			B			B	

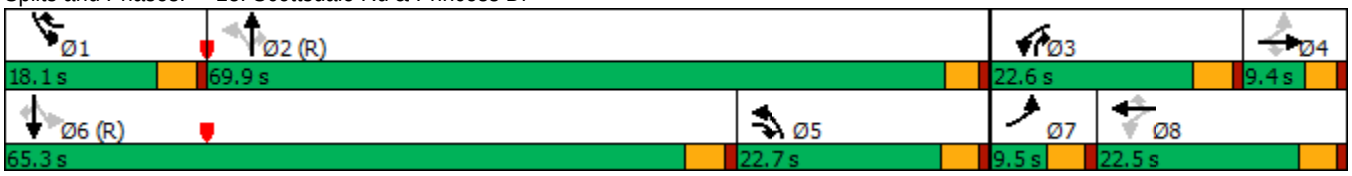
Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

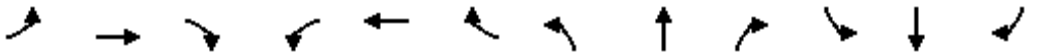
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	18.1	69.9	22.6	9.4	22.7	65.3	9.5	22.5
Maximum Split (%)	15.1%	58.3%	18.8%	7.8%	18.9%	54.4%	7.9%	18.8%
Minimum Split (s)	9.5	8	9.5	8	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3	3.5	3	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	4	5	4	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)						7		7
Flash Dont Walk (s)						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)	49.9	68	17.9	40.5	115.2	49.9	17.9	27.4
End Time (s)	68	17.9	40.5	49.9	17.9	115.2	27.4	49.9
Yield/Force Off (s)	63.5	13.9	36	45.9	13.4	110.7	22.9	45.4
Yield/Force Off 170(s)	63.5	13.9	36	45.9	13.4	99.7	22.9	34.4
Local Start Time (s)	101.9	0	69.9	92.5	47.2	101.9	69.9	79.4
Local Yield (s)	115.5	65.9	88	97.9	65.4	42.7	74.9	97.4
Local Yield 170(s)	115.5	65.9	88	97.9	65.4	31.7	74.9	86.4

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 68 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 18: Scottsdale Rd & Princess Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Future Volume (vph)	76	3	139	108	9	66	125	2893	30	65	2858	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.0	4.0	4.5	4.5	4.5
Lane Util. Factor		1.00			1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.91			0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.97		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1673			1721		1770	5085	1583	1770	5085	1583
Flt Permitted		0.81			0.57		0.05	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)		1373			1012		97	5085	1583	101	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	3	154	120	10	73	139	3214	33	72	3176	106
RTOR Reduction (vph)	0	65	0	0	21	0	0	0	12	0	0	22
Lane Group Flow (vph)	0	176	0	0	182	0	139	3214	21	72	3176	84
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)		24.3			24.3		85.0	76.7	76.7	79.9	73.9	73.9
Effective Green, g (s)		24.3			24.3		85.0	76.7	76.7	79.9	73.9	73.9
Actuated g/C Ratio		0.20			0.20		0.71	0.64	0.64	0.67	0.62	0.62
Clearance Time (s)		4.5			4.5		4.5	4.0	4.0	4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		278			204		184	3250	1011	150	3131	974
v/s Ratio Prot							c0.05	c0.63		0.02	0.62	
v/s Ratio Perm		0.13			c0.18		0.48		0.01	0.29		0.05
v/c Ratio		0.63			0.89		0.76	0.99	0.02	0.48	1.01	0.09
Uniform Delay, d1		43.8			46.6		51.3	21.2	7.9	52.3	23.0	9.4
Progression Factor		1.00			1.00		0.76	0.41	0.00	1.34	1.41	1.51
Incremental Delay, d2		4.7			35.2		1.6	2.8	0.0	1.2	15.1	0.1
Delay (s)		48.5			54.8		40.6	11.5	0.0	71.5	47.5	14.2
Level of Service		D			D		D	B	A	E	D	B
Approach Delay (s)		48.5			54.8			12.6			47.0	
Approach LOS		D			D			B			D	

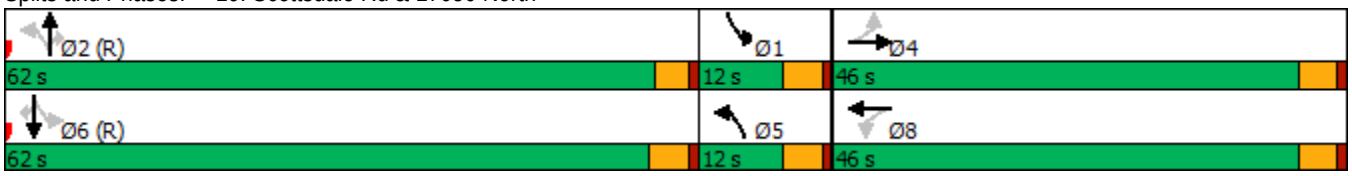
Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

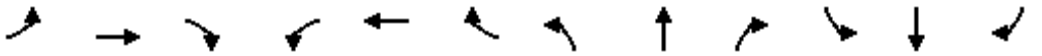
c Critical Lane Group

Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	12	62	46	12	62	46
Maximum Split (%)	10.0%	51.7%	38.3%	10.0%	51.7%	38.3%
Minimum Split (s)	9.5	8	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	4	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)			7		7	7
Flash Dont Walk (s)			11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	91	29	103	91	29	103
End Time (s)	103	91	29	103	91	29
Yield/Force Off (s)	98.5	87	24.5	98.5	86.5	24.5
Yield/Force Off 170(s)	98.5	87	13.5	98.5	75.5	13.5
Local Start Time (s)	62	0	74	62	0	74
Local Yield (s)	69.5	58	115.5	69.5	57.5	115.5
Local Yield 170(s)	69.5	58	104.5	69.5	46.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	110
Offset: 29 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 19: Scottsdale Rd & 17050 North





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Future Volume (vph)	437	762	243	260	1739	615	579	2076	322	516	1935	689
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	486	847	270	289	1932	683	643	2307	358	573	2150	766
RTOR Reduction (vph)	0	0	94	0	0	83	0	0	39	0	0	78
Lane Group Flow (vph)	486	847	176	289	1932	600	643	2307	319	573	2150	688
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	10.0	30.6	42.6	14.4	35.0	47.0	12.0	41.0	55.4	12.0	41.0	51.0
Effective Green, g (s)	10.0	30.6	42.6	14.4	35.0	47.0	12.0	41.0	55.4	12.0	41.0	51.0
Actuated g/C Ratio	0.08	0.26	0.36	0.12	0.29	0.39	0.10	0.34	0.46	0.10	0.34	0.42
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	1296	561	411	1483	620	343	1737	730	343	1737	672
v/s Ratio Prot	c0.14	0.17	0.03	0.08	c0.38	0.10	c0.19	c0.45	0.05	c0.17	0.42	0.09
v/s Ratio Perm			0.08			0.28			0.15			0.35
v/c Ratio	1.70	0.65	0.31	0.70	1.30	0.97	1.87	1.33	0.44	1.67	1.24	1.02
Uniform Delay, d1	55.0	40.0	28.1	50.7	42.5	35.8	54.0	39.5	21.8	54.0	39.5	34.5
Progression Factor	1.00	1.00	1.00	1.10	0.58	0.85	1.00	1.00	1.00	0.70	1.18	1.60
Incremental Delay, d2	329.3	1.2	0.3	0.5	136.7	5.4	404.5	151.7	0.4	305.9	108.7	25.9
Delay (s)	384.3	41.2	28.4	56.3	161.3	35.8	458.5	191.2	22.2	343.7	155.2	80.9
Level of Service	F	D	C	E	F	D	F	F	C	F	F	F
Approach Delay (s)		143.0			121.3			224.9			169.8	
Approach LOS		F			F			F			F	

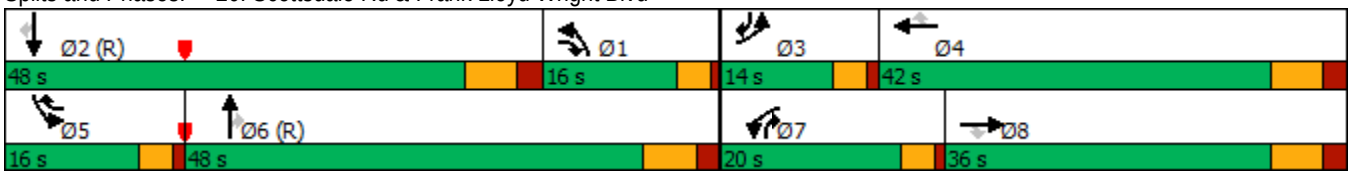
Intersection Summary			
HCM 2000 Control Delay	169.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		

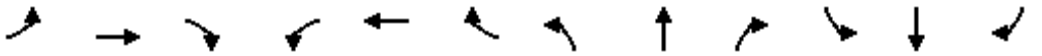
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	16	48	14	42	16	48	20	36
Maximum Split (%)	13.3%	40.0%	11.7%	35.0%	13.3%	40.0%	16.7%	30.0%
Minimum Split (s)	9	35	9	36	9	35	9	36
Yellow Time (s)	3	4.7	3	4.7	3	4.7	3	4.7
All-Red Time (s)	1	2.3	1	2.3	1	2.3	1	2.3
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		21		22		21		22
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	32	104	48	62	104	0	48	68
End Time (s)	48	32	62	104	0	48	68	104
Yield/Force Off (s)	44	25	58	97	116	41	64	97
Yield/Force Off 170(s)	44	4	58	75	116	20	64	75
Local Start Time (s)	32	104	48	62	104	0	48	68
Local Yield (s)	44	25	58	97	116	41	64	97
Local Yield 170(s)	44	4	58	75	116	20	64	75

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	150
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Green	

Splits and Phases: 20: Scottsdale Rd & Frank Lloyd Wright Blvd

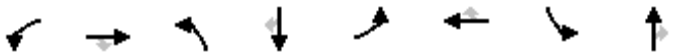




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Future Volume (vph)	548	1320	103	407	1929	522	118	659	633	466	852	749
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	609	1467	114	452	2143	580	131	732	703	518	947	832
RTOR Reduction (vph)	0	0	81	0	0	169	0	0	168	0	0	176
Lane Group Flow (vph)	609	1467	33	452	2143	411	131	732	535	518	947	656
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	12.0	35.0	35.0	15.0	38.0	38.0	7.0	31.0	31.0	11.0	35.0	35.0
Effective Green, g (s)	12.0	35.0	35.0	15.0	38.0	38.0	7.0	31.0	31.0	11.0	35.0	35.0
Actuated g/C Ratio	0.10	0.29	0.29	0.12	0.32	0.32	0.06	0.26	0.26	0.09	0.29	0.29
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	1483	461	429	1610	501	103	914	408	314	1032	461
v/s Ratio Prot	c0.18	0.29		c0.13	c0.42		0.07	0.21		0.15	0.27	
v/s Ratio Perm			0.02			0.26			c0.34			c0.41
v/c Ratio	1.78	0.99	0.07	1.05	1.33	0.82	1.27	0.80	1.31	1.65	0.92	1.42
Uniform Delay, d1	54.0	42.3	30.8	52.5	41.0	37.9	56.5	41.6	44.5	54.5	41.1	42.5
Progression Factor	1.12	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.93	0.89
Incremental Delay, d2	356.4	16.2	0.2	58.3	153.3	14.0	178.4	5.1	157.1	304.1	10.8	200.5
Delay (s)	416.9	50.5	30.9	110.8	194.3	51.9	234.9	46.7	201.6	355.5	49.0	238.3
Level of Service	F	D	C	F	F	D	F	D	F	F	D	F
Approach Delay (s)		151.4			156.4			132.0			186.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	158.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		

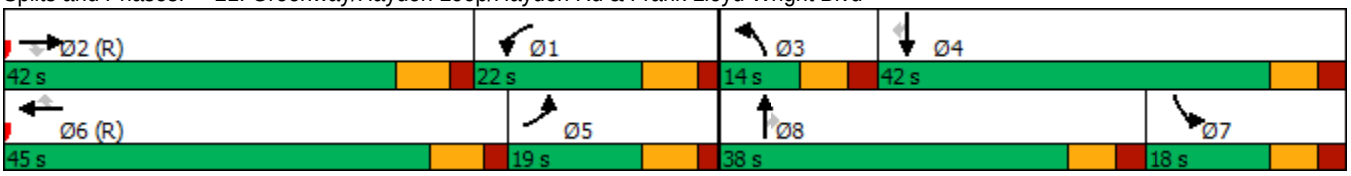
c Critical Lane Group

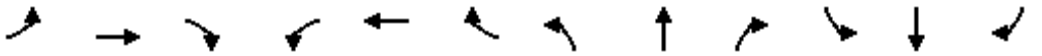


Phase Number	1	2	3	4	5	6	7	8
Movement	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	22	42	14	42	19	45	18	38
Maximum Split (%)	18.3%	35.0%	11.7%	35.0%	15.8%	37.5%	15.0%	31.7%
Minimum Split (s)	12	31	12	38	12	31	12	38
Yellow Time (s)	4.9	4.9	4.3	4.3	4.9	4.9	4.3	4.3
All-Red Time (s)	2.1	2.1	2.7	2.7	2.1	2.1	2.7	2.7
Minimum Initial (s)	5	10	5	7	5	10	5	7
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		17		24		17		24
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	18	82	96	63	18	0	82
End Time (s)	82	60	96	18	82	63	18	0
Yield/Force Off (s)	75	53	89	11	75	56	11	113
Yield/Force Off 170(s)	75	36	89	107	75	39	11	89
Local Start Time (s)	42	0	64	78	45	0	102	64
Local Yield (s)	57	35	71	113	57	38	113	95
Local Yield 170(s)	57	18	71	89	57	21	113	71

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	145
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green	

Splits and Phases: 21: Greenway/Hayden Loop/Hayden Rd & Frank Lloyd Wright Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Future Volume (vph)	667	635	143	104	407	401	238	1716	19	363	1112	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91		0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5077		3433	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	741	706	159	116	452	446	264	1907	21	403	1236	403
RTOR Reduction (vph)	0	0	94	0	0	83	0	1	0	0	0	66
Lane Group Flow (vph)	741	706	65	116	452	363	264	1927	0	403	1236	337
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	4	7	6	8	3	2	6	1		2	5	4
Permitted Phases			7			3						5
Actuated Green, G (s)	23.0	27.7	48.7	10.3	15.0	29.0	21.0	46.0		14.0	39.0	62.0
Effective Green, g (s)	23.0	27.7	48.7	10.3	15.0	29.0	21.0	46.0		14.0	39.0	62.0
Actuated g/C Ratio	0.19	0.23	0.41	0.09	0.12	0.24	0.18	0.38		0.12	0.32	0.52
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	4.0	7.0		4.0	7.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	657	816	642	294	442	382	600	1946		400	1652	817
v/s Ratio Prot	c0.22	0.20	0.02	0.03	c0.13	0.11	0.08	c0.38		c0.12	0.24	0.08
v/s Ratio Perm			0.02			0.12						0.13
v/c Ratio	1.13	0.87	0.10	0.39	1.02	0.95	0.44	0.99		1.01	0.75	0.41
Uniform Delay, d1	48.5	44.4	22.1	51.9	52.5	44.8	44.2	36.8		53.0	36.1	17.8
Progression Factor	0.77	0.75	0.55	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	68.9	5.7	0.0	0.9	48.7	33.5	2.3	18.3		46.9	3.1	0.3
Delay (s)	106.2	39.1	12.2	52.8	101.2	78.3	46.6	55.0		99.9	39.3	18.2
Level of Service	F	D	B	D	F	E	D	E		F	D	B
Approach Delay (s)		67.4			85.6			54.0			47.1	
Approach LOS		E			F			D			D	

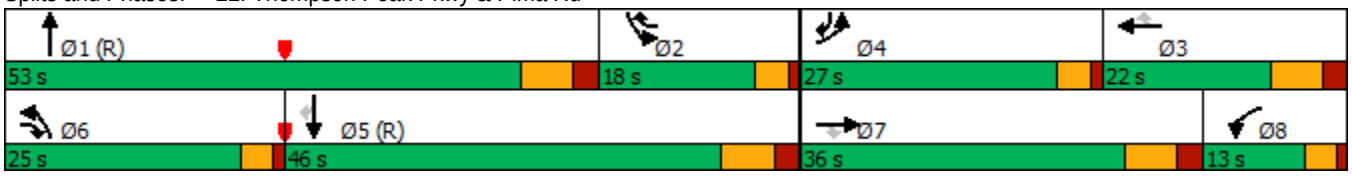
Intersection Summary			
HCM 2000 Control Delay	59.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

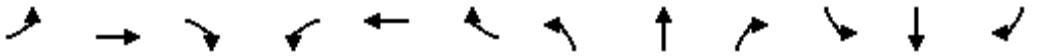
c Critical Lane Group

Phase Number	1	2	3	4	5	6	7	8
Movement	NBT	SBL	WBT	EBL	SBT	NBL	EBT	WBL
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	None	None	C-Max	Max	None	None
Maximum Split (s)	53	18	22	27	46	25	36	13
Maximum Split (%)	44.2%	15.0%	18.3%	22.5%	38.3%	20.8%	30.0%	10.8%
Minimum Split (s)	12	10	17	10	12	10	17	10
Yellow Time (s)	4.7	3	4.7	3	4.7	3	4.7	3
All-Red Time (s)	2.3	1	2.3	1	2.3	1	2.3	1
Minimum Initial (s)	5	6	10	6	5	6	10	6
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)								
Flash Dont Walk (s)								
Dual Entry	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	107	40	85	58	12	107	58	94
End Time (s)	40	58	107	85	58	12	94	107
Yield/Force Off (s)	33	54	100	81	51	8	87	103
Yield/Force Off 170(s)	33	54	100	81	51	8	87	103
Local Start Time (s)	95	28	73	46	0	95	46	82
Local Yield (s)	21	42	88	69	39	116	75	91
Local Yield 170(s)	21	42	88	69	39	116	75	91

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	130
Offset: 12 (10%), Referenced to phase 1:NBT and 5:SBT, Start of Green	

Splits and Phases: 22: Thompson Peak Pkwy & Pima Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	0	89	0	0	0	244	1561	0	0	2033	163
Future Volume (veh/h)	83	0	89	0	0	0	244	1561	0	0	2033	163
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	92	0	99	0	0	0	271	1734	0	0	2259	181
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	281	87	462	120	87	0	847	4485	1392	60	3042	944
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.25	0.88	0.00	0.00	0.40	0.40
Sat Flow, veh/h	3456	1870	1585	2514	1870	0	3456	5106	1585	279	5106	1585
Grp Volume(v), veh/h	92	0	99	0	0	0	271	1734	0	0	2259	181
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1257	1870	0	1728	1702	1585	279	1702	1585
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	0.0	7.7	7.5	0.0	0.0	45.3	8.9
Cycle Q Clear(g_c), s	3.1	0.0	0.0	0.0	0.0	0.0	7.7	7.5	0.0	0.0	45.3	8.9
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	87	462	120	87	0	847	4485	1392	60	3042	944
V/C Ratio(X)	0.33	0.00	0.21	0.00	0.00	0.00	0.32	0.39	0.00	0.00	0.74	0.19
Avail Cap(c_a), veh/h	653	288	633	391	288	0	847	4485	1392	60	3042	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	0.0	32.1	0.0	0.0	0.0	37.1	1.3	0.0	0.0	28.2	17.2
Incr Delay (d2), s/veh	0.7	0.0	0.2	0.0	0.0	0.0	0.2	0.3	0.0	0.0	1.7	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	1.4	0.0	2.2	0.0	0.0	0.0	3.3	1.1	0.0	0.0	19.8	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	0.0	32.3	0.0	0.0	0.0	37.3	1.6	0.0	0.0	29.9	17.7
LnGrp LOS	E	A	C	A	A	A	D	A	A	A	C	B
Approach Vol, veh/h		191			0			2005			2440	
Approach Delay, s/veh		44.1			0.0			6.4			29.0	
Approach LOS		D						A			C	

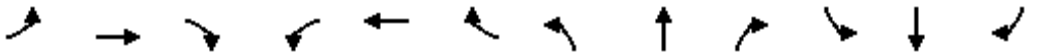
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		109.9		10.1	33.9	76.0		10.1				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		92.5		18.5	16.5	71.5		18.5				
Max Q Clear Time (g_c+I1), s		9.5		5.1	9.7	47.3		0.0				
Green Ext Time (p_c), s		24.6		0.5	0.5	19.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			19.8									
HCM 6th LOS			B									

Phase Number	2	4	5	6	8
Movement	NBT	EBTL	NBL	SBTL	WBTL
Lead/Lag			Lag	Lead	
Lead-Lag Optimize			Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None
Maximum Split (s)	97	23	21	76	23
Maximum Split (%)	80.8%	19.2%	17.5%	63.3%	19.2%
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7		7	7
Flash Dont Walk (s)	11	11		11	11
Dual Entry	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	60	37	16	60	37
End Time (s)	37	60	37	16	60
Yield/Force Off (s)	32.5	55.5	32.5	11.5	55.5
Yield/Force Off 170(s)	21.5	44.5	32.5	0.5	44.5
Local Start Time (s)	0	97	76	0	97
Local Yield (s)	92.5	115.5	92.5	71.5	115.5
Local Yield 170(s)	81.5	104.5	92.5	60.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 60 (50%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 29: Hayden Rd & Cavasson Blvd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	0	224	0	0	0	165	2717	0	0	1721	94
Future Volume (veh/h)	214	0	224	0	0	0	165	2717	0	0	1721	94
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	238	0	249	0	0	0	183	3019	0	0	1912	104
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	445	176	464	120	176	0	686	4243	1317	60	3038	943
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.26	1.00	0.00	0.00	0.20	0.20
Sat Flow, veh/h	3456	1870	1585	2194	1870	0	3456	5106	1585	78	5106	1585
Grp Volume(v), veh/h	238	0	249	0	0	0	183	3019	0	0	1912	104
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1097	1870	0	1728	1702	1585	78	1702	1585
Q Serve(g_s), s	8.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	41.2	6.5
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	41.2	6.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	176	464	120	176	0	686	4243	1317	60	3038	943
V/C Ratio(X)	0.54	0.00	0.54	0.00	0.00	0.00	0.27	0.71	0.00	0.00	0.63	0.11
Avail Cap(c_a), veh/h	682	304	572	270	304	0	686	4243	1317	60	3038	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	0.0	35.6	0.0	0.0	0.0	37.2	0.0	0.0	0.0	36.1	22.1
Incr Delay (d2), s/veh	1.0	0.0	1.0	0.0	0.0	0.0	0.2	1.0	0.0	0.0	1.0	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	6.2	0.0	0.0	0.0	2.1	0.4	0.0	0.0	19.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	0.0	36.6	0.0	0.0	0.0	37.4	1.0	0.0	0.0	37.1	22.4
LnGrp LOS	D	A	D	A	A	A	D	A	A	A	D	C
Approach Vol, veh/h		487			0			3202			2016	
Approach Delay, s/veh		45.1			0.0			3.1			36.3	
Approach LOS		D						A			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		104.2		15.8	28.3	75.9		15.8				
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s		91.5		19.5	15.6	71.4		19.5				
Max Q Clear Time (g_c+I1), s		2.0		10.0	7.0	43.2		0.0				
Green Ext Time (p_c), s		73.1		1.2	0.4	18.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			18.4									
HCM 6th LOS			B									

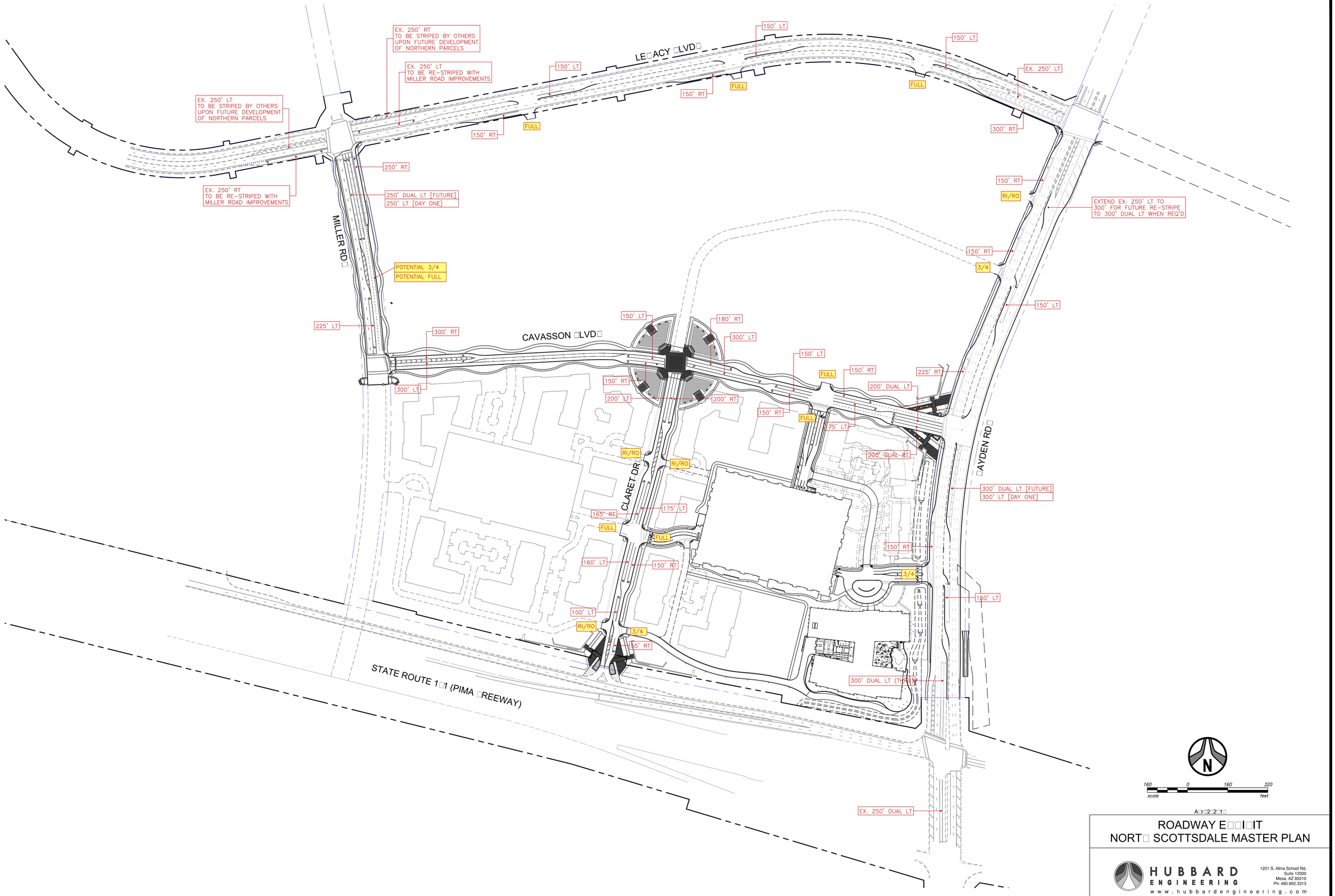
Phase Number	2	4	5	6	8
Movement	NBT	EBTL	NBL	SBTL	WBTL
Lead/Lag			Lag	Lead	
Lead-Lag Optimize			Yes	Yes	
Recall Mode	C-Max	None	None	C-Max	None
Maximum Split (s)	96	24	20.1	75.9	24
Maximum Split (%)	80.0%	20.0%	16.8%	63.3%	20.0%
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7		7	7
Flash Dont Walk (s)	11	11		11	11
Dual Entry	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	13	109	88.9	13	109
End Time (s)	109	13	109	88.9	13
Yield/Force Off (s)	104.5	8.5	104.5	84.4	8.5
Yield/Force Off 170(s)	93.5	117.5	104.5	73.4	117.5
Local Start Time (s)	0	96	75.9	0	96
Local Yield (s)	91.5	115.5	91.5	71.4	115.5
Local Yield 170(s)	80.5	104.5	91.5	60.4	104.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 13 (11%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	

Splits and Phases: 29: Hayden Rd & Cavasson Blvd.

