TRANSPORTATION IMPACT ANALYSIS

Milton Road Rezone

Prepared for

City of Federal Way

Introduction

This analysis studies the transportation impacts of a proposed rezoning from Single Family Medium Density (RS35.0) to Single Family High Density (RS5.0 or RS7.2). The site of the proposed rezone is located in a triangular portion surrounded by S 376th Street on the south, I-5 on the west and Regency Woods Divisions I and II on the east. East of this zone is High Density Single Family RS7.2 and north of it is zoned as the Office Park 4. The study focuses on morning and evening peak hour traffic operations at the nearest collector/arterial street intersections. The analysis is conducted for the years 2018 and 2040 for conditions with and without the rezone. The study addresses key transportation issues such as roadway capacity, queueing, and delay.

Purpose and Objectives

This study has been conducted for submission to the City of Federal Way City Council and is based on the City of Federal Way Guidelines for Transportation Impact Analysis as authorized in Federal Way City Code FWRC 19.90. The Guidelines outline transportation study requirements for analyzing development proposals within the City of Federal Way. The City of Federal Way Guidelines for Transportation Impact Analysis applies to new development and expansions of existing development by going through the City's land use approval process where concurrency analysis may not be adequate to identify impacts of a land use application.

Proposed Development

The proposed rezone would consist of up to 231 single-family homes in a RS 5.0 zone or 160 single-family homes in a RS 7.2 zone. The existing site consists of 21 single-family homes. The proposed rezone would add up to 215 additional trips.

Transit and Modal Split

No reduction in vehicle trips was made to account for a potential shift away from the automobile. ITE trip generation rates are based on observed vehicle trip patterns at each land use, thereby accounting for a basic amount of non-auto travel. The closest transit route is Pierce Transit Route 402. The closest bus stop is on Enchanted Pkwy S at 19th Way S, which is approximately half a mile walking from the closest point of the site and over a mile from the furthest point of the site.

Site Location and Study Area

The proposed rezone site, as shown in Figure 1, is located in a triangular portion surrounded by S 376th Street on the south, I-5 on the west and Regency Woods Division I and II subdivisions on the east. The study intersection selection is based on the City's Guidelines for Preparation of Transportation Impact Analyses which set thresholds for the study area for SEPA purposes of 10

evening peak hour trips and 100 peak hour trips for any other peak hour. These are listed below for morning (AM) and evening (PM) peak hours and maps are attached.The existing intersections with evening peak hour volume diagrams are attached in Appendix I and existing morning peak hour volume diagrams are attached in Appendix 4.

Morning Peak Signalized Intersections: (Figure 2)

- 16th Ave S/Enchanted Pkwy S (SR161) and S 348th St (SR18);
- Enchanted Pkwy S (SR 161) and S 352nd St;
- 16th Ave S and S 356th St;
- Enchanted Pkwy S (SR 161) and S 356th St;
- Enchanted Pkwy S (SR 161) and SR 18 Ramp;
- Enchanted Pkwy S (SR 161) and Milton Rd S / S 360th St.
- Enchanted Pkwy S (SR 161) and 19th Way S

Morning Peak Unsignalized Intersections: (Figure 2)

- 16th Ave S and S 359th St;
- Todd Beamer HS Dwy and 16th Ave S;
- Milton Rd S and S 369th St;
- 8th Ave S and S 373rd St;
- Milton Rd S and S 375th St / S 376th St

Evening Peak Study Signalized Intersections: (Figure 3.1 and 3.2)

- Pacific Hwy S (SR 99) and S 276th St;
- Pacific Hwy S (SR 99) and S 288th St;
- Pacific Hwy S (SR 99) and S Dash Point Rd (SR 509);
- Pacific Hwy S (SR 99) and S 304th St;
- Pacific Hwy S (SR 99) and S 308th St;
- Pacific Hwy S (SR 99) and S 312th St;
- Pacific Hwy S (SR 99) and S 316th St;
- Pacific Hwy S (SR 99) and S 320th St;
- 23rd Ave S and S 320th St;
- Gateway Center Blvd/25th Ave S and S 320th St;
- I-5 SB Ramps and S 320th St;
- 23rd Ave S and S 322nd St;
- Pacific Hwy S (SR 99) and S 324th St;
- 1st Ave S and SW 325th Pl;
- 1st Ave S and S 328th St;
- 1st Ave S and SW 330th St;
- Pacific Hwy S (SR 99) and S 330th St
- 1st Way S and S 333th St;