APPENDIX K

QUEUE LENGTH ANALYSIS



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ROADWAY E□□I□IT
NORT□ SCOTTSDALE MASTER PLAN

HUBBARD ENGINEERING
www.hubbardengineering.com
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
Ph: 480.892.3313

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NRI Scottsdale

Signalized Intersection
2030

Average Vehicle Length (ft): 25
Intersection Cycle Length (sec): 120
Cycles: 1.5

Intersection	Approach	Existing	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length (ft)
Hayden Rd & Bell Rd	NB Left		31	0	6	2	0	50'
	SB Left		185	0	212	11	0	275'
	WB Left		240	0	488	25	0	325'
	NB Right		403	0	276	21	0	525'
	WB Right		154	0	186	10	0	250'
Scottsdale Rd & Deer Valley Rd	SB Left		51	0	20	3	0	75'
	WB Left		110	0	132	7	0	175'
	NB Right		154	0	109	8	0	200'
	WB Right		30	0	63	4	0	100'
Scottsdale Rd & Grayhawk Dr	SB Left		45	0	60	4	0	100'
	WB Left		114	0	128	7	0	175'
	NB Right		54	0	128	7	0	175'
	WB Right		38	0	69	4	0	100'
Scottsdale Rd & Thompson Peak Pkwy	NB Left		52	0	150	8	0	200'
	SB Left		185	0	197	10	0	250'
	EB Left		258	0	533	27	0	350'
	WB Left		540	0	669	34	0	425'
	NB Right		539	0	501	27	0	675'
	SB Right		452	0	366	23	0	575'
	EB Right		69	0	91	5	0	125'
	WB Right		135	0	266	14	0	350'
Scottsdale Rd & Legacy Blvd	NB Left		23	0	73	4	0	100'
	SB Left		116	0	111	6	0	150'
	EB Left		307	0	366	19	0	250'
	WB Left		319	0	552	28	0	350'
	NB Right		435	0	431	22	0	550'
	SB Right		298	0	348	18	0	450'
	EB Right		28	0	37	2	0	50'
	WB Right		73	0	173	9	0	225'
Scottsdale Rd & Mayo Blvd	NB Left		145	0	415	21	0	275'
	SB Left		348	0	442	23	0	300'
	EB Left		476	0	749	38	0	475'
	WB Left		67	0	192	10	0	125'
	NB Right		97	0	136	7	0	175'
	SB Right		735	0	830	42	0	1050'
	EB Right		303	0	214	16	0	400'
	WB Right		178	0	553	28	0	700'

NRI Scottsdale

Signalized Intersection
2030

Average Vehicle Length (ft): 25 Cycles: 1.5
Intersection Cycle Length (sec): 120

Intersection	Approach	Existing	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length (ft)
Scottsdale Rd & Chauncey Ln	NB Left		154	0	168	9	0	225'
	SB Left		6	0	10	1	0	25'
	EB Left		96	0	143	8	0	200'
	WB Left		10	0	16	1	0	25'
	NB Right		5	0	8	1	0	25'
	SB Right		147	0	101	8	0	200'
	EB Right		114	0	144	8	0	200'
	WB Right		5	0	5	1	0	25'
Scottsdale Rd & Princess Blvd	NB Left		149	0	292	15	0	375'
	SB Left		271	0	215	14	0	350'
	EB Left		45	0	63	4	0	100'
	WB Left		179	0	425	22	0	550'
	NB Right		373	0	330	19	0	475'
	SB Right		85	0	80	5	0	125'
	WB Right		188	0	355	18	0	450'
Scottsdale Rd & 17050 North	NB Left		46	0	125	7	0	175'
	SB Left		48	0	65	4	0	100'
	NB Right		13	0	30	2	0	50'
	SB Right		28	0	95	5	0	125'
Scottsdale Rd & Frank Lloyd Wright Blvd	NB Left		99	0	579	29	0	375'
	SB Left		453	0	516	26	0	325'
	EB Left		719	0	437	36	0	450'
	WB Left		277	0	260	14	0	175'
	NB Right		213	0	322	17	0	425'
	EB Right		466	0	243	24	0	600'
	WB Right		279	0	615	31	0	775'
Greenway-Hayden & Frank Lloyd Wright Blvd	NB Left		26	0	118	6	0	150'
	SB Left		278	0	466	24	0	300'
	EB Left		658	0	548	33	0	425'
	WB Left		643	0	407	33	0	425'
	NB Right		284	0	633	32	0	800'
	SB Right		351	0	749	38	0	950'
	EB Right		88	0	103	6	0	150'
	WB Right		346	0	522	27	0	675'
Pima Rd & Thompson Peak Pkwy	NB Left		133	0	238	12	0	150'
	SB Left		327	0	363	19	0	250'
	EB Left		267	0	667	34	0	425'
	WB Left		118	0	104	6	0	75'
	SB Right		445	0	363	23	0	575'
	EB Right		138	0	143	8	0	200'
	WB Right		316	0	401	21	0	525'

NRI Scottsdale

Signalized Intersection
2030

Average Vehicle Length (ft): 25
Intersection Cycle Length (sec): 120
Cycles: 1.5

Intersection	Approach	Existing	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Max vehs per 1.5 cycles	Max trucks per 1.5 cycles	Storage Length (ft)
Miller Rd & Thompson Peak Pkwy	NB Left		103	0	262	14	0	**350'**
	WB Left		116	0	110	6	0	**150'**
Miller Rd & Legacy Blvd	NB Left		136	0	350	18	0	**450'**
	SB Left		69	0	116	6	0	**150'**
	EB Left		51	0	70	4	0	**100'**
	WB Left		106	0	141	8	0	**200'**
	EB Right		262	0	235	14	0	**350'**
	WB Right		90	0	75	5	0	**125'**
Hayden Rd & Prop Rd 1	NB Left		244	0	165	13	0	**325'**
	EB Left		83	0	214	11	0	**275'**
	SB Right		163	0	94	9	0	**225'**
	EB Right		89	0	224	12	0	**300'**

Unsignalized Intersection
2030

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Veh per 2 minutes	Trucks per 2 minutes	Storage Length
Miller Rd & Union Hills Dr	NB Left	65	0	197	7	0	**175'**
	SB Left	50	0	147	5	0	**125'**
	EB Left	170	0	204	7	0	**175'**
	WB Left	64	0	118	4	0	**100'**
	NB Right	44	0	119	4	0	100'
	SB Right	81	0	251	9	0	**225'**
	EB Right	105	0	171	6	0	150'
	WB Right	68	0	103	4	0	100'
Prop Rd 2 & Access I	NB Left	61	0	22	3	0	**75'**
	SB Left	32	0	15	2	0	**50'**
	EB Left	3	0	8	1	0	25'
	WB Left	0	0	0	0	0	0'
	NB Right	103	0	49	4	0	100'
	SB Right	47	0	17	2	0	50'
	EB Right	4	0	10	1	0	25'
	WB Right	11	0	36	2	0	50'
Access K & Prop Rd 1	NB Left	43	0	130	5	0	**125'**
	SB Left	25	0	48	2	0	**50'**
	EB Left	24	0	26	1	0	**25'**
	WB Left	198	0	130	7	0	**175'**
	NB Right	55	0	138	5	0	125'
	SB Right	8	0	16	1	0	25'
	EB Right	103	0	48	4	0	100'
	WB Right	59	0	65	3	0	75'
Miller Rd & Access B	NB Left	0	0	0	0	0	0'
	SB Left	158	0	86	6	0	**150'**
	EB Left	0	0	0	0	0	0'
	WB Left	32	0	97	4	0	**100'**
	NB Right	91	0	52	4	0	**100'**
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	72	0	206	7	0	**175'**
Miller Rd & Access A	NB Left	0	0	0	0	0	0'
	SB Left	106	0	38	4	0	**100'**
	EB Left	0	0	0	0	0	0'
	WB Left	25	0	61	3	0	75'
	NB Right	80	0	29	3	0	**75'**
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	29	0	69	3	0	75'

Unsignalized Intersection
2030

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Veh per 2 minutes	Trucks per 2 minutes	Storage Length
Miller Rd & Access C	NB Left	0	0	0	0	0	0'
	SB Left	49	0	53	2	0	**50'**
	EB Left	0	0	0	0	0	0'
	WB Left	21	0	42	2	0	50'
	NB Right	41	0	45	2	0	50'
	SB Right	0	0	0	0	0	0'
	EB Right	0	0	0	0	0	0'
	WB Right	50	0	99	4	0	**100'**
Access D & Legacy Blvd	NB Left	52	0	103	4	0	100'
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	54	0	59	2	0	**50'**
	NB Right	29	0	57	2	0	50'
	SB Right	0	0	0	0	0	0'
	EB Right	78	0	85	3	0	**75'**
	WB Right	0	0	0	0	0	0'
Access E & Legacy Blvd	NB Left	38	0	75	3	0	75'
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	53	0	57	2	0	**50'**
	NB Right	28	0	55	2	0	50'
	SB Right	0	0	0	0	0	0'
	EB Right	55	0	60	2	0	**50'**
	WB Right	0	0	0	0	0	0'
Access F & Legacy Blvd	NB Left	32	0	62	3	0	75'
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	58	0	63	3	0	**75'**
	NB Right	31	0	62	3	0	75'
	SB Right	0	0	0	0	0	0'
	EB Right	40	0	43	2	0	50'
	WB Right	0	0	0	0	0	0'
Hayden Rd & Access G	NB Left	89	0	97	4	0	**100'**
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	0	0	0	0	0	0'
	NB Right	0	0	0	0	0	0'
	SB Right	8	0	9	1	0	25'
	EB Right	50	0	99	4	0	100'
	WB Right	0	0	0	0	0	0'

Unsignalized Intersection
2030

Average Vehicle Length (ft): 25

Equation Used: storage length = 2 x (vehicles/hour)/(60 minutes/hour) x average vehicle length

Intersection	Approach	AM Peak (veh/hr)	Midday Peak	PM Peak (veh/hr)	Veh per 2 minutes	Trucks per 2 minutes	Storage Length
Hayden Rd & Access H	NB Left	93	0	44	4	0	**100'**
	SB Left	0	0	0	0	0	0'
	EB Left	0	0	0	0	0	0'
	WB Left	0	0	0	0	0	0'
	NB Right	0	0	0	0	0	0'
	SB Right	102	0	48	4	0	**100'**
	EB Right	37	0	116	4	0	100'
	WB Right	0	0	0	0	0	0'
Prop Rd 2 & Access J	NB Left	31	0	11	2	0	50'
	SB Left	115	0	55	4	0	**100'**
	EB Left	47	0	113	4	0	**100'**
	WB Left	48	0	148	5	0	125'
	NB Right	8	0	4	1	0	25'
	SB Right	76	0	28	3	0	**75'**
	EB Right	52	0	126	5	0	125'
	WB Right	36	0	112	4	0	100'
Access L & Prop Rd 1	NB Left	48	0	150	5	0	125'
	SB Left	32	0	62	3	0	75'
	EB Left	10	0	11	1	0	**25'**
	WB Left	111	0	52	4	0	**100'**
	NB Right	61	0	190	7	0	175'
	SB Right	36	0	70	3	0	75'
	EB Right	112	0	53	4	0	**100'**
	WB Right	69	0	75	3	0	**75'**

Signalized Intersection

Total Traffic: ADOT Minimum and Desirable Queue Storage Calculations

2030

					Left-Turn Lane Only!	
Average Vehicle Length (ft):	25	Lane Width, W =	12	Taper Length, T =	One Side	Symmetrical
Cycle Length (sec):	120	esign Speed, S =	50	Speed >= 45	600'	300'
Cycles per Hour:	30	Trucks > 10%?	Y	Speed < 45 mph		
				Taper Length, RTL = GAP		

Queue Storage Equations:

Queue Length =	**1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length***
Storage Length =	**Queue Length + Minimum Braking Distance**
Turn Lane Length =	**Storage Length – [Gap – 2/3 Gap]**

*** ADOT TGP 430 allows for queues to be calculated for 1.5 to 2.0 cycles.**

Design Speed (mph)	Gap (ft)	2/3 Gap (ft)	Calculated Gap (ft)
< 40mph	60	40	20
40-50mph	90	60	30
> 50mph	140	95	45

* Queue length: minimum queue length is 2 vehicles (2 cars or 1 car+1 truck), which can be reduced by 20 feet for a free right turn movement.

	Minimum			Desired	
Design Speed (mph)	Entering Speed (mph)	Braking Speed (mph)	Braking Distance (ft)	Braking Speed (mph)	Braking Distance (ft)
30	20	20	20	29	80
35	25	25	40	34	115
40	30	29	50	38	150
45	35	34	85	43	200
50	40	38	120	47	245
55	45	42	145	52	300
60	50	47	200	56	360
65	55	52	265	60	415
70	60	56	315	64	490
75	65	61	400	70	585

Intersection	Approach	Free-Flow Right?	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Veh per 1.5 cycles	Queue Length (ft)*	Minimum Storage Length (ft)	Minimum **Turn Lane Length (ft)**	Desired Storage Length (ft)
Hayden Rd & Loop 101 WB Ramps	NB Left		323	0	896	45	**575**	695	**665**	820
	SB Left		0	0	0	0	85	205	175	330
	EB Left		0	0	0	0	85	205	175	330
	WB Left		133	0	198	10	**125**	245	**215**	370
	NB Right	N	0	0	0	0	85	205	175	330
	SB Right	**N**	589	0	508	30	**750**	870	**840**	995
	EB Right	N	0	0	0	0	85	205	175	330
	WB Right	**N**	738	0	1,072	54	**675**	795	**765**	920
Hayden Rd & Loop 101 EB Ramps	NB Left		0	0	0	0	85	205	175	330
	SB Left		818	0	937	47	**600**	720	**690**	845
	EB Left		605	0	841	43	**550**	670	**640**	795
	WB Left		0	0	0	0	85	205	175	330
	NB Right	**N**	59	0	213	11	**275**	395	**365**	520
	SB Right	N	0	0	0	0	85	205	175	330
	EB Right	**N**	579	0	257	29	**375**	495	**465**	620
	WB Right	N	0	0	0	0	85	205	175	330

Signalized Intersection

Total Traffic: ADOT Minimum and Desirable Queue Storage Calculations

2030

					Left-Turn Lane Only!	
Average Vehicle Length (ft):	25	Lane Width, W =	12	Taper Length, T =	One Side	Symmetrical
Cycle Length (sec):	120	esign Speed, S =	50	Speed >= 45	600'	300'
Cycles per Hour:	30	Trucks > 10%?	Y	Speed < 45 mph		
				Taper Length, RTL = GAP		

Queue Storage Equations:

Queue Length =	**1.5 x (vehicles/hour)/(cycles/hour) x average vehicle length***
Storage Length =	**Queue Length + Minimum Braking Distance**
Turn Lane Length =	**Storage Length – [Gap – 2/3 Gap]**

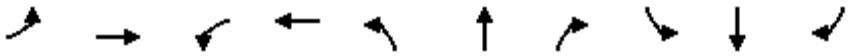
*** ADOT TGP 430 allows for queues to be calculated for 1.5 to 2.0 cycles.**

Design Speed (mph)	Gap (ft)	2/3 Gap (ft)	Calculated Gap (ft)
< 40mph	60	40	20
40-50mph	90	60	30
> 50mph	140	95	45

* Queue length: minimum queue length is 2 vehicles (2 cars or 1 car+1 truck), which can be reduced by 20 feet for a free right turn movement.

	Minimum			Desired	
Design Speed (mph)	Entering Speed (mph)	Braking Speed (mph)	Braking Distance (ft)	Braking Speed (mph)	Braking Distance (ft)
30	20	20	20	29	80
35	25	25	40	34	115
40	30	29	50	38	150
45	35	34	85	43	200
50	40	38	120	47	245
55	45	42	145	52	300
60	50	47	200	56	360
65	55	52	265	60	415
70	60	56	315	64	490
75	65	61	400	70	585

Intersection	Approach	Free-Flow Right?	AM Peak (veh/hr)	Midday Peak (veh/hr)	PM Peak (veh/hr)	Veh per 1.5 cycles	Queue Length (ft)*	Minimum Storage Length (ft)	Minimum **Turn Lane Length (ft)**	Desired Storage Length (ft)
Scottsdale Rd & Loop 101 WB Ramps	NB Left		437	0	1,113	56	**700**	820	**790**	945
	SB Left		0	0	0	0	85	205	175	330
	EB Left		0	0	0	0	85	205	175	330
	WB Left		737	0	942	48	**600**	720	**690**	845
	NB Right	N	0	0	0	0	85	205	175	330
	SB Right	**N**	820	0	920	46	**1150**	1270	**1240**	1395
	EB Right	N	0	0	0	0	85	205	175	330
	WB Right	**N**	601	0	698	35	**450**	570	**540**	695
Scottsdale Rd & Loop 101 EB Ramps	NB Left		0	0	0	0	85	205	175	330
	SB Left		883	0	656	45	**575**	695	**665**	820
	EB Left		887	0	689	45	**575**	695	**665**	820
	WB Left		0	0	0	0	85	205	175	330
	NB Right	**N**	426	0	783	40	**1000**	1120	**1090**	1245
	SB Right	N	0	0	0	0	85	205	175	330
	EB Right	**N**	872	0	961	49	**625**	745	**715**	870
	WB Right	N	0	0	0	0	85	205	175	330

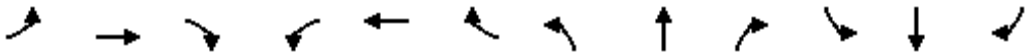


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	29	79	69	15	66	570	18	3	647	36
v/c Ratio	0.05	0.11	0.13	0.02	0.22	0.35	0.02	0.01	0.39	0.05
Control Delay	17.9	6.4	19.0	15.9	17.7	17.1	0.7	14.0	17.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	6.4	19.0	15.9	17.7	17.1	0.7	14.0	17.7	3.5
Queue Length 50th (ft)	11	4	26	5	23	111	0	1	130	0
Queue Length 95th (ft)	29	32	55	17	52	151	3	6	174	13
Internal Link Dist (ft)		2433		70		2475			551	
Turn Bay Length (ft)	25		95		250		100	140		180
Base Capacity (vph)	557	690	526	731	303	1639	757	341	1639	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.11	0.13	0.02	0.22	0.35	0.02	0.01	0.39	0.05

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	2	100	50	29	39	596	10	3	761	38
v/c Ratio	0.04	0.00	0.11	0.06	0.03	0.35	0.55	0.02	0.02	0.70	0.07
Control Delay	11.0	10.5	7.2	11.2	5.7	40.2	33.8	0.1	27.0	37.5	5.7
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	11.0	10.5	7.2	11.2	5.7	40.2	33.8	0.1	27.0	37.5	5.7
Queue Length 50th (ft)	10	1	18	15	3	21	183	0	2	248	0
Queue Length 95th (ft)	24	4	43	33	16	56	240	0	9	317	18
Internal Link Dist (ft)		1089			3382		3821			2475	
Turn Bay Length (ft)	100		100			240		240	170		115
Base Capacity (vph)	775	1050	909	794	950	112	1093	523	173	1093	523
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	0.04	0.00	0.11	0.06	0.03	0.35	0.55	0.02	0.02	0.70	0.07

Intersection Summary

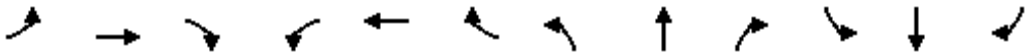


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	32	299	342	359	304	98	158	492	293	229	644	49
v/c Ratio	0.16	0.60	0.66	1.91	0.50	0.24	0.37	0.36	0.37	0.32	0.31	0.05
Control Delay	37.4	53.1	11.3	450.9	41.5	6.8	14.4	31.3	9.0	8.7	13.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	53.1	11.3	450.9	41.5	6.8	14.4	31.3	9.0	8.7	13.5	0.3
Queue Length 50th (ft)	20	115	0	~441	125	8	60	112	52	59	124	0
Queue Length 95th (ft)	45	155	84	#615	158	29	97	128	80	104	188	2
Internal Link Dist (ft)		2618			4641			1831			3821	
Turn Bay Length (ft)	330		300	225		190	170		212	210		195
Base Capacity (vph)	197	828	632	188	828	492	531	1360	788	725	2093	975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.36	0.54	1.91	0.37	0.20	0.30	0.36	0.37	0.32	0.31	0.05

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	99	109	370	126	82	20	332	1231	163	54	1898	89
v/c Ratio	0.29	0.41	0.88	0.46	0.19	0.06	1.01	0.42	0.16	0.22	0.70	0.10
Control Delay	48.6	44.5	29.5	44.4	46.6	0.3	93.4	10.7	3.2	15.1	22.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	44.5	29.5	44.4	46.6	0.3	93.4	10.7	3.2	15.1	22.2	0.6
Queue Length 50th (ft)	40	40	4	82	30	0	~137	95	0	19	337	1
Queue Length 95th (ft)	64	71	#176	130	53	0	#234	158	22	m38	m373	m1
Internal Link Dist (ft)		669			452			758			1531	
Turn Bay Length (ft)	250		250	150		150	300		300	150		155
Base Capacity (vph)	389	545	422	346	870	526	328	2961	990	352	2696	925
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.20	0.88	0.36	0.09	0.04	1.01	0.42	0.16	0.15	0.70	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	148	463	443	359	1383	1637	654
v/c Ratio	0.15	0.79	0.59	0.89	0.86	0.61	0.75
Control Delay	31.8	33.9	6.6	73.4	33.4	15.9	8.3
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	33.9	6.6	73.4	33.4	15.9	8.3
Queue Length 50th (ft)	43	213	0	299	176	119	16
Queue Length 95th (ft)	70	361	86	m#375	m271	192	109
Internal Link Dist (ft)		1731			379	573	
Turn Bay Length (ft)			495				240
Base Capacity (vph)	1015	591	756	436	1599	2681	874
Starvation Cap Reductn	0	0	0	0	1	0	0
Spillback Cap Reductn	239	0	0	0	0	66	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.78	0.59	0.82	0.87	0.63	0.75

Intersection Summary

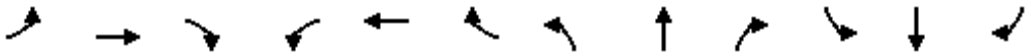
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	457	445	424	1063	66	909	883
v/c Ratio	0.93	0.94	0.57	0.53	0.12	0.94	0.49
Control Delay	49.0	46.2	4.0	23.4	1.3	88.0	15.8
Queue Delay	1.8	2.0	0.0	0.1	0.0	13.0	0.0
Total Delay	50.9	48.3	4.0	23.5	1.3	101.0	15.8
Queue Length 50th (ft)	397	376	8	224	7	390	67
Queue Length 95th (ft)	#588	#579	20	108	m1	#489	73
Internal Link Dist (ft)		6998		515			379
Turn Bay Length (ft)			440		260		
Base Capacity (vph)	497	482	743	2015	562	986	1807
Starvation Cap Reductn	0	0	0	0	0	85	0
Spillback Cap Reductn	9	9	0	186	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.94	0.57	0.58	0.12	1.01	0.49

Intersection Summary

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

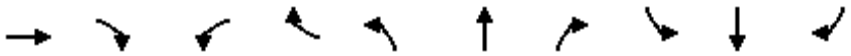
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	63	92	11	31	80	166	912	56	336	964	222
v/c Ratio	0.68	0.23	0.24	0.07	0.26	0.35	0.39	0.48	0.06	0.62	0.42	0.20
Control Delay	60.7	47.1	1.5	40.3	58.5	5.2	11.7	24.8	0.4	24.0	13.7	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	47.1	1.5	40.3	58.5	5.2	11.7	24.8	0.4	24.0	13.7	3.6
Queue Length 50th (ft)	106	42	0	7	23	0	35	295	1	177	192	13
Queue Length 95th (ft)	170	92	0	23	55	7	62	391	1	m275	m248	m51
Internal Link Dist (ft)		432			847			2228			515	
Turn Bay Length (ft)	150		150	15		150	150		145	250		200
Base Capacity (vph)	223	317	416	306	403	449	487	1909	935	599	2291	1099
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	190	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.20	0.22	0.04	0.08	0.18	0.34	0.48	0.06	0.56	0.46	0.20

Intersection Summary

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



Lane Group	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	110	94	180	26	78	352	211	130	492	51
v/c Ratio	0.18	0.22	0.22	0.05	0.25	0.24	0.27	0.33	0.34	0.07
Control Delay	19.2	1.8	38.1	0.2	18.5	16.8	3.3	25.1	24.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	1.8	38.1	0.2	18.5	16.8	3.3	25.1	24.1	0.6
Queue Length 50th (ft)	46	0	58	0	20	47	0	55	109	0
Queue Length 95th (ft)	80	5	90	0	42	72	0	86	133	5
Internal Link Dist (ft)	2558					977			2228	
Turn Bay Length (ft)			145		150		235	255		255
Base Capacity (vph)	623	428	801	501	315	1445	771	393	1445	743
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	0.18	0.22	0.22	0.05	0.25	0.24	0.27	0.33	0.34	0.07

Intersection Summary

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	37	119	120	96	30	556	384	147	653
v/c Ratio	0.04	0.17	0.17	0.19	0.13	0.39	0.44	0.53	0.46
Control Delay	10.0	18.5	18.6	7.1	27.3	26.9	9.5	30.3	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	18.5	18.6	7.1	27.3	26.9	9.5	30.3	21.0
Queue Length 50th (ft)	3	52	52	0	10	104	80	61	140
Queue Length 95th (ft)	13	90	91	39	m17	m111	m87	125	218
Internal Link Dist (ft)	220		2160			2679			977
Turn Bay Length (ft)		140		140	290		280	140	
Base Capacity (vph)	1054	715	712	495	231	1415	863	275	1410
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	0.17	0.17	0.19	0.13	0.39	0.44	0.53	0.46

Intersection Summary

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

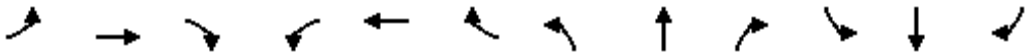
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	104	29	987	147	49	2113
v/c Ratio	0.32	0.09	0.39	0.12	0.14	0.83
Control Delay	45.7	14.7	1.0	0.2	6.5	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	14.7	1.0	0.2	6.5	15.8
Queue Length 50th (ft)	71	0	13	0	11	537
Queue Length 95th (ft)	125	27	10	0	25	652
Internal Link Dist (ft)	2433		2555			412
Turn Bay Length (ft)		155		100	150	
Base Capacity (vph)	324	313	2536	1176	352	2536
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.09	0.39	0.13	0.14	0.83

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	109	36	1082	51	43	2167
v/c Ratio	0.39	0.13	0.41	0.04	0.13	0.83
Control Delay	50.0	14.8	9.9	3.5	7.8	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	14.8	9.9	3.5	7.8	17.3
Queue Length 50th (ft)	77	0	223	2	12	576
Queue Length 95th (ft)	135	31	300	m8	m15	674
Internal Link Dist (ft)	2836		2573			2555
Turn Bay Length (ft)	175			150	120	
Base Capacity (vph)	280	280	2624	1187	330	2624
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.13	0.41	0.04	0.13	0.83

Intersection Summary

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



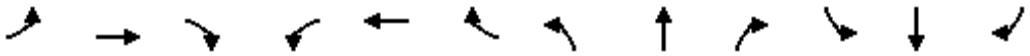
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	300	77	600	134	150	58	1359	599	206	2644	502
v/c Ratio	0.79	0.67	0.23	1.75	0.27	0.50	0.38	0.87	0.63	0.84	1.44	0.55
Control Delay	68.2	57.8	1.6	381.3	47.1	12.8	28.3	48.9	22.6	54.0	230.9	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	57.8	1.6	381.3	47.1	12.8	28.3	48.9	22.6	54.0	230.9	17.7
Queue Length 50th (ft)	113	118	0	~355	49	0	28	455	198	116	~1555	168
Queue Length 95th (ft)	#173	162	0	#471	78	56	m47	m581	m384	m#216	#1695	m333
Internal Link Dist (ft)		558			3525			1899			2573	
Turn Bay Length (ft)	200		200	225		200	250		510	200		200
Base Capacity (vph)	374	530	372	343	572	301	151	1560	948	245	1831	909
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.57	0.21	1.75	0.23	0.50	0.38	0.87	0.63	0.84	1.44	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	341	203	31	354	93	81	26	1943	483	129	3274	331
v/c Ratio	0.97	0.57	0.11	1.24	0.25	0.31	0.17	0.73	0.51	0.64	1.08	0.33
Control Delay	95.3	57.3	0.8	183.5	51.8	11.0	13.6	23.2	7.5	22.1	70.7	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	57.3	0.8	183.5	51.8	11.0	13.6	23.2	7.5	22.1	70.7	15.3
Queue Length 50th (ft)	137	80	0	~168	38	4	3	524	222	69	~1090	140
Queue Length 95th (ft)	#232	117	0	#271	67	22	m5	m334	m154	m53	m543	m88
Internal Link Dist (ft)		475			3920			477			1899	
Turn Bay Length (ft)	250		250	225		130	250		145	190		200
Base Capacity (vph)	351	530	357	286	536	261	152	2657	954	211	3018	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.38	0.09	1.24	0.17	0.31	0.17	0.73	0.51	0.61	1.08	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	553	277	276	329	1211	2089	709
v/c Ratio	0.97	0.60	0.57	0.31	4.77	0.92	0.82
Control Delay	80.2	13.2	10.4	38.9	1715.2	31.3	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.1	0.0
Total Delay	80.2	13.2	10.4	38.9	1715.2	50.4	16.2
Queue Length 50th (ft)	222	15	0	141	~635	412	373
Queue Length 95th (ft)	#334	104	82	m177	#734	m357	m342
Internal Link Dist (ft)		5648			382	908	
Turn Bay Length (ft)	300		300				400
Base Capacity (vph)	572	465	480	1058	254	2263	862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	246	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.60	0.57	0.31	4.77	1.04	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	740	334	332	813	358	816	1863
v/c Ratio	0.86	0.85	0.76	0.43	0.54	0.66	0.57
Control Delay	54.6	61.2	43.5	13.3	7.6	39.8	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	4.2	39.9
Total Delay	54.6	61.2	43.5	13.3	7.6	44.0	50.6
Queue Length 50th (ft)	284	246	192	65	52	350	548
Queue Length 95th (ft)	#380	#416	#331	77	m82	m375	m608
Internal Link Dist (ft)		912		820			382
Turn Bay Length (ft)	200		200		135		
Base Capacity (vph)	858	392	437	1886	664	1230	3262
Starvation Cap Reductn	0	0	0	0	0	327	1538
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.85	0.76	0.43	0.54	0.90	1.08

Intersection Summary

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

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

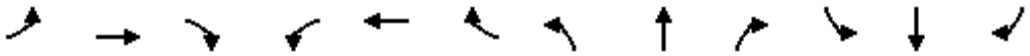
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	440	43	283	24	45	134	761	12	44	1797	689
v/c Ratio	0.47	0.04	0.53	0.08	0.83	0.17	0.39	0.02	0.09	1.18	0.85
Control Delay	38.1	39.8	8.8	50.6	111.2	62.4	41.1	0.0	34.3	137.4	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	39.8	8.8	50.6	111.2	62.4	41.1	0.0	34.3	137.4	38.4
Queue Length 50th (ft)	146	9	0	8	6	51	215	0	11	~630	288
Queue Length 95th (ft)	196	21	76	22	#45	82	250	0	m21	#730	m#359
Internal Link Dist (ft)		274			1018		1252			820	
Turn Bay Length (ft)	320		330	160		245		155	160		245
Base Capacity (vph)	944	974	532	314	54	786	1949	715	500	1525	814
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	0.47	0.04	0.53	0.08	0.83	0.17	0.39	0.02	0.09	1.18	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	92	4	109	10	4	4	147	858	4	6	2042	140
v/c Ratio	0.43	0.01	0.57	0.05	0.01	0.02	0.10	0.22	0.00	0.00	0.51	0.11
Control Delay	53.5	44.2	44.8	43.2	44.2	0.2	6.6	7.8	2.2	5.2	15.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	44.2	44.8	43.2	44.2	0.2	6.6	7.8	2.2	5.2	15.3	3.5
Queue Length 50th (ft)	68	1	55	7	1	0	53	145	0	1	567	15
Queue Length 95th (ft)	111	6	106	22	6	0	136	249	m1	m2	m496	m35
Internal Link Dist (ft)		111			792			1666			1252	
Turn Bay Length (ft)	160		175	160		100	195		125	175		160
Base Capacity (vph)	346	619	306	346	619	306	1423	3983	1247	1423	3983	1270
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.01	0.36	0.03	0.01	0.01	0.10	0.22	0.00	0.00	0.51	0.11