- 1st Way S and S 336th St;
- 9th Ave S and S 336th St;
- Pacific Hwy S (SR 99) and S 336th St;
- Pacific Hwy S (SR 99) and S 340th Pl / 16th Ave S;
- 1st Way S and Winco Dwy;
- Pacific Hwy S (SR 99) and S 344th St;
- 16th Ave S and S 344th St;
- 1st Ave S and S 348th St / SW Campus Dr;
- Pacific Hwy S (SR 99) and S 348th St (SR 18);
- 16th Ave S / Enchanted Pkwy S (SR 161) and S 348th St (SR 18);
- Pacific Hwy S (SR 99) and S 352nd St,
- Enchanted Pkwy S (SR 161) and S 352nd St;
- 1st Ave S and S 356th St;
- Pacific Hwy S (SR 99) and S 356th St;
- 16th Ave S and S 356th St;
- Enchanted Pkwy S (SR 161) and S 356th St;
- Enchanted Pkwy S (SR 161) and SR 18 Ramp;
- Enchanted Pkwy S (SR 161) and Milton Rd S / S 360th St
- Enchanted Pkwy S (SR 161) and 19th Wy S.

Evening Peak Unsignalized Intersections: (Figure 3.1 and 3.2)

- Pacific Hwy S (SR 99) and 16th Ave S;
- Pacific Hwy S (SR 99) and S 283rd Pl;
- Pacific Hwy S (SR 99) and 18th Ave S;
- Pacific Hwy S (SR 99) and S 310th St;
- 17th Ave S and S 324th St;
- Pacific Hwy (SR 99) and S 328th St;
- Pacific Hwy (SR 99) and S 332nd St;
- Pacific Hwy (SR 99) and S 333rd St;
- 1st Way S and S 334th St;
- 1st Way S and SW 340th St;
- 1st Way S and S 342nd St;
- 16th Ave S and S 341st Pl;
- 1st Pl S and 1st Way S;
- Pacific Hwy (SR 99) and S 359th St;
- 16th Ave S and S 359th St;
- Todd Beamer HS Dwy and 16th Ave S;
- Milton Rd S and S 369th St;
- Pacific Hwy S (SR 99) and S 373rd St
- 8th Ave S and S 373rd St;
- Milton Rd S and S 375th St / S 376th St.

FIGURE 1: VICINITY MAP

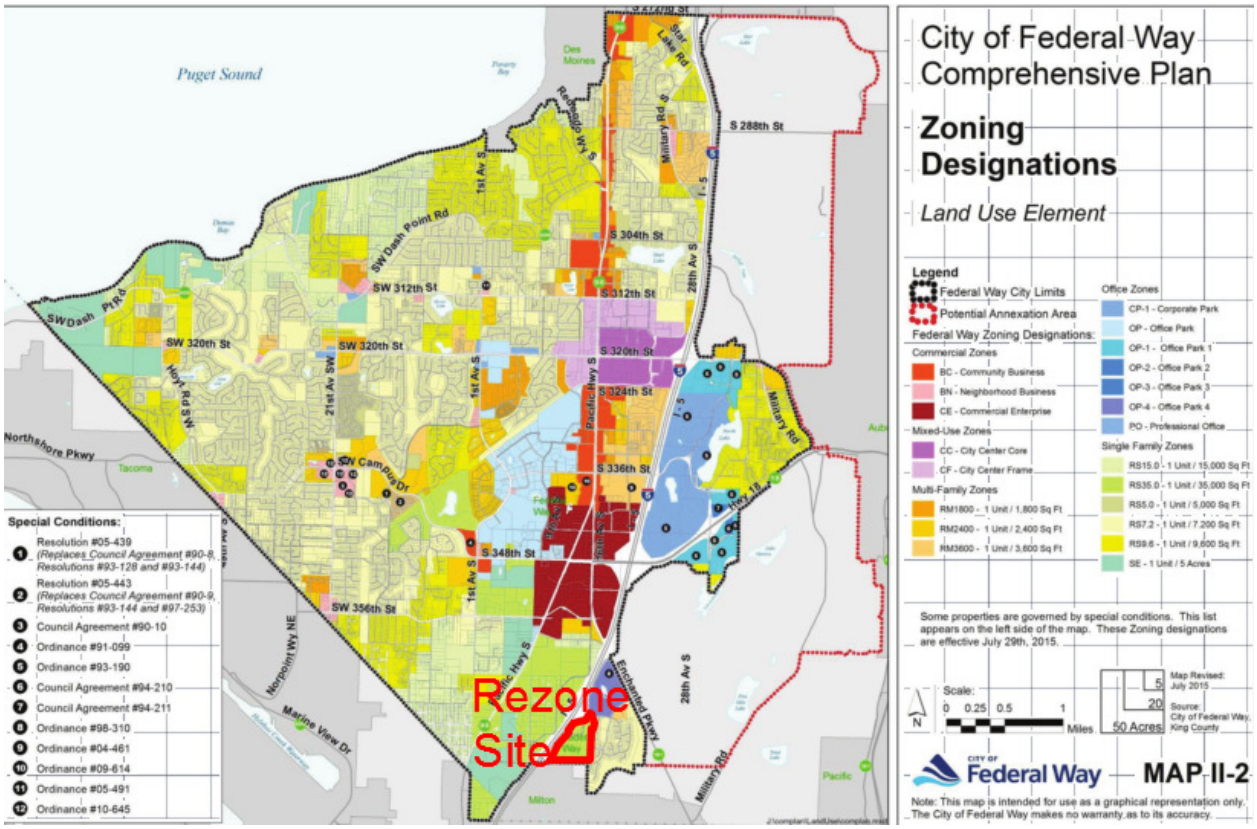


Figure 2: Impacted Intersections