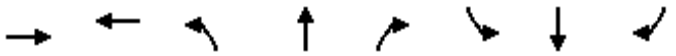
Intersection Summary

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	307	91	10	137	142	838	202	210	1864	81
v/c Ratio	0.10	0.38	0.29	0.01	0.32	0.55	0.36	0.24	0.48	0.80	0.10
Control Delay	29.9	11.1	34.3	38.7	8.8	23.0	33.5	15.2	31.5	31.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	11.1	34.3	38.7	8.8	23.0	33.5	15.2	31.5	31.5	3.2
Queue Length 50th (ft)	23	21	51	3	0	14	158	55	120	554	14
Queue Length 95th (ft)	51	60	92	11	53	m54	187	m94	121	602	20
Internal Link Dist (ft)		1695		2419			1810			1666	
Turn Bay Length (ft)	200		160		85	250		250	235		250
Base Capacity (vph)	418	808	315	707	426	256	2330	834	440	2330	784
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	0.10	0.38	0.29	0.01	0.32	0.55	0.36	0.24	0.48	0.80	0.10

Intersection Summary

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



Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	195	54	44	1099	12	46	2182	27
v/c Ratio	0.74	0.27	0.24	0.33	0.01	0.11	0.66	0.03
Control Delay	50.5	12.3	15.4	2.7	0.1	8.8	28.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	12.3	15.4	2.7	0.1	8.8	28.9	3.8
Queue Length 50th (ft)	98	0	5	92	0	14	476	0
Queue Length 95th (ft)	#208	31	m10	m28	m0	m22	541	m2
Internal Link Dist (ft)	526	89		1201			1810	
Turn Bay Length (ft)			185		135	200		240
Base Capacity (vph)	263	201	181	3305	1054	401	3305	1054
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	0.74	0.27	0.24	0.33	0.01	0.11	0.66	0.03

Intersection Summary

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

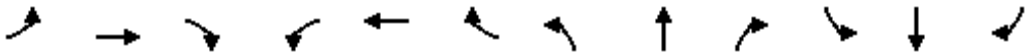
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	602	1584	443	251	502	227	94	444	138	393	1824
v/c Ratio	1.76	1.29	0.75	0.73	0.41	0.41	0.19	0.26	0.22	0.81	1.09
Control Delay	383.8	174.5	24.3	42.7	30.1	14.3	46.6	29.7	5.5	49.9	88.0
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	383.8	174.5	24.3	42.7	30.1	14.3	46.6	29.7	5.5	49.9	88.0
Queue Length 50th (ft)	~357	~572	121	91	138	92	33	91	0	166	~597
Queue Length 95th (ft)	#473	#669	254	#148	179	164	59	121	44	#231	#697
Internal Link Dist (ft)		667			5100			483			1201
Turn Bay Length (ft)	250		235	265		315	295		145	560	
Base Capacity (vph)	343	1228	591	343	1228	554	486	1695	619	486	1681
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	1.76	1.29	0.75	0.73	0.41	0.41	0.19	0.26	0.22	0.81	1.09

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	480	1374	66	612	1109	207	10	320	271	201	623	294
v/c Ratio	1.29	0.68	0.09	1.65	0.55	0.28	0.23	0.47	0.55	0.88	0.76	0.51
Control Delay	174.9	22.4	3.7	338.1	28.9	7.1	69.4	45.8	13.6	108.7	45.4	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	174.9	22.4	3.7	338.1	28.9	7.1	69.4	45.8	13.6	108.7	45.4	7.8
Queue Length 50th (ft)	~230	414	6	~354	238	20	8	116	27	84	224	15
Queue Length 95th (ft)	m#190	m315	m4	#470	283	70	27	164	109	#154	291	44
Internal Link Dist (ft)		29			1965			691			2679	
Turn Bay Length (ft)	190		160	275		165	190		100	185		170
Base Capacity (vph)	371	2034	731	371	2034	731	44	678	489	228	825	577
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.68	0.09	1.65	0.55	0.28	0.23	0.47	0.55	0.88	0.76	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

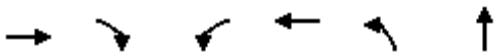
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	192	359	131	99	267	300	127	1083	311	1283	316
v/c Ratio	1.18	12.38	0.71	0.18	0.63	0.66	0.13	0.72	0.26	0.71	0.41
Control Delay	165.6	5189.2	34.5	44.8	57.3	13.1	32.9	40.4	29.4	35.2	4.4
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	165.6	5189.2	34.5	44.8	57.3	13.1	32.9	40.4	29.4	35.2	4.4
Queue Length 50th (ft)	~99	~296	11	34	104	0	38	275	87	299	0
Queue Length 95th (ft)	#193	#399	#76	60	149	84	64	297	136	349	57
Internal Link Dist (ft)		4641			742			2607		3254	
Turn Bay Length (ft)	212		225	250		180	250		250		350
Base Capacity (vph)	163	29	184	543	471	471	1004	1947	1216	1949	801
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	1.18	12.38	0.71	0.18	0.57	0.64	0.13	0.56	0.26	0.66	0.39

Intersection Summary

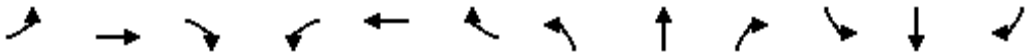
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	614	44	33	124	14	13
v/c Ratio	0.43	0.07	0.11	0.09	0.02	0.01
Control Delay	11.0	3.8	9.8	8.7	8.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	3.8	9.8	8.7	8.5	0.0
Queue Length 50th (ft)	57	0	5	10	2	0
Queue Length 95th (ft)	90	13	18	21	10	0
Internal Link Dist (ft)	3525			2618		2240
Turn Bay Length (ft)		150	150		150	
Base Capacity (vph)	1415	659	288	1415	564	1289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.07	0.11	0.09	0.02	0.01

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	431	291	118	293	100	151	123	86	77	219	62
v/c Ratio	0.11	0.34	0.31	0.28	0.21	0.14	0.33	0.18	0.11	0.18	0.43	0.11
Control Delay	21.9	33.4	3.4	18.7	18.1	1.4	45.7	23.5	7.2	21.1	39.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	33.4	3.4	18.7	18.1	1.4	45.7	23.5	7.2	21.1	39.4	0.4
Queue Length 50th (ft)	28	125	32	34	52	1	56	60	9	33	140	0
Queue Length 95th (ft)	m61	180	35	m53	m63	m1	87	103	31	61	216	0
Internal Link Dist (ft)		3920			744			737			2240	
Turn Bay Length (ft)	250		250	250		250	350		300	150		150
Base Capacity (vph)	513	1273	976	465	1405	710	586	691	821	456	504	557
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.34	0.30	0.25	0.21	0.14	0.26	0.18	0.10	0.17	0.43	0.11

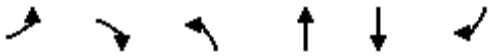
Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	136	114	220	59	66	48	61	28	46	32
v/c Ratio	0.04	0.14	0.13	0.35	0.06	0.08	0.10	0.06	0.06	0.07	0.06
Control Delay	4.3	5.2	0.6	7.1	4.9	1.1	14.3	0.1	13.8	13.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	5.2	0.6	7.1	4.9	1.1	14.3	0.1	13.8	13.8	5.9
Queue Length 50th (ft)	3	17	0	43	11	0	12	0	7	11	0
Queue Length 95th (ft)	6	18	1	63	m18	m10	31	0	21	30	15
Internal Link Dist (ft)		1382			697					218	
Turn Bay Length (ft)	150		150	300		180	200	200	100		100
Base Capacity (vph)	680	947	860	634	947	837	462	1051	481	636	561
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	0.04	0.14	0.13	0.35	0.06	0.08	0.10	0.06	0.06	0.07	0.06

Intersection Summary

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	92	99	271	1734	2259	181
v/c Ratio	0.37	0.14	0.57	0.40	0.65	0.16
Control Delay	54.2	28.8	33.4	1.7	24.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	28.8	33.4	1.7	24.3	4.8
Queue Length 50th (ft)	36	29	76	34	582	42
Queue Length 95th (ft)	62	53	m105	111	671	m48
Internal Link Dist (ft)	528			540	451	
Turn Bay Length (ft)	200	200	350			225
Base Capacity (vph)	529	694	472	4339	3449	1125
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.14	0.57	0.40	0.65	0.16

Intersection Summary

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

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	59	80	270	101	176	399
v/c Ratio	0.27	0.30	0.13	0.10	0.21	0.15
Control Delay	23.3	8.2	7.8	2.7	3.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	8.2	7.8	2.7	3.4	2.8
Queue Length 50th (ft)	19	2	23	0	26	33
Queue Length 95th (ft)	41	21	47	21	39	40
Internal Link Dist (ft)	1382		360			610
Turn Bay Length (ft)	300	300		200	225	
Base Capacity (vph)	545	543	2154	1003	837	2735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15	0.13	0.10	0.21	0.15

Intersection Summary

APPENDIX L

SIGHT DISTANCE ANALYSIS

SITE DISTANCE

SIX LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	304	340	403	440	476	513
30	364	408	483	527	572	616
35	425	476	564	615	667	718
40	486	544	644	703	762	821
45	546	612	725	791	857	923
50	607	680	805	879	952	1026
55	668	748	886	967	1048	1128

FOUR LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	285	322	377	414	451	487
30	342	386	453	497	541	585
35	399	451	528	579	631	682
40	456	515	603	662	721	780
45	513	579	679	745	811	877
50	570	644	754	827	901	974
55	627	708	829	910	991	1072

THREE LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	267	304	351	388	425	462
30	320	364	422	466	510	554
35	374	425	492	543	595	646
40	427	486	562	621	680	738
45	480	546	632	698	765	831
50	267	304	351	388	425	462
55	320	364	422	466	510	554

SITE DISTANCE

TWO LANE ROADWAY[1]

DESIGN SPEED	SIGHT DISTANCE					
	PASSENGER CAR		SINGLE-UNIT TRUCK		COMBINATION TRUCK	
	TH	LT	TH	LT	TH	LT
25	239	276	313	350	386	423
30	287	331	375	419	464	508
35	335	386	438	489	541	592
40	383	441	500	559	618	677
45	430	497	563	629	695	761
50	478	552	625	699	772	846
55	526	607	688	769	849	930

Notes: [1]
Cross section assumed to include a 12' median/center lane and 6' bike lane
TH = Through Movement, LT = Turn Movement
All distances given in feet
Design speed by roadway classification is shown in Appendix 5-3A
For cross sections deviating from the tabulated configurations, refer to the AASHTO Geometric Design of Highways and Streets (current editions) for additional information

APPENDIX M

TYPICAL SECTIONS & CITY ORDINANCE

construct the following street improvements, in conformance with the Design Standards and Policies Manual:

Street Name/Type	Dedications	Improvements	Notes
Scottsdale Road Major Arterial	75' half (65' existing)	Half street, 56' CL-BC, Figure 3.1-3	a, b, c, d, e
Hayden Road Major Arterial	75' half (65' existing)	Full street, 112' BC-BC, Figure 3.1-3	a, b, c, d, f
Union Hills Drive/Minor Arterial (east of Hayden Road)	45' half	Half street, 35' CL-BC, Figure 700-1	a, b, c, d
Union Hills Drive/Minor Arterial (west of Hayden Road)	110 ' full	Full street, 80' BC-BC, Figure 3.1-3	a, b, c, d
Miller Road/76th Street Major Collector	90' full	Full street, 70' BC-BC, Figure 700-1	a, b, c, d
Princess Boulevard Major Collector	90' full	Full street, 70' BC-BC, Figure 700-1	a, b, c, d
Legacy Boulevard Major Collector	90' full	Full street, 70' BC-BC, Figure 700-1	a, b, c, d
78th Street Major Collector	90' full	Full street, 70' BC-BC, Figure 700-1	a, b, c, d, g
101 Freeway Access Road (Hayden Road to west property line)	40' full	32' Pavement width	a, b, c, d, h
Internal Commercial Roads Local Commercial	60' full	Full street, 40' BC-BC, Fig. 3.1-7	b, c
Internal Residential Roads Local Residential	40' full	Full street, 23' min. BC-BC, Fig. 700-5	b, c

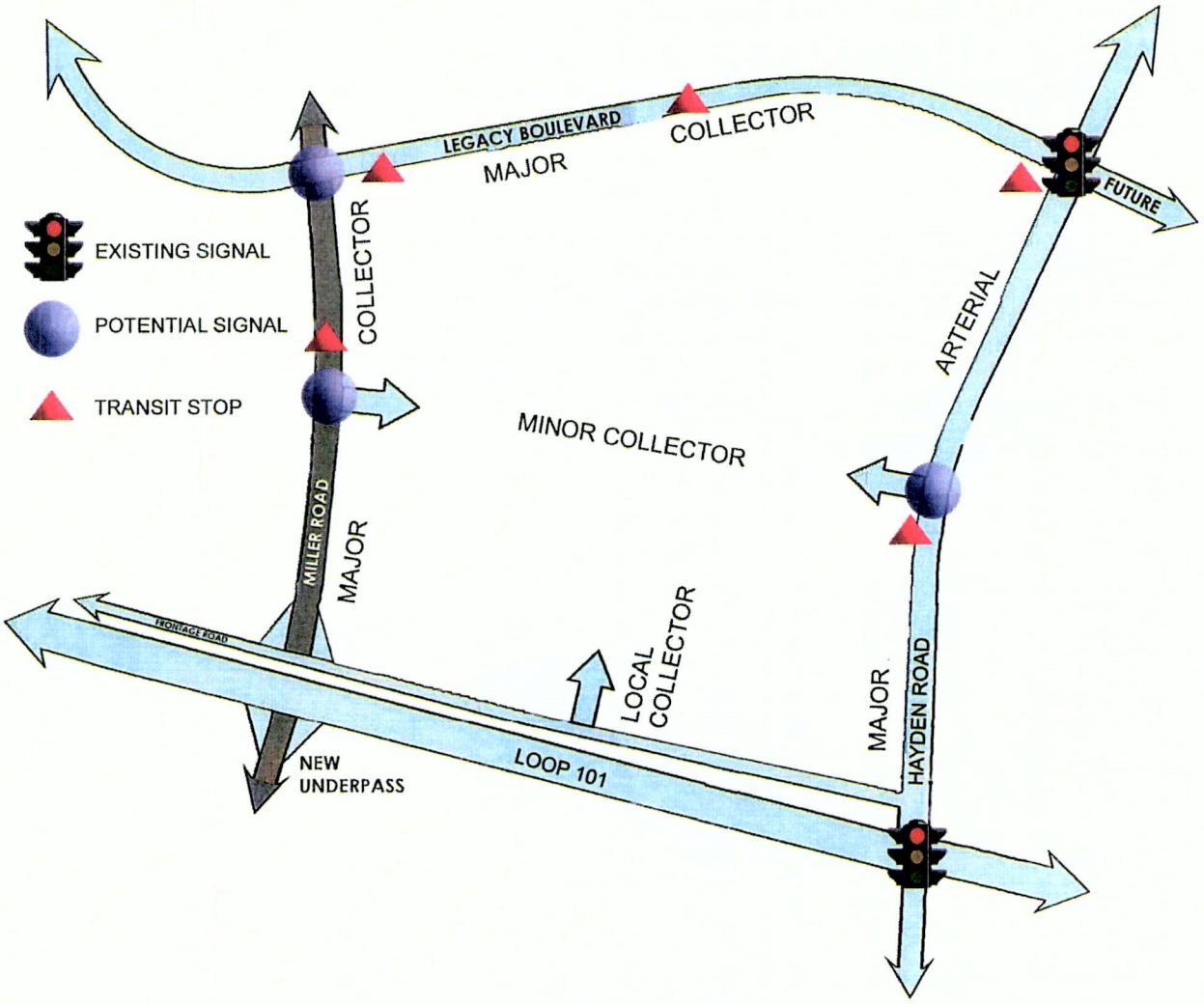
a. Additional right-of-way may be required to protect the natural environment, to provide auxiliary lanes, or to serve the immediate area with a higher street standard as determined by City staff based upon updated traffic impact studies or through the master plan process.

b. The indicated right-of-way shall be a dedicated tract that provides emergency and service vehicle access and the installation of public utilities where private streets are approved.

c. Right-of-way dedications shall include appropriate easements for all applicable drainage ways trails, bike paths and natural area buffers. Statements identifying the responsibility for maintenance shall be included as part of the dedication.

d. Cross sections of street improvements shall conform to the current City of Scottsdale standard street cross sections at the time of

Transportation / Circulation Concept Plan
Attachment #4



CROSSROADS EAST
PLANNING UNIT V
SCOTTSDALE, ARIZONA

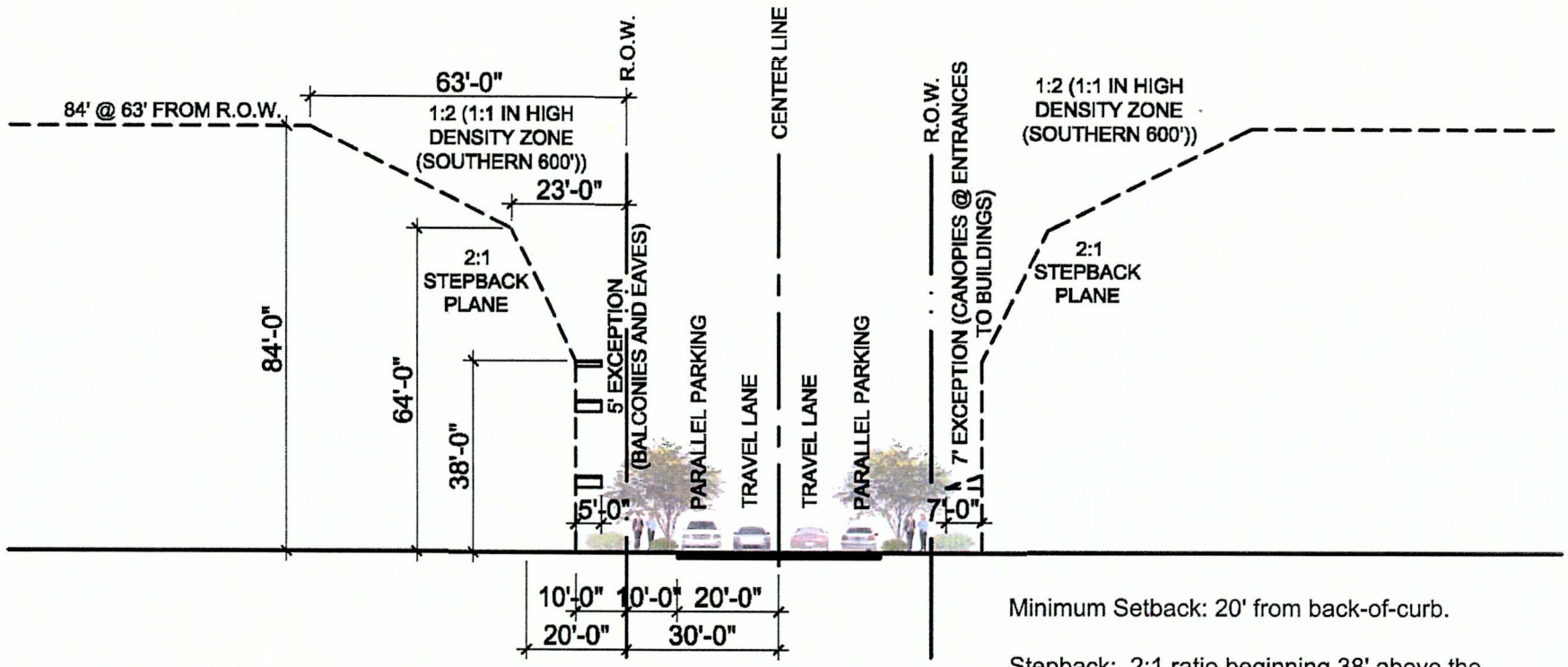
Circulation Concepts

The circulation networks that will serve this development area include:

1. Major Streets: Hayden Road as a Major Arterial; Legacy and Miller Roads as Major Collectors
2. Minor Streets: an east/west Minor Collector through the development area; a Local Collector serving as the direct entrance from the Pima Freeway Frontage Road; a network of interior Local Streets with limited connections to the perimeter streets
3. Bikeways: bike lanes on all arterial and collector streets; shared use on local streets
4. Transit Service: Transit stops anticipated along all perimeter streets as the general area builds out

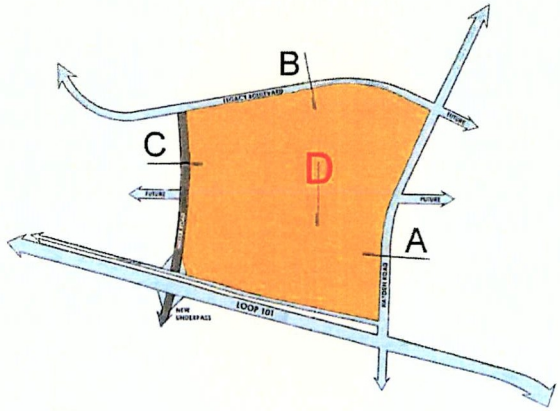
D: INTERNAL ROAD - LOCAL COMMERCIAL

PROPOSED SECTION



Minimum Setback: 20' from back-of-curb.

Stepback: 2:1 ratio beginning 38' above the setback line up to a height of 64' then 1:1 within 600' of the freeway right-of-way / 1:2 more than 600' from the freeway right-of-way.



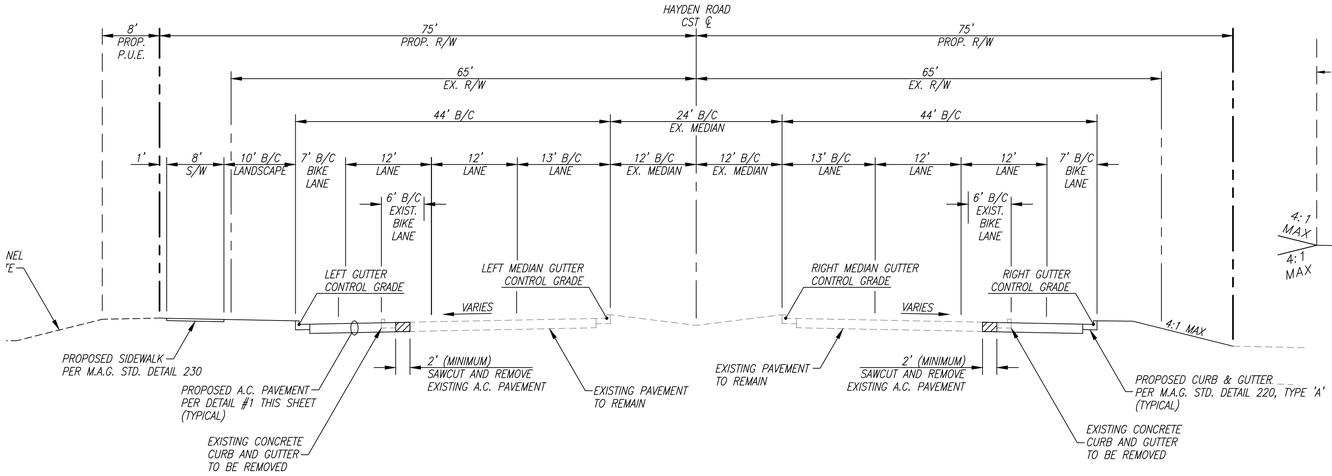
CROSSROADS EAST

PLANNING UNIT V

SCOTTSDALE, ARIZONA

04.24.18

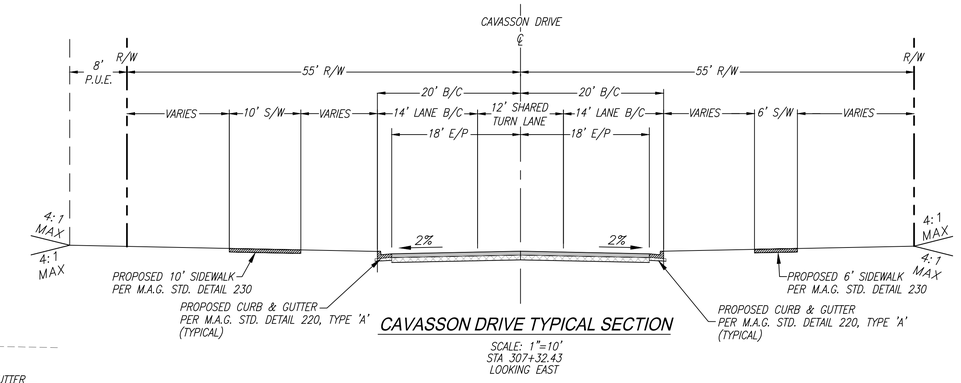
15148



TYPICAL SECTION #1 (CROWN)

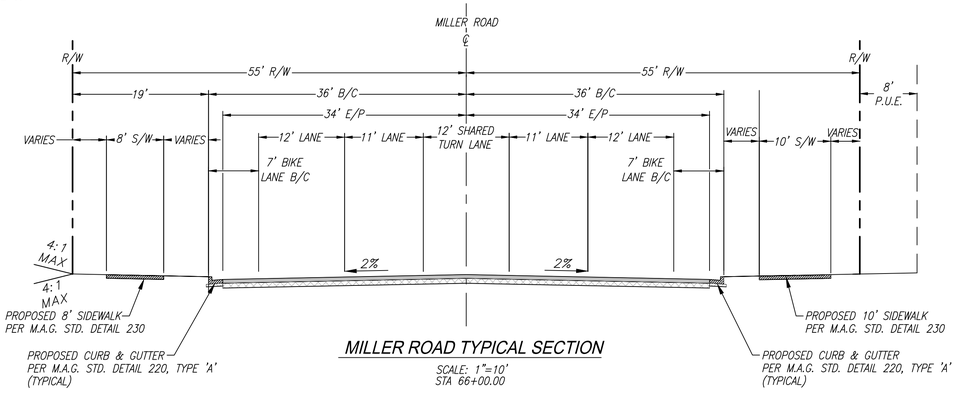
SCALE: 1"=10'

STA 87+66.15± TO STA 90+93.00±
STA 104+42.00± TO STA 111+61.39±



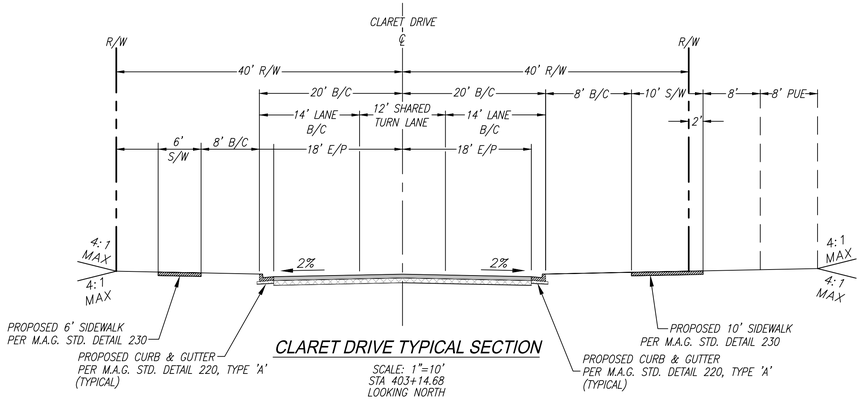
CAVASSON DRIVE TYPICAL SECTION

SCALE: 1"=10'
STA 307+32.43
LOOKING EAST



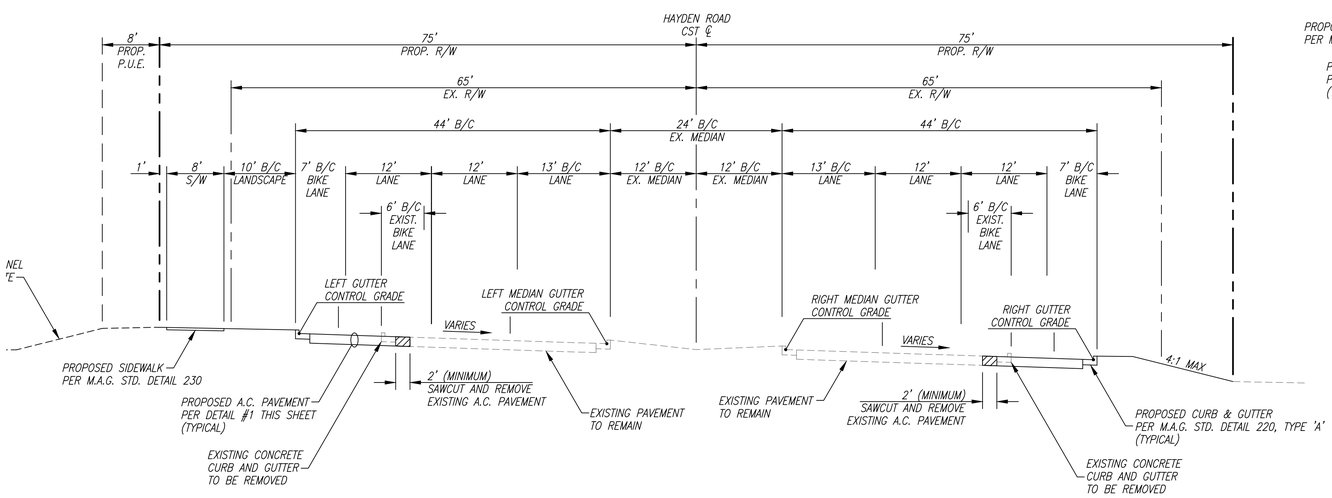
MILLER ROAD TYPICAL SECTION

SCALE: 1"=10'
STA 66+00.00



CLARET DRIVE TYPICAL SECTION

SCALE: 1"=10'
STA 403+14.68
LOOKING NORTH



TYPICAL SECTION #2 (SUPERELEVATION)

SCALE: 1"=10'

STA 90+93.00± TO STA 104+42.00±

HUBBARD ENGINEERING
1201 S. Alma School Rd.
Suite 12000
Mesa, AZ 85210
Ph: 480.892.3313
www.hubbardengineering.com

TYPICAL ROAD SECTIONS

CAVASSON

A PORTION OF THE SOUTHWEST QUARTER OF SECTION 26 TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA

Date	Project Eng.
02/20/19	M. WOLF P.E.
Project No.	Project Mgr.
18114	G. BROWN

NOT FOR CONSTRUCTION PRELIMINARY FOR RECORDING BID AT RISK

811 Call before you dig. 1.800.STAKE.IT 602.263.1100

P:\2018\18114\Exhibits\DWG\Typical Road Sections.dwg Apr 02, 2019 - 11:23am dbrown

SCOTTSDALE AIRPORT VICINITY DEVELOPMENT SHORT FORM

For development projects within 20,000 feet of Scottsdale Airport NOT located on an Airpark taxilane or adjacent to airport property

The owner of developments within the Airport Influence Area shall complete forms required by the City and Scottsdale Airport to comply with the Scottsdale Revised Code, Chapter 5 – Aviation and the Airpark Rules and Regulations; and submit the completed forms with final plans to the assigned city project manager.