for Morning Peak

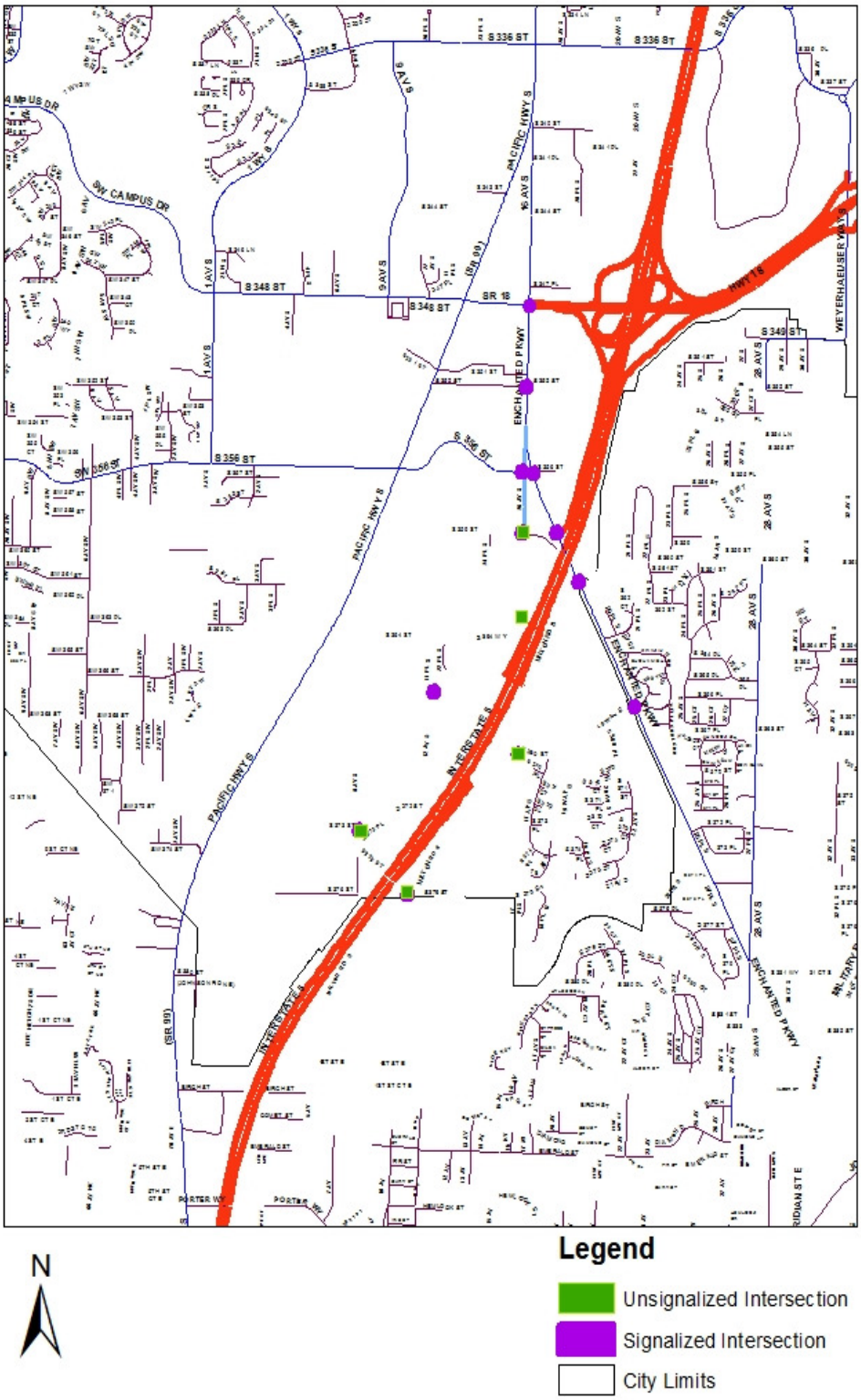


Figure 3.1: Impacted Intersections for