Project Name: @ HOTEL HILTON	Pre-App: 517-PA-19
Site Address: 18700 ~~N. GRAYSON~~ NORTH HAYDEN RD	
Contact name: GARY NUSS	Phone: 614 402 4806

1. HEIGHT ANALYSIS, CH. 5, SEC. 5-354. GENERAL REQUIREMENTS

☐ Applicants must conduct a height analysis for all projects located within 20,000 feet of Scottsdale Airport.

1. Complete a height analysis for all structures, appurtenances or construction equipment through the FAA at: https://oeaaa.faa.gov/oeaaa/external/portal.jsp, click on the Notice Criteria Tool (left side). If you do not exceed criteria, submit this FAA response from the website with your packet or you must complete step 2.

IF required by FAA, complete Step 2

2. Submit an FAA form 7460-1 Notice of Proposed Construction or Alteration for review and determination. Please allow about 45 days for this process. A copy of the FAA's response will be required prior to final plan approval.

2. AIRCRAFT NOISE AND OVERFLIGHT DISCLOSURE, CH. 5, SEC. 5-356 & SECT. 5-357

☒ Incorporate the Airport Disclosure for Development around Scottsdale Airport language into the CC&Rs or other procedural documents and provide a copy. *Exhibit A*

☒ An avigation easement will need to be granted to the city. If not already recorded for property, submit a notarized Avigation Easement form with packet to your project manager. *Exhibit B*

3. APPLICANT'S SIGNATURE

Signature:

Date: 3/12/20

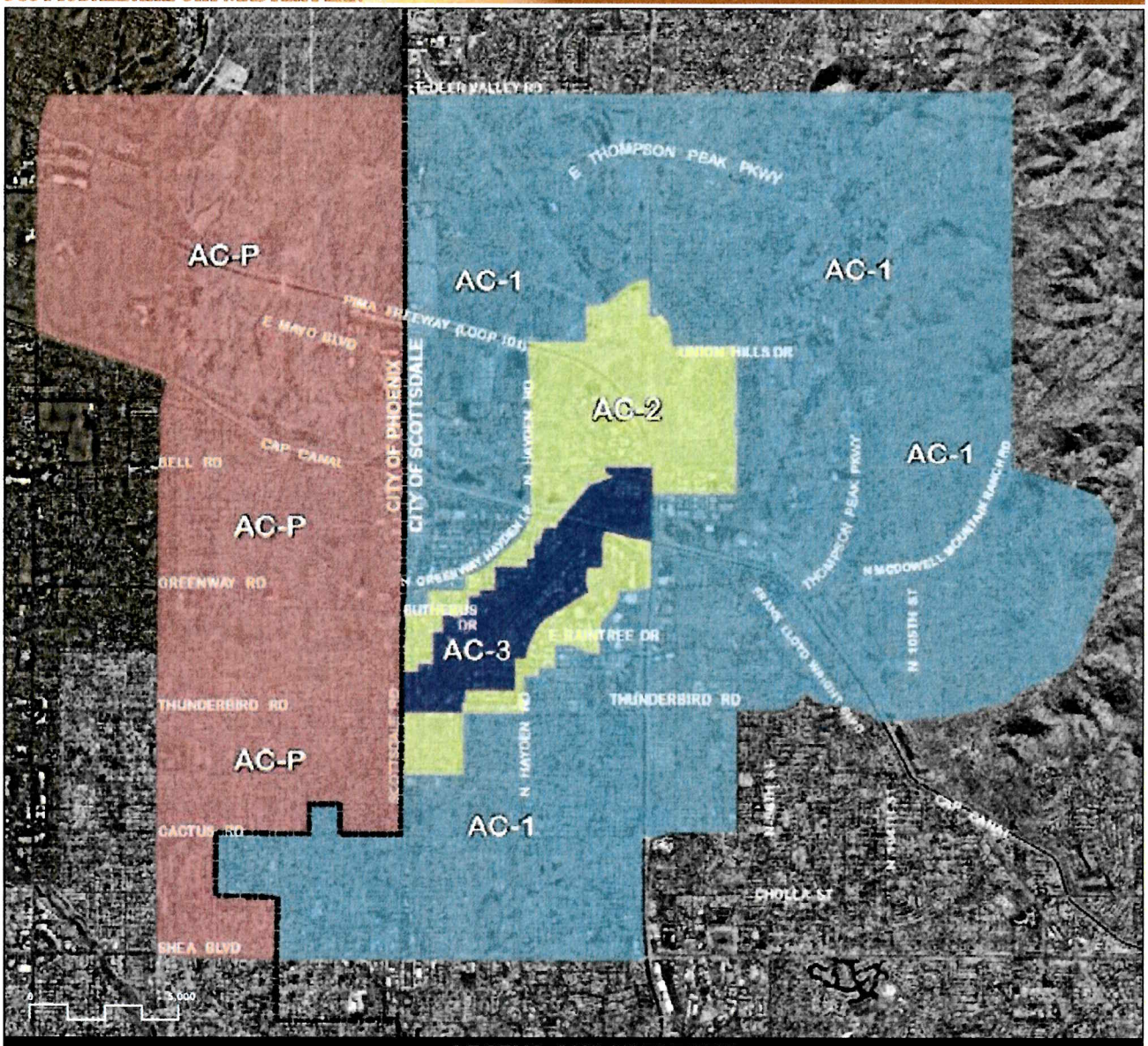
Aviation Approval:

Date:

Comments:

For questions regarding this form or aviation-related requirements, contact Scottsdale Airport at 480-312-2321.

SCOTTSDALE AIRPORT
SDL



LEGEND AND TABLE KEY

Municipal Boundary

Airport Influence Areas

AC-1 AC-3
AC-2 AC-P

NP - Not Permitted
P - Permitted with Use Limitations
(1) - Avigation easement required under Sec. 5-357
(2) - Noise attenuation required under Sec. 5-358

Noise Sensitive Uses	AC[1]-3	AC-2	AC-1
Dwelling unit*	NP	P (1) (2)	P (1)
Manufactured home*	NP	P (1) (2)	P (1)
Elementary and secondary school*	NP	P (1) (2)	P (1)
Hospital*	NP	P (1) (2)	P
Travel accommodation*	NP	P (1) (2)	P
Place of worship	NP	P (1) (2)	P (1)
Cultural, civic, and social organization	NP	P (1) (2)	P (1)

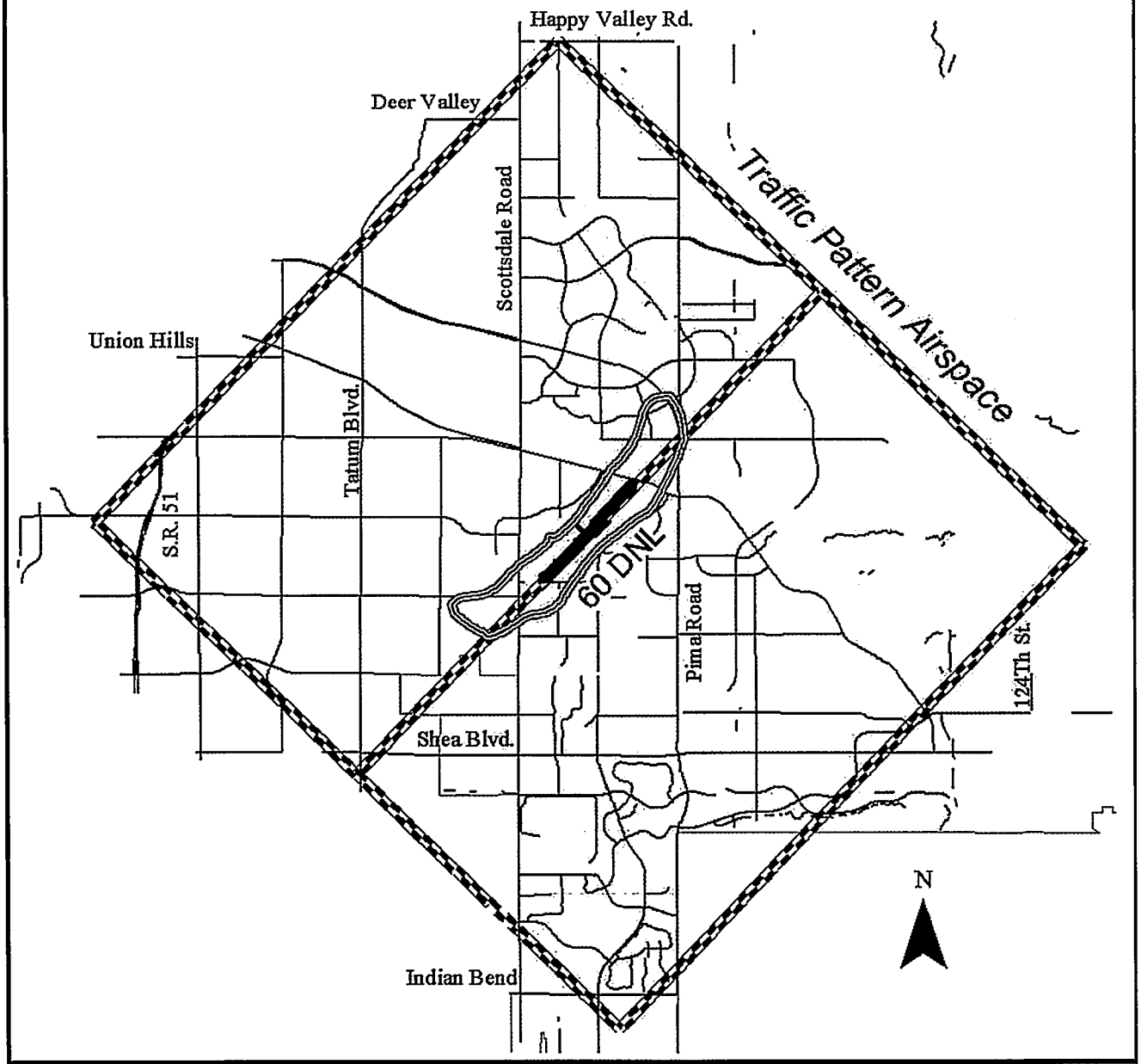
* The terms dwelling unit, manufactured home, elementary and secondary school, hospital and travel accommodation defined in the Basic Zoning Ordinance.
[1] AC - Airport Compatibility District

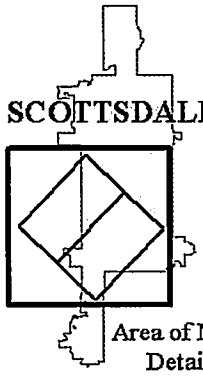
SOURCE: Scottsdale Revised Code; August 2012

SCOTTSDALE AIRPORT SDL

AIRPORT INFLUENCE AREA AND NOISE OVERLAY ZONES

Scottsdale Airport
Traffic Pattern Airspace





1 0.5 0 1 2 3 Miles

Map Date: October 18, 2001

EXHIBIT A

SAMPLE FAIR DISCLOSURE FOR DEVELOPMENT AROUND SCOTTSDALE

AIRPORT NOTICE TO PURCHASERS

OF PROXIMITY TO THE SCOTTSDALE AIRPORT

To include in CC&R's or disclosure notice:

Proximity to Airport.
Each Owner of a Lot in the Airport Influence Area identified in Chapter 5 of the Scottsdale Revised Code acknowledges that, as of the date of this notice:

(a) The Lot is close to the Scottsdale Airport (the "Airport"), located generally between Frank Lloyd Wright Boulevard on the north, Pima Road on the east, Thunderbird Road on the south and Scottsdale Road on the west.

(b) The Airport is operated as a general aviation reliever/commercial service airport for Scottsdale and North Phoenix, and used generally for airplanes, jets and helicopters.

(c) Aircraft using the Airport may fly over the Lot and adjacent properties at altitudes that vary for several reasons, including weather conditions, aircraft type, aircraft performance and pilot proficiency.

(d) The majority of takeoffs and landings occur between 6:00 a.m. and 11:00 p.m., but the Airport is open 24 hours each day, so takeoffs and landings may occur at any time.

(e) The number of takeoffs and landings at the Airport average approximately 400 each day, but that number varies and may increase.

(f) Aircraft using the Airport will generate noise, the volume, pitch, amount and frequency of which will vary for several reasons, including weather conditions, aircraft type, aircraft altitude and aircraft number.

(g) Airport management attempts to minimize aircraft noise and its influence on Lots in the Airport Influence Zone, but there is no guarantee that such attempts will be effective or remain in place.

The Owner accepts and assumes any and all risks, burdens and inconvenience caused by or associated with the Airport and its operations (including noise), and agrees not to assert or make any claim arising out of the Airport and its operations against the City of Scottsdale, its elected and appointed officials, officers, directors, commissioners, representatives, employees, and agents.

Any questions regarding the operation of the Airport can be directed to the Airport Administration office at 480-312-2321.

See City staff for official document. Signed documents accepted by City only after approval of legal description.

WHEN RECORDED, RETURN TO:

City of Scottsdale
One Stop Shop/Records
7447 E. Indian School Road, Suite 100
Scottsdale, AZ 85251

Exempt from Affidavit of Value
under A.R.S. § 11-1134(A)(2, 3)

CITY OF SCOTTSDALE
AVIGATION EASEMENT

Project No. _____

APN _____

FOR ONE DOLLAR ($1.00) and other good and valuable consideration received _____ (collectively "Grantor") grants to the City of Scottsdale, an Arizona municipal corporation ("Grantee"), a perpetual, non-exclusive easement upon, over and across the parcel of land (the "Property") described on the legal description and the sketch attached hereto as Exhibits "A" and "B". The purpose of the easement is for a right of flight for aircraft in the airspace above the Property.

1. "Aircraft" means any manned or unmanned device that flies.

2. Without limitation, the right of flight includes the right to operate aircraft over and near the Property, and cause any noise, vibration, fumes, light, exhaust, odors, fuel vapor particles, electronic interference, dust, annoyances, nuisances, emissions, and any other effects relating to operating aircraft (collectively "Aircraft Effects").

3. All Aircraft Effects are included within the scope of the easement, including without limitation those that reach or affect the Property or improvements to the Property, interfere with other uses of the Property, annoy users of the Property, and are caused or made worse by any changes in the following:

   3.1 The size, number, method of propulsion, weight, noisiness, design, fuel, category, type or other characteristics of aircraft, and in any aircraft practices, laws, rules, policies, circumstances, customs, protocols or procedures.

   3.2 The airport size, orientation, configuration, location, runway length, improvements or other characteristics, and in any airport practices, laws, rules, policies, circumstances, customs, protocols or procedures.

   3.3 The flight paths, flight frequency, flight timing, airport operations, climbing and descending, altitudes, takeoff and landing, air traffic control, and in any related aircraft and airport practices, laws, rules, policies, circumstances, customs, protocols or procedures.

See City staff for official document. Signed documents accepted by City only after approval of legal description.

3.4 Grantor's or others' personal perceptions of Aircraft Effects or sensitivity to Aircraft Effects.

4. Grantor shall not cause or allow the Property to be used to discharge fumes; smoke; dust; or electronic, light, laser or other emissions, which may obstruct visibility or adversely affect or interfere with the operation of aircraft or any navigational facilities. No building, mast, tree, vegetation, or other thing upon the Property shall exceed Federal Aviation Administration approved height restrictions.

5. Grantor has been advised and understands that:

   5.1. All or a portion of the Property is located in a noise-influence area.

   5.2. Aircraft Effects might be annoying to users of the Property and might interfere with the unrestricted use and enjoyment of the Property.

   5.3. Aircraft Effects will likely increase over time.

6. Grantor waives all rights and claims that Grantor may ever have against, and agrees not to sue, Grantee regarding Aircraft Effects. Grantor makes its waivers and agreements for itself, its successors and assigns, in favor of Grantee, and all Grantee's officers, officials, employees, agents, lessees, permittees, invitees, successors and assigns.

Grantor warrants and covenants to Grantee and its successors and assigns that Grantor is lawfully seized and possessed of the Property; that Grantor has a good and lawful right to make the conveyance described herein; and that Grantee shall have title and quiet possession against the claims of all persons.

The person executing this document on behalf of a corporation, trust or other organization warrants his or her authority to do so and that all persons necessary to bind Grantor have joined in this document. This document runs with the land in favor of Grantee's successors and assigns.

DATED this ____ day of _____, 20___.

GRANTOR: _____

for _____

_____

for _____

STATE OF ARIZONA)
) ss.

See City staff for official document. Signed documents accepted by City only after approval of legal description.

County of Maricopa)

This document was acknowledged before me this ___ day of _____, 20___, by _____ for and on behalf of_____.

_____
NOTARY PUBLIC

My commission expires:

_____

STATE OF ARIZONA)
) ss.
County of Maricopa)

This document was acknowledged before me this ___ day of _____, 20___, by ___ _____ for and on behalf of _____.

_____
NOTARY PUBLIC

My commission expires:

_____

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11605-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 1
Location:	Scottsdale, AZ
Latitude:	33-39-31.86N NAD 83
Longitude:	111-54-34.09W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

5-DR-2020
1/24/2020

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11605-OE.

Signature Control No: 419798022-425032485 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

5-DR-2020
1/24/2020

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

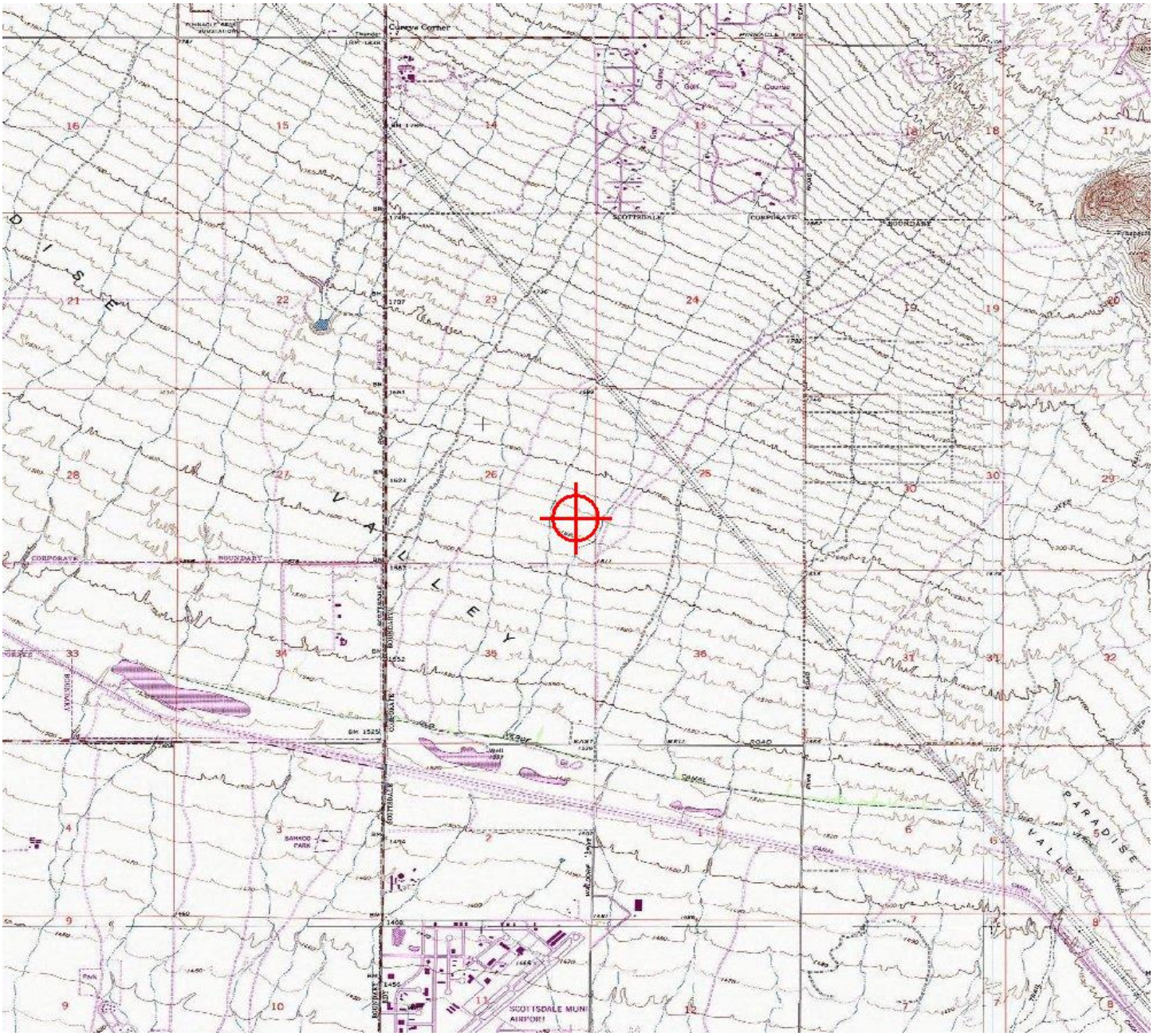
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

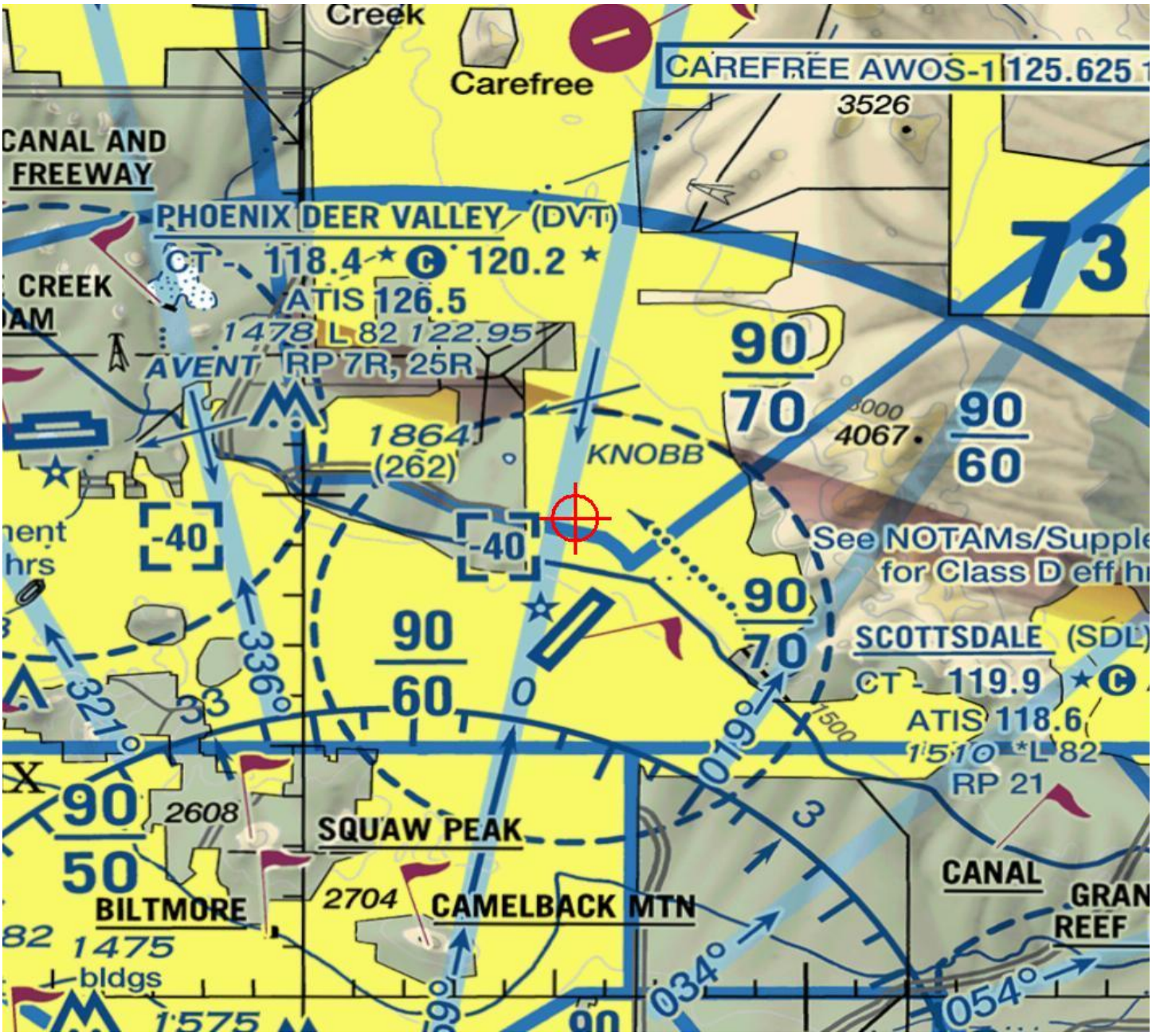
7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11605-OE



5-DR-2020
1/24/2020



5-DR-2020
1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11606-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 2
Location:	Scottsdale, AZ
Latitude:	33-39-30.82N NAD 83
Longitude:	111-54-30.41W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

5-DR-2020
1/24/2020

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11606-OE.

Signature Control No: 419798023-425032484 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

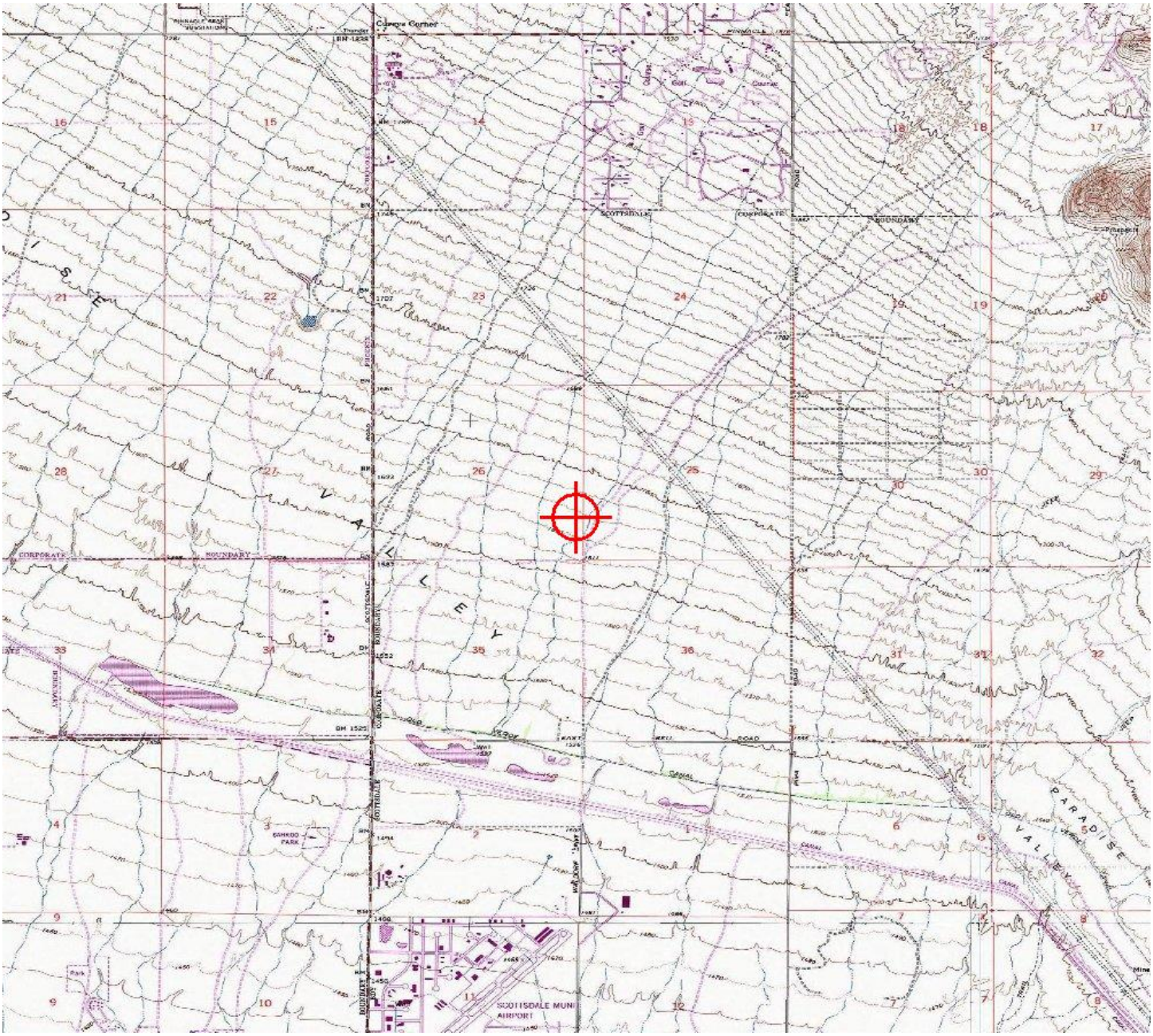
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11606-OE



5-DR-2020
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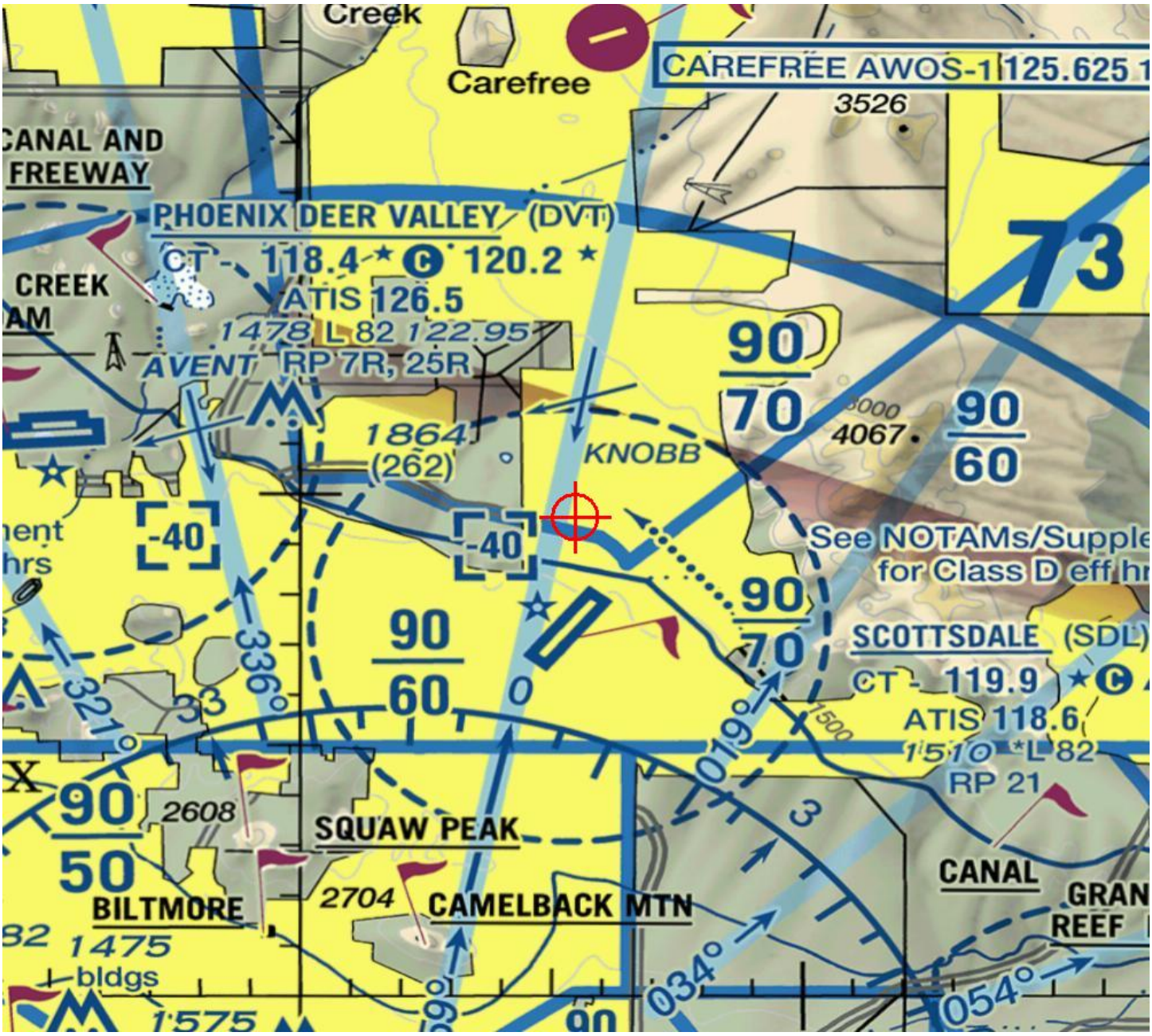

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1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11607-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 3
Location:	Scottsdale, AZ
Latitude:	33-39-29.25N NAD 83
Longitude:	111-54-30.29W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

5-DR-2020
1/24/2020

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11607-OE.