Evening Peak

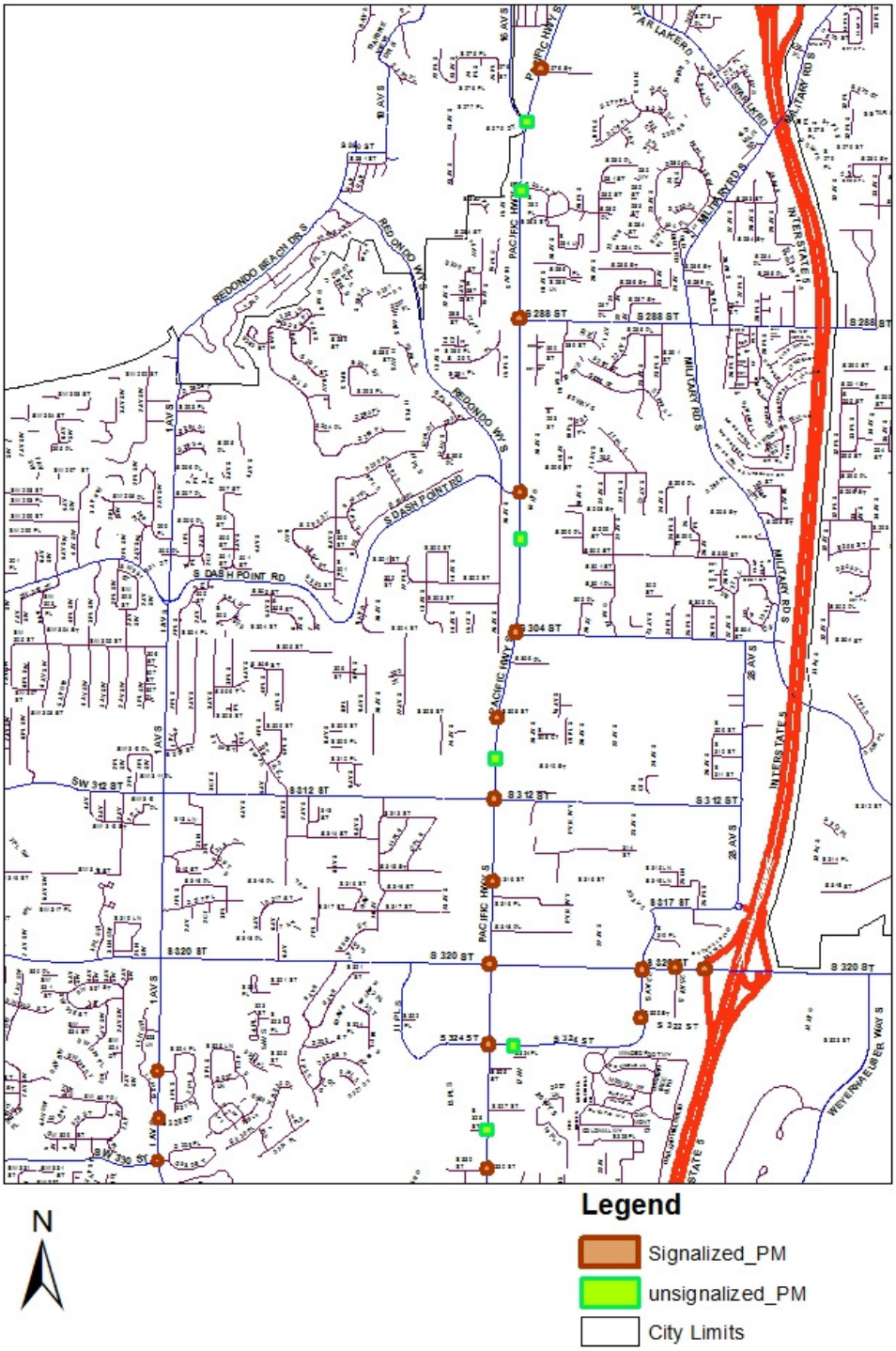
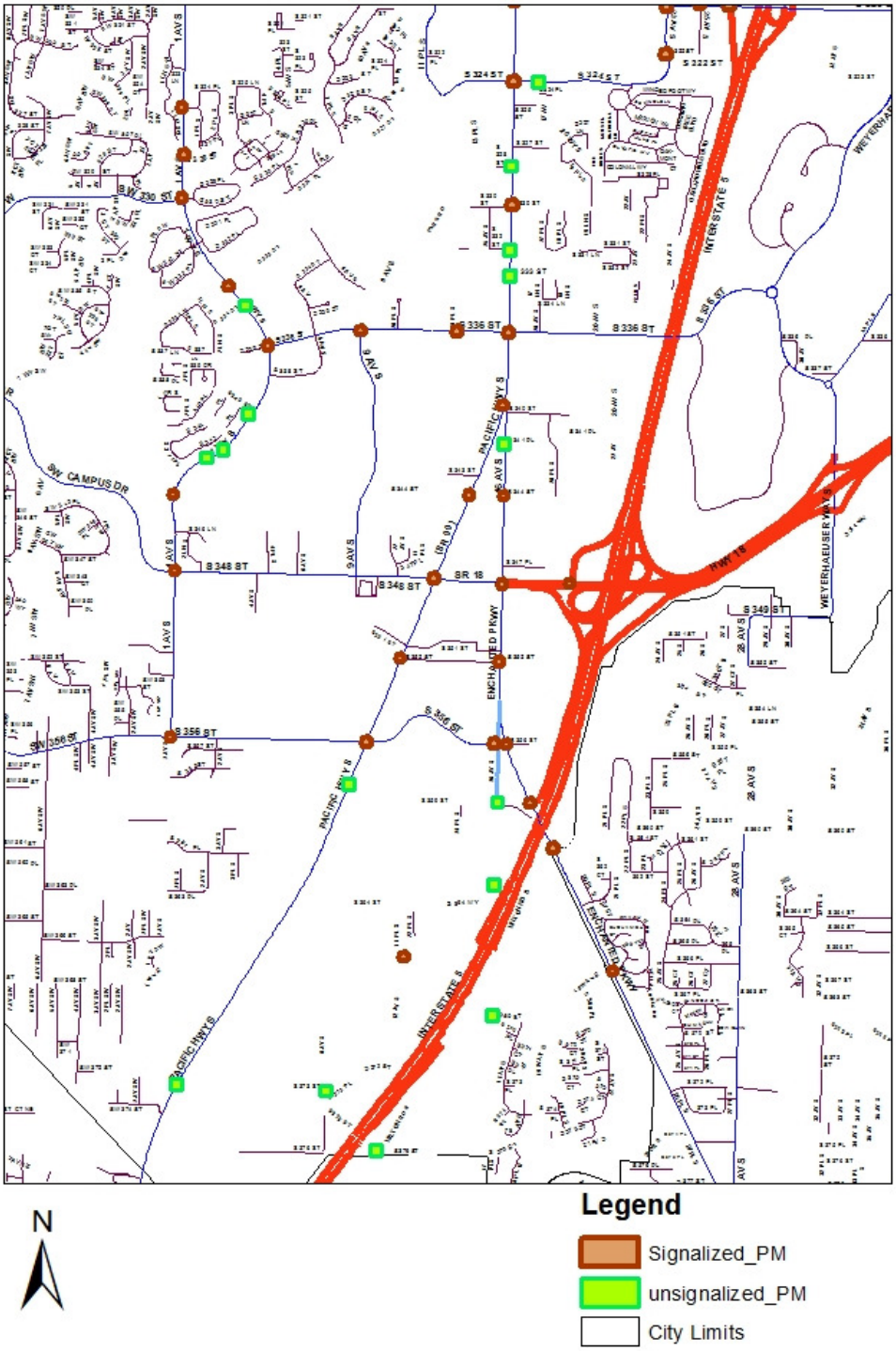