Signature Control No: 419798024-425032486 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

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Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

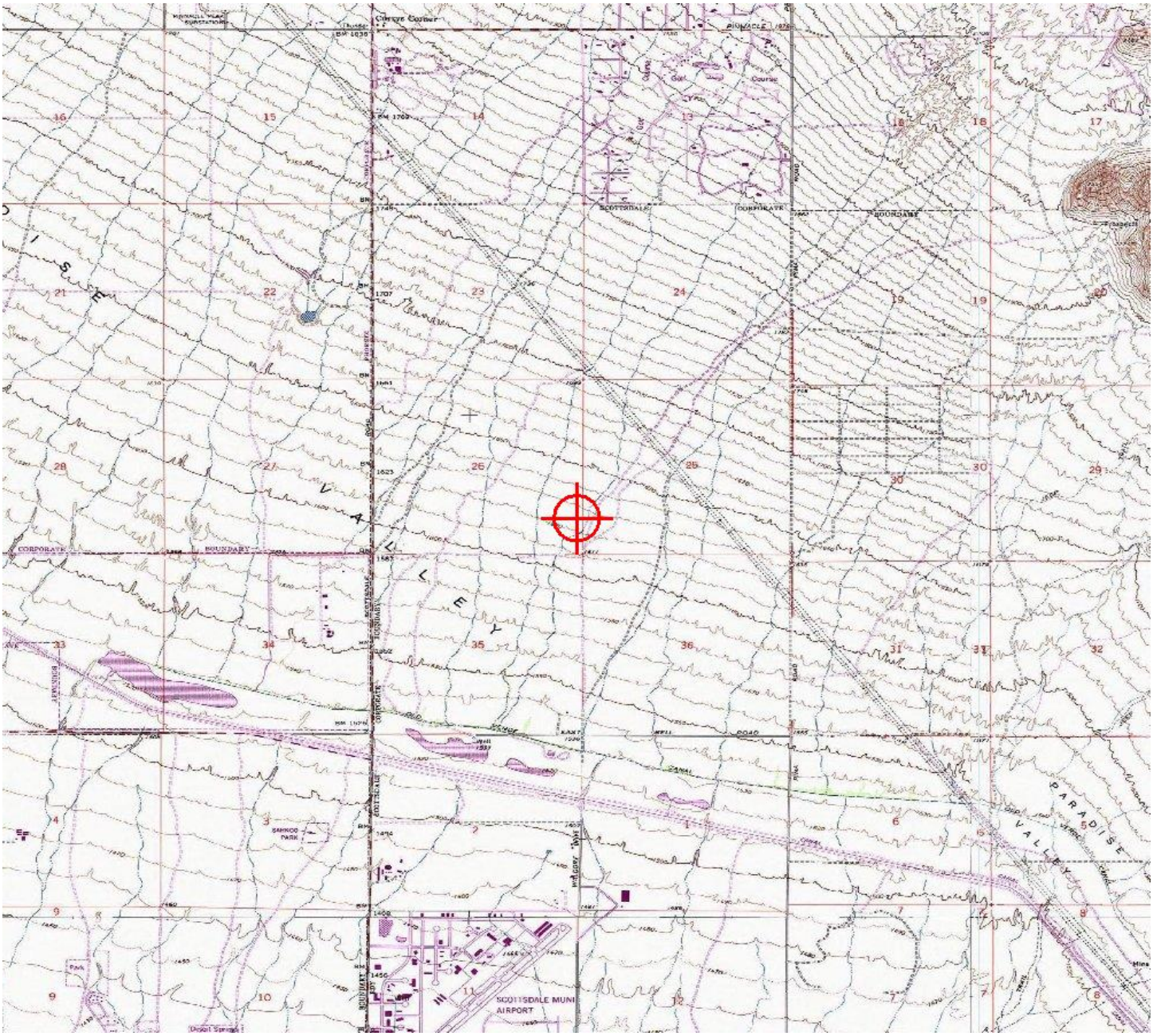
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11607-OE



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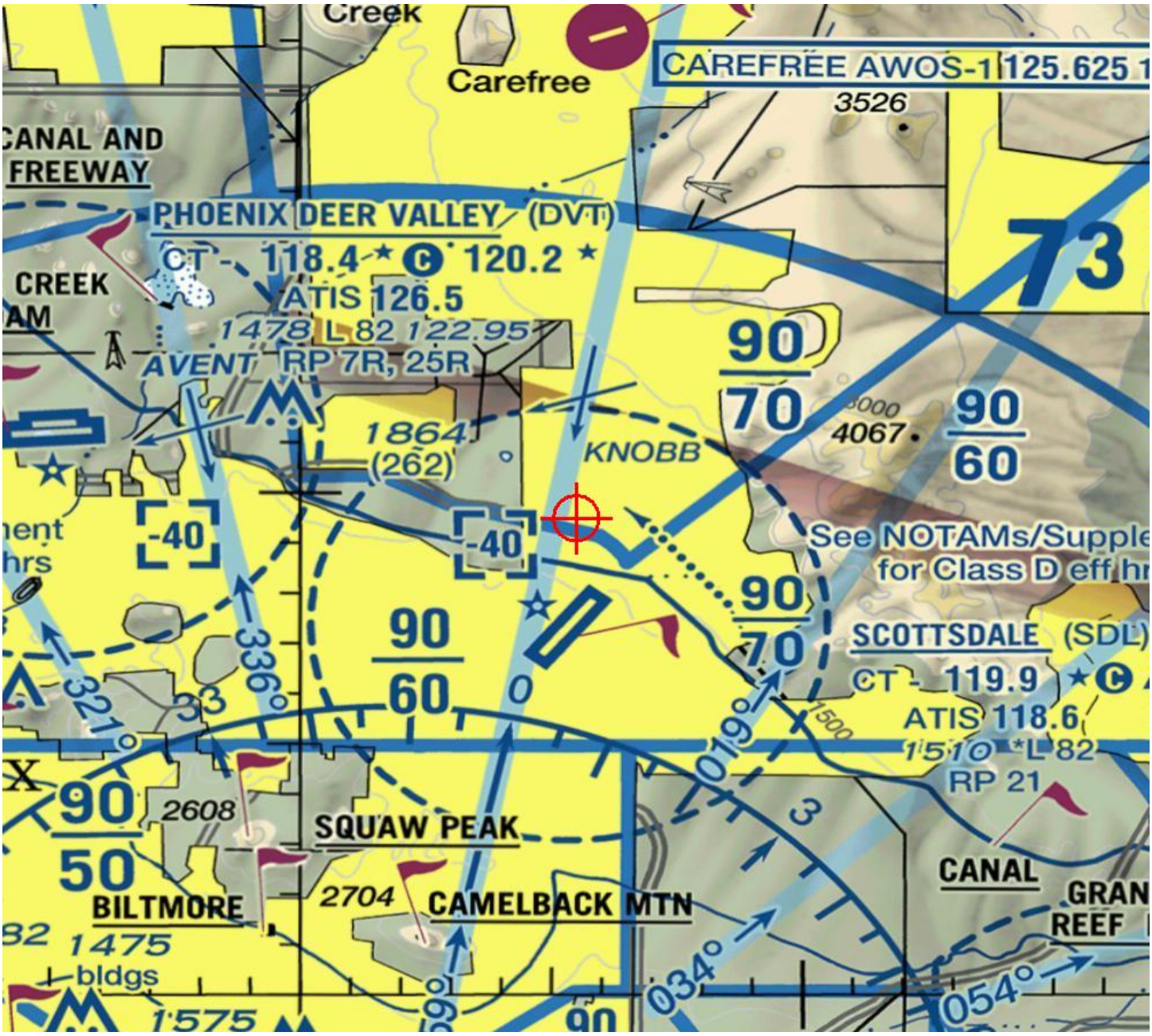
1/24/2020



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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11608-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 4
Location:	Scottsdale, AZ
Latitude:	33-39-29.20N NAD 83
Longitude:	111-54-31.33W
Heights:	1634 feet site elevation (SE) 85 feet above ground level (AGL) 1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

5-DR-2020
1/24/2020

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11608-OE.

Signature Control No: 419798025-425032791 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

5-DR-2020
1/24/2020

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

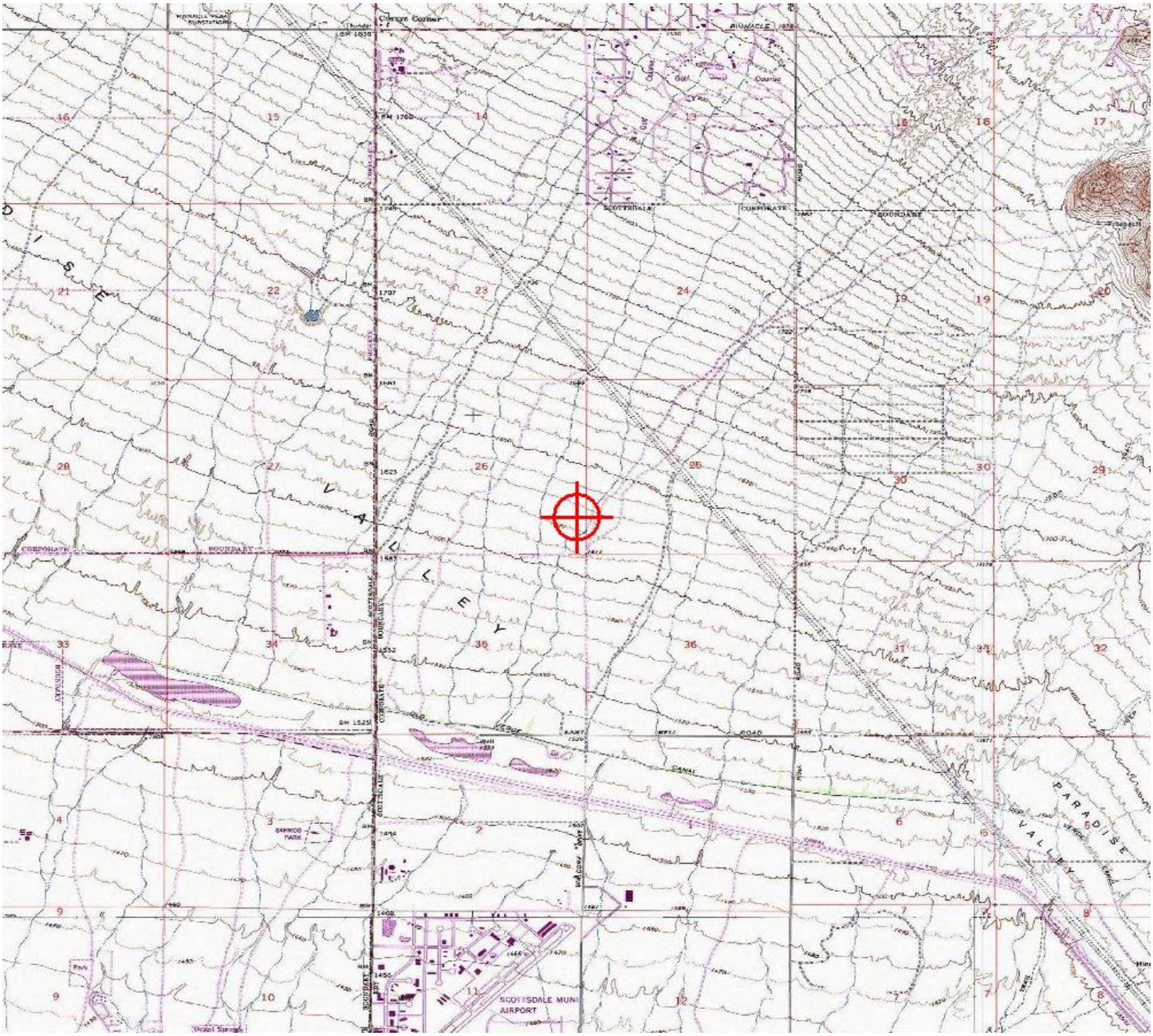
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

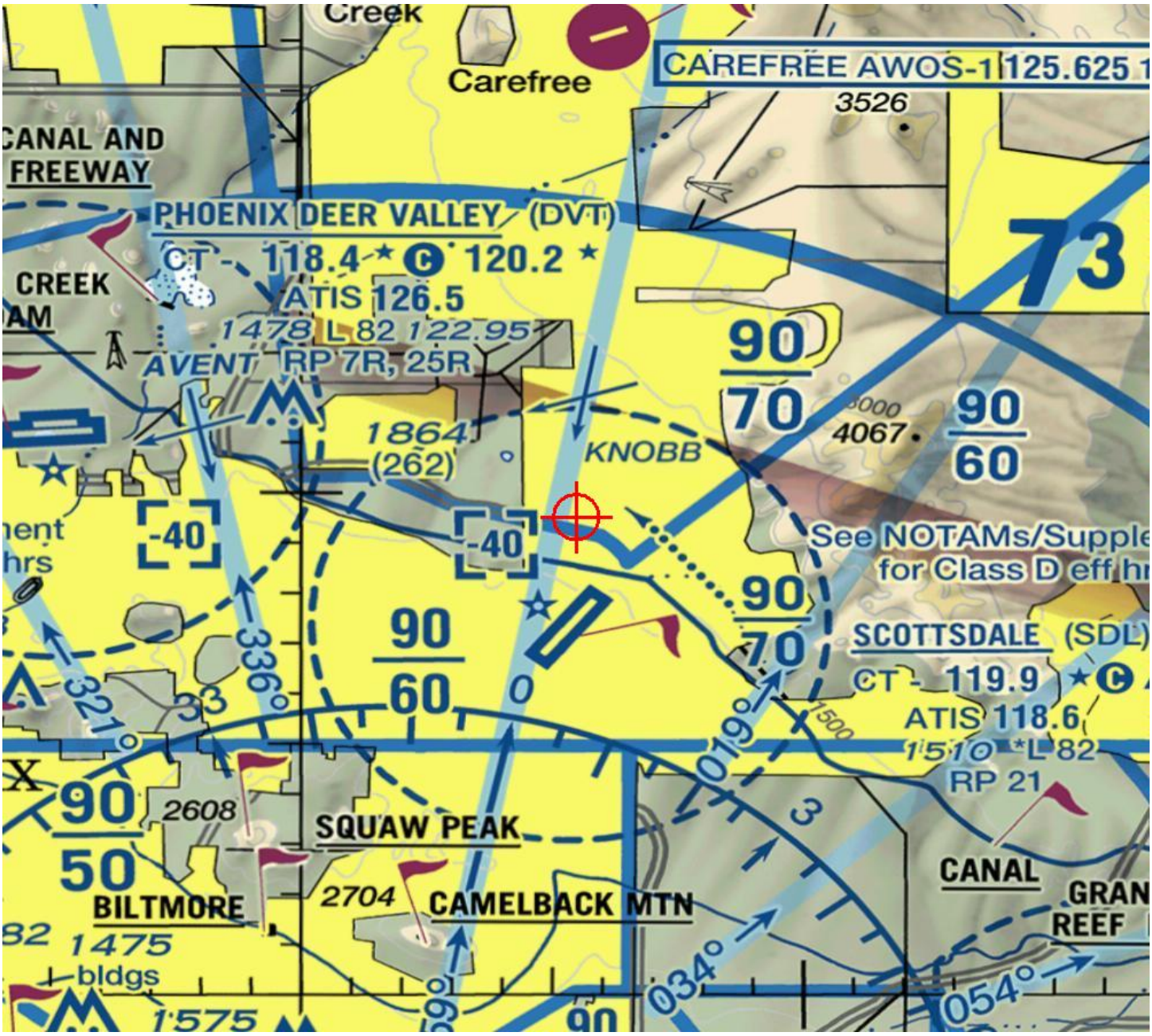
7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11608-OE



5-DR-2020
1/24/2020



5-DR-2020
1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11609-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 5
Location:	Scottsdale, AZ
Latitude:	33-39-30.60N NAD 83
Longitude:	111-54-31.70W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

5-DR-2020
1/24/2020

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11609-OE.

Signature Control No: 419798026-425032790 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

5-DR-2020
1/24/2020

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

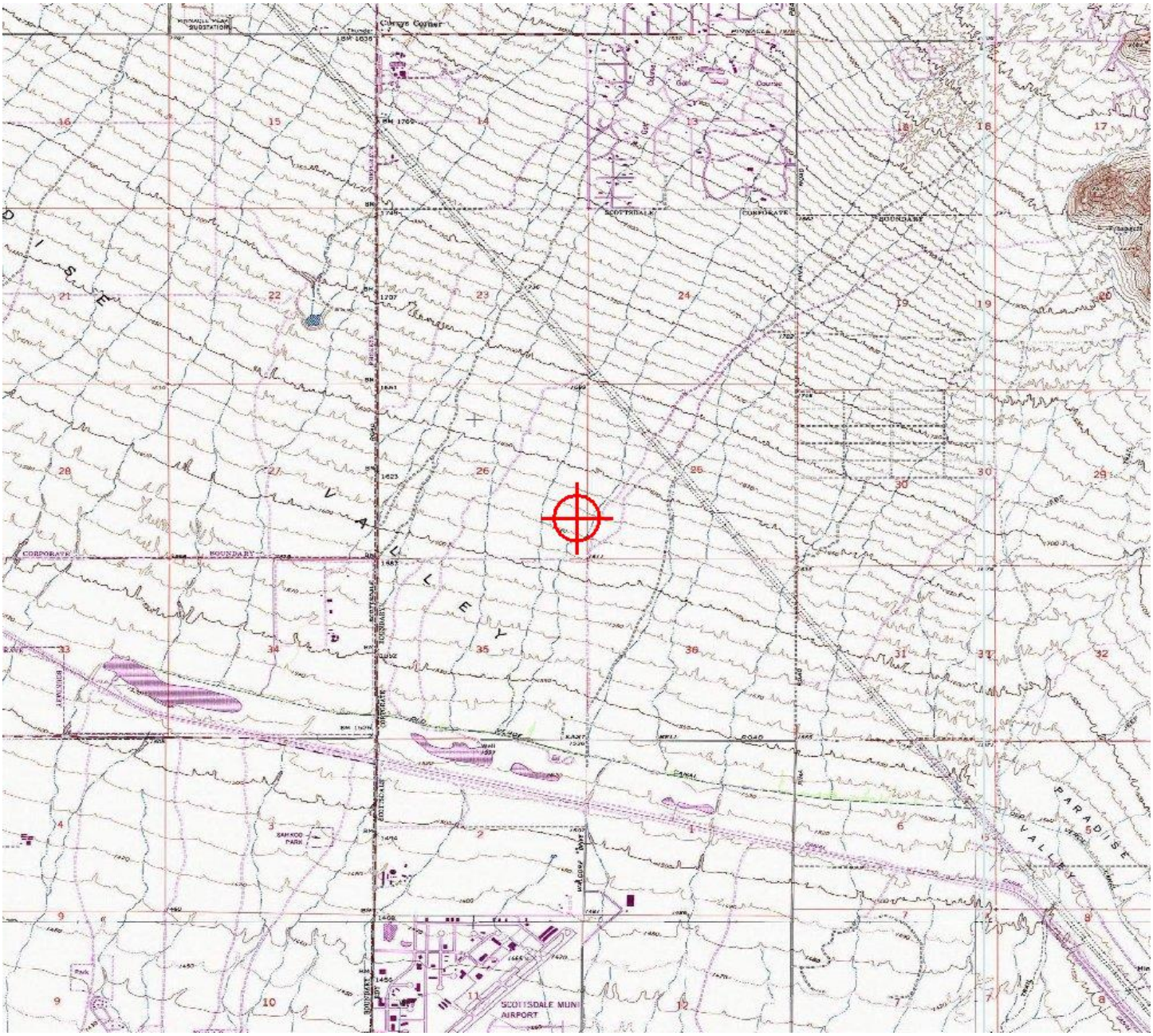
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

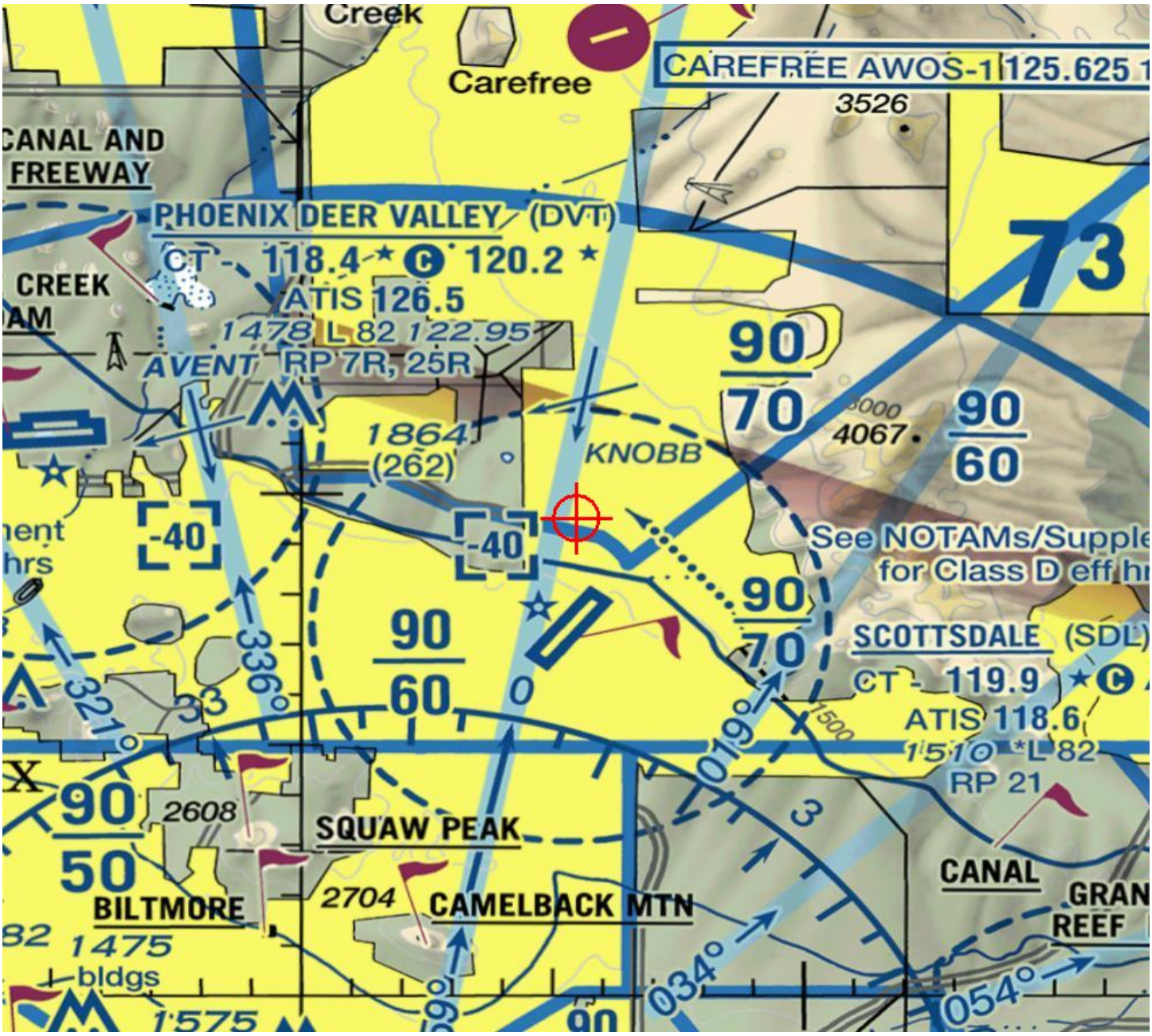
7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11609-OE



5-DR-2020
1/24/2020



5-DR-2020
1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11610-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 6
Location:	Scottsdale, AZ
Latitude:	33-39-30.88N NAD 83
Longitude:	111-54-33.12W
Heights:	1634 feet site elevation (SE) 85 feet above ground level (AGL) 1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

5-DR-2020
1/24/2020

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11610-OE.

Signature Control No: 419798027-425032788 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

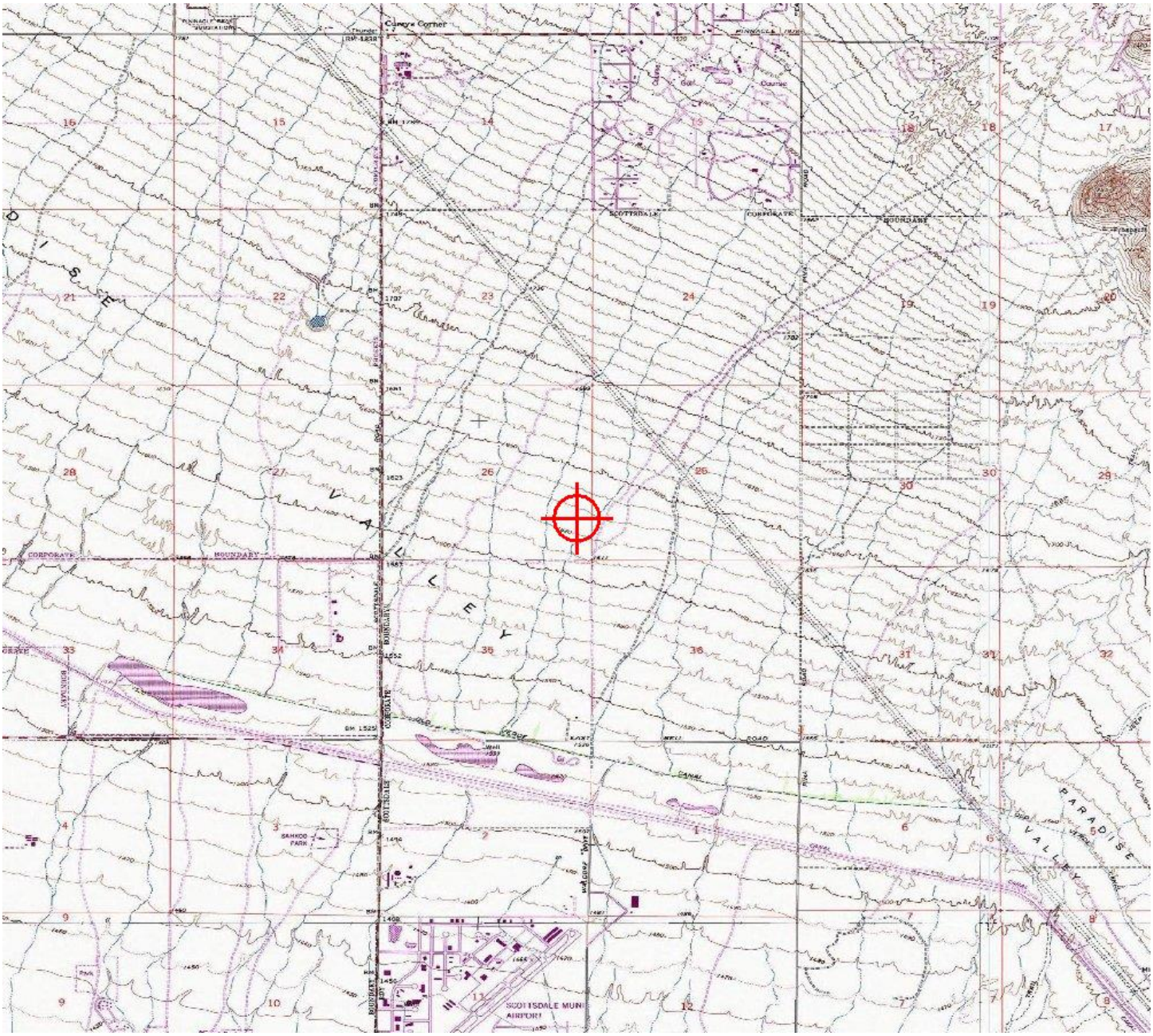
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

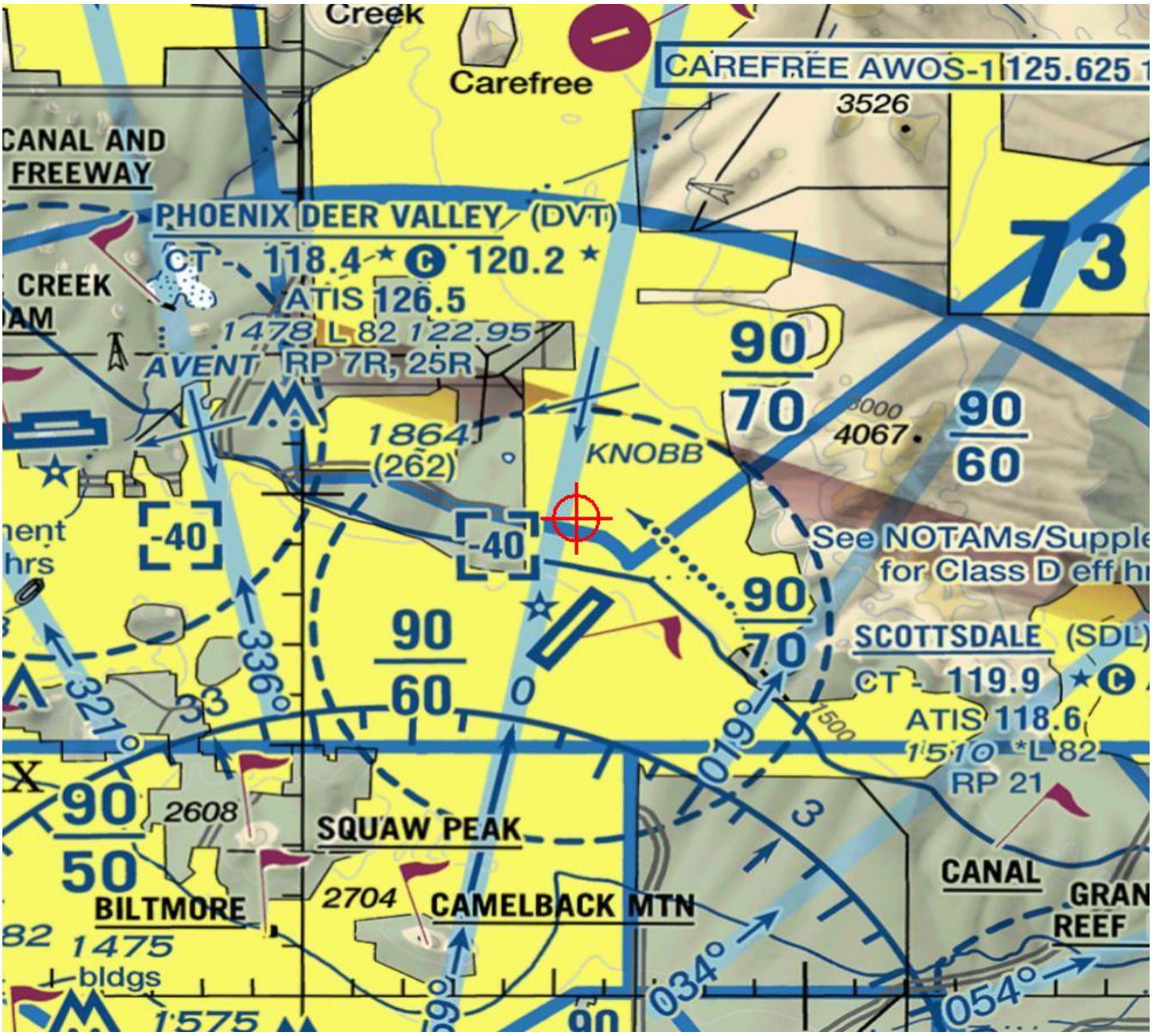
7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11610-OE



5-DR-2020
1/24/2020



5-DR-2020
1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11611-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 7
Location:	Scottsdale, AZ
Latitude:	33-39-29.64N NAD 83
Longitude:	111-54-33.43W
Heights:	1634 feet site elevation (SE) 85 feet above ground level (AGL) 1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

5-DR-2020
1/24/2020

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11611-OE.

Signature Control No: 419798028-425032789 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

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1/24/2020

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

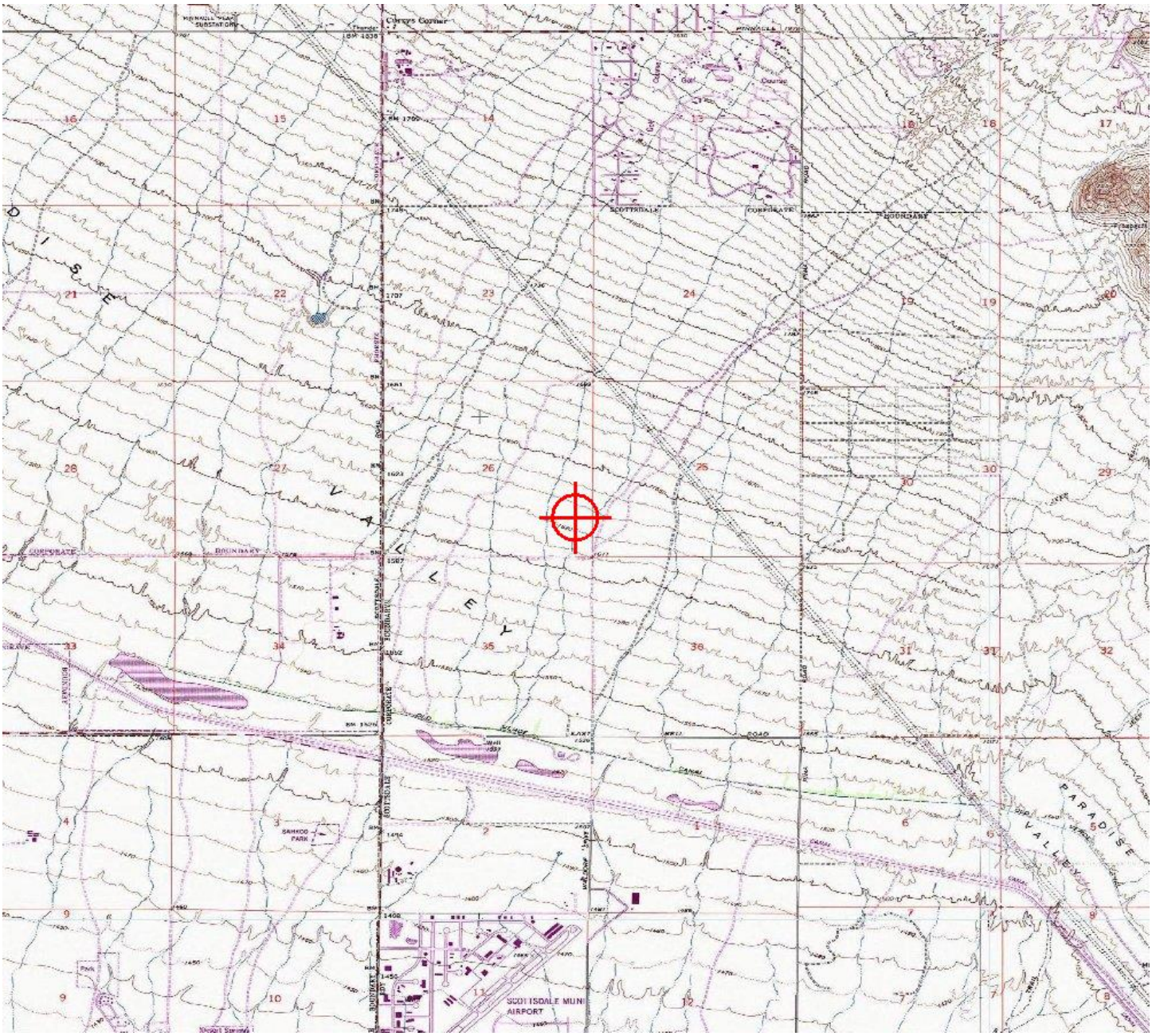
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

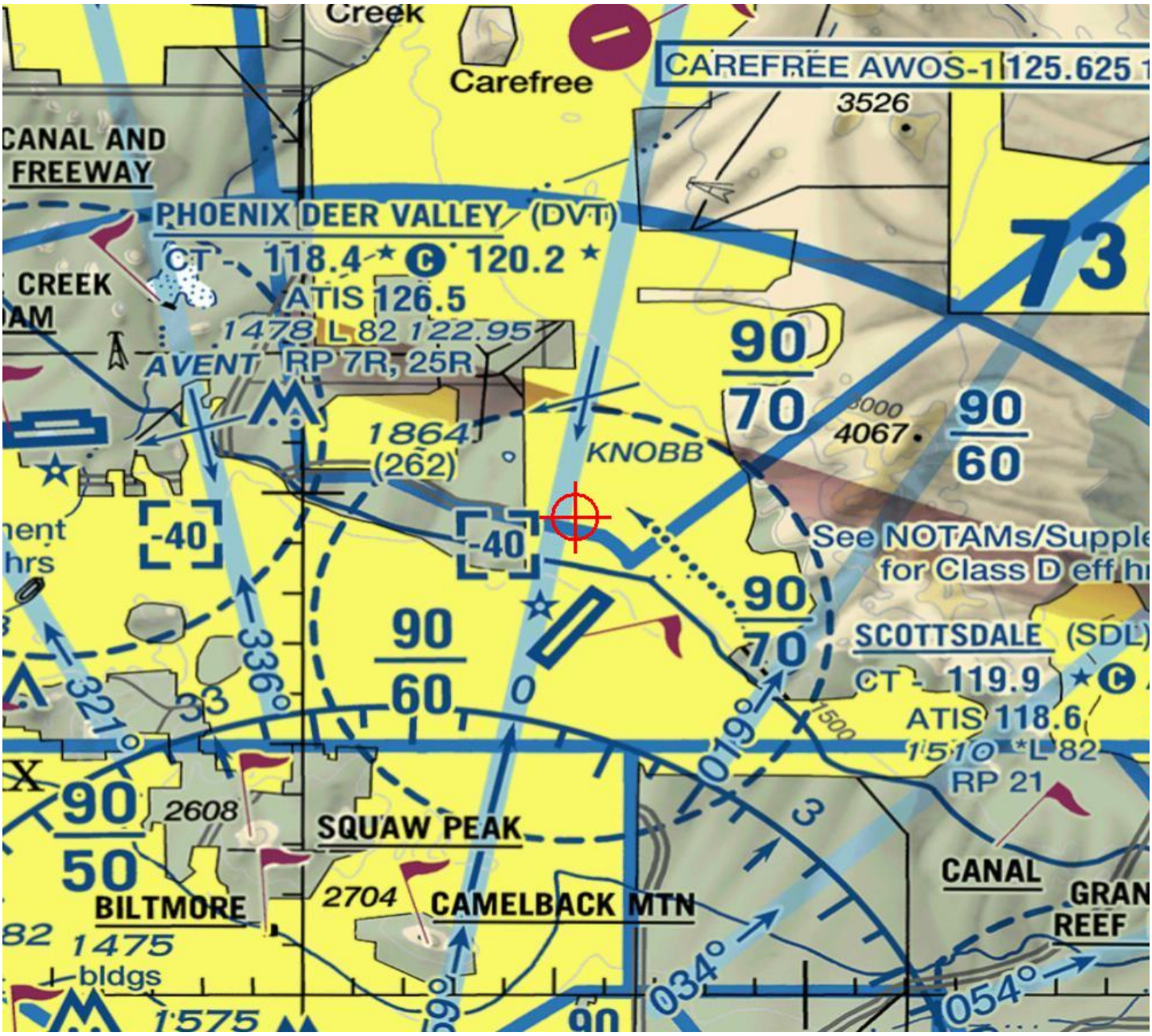
7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11611-OE



5-DR-2020
1/24/2020



5-DR-2020
1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11612-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 8
Location:	Scottsdale, AZ
Latitude:	33-39-29.85N NAD 83
Longitude:	111-54-34.83W
Heights:	1634 feet site elevation (SE) 85 feet above ground level (AGL) 1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

5-DR-2020
1/24/2020

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11612-OE.

Signature Control No: 419798029-425032487 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

5-DR-2020
1/24/2020

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

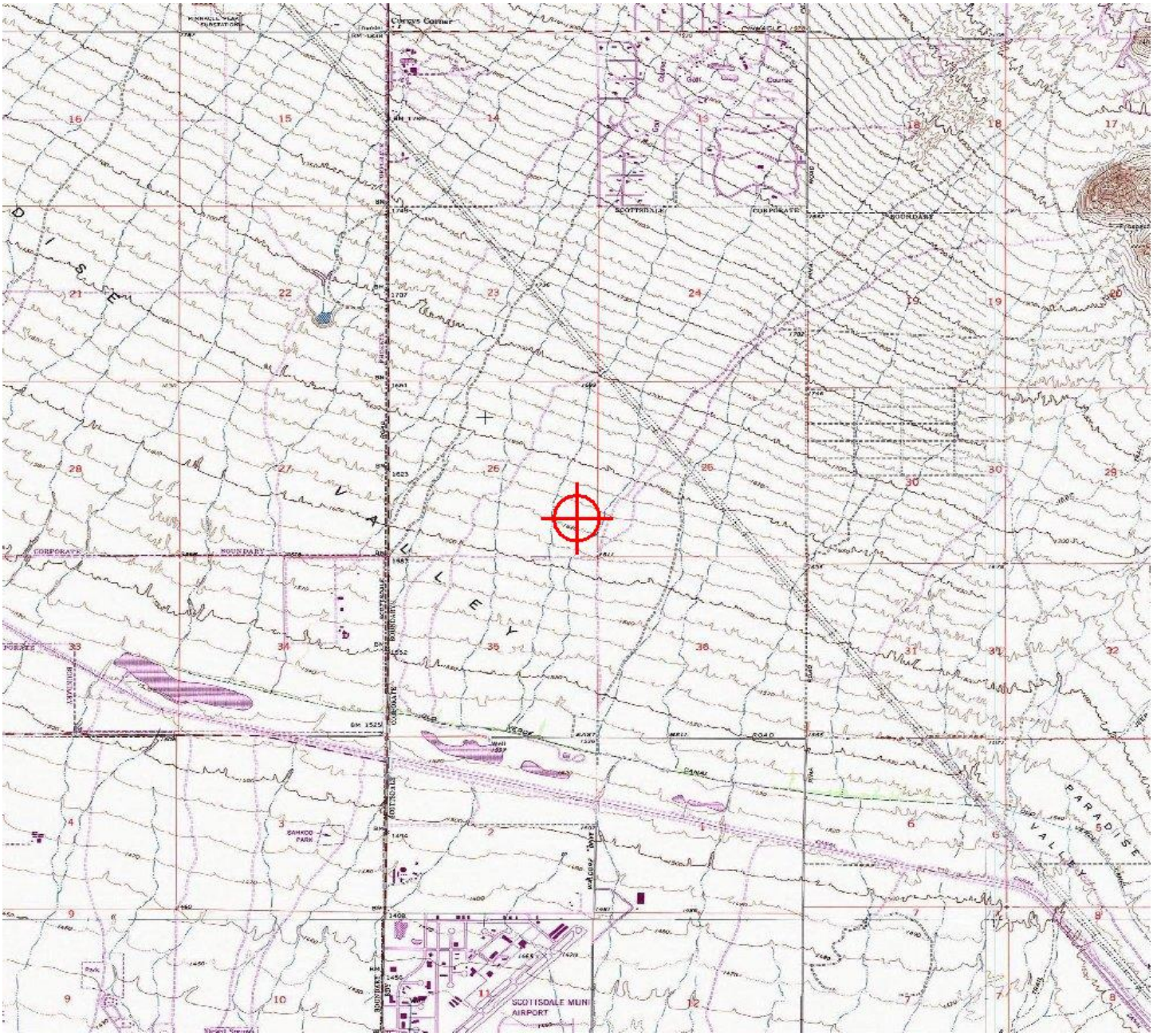
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

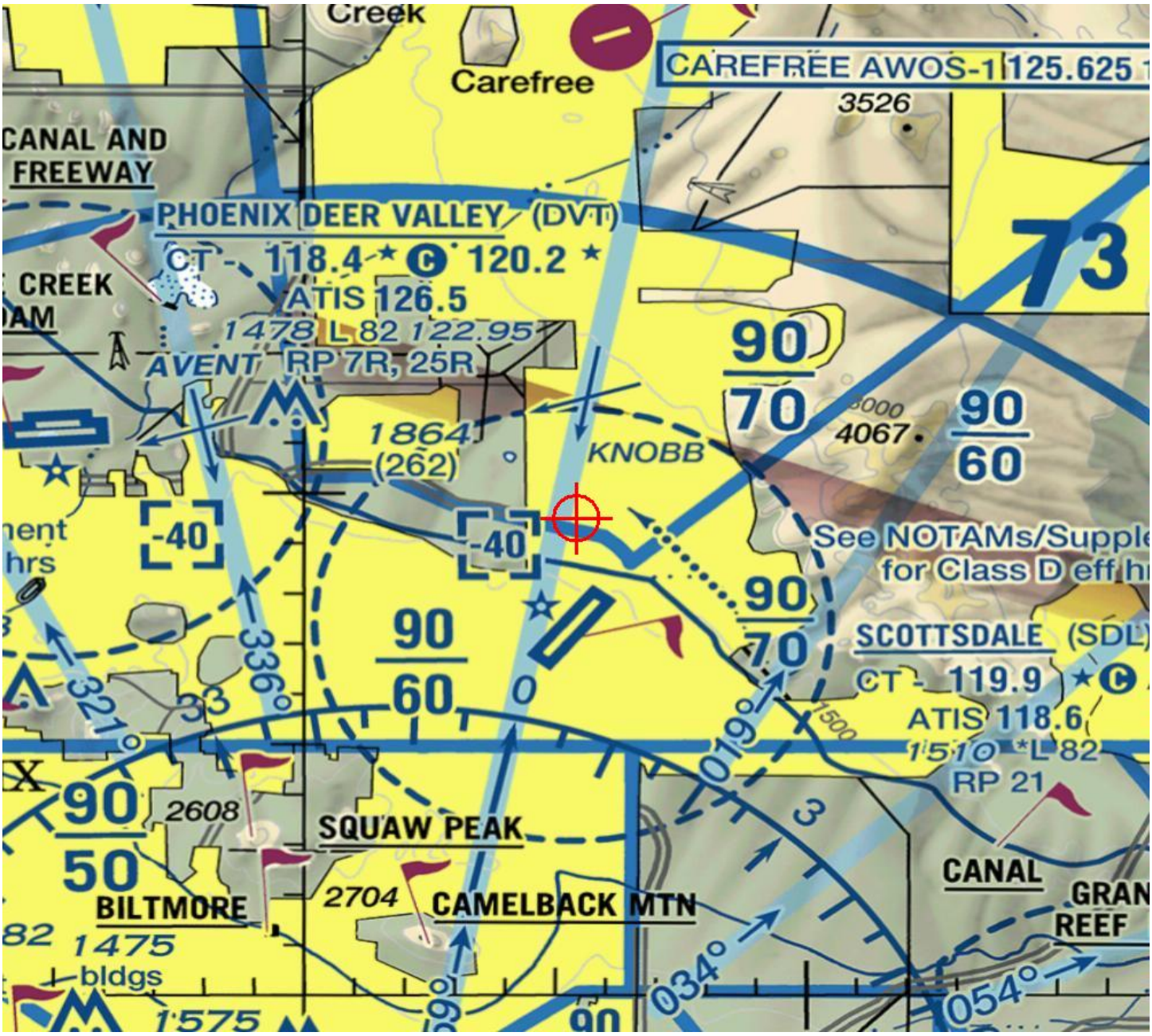
7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11612-OE



5-DR-2020
1/24/2020



5-DR-2020
1/24/2020

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11605-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 1
Location:	Scottsdale, AZ
Latitude:	33-39-31.86N NAD 83
Longitude:	111-54-34.09W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11605-OE.

Signature Control No: 419798022-425032485 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

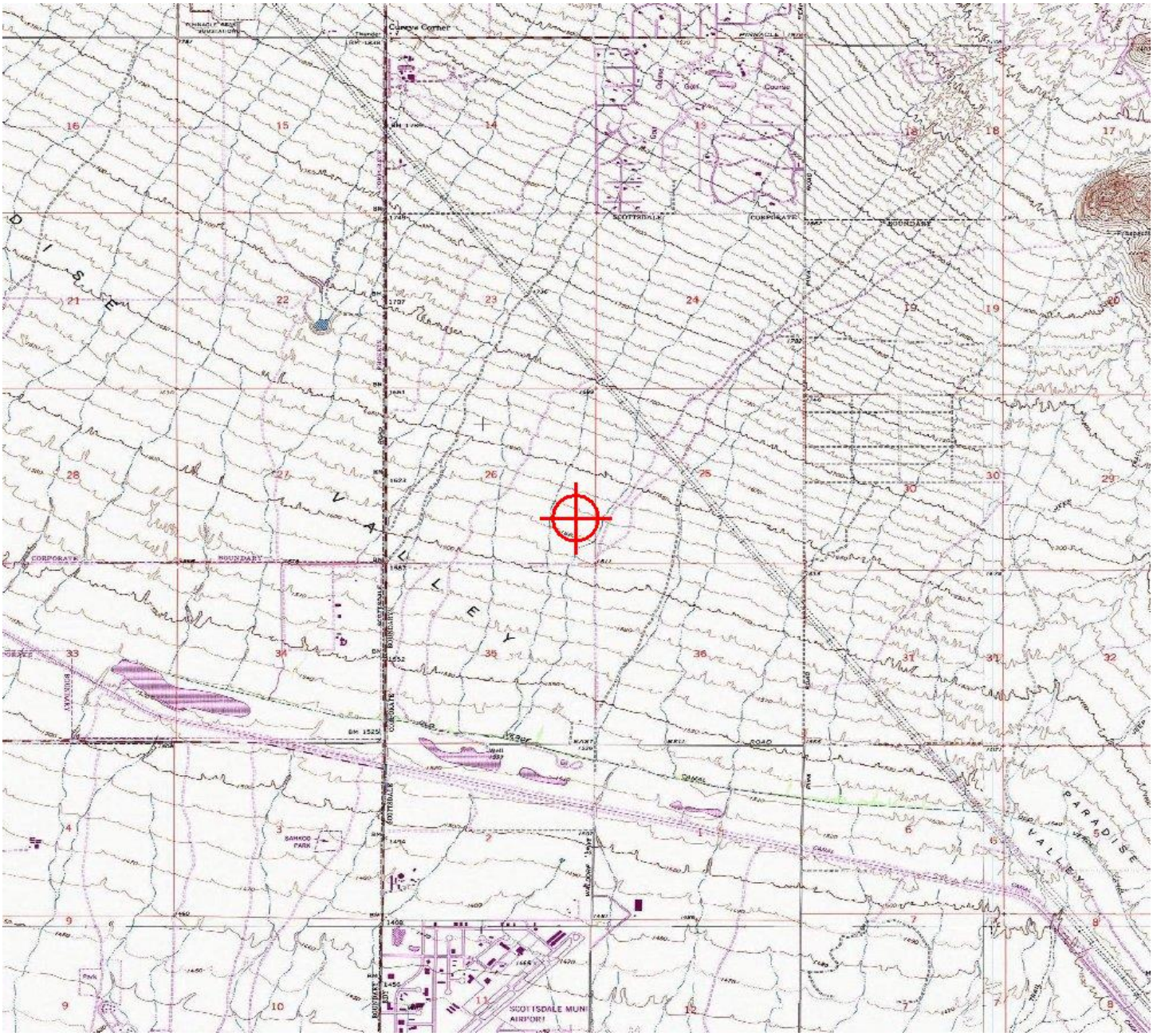
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

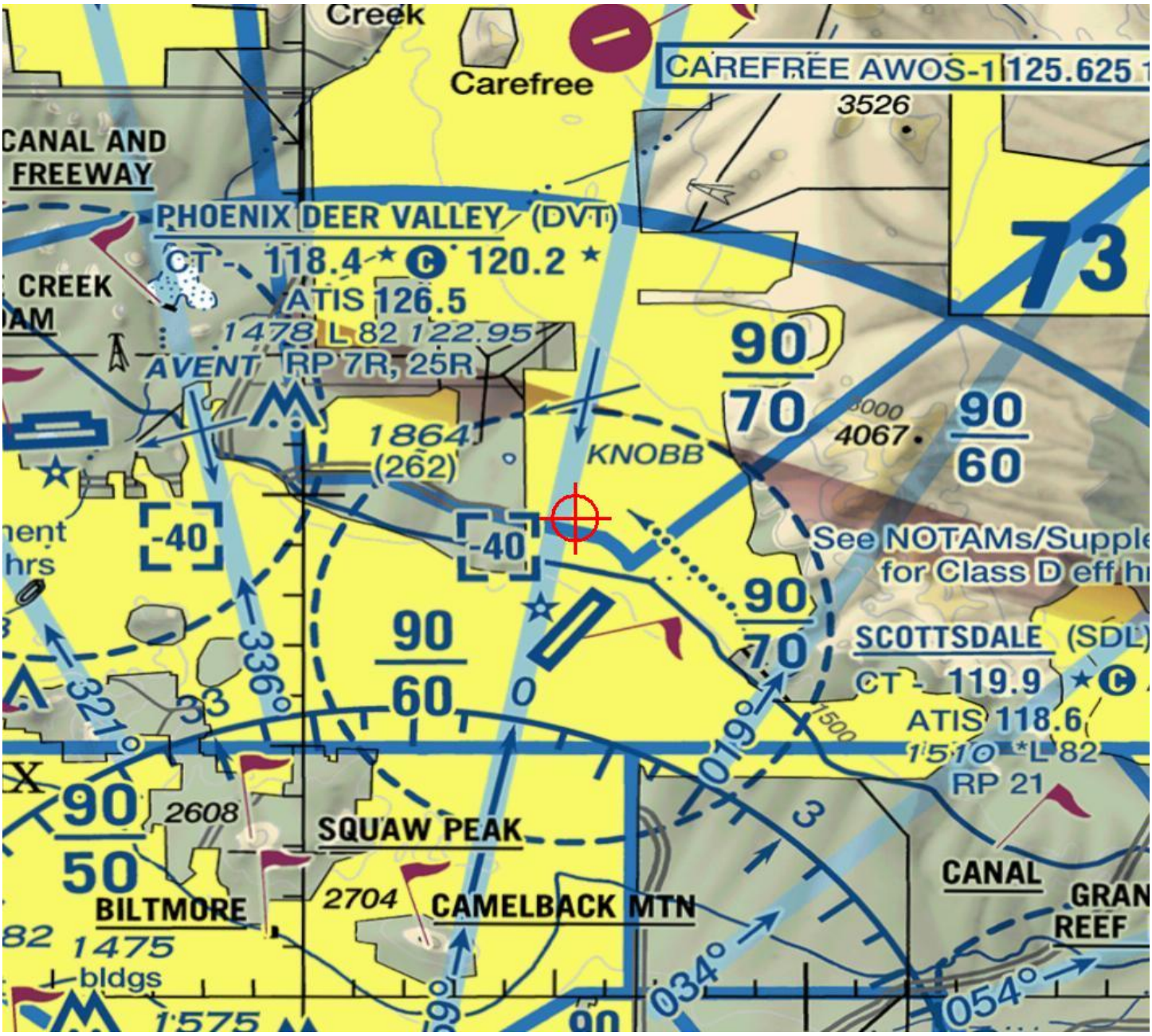
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11605-OE




Creek
Carefree
CAREFREE AWOS-1 125.625
3526
CANAL AND
FREEWAY
PHOENIX DEER VALLEY (DVT)
CT 118.4 C 120.2
ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
AM
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4067
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1864
(262)
KNOBB
-40
-40
See NOTAMs/Supple
for Class D eff hr
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SCOTTSDALE (SDL)
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034°
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SQUAW PEAK
2704
CAMELBACK MTN
90
50
BILTMORE
1475
bldgs
CANAL
GRAN
REEF

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11606-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 2
Location:	Scottsdale, AZ
Latitude:	33-39-30.82N NAD 83
Longitude:	111-54-30.41W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11606-OE.