Figure 3.2: Impacted Intersections for Evening Peak



Area Conditions

A discussion of the surrounding street network and area is presented below. Other developments that are currently planned have been considered in this analysis and are presented herein. City plans for improvements to the nearby transportation system are also discussed.

Existing Land Uses

The site is currently occupied by RS 35.0 and consists of approximately 26 single family lots.

Existing Zoning

The site is designated as RS 35.0, on the 2016 Comprehensive Plan and Zone Map. The current zoning in the City of Federal Way matches the Comprehensive Plan land use designation of Low Density Residential.

Existing Street Network

This report analyzes traffic impacts on Enchanted Parkway S (SR 161), 16th Avenue S, S 320th Street, Pacific Highway S (SR 99), S 356th Street, S 324th Street / 23rd Avenue S, 1st Avenue S / 1st Way S, S 373rd Street, and Milton Road S within the study area.

Existing Streets

Enchanted Parkway S (SR 161) is a Principal Arterial with 4 lanes with raised median and 8-foot shoulders south of Milton Road S with a posted speed limit of 45 mph. North of Milton Road S, it has 5 lanes and sidewalks, bicycle lanes to S 352nd Street, and a posted speed limit of 40 mph. Daily traffic volumes vary from 20,000 to 37,000.

16th Avenue S north of S 348th Street (SR 18) is a Principal Arterial with 5 lanes and sidewalks and a posted speed limit of 35 mph. Daily traffic volumes vary from 16,000 to 26,000.

16th Avenue S south of S 356th Street is a Principal Collector with 2 lanes, bike lanes, and sidewalks, and a posted speed limit of 30 mph. Daily traffic volumes vary from 1900 to 2600.

Pacific Highway S (SR 99) is a Principal Arterial with 6 lanes, raised medians, and sidewalks north of S 359th Street. South of S 359th Street, it narrows to a rural 4-lane undivided roadway with 8-foot shoulders. Posted speed limits vary – 45 mph north of S 305th Place, 50 mph south of S 359th Street, and 40 mph in between. Daily traffic volumes vary from 18,000 to 40,000.

S 320th Street is a Principal Arterial with 6 lanes and sidewalks, and a posted speed limit of 35 mph. Daily traffic volumes vary from 31,000 to 43,000.

1st Avenue S and 1st Way S form a Minor Arterial corridor with a 4 lanes, raised median, and sidewalks north of WinCo Driveway. It has 5 lanes and sidewalks from there to halfway between S 348th Street / SW Campus Drive and S 352nd Street, and narrows further south of there to 3 lanes and sidewalk on one side. The posted speed limit is 35 mph, and daily traffic volumes vary from 14,000 to 23,000.

S 324th Street and 23rd Avenue S form a Minor Arterial corridor with 4 lanes and sidewalks on S 324th Street and 5 lanes and sidewalks on 23rd Avenue S. The posted speed limit is 30 mph and has daily traffic volumes of 11,000 to 13,000.

Milton Road S is a Principal Collector with a posted speed limit of 30 mph. It has 3 lanes and sidewalk on one side north of S 369th Street, and 2 lanes with 4-foot shoulders south of there. Daily traffic volumes vary from 2700 to 5500.

S 373rd Street is a Principal Collector with 2 lanes and no shoulders and a posted speed limit of 35 mph. Daily traffic volumes vary from 300 to 1000.

Existing Traffic Flow and Conditions

Evening peak period and morning peak period traffic counts were conducted for the year 2016 and 2018 for most of the study intersections. Missing data for the morning peak hours were generated by reversing the evening peak hour traffic volume. For the evening peak hour, volumes were taken from the latest turning movement counts with estimated volumes of developments that have already been permitted. The existing traffic volumes are shown in Appendix 1. Evening peak period traffic counts were conducted at the study intersections in 15-minute increments between 4:00 PM and 6:00 PM, and morning peak period traffic counts were conducted from 7 AM to 9 AM. Peak hour traffic volumes for the study intersections were incorporated in the traffic analysis software Synchro.

Committed or Planned Street Improvements

The City of Federal Way's Capital Improvement Plan (CIP) lists the projects to be completed in the area as well as the approximate timing of each project. Within the study area, the planned improvements listed in the current CIP include the following projects. These improvements have been incorporated in the current study (2040 scenarios).

- Install signal or roundabout at S 373rd Street and Pacific Highway S (SR 99);
- S 356th Street: 1st Avenue S to Pacific Highway S (SR 99) - widen to 5 lanes;
- 1st Avenue S: S 348th Street to S 356th Street - widen to 5 lanes, and add a second southbound right-turn lane at S 356th Street;
- S 324th Street: Pacific Highway S (SR 99) - 23rd Avenue S - widen to 5 lanes;

- 23rd Avenue S at S 320th Street: add a third southbound left-turn lane, a second northbound through lane, and a second right-turn lane;
- S 336th Street: Pacific Highway S (SR 99) to 20th Avenue S - widen to 5 lanes and add second left-turn lanes eastbound and westbound.

Traffic Forecasts

Traffic forecasts are presented in this section for year 2040 conditions with and without the rezone. Trips generated by the rezone as well as other growth in the area are considered. These forecast scenarios were selected according to the requirements of the City of Federal Way Transportation Impact Analysis guidelines.

Traffic Volume Forecast Without Rezone

Traffic forecasts were made without the addition of traffic from the proposed rezone. This approach provides a before-and-after look at the analysis intersections and how the proposed rezone adversely impacts an intersection. In addition to an existing conditions analysis, a Year 2018 and a twenty two-year forecast (Year 2040) are included in this study.

Existing Conditions Analysis

Existing conditions analysis used existing traffic volumes during the peak 15-minute period of the evening peak hour. Actual pedestrian counts were also used. Truck percentages were assumed to be 2%.

Year 2018 Volumes Without Rezone Forecast

The Year 2018 forecast was derived for each study intersection by adding the existing volumes to the approved but not yet built and occupied development trips. The year 2018 volumes Without Rezone forecast is illustrated in Appendix 1 for evening peak and Appendix 4 for morning peak.

Year 2040 Volumes Without Rezone Forecast

The Year 2040 forecast was derived for each study intersection by the City of Federal Way's travel demand model run based on the regional model developed by Puget Sound Regional Council using EMME software to estimate future travel patterns in the City. The morning peak 2040 volume is developed by multiplying the 2018 morning peak volume by the growth factor of between the 2018 and 2040 evening traffic volumes. A few of the intersection's approach traffic volume is forecast to decrease from 2018 to 2040. The year 2040 Volumes Without Rezone forecast is illustrated in Appendix 2 for the evening peak and Appendix 5 for the morning peak.

Site-Generated Traffic

Evening peak hour trips generated by the proposed rezone were forecast. These new trips are distributed and assigned to the study intersections by the City's travel demand model run using EMME. The trip generation and distribution for the evening peak hour due to the rezone is presented in Appendix 7. The additional traffic volume for the morning peak hour due to the rezone is obtained by reversing the evening peak hour volume and is presented in Appendix 