Signature Control No: 419798023-425032484 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

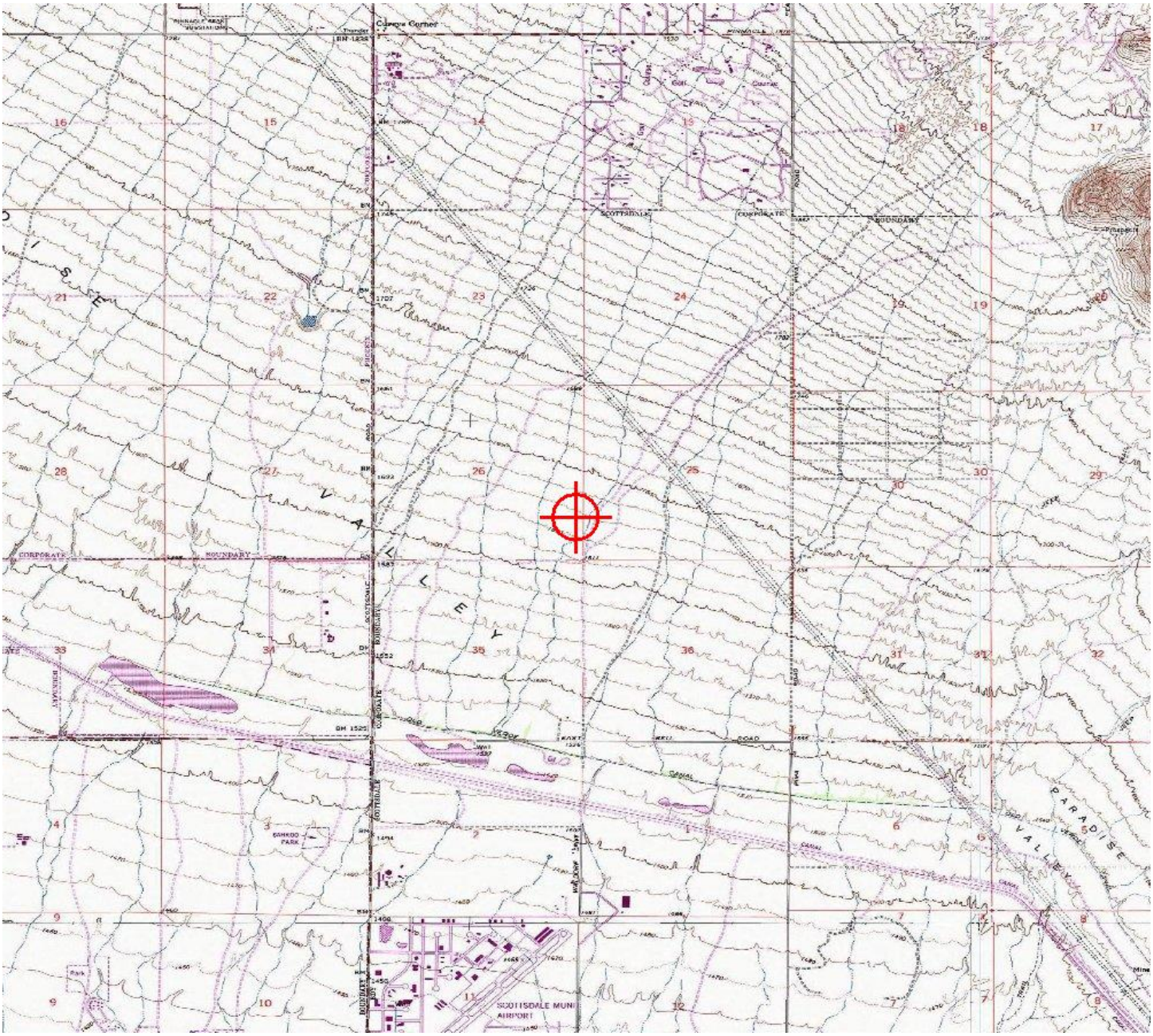
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

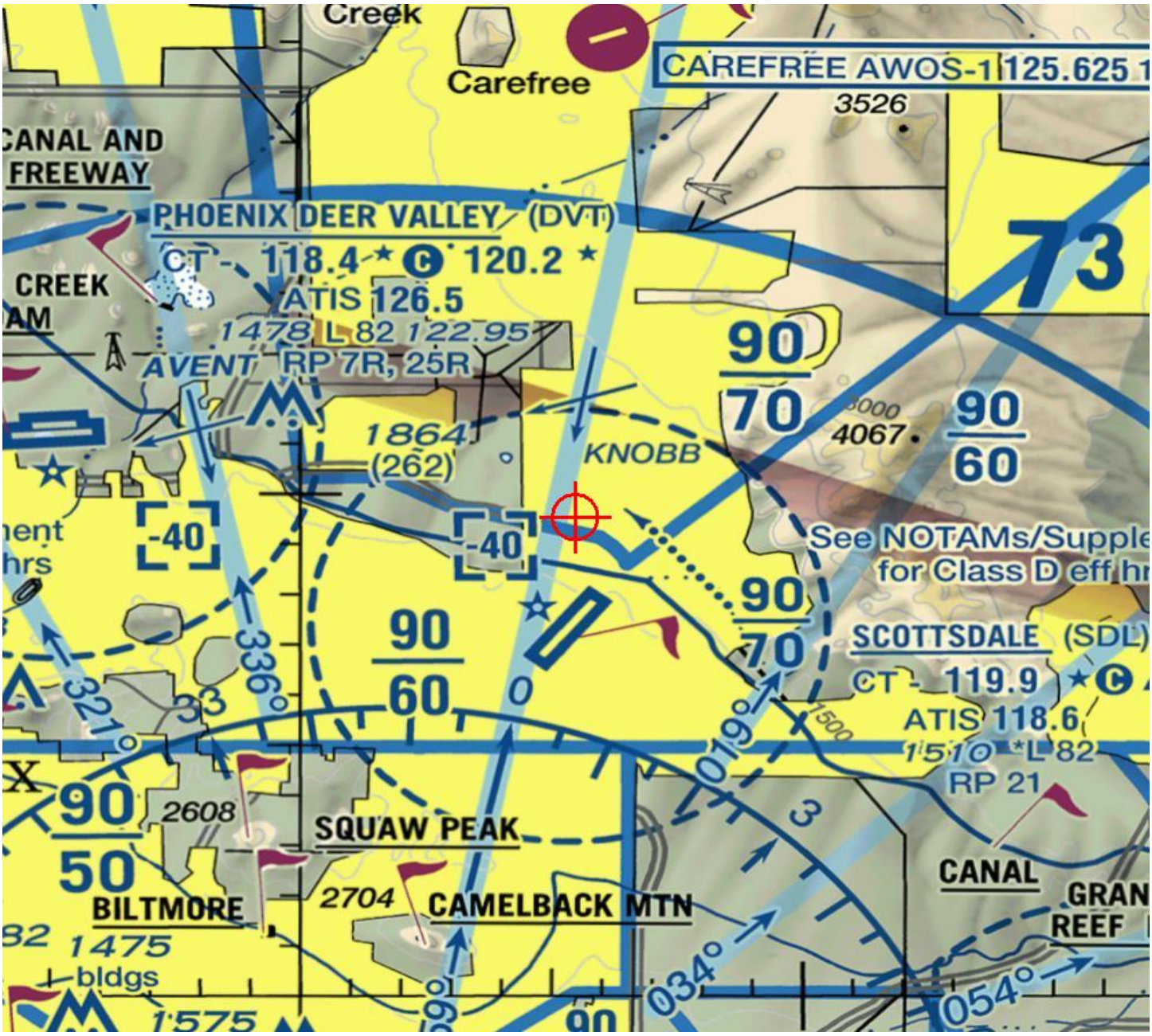
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11606-OE

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PHOENIX DEER VALLEY (DVT)
CT 118.4 C 120.2
ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
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(262)
KNOBB
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for Class D eff hr
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SCOTTSDALE (SDL)
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BILTMORE
2704
CAMELBACK MTN
1475
bldgs
CANAL
GRAN
REEF

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11607-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 3
Location:	Scottsdale, AZ
Latitude:	33-39-29.25N NAD 83
Longitude:	111-54-30.29W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11607-OE.

Signature Control No: 419798024-425032486 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

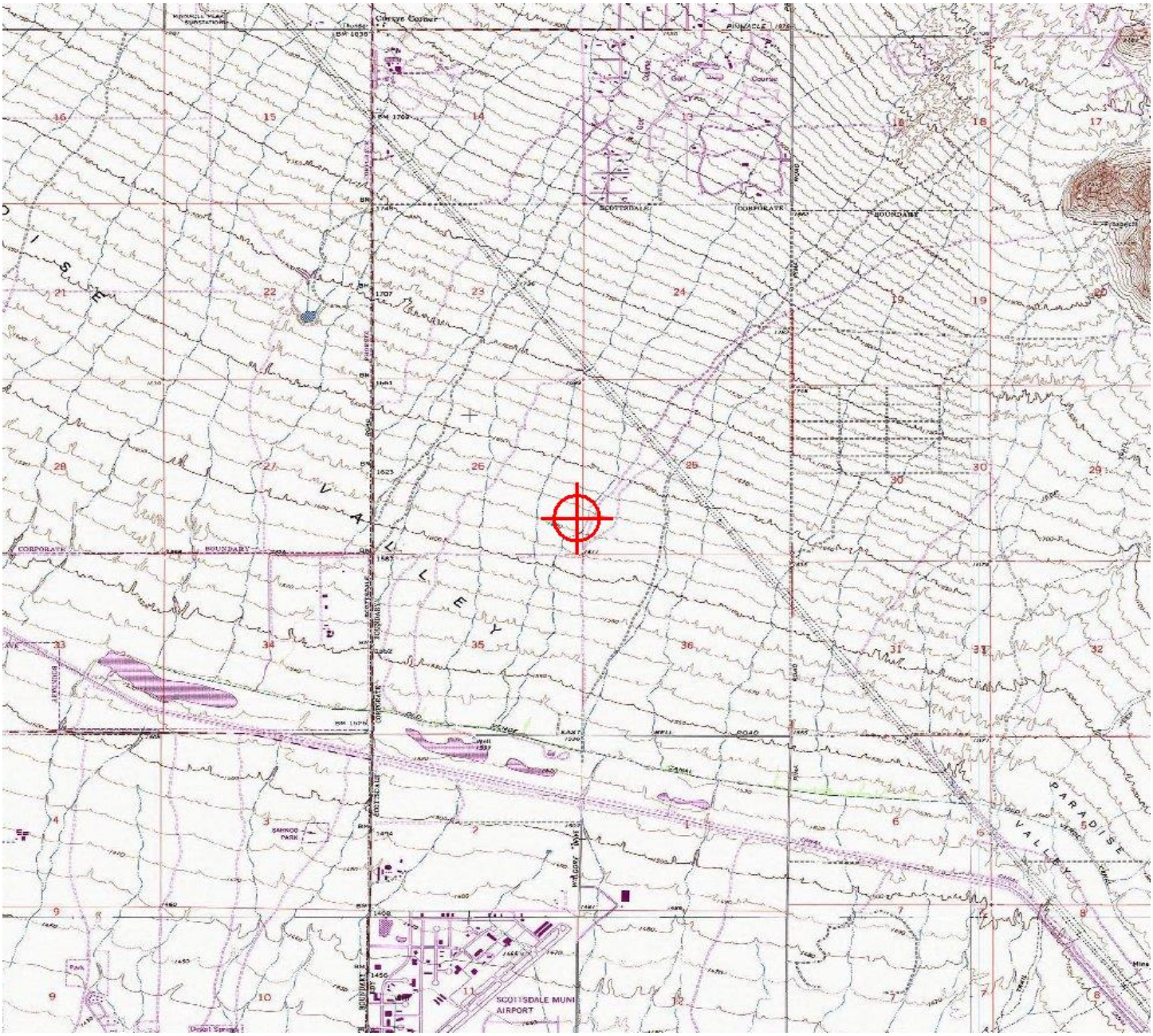
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

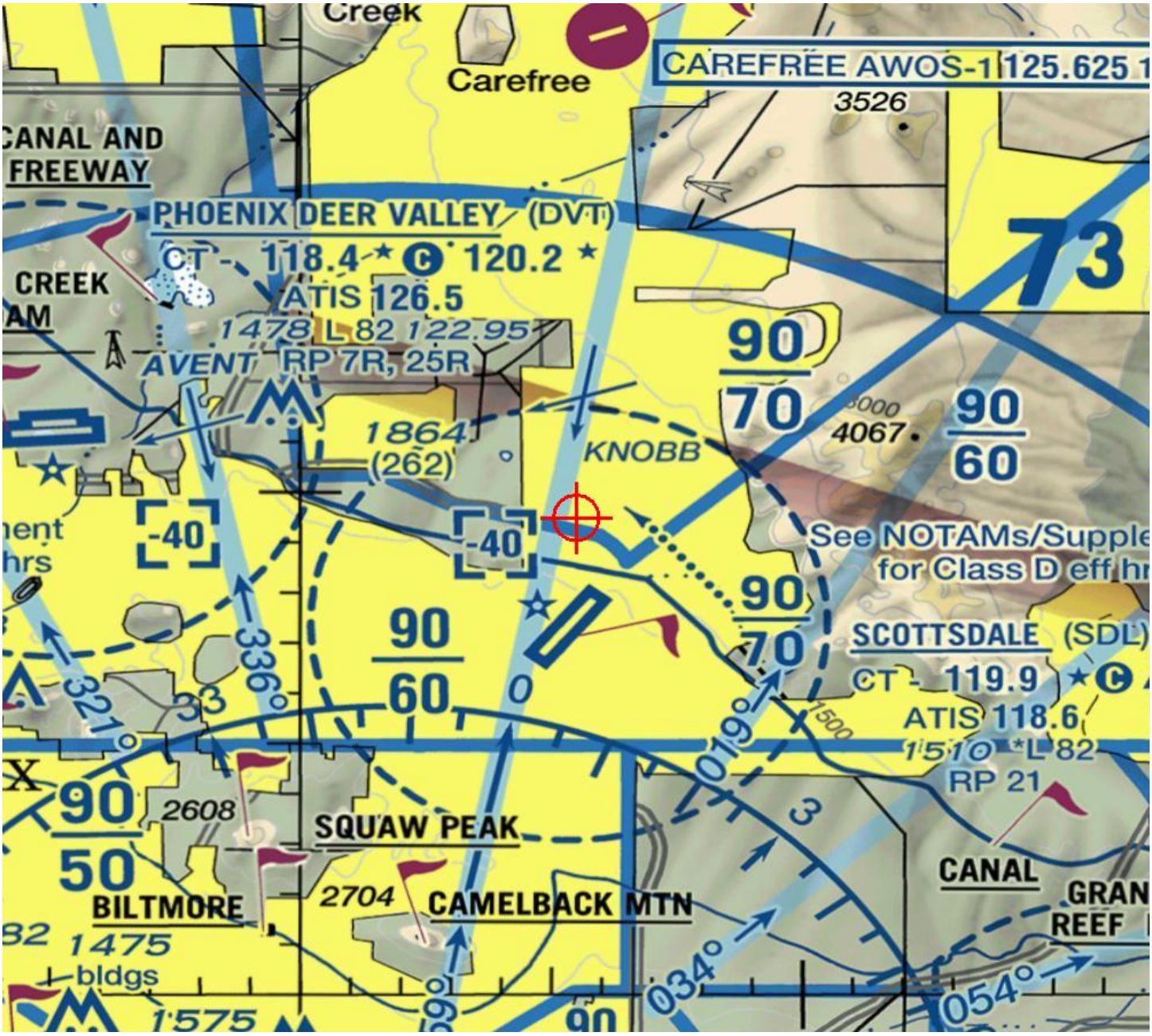
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11607-OE




Creek
Carefree
CAREFREE AWOS-1 125.625
3526
CANAL AND
FREEWAY
PHOENIX DEER VALLEY (DVT)
CT 118.4 C 120.2
ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
AM
90
70
3000
4067
90
60
1864
(262)
KNOBB
-40
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See NOTAMs/Supple
for Class D eff hr
90
70
SCOTTSDALE (SDL)
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CAMELBACK MTN
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CANAL
GRAN
REEF

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11608-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 4
Location:	Scottsdale, AZ
Latitude:	33-39-29.20N NAD 83
Longitude:	111-54-31.33W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11608-OE.

Signature Control No: 419798025-425032791 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

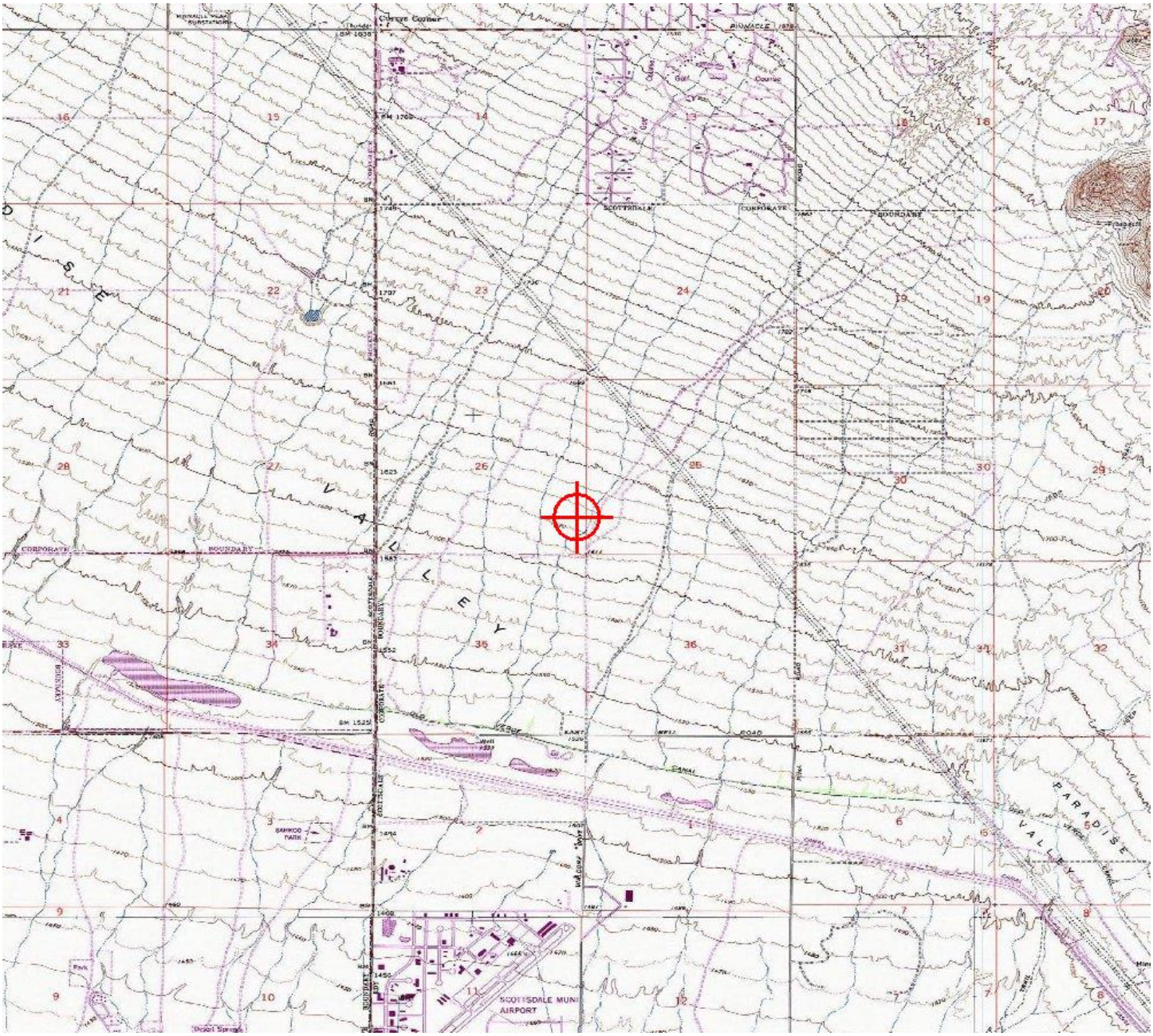
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

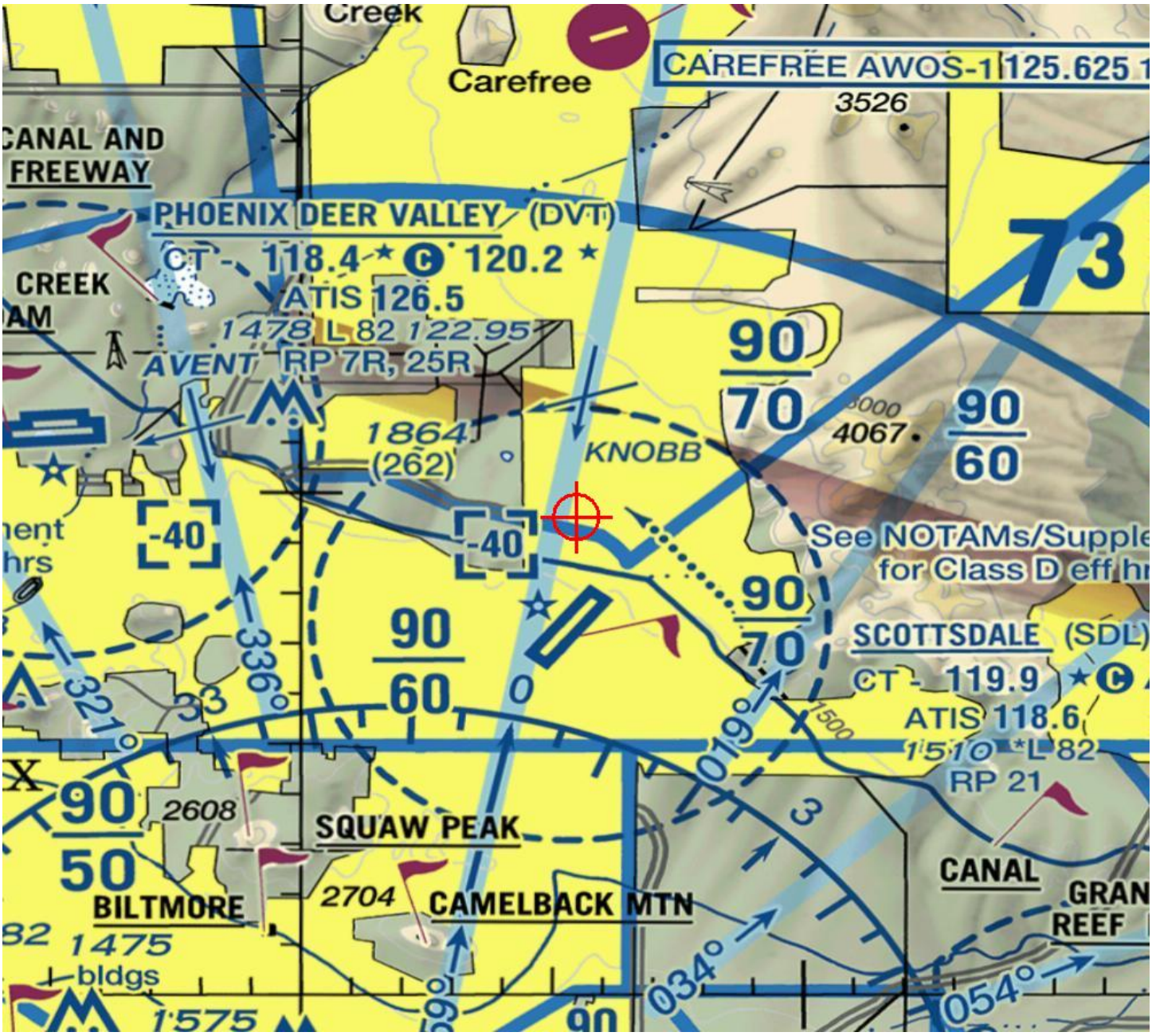
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11608-OE

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PHOENIX DEER VALLEY (DVT)
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ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
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for Class D eff hr
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SCOTTSDALE (SDL)
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SQUAW PEAK
2704
CAMELBACK MTN
BILTMORE
1475
bldgs
1575
CANAL
GRAN
REEF
034°
054°

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11609-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 5
Location:	Scottsdale, AZ
Latitude:	33-39-30.60N NAD 83
Longitude:	111-54-31.70W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11609-OE.

Signature Control No: 419798026-425032790 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

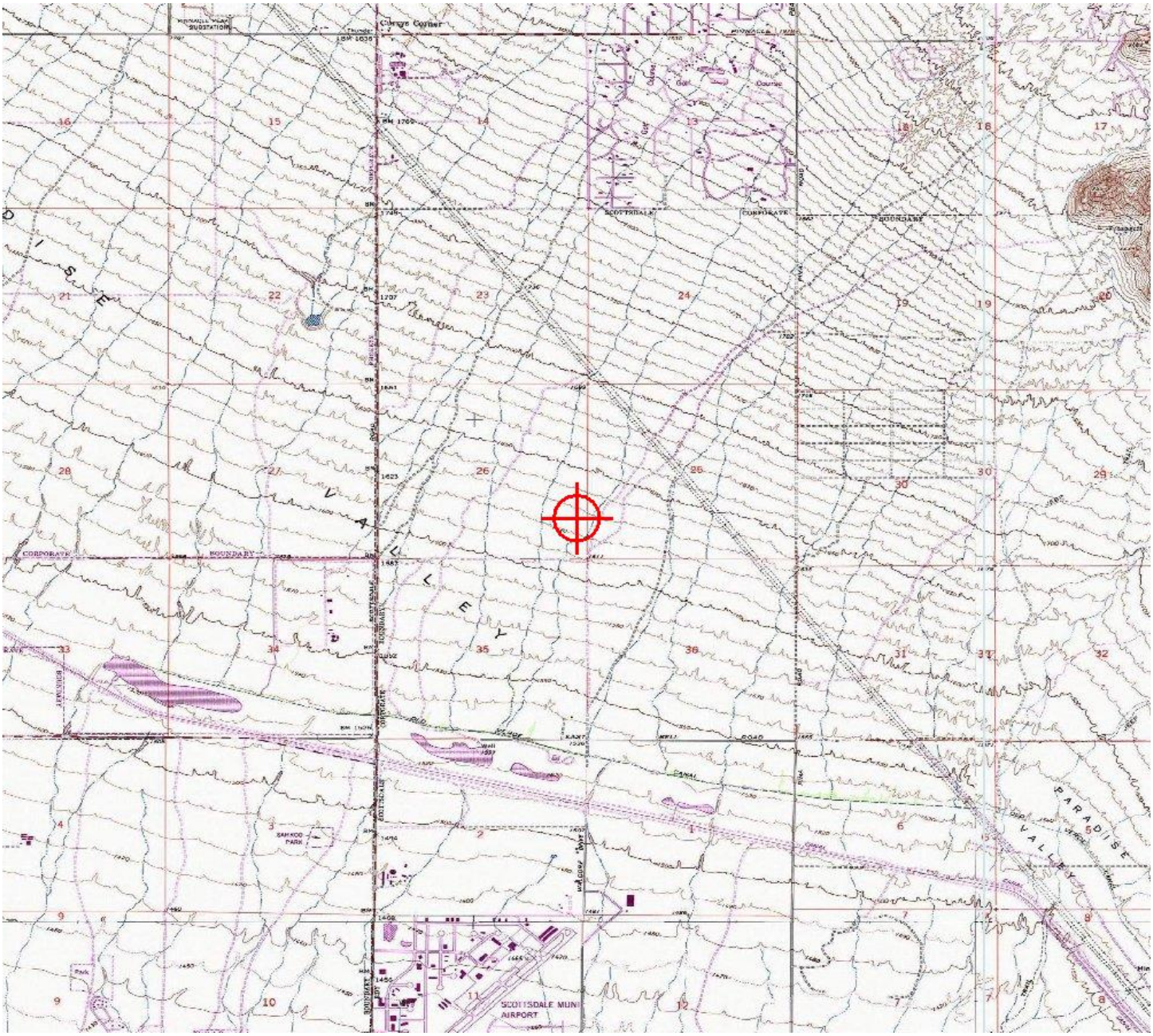
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

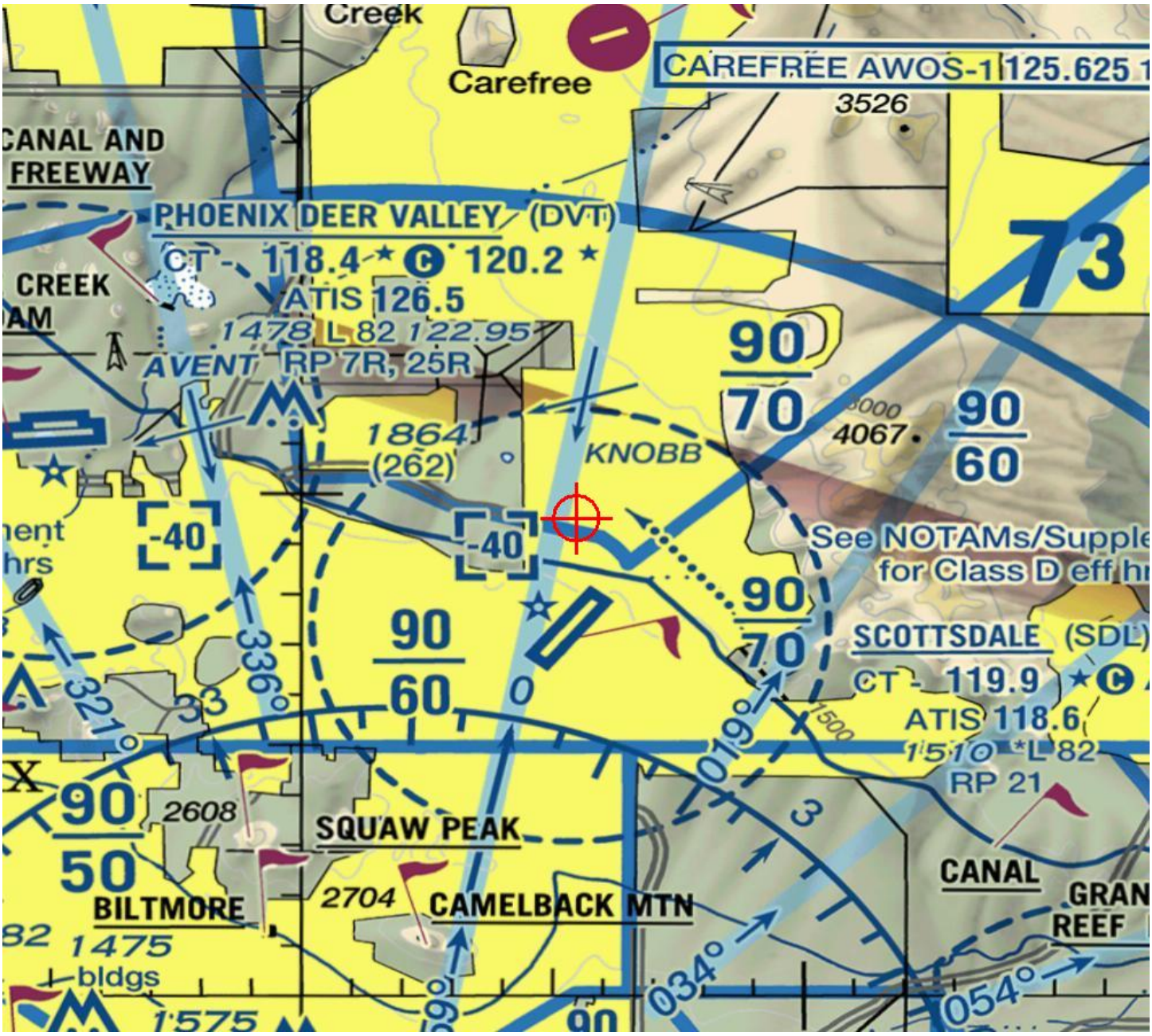
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11609-OE




Creek
Carefree
CAREFREE AWOS-1 125.625
3526
CANAL AND
FREEWAY
PHOENIX DEER VALLEY (DVT)
CT 118.4 C 120.2
ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
73
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70
90
60
1864
(262)
KNOBB
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See NOTAMs/Supple
for Class D eff hr
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SCOTTSDALE (SDL)
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ATIS 118.6
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CAMELBACK MTN
CANAL
GRAN
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1475
bldgs
034°
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Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11610-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 6
Location:	Scottsdale, AZ
Latitude:	33-39-30.88N NAD 83
Longitude:	111-54-33.12W
Heights:	1634 feet site elevation (SE) 85 feet above ground level (AGL) 1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11610-OE.

Signature Control No: 419798027-425032788 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

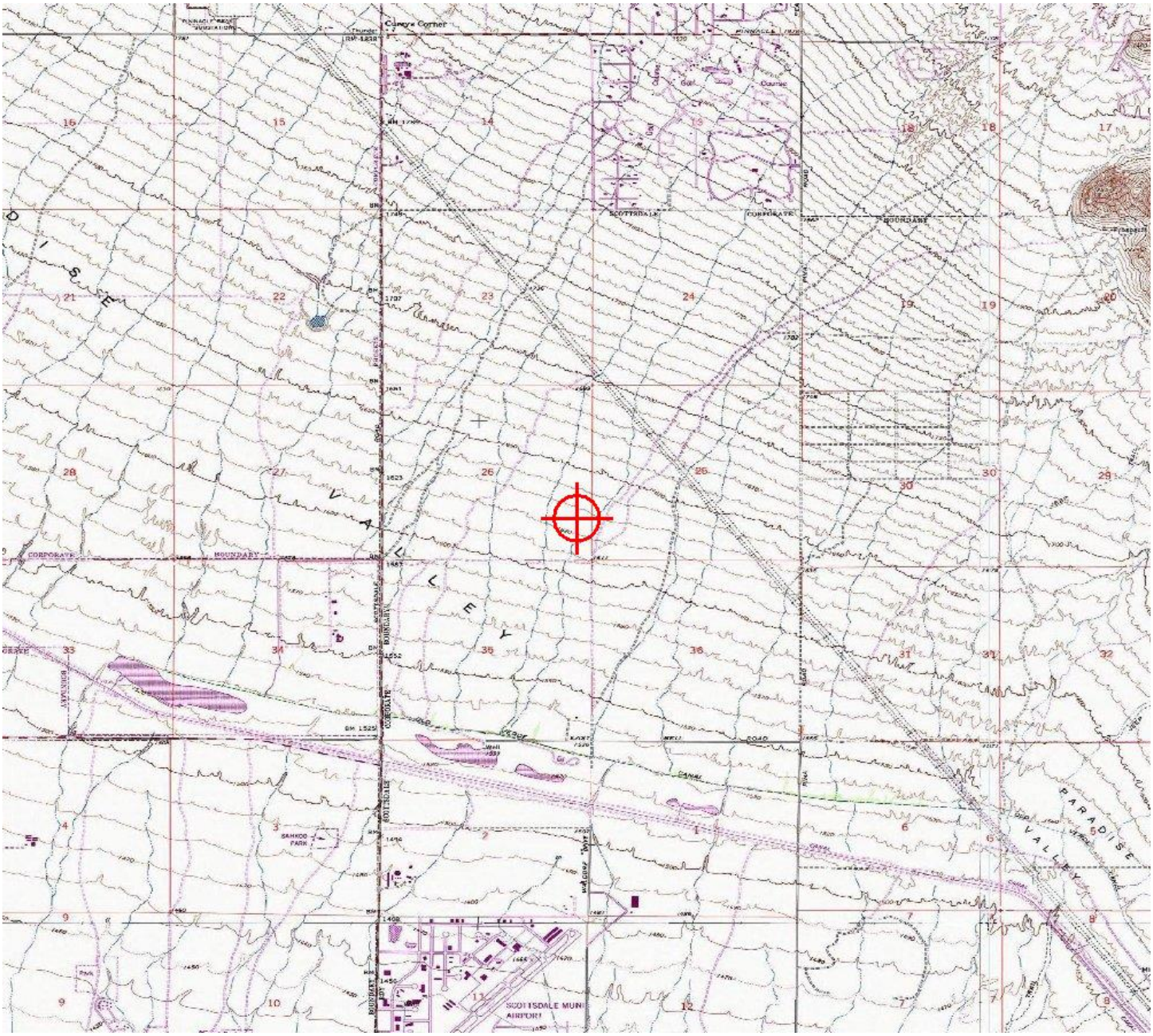
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

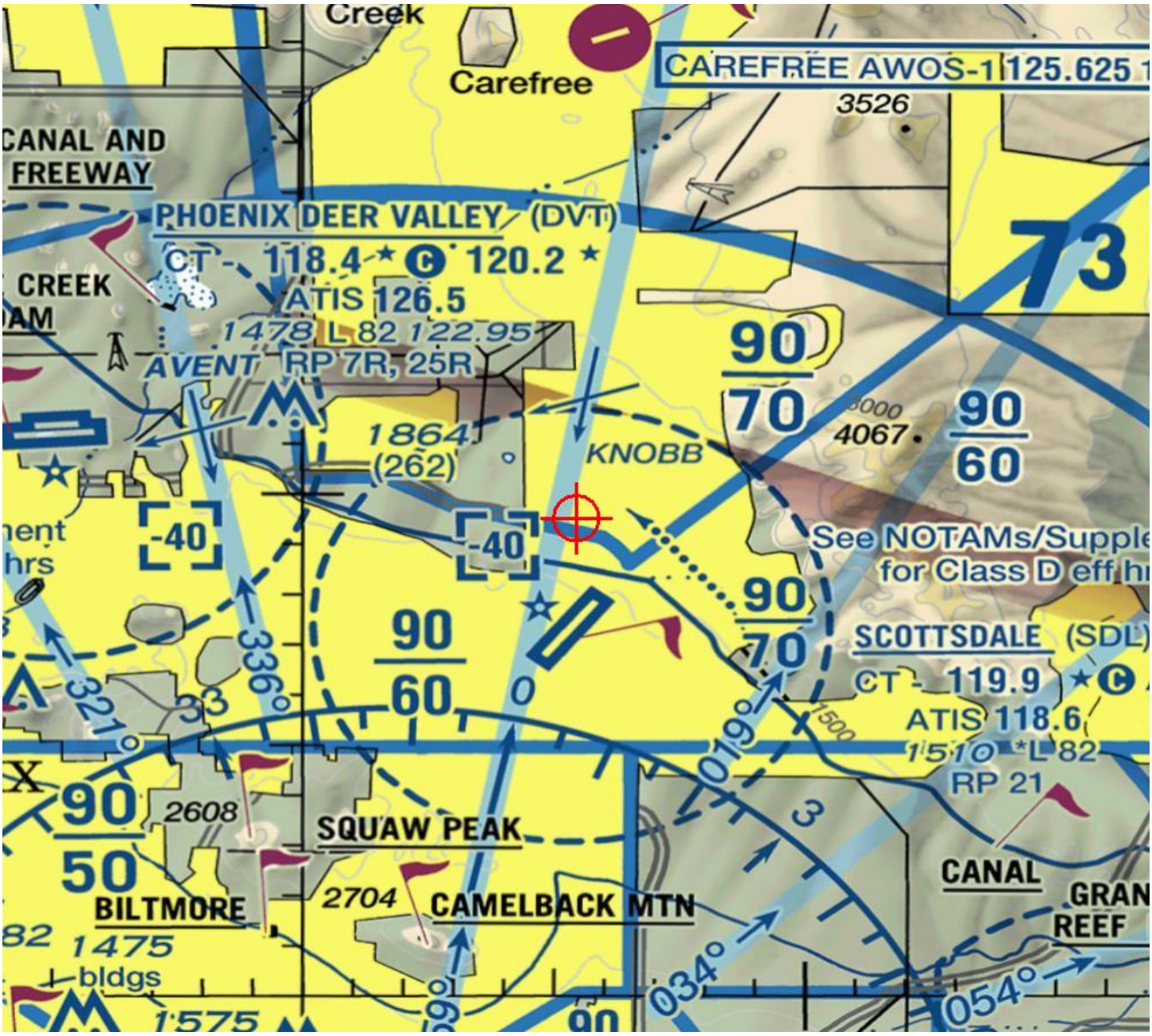
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11610-OE

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3526
CANAL AND
FREEWAY
PHOENIX DEER VALLEY (DVT)
CT 118.4 120.2
ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
73
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90
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(262)
KNOBB
4067
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-40
See NOTAMs/Supple
for Class D eff hr
90
70
SCOTTSDALE (SDL)
CT 119.9
ATIS 118.6
1510 L 82
RP 21
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60
336°
321°
019°
034°
054°
2608
SQUAW PEAK
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CAMELBACK MTN
90
50
BILTMORE
1475
bldgs
CANAL
GRAN
REEF

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11611-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 7
Location:	Scottsdale, AZ
Latitude:	33-39-29.64N NAD 83
Longitude:	111-54-33.43W
Heights:	1634 feet site elevation (SE) 85 feet above ground level (AGL) 1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before January 10, 2020. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11611-OE.

Signature Control No: 419798028-425032789 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

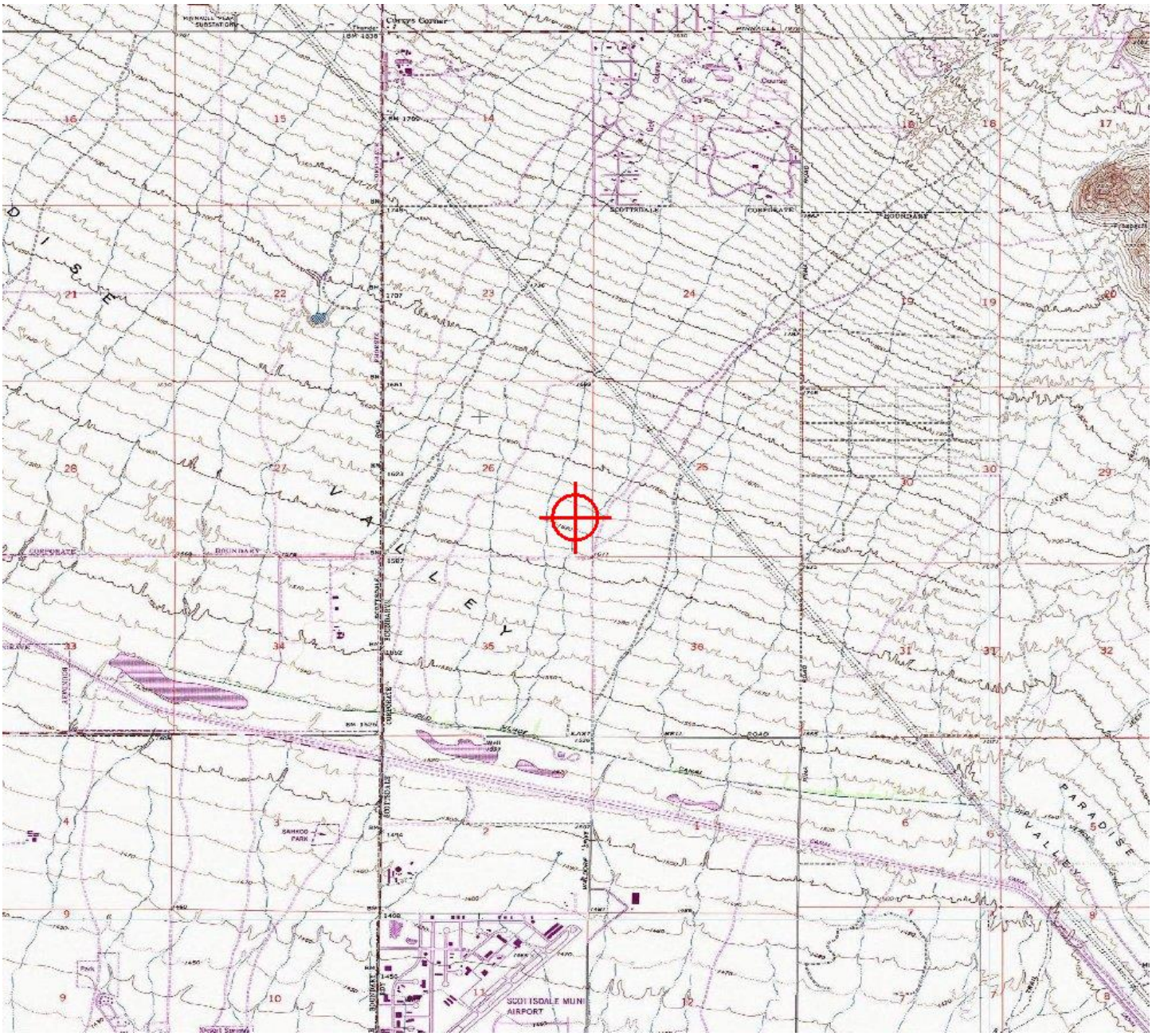
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

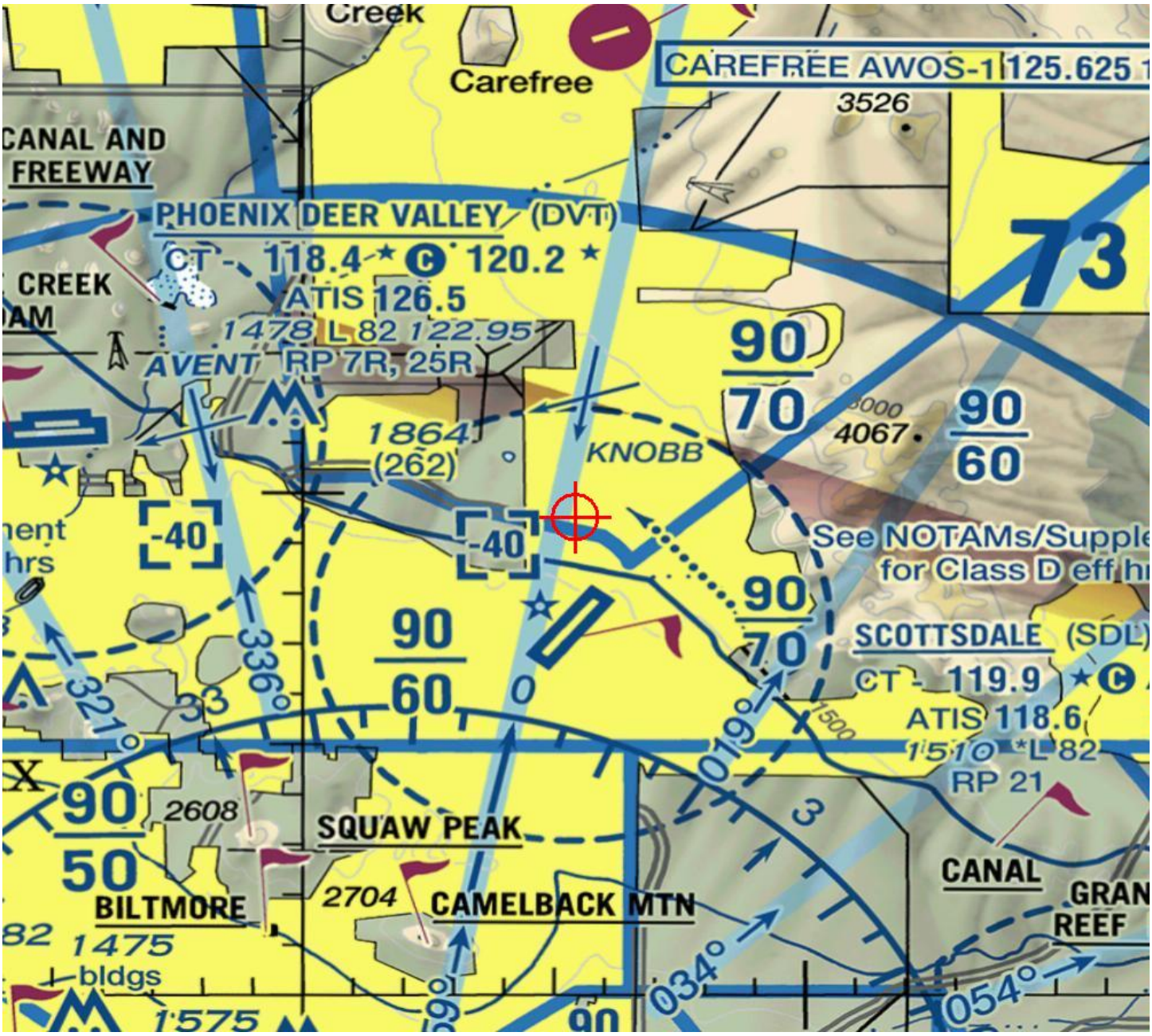
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11611-OE

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BILTMORE
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CANAL
GRAN
REEF

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2019-AWP-11612-OE

Issued Date: 12/11/2019

James Rost
Nationwide Realty Investors, Ltd.
375 N Front Street
Suite 200
Columbus, OH 43215

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Building Cavasson Hilton Hotel - Corner 8
Location:	Scottsdale, AZ
Latitude:	33-39-29.85N NAD 83
Longitude:	111-54-34.83W
Heights:	1634 feet site elevation (SE)
	85 feet above ground level (AGL)
	1719 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 06/11/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination becomes final on January 20, 2020 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2019-AWP-11612-OE.

Signature Control No: 419798029-425032487 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Aeronautical Study Number 2019-AWP-11605-11612-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	
MDA - minimum descent altitude	DA - decision altitude	

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

1. LOCATION OF PROPOSED CONSTRUCTION

This proposed 85 foot AGL (1719 foot AMSL) building would be located approximately 10,120 feet (1.66 NM) north of the RWY 21 threshold at Scottsdale Airport (SDL), Scottsdale, AZ. Property is located at the northwest corner of Intersection of Hayden Road and Highway 101in Scottsdale, AZ. The SDL airport elevation is 1510 feet AMSL. Eigth separate studies were submitted for study of this building. Separate determinations for each study can be found at the OE/AAA website (http://oeaaa.faa.gov).

The proposed structure was studied as 5 points (outside corners and high point) which were assigned the following Aeronautical Study Number (ASNs) and are described as follows

ASN	Structure Name	AGL/AMSL
2019-AWP-11605-OE	Cavasson Hilton Hotel - Corner 1	85/1719
2019-AWP-11606-OE	Cavasson Hilton Hotel - Corner 2	85/1719
2019-AWP-11607-OE	Cavasson Hilton Hotel - Corner 3	85/1719
2019-AWP-11608-OE	Cavasson Hilton Hotel - Corner 4	85/1719
2019-AWP-11609-OE	Cavasson Hilton Hotel - Corner 5	85/1719
2019-AWP-11610-OE	Cavasson Hilton Hotel - Corner 6	85/1719
2019-AWP-11611-OE	Cavasson Hilton Hotel - Corner 7	85/1719
2019-AWP-11612-OE	Cavasson Hilton Hotel - Corner 8	85/1719

2. OBSTRUCTION STANDARDS EXCEEDED

The structure is identified as an obstruction under the following Part 77 standards:

a. Section 77.19(a): Horizontal Surface-a height exceeding a horizontal plane 150 feet above the established airport elevation. This structure would exceed the SDL Horizontal Surface by the following:

ASN	Exceeds SDL Horizontal Surface by (feet)
2019-AWP-11607-OE	59

b. Section 77.19(b) -- Conical Surface: a surface extending outward and upward from the periphery of the Part 77 Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet. Seven project corners would exceed the SDL Conical Surface by the following:

Proposed ASN	Exceeds the SDL Conical Surface by (feet)
2019-AWP-11605-OE	43
2019-AWP-11606-OE	52
2019-AWP-11608-OE	59
2019-AWP-11609-OE	51
2019-AWP-11610-OE	49
2019-AWP-11611-OE	54
2019-AWP-11612-OE	52

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No substantial adverse effect. This structure would exceed the SDL Horizontal Surface by a maximum of 59 feet and the SDL Conical Surface by a maximum of 59 feet.

There are no effects on the VFR traffic pattern airspace.
There are no effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: None.

c. The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

The SDL Airport Master Record can be viewed/downloaded at https://adip.faa.gov/agis/public/#/airportData/SDL . It states there are 184 single-engine, 32 multi-engine, 137 jet, 25 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 183,695 operations for the 12 months ending 31 December 2017 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was not circulated for public comment, as it would be near structures that exceed the height of this proposal. Per FAA Order 7400.2M, Procedures for Handling Airspace Matters, structures that would be located in close proximity to other existing structures of equal or greater height, and which would have no greater effect on air navigation than the existing structures, do not require circularization. The proposed building meets this condition and, therefore, was not circularized for public comment.

This does not affect the public's right to petition for review determinations regarding structures, which exceed the subject obstruction standards.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

It is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

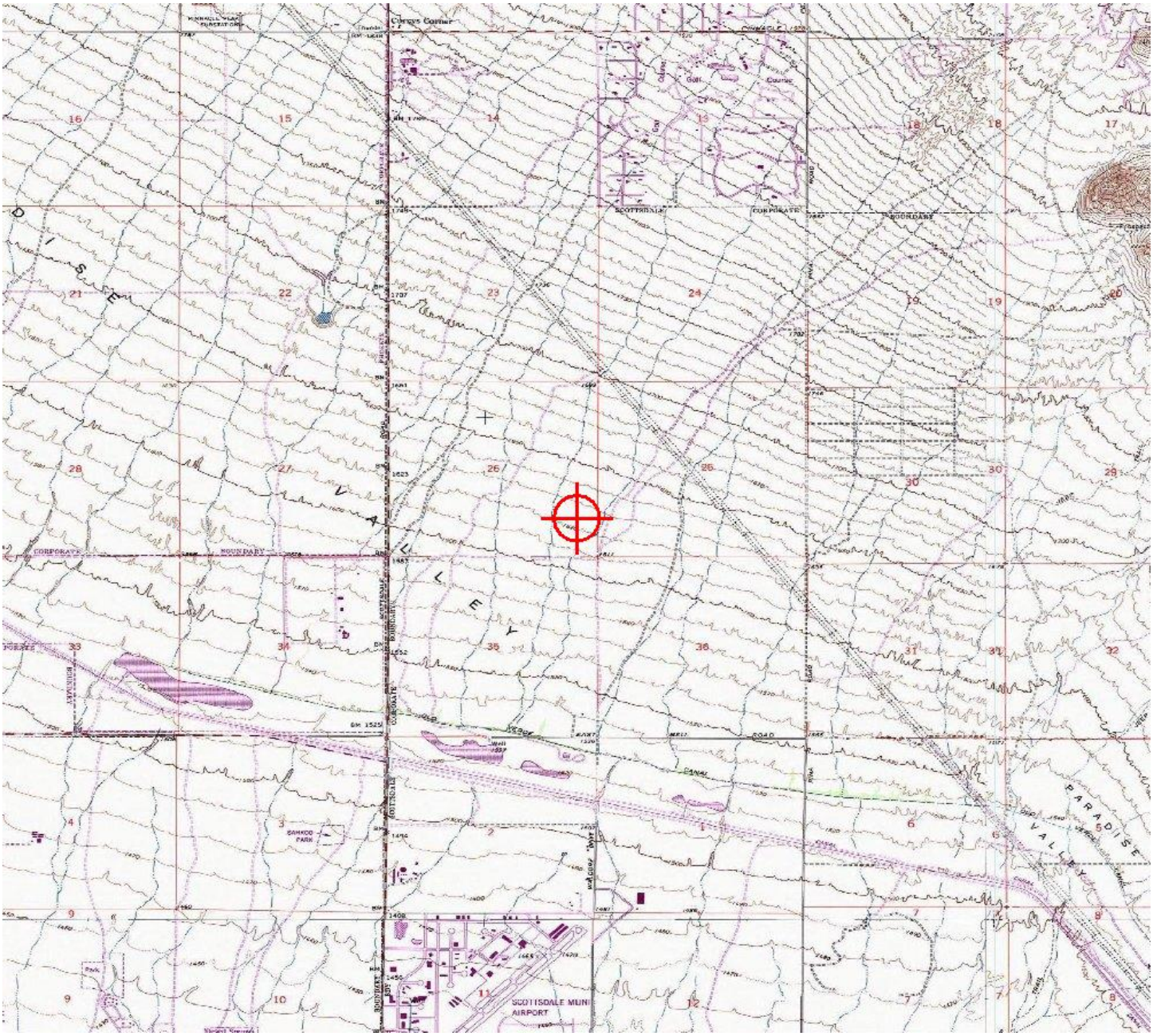
Study for possible VFR effect disclosed that the proposed structure would not have a substantial adverse effect on any existing or proposed arrival or departure VFR operations or procedures. In this case, the proposed building would exceed the SDL Part 77 Surfaces by a maximum of 59 feet. This proposal, however, is located near structures that equal or exceed the height of this proposal and are closer to SDL. No other VFR issues could be identified and there are no IFR effects. Aviation safety lighting is required for the following ASNs to make the structure more conspicuous to airman.

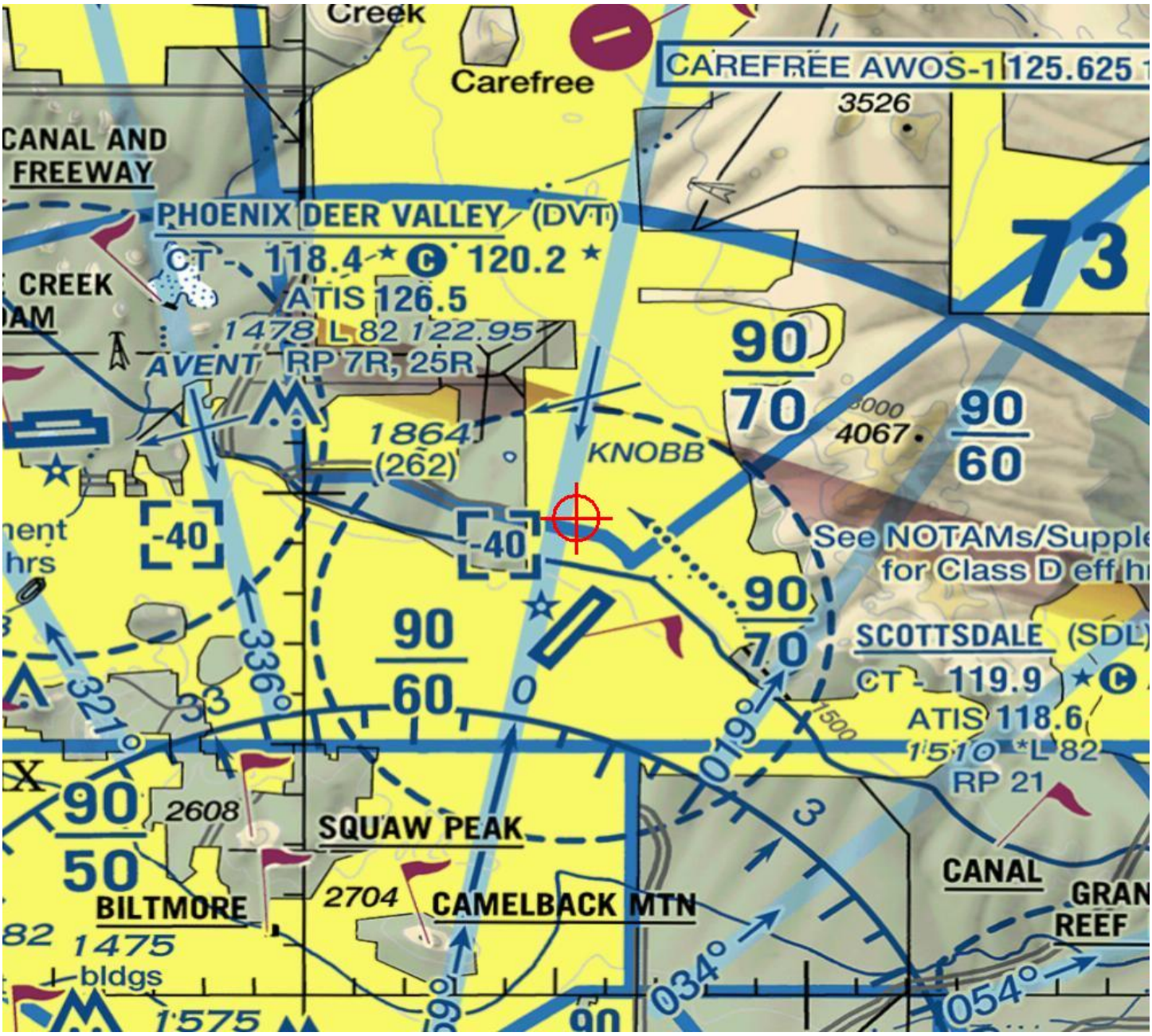
2019-AWP-11605-OE
2019-AWP-11606-OE
2019-AWP-11607-OE
2019-AWP-11612-OE

7. CONDITIONS

Within five days after the structure reaches its greatest height, the proponent is required to file an FAA form 7460-2, Actual Construction notification, at the OE/AAA website (http://oeaaa.faa.gov). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

TOPO Map for ASN 2019-AWP-11612-OE




Creek
Carefree
CAREFREE AWOS-1 125.625
3526
CANAL AND
FREEWAY
PHOENIX DEER VALLEY (DVT)
CT 118.4 120.2
ATIS 126.5
1478 L 82 122.95
AVENT RP 7R, 25R
CREEK
73
90
70
90
60
1864
(262)
KNOBB
4067
-40
-40
See NOTAMs/Supple
for Class D eff h
90
70
SCOTTSDALE (SDL)
CT 119.9
ATIS 118.6
1510 L 82
RP 21
336°
321°
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034°
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33
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1500
90
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2608
SQUAW PEAK
2704
CAMELBACK MTN
BILTMORE
1475
bldgs
1575
CANAL
GRAN
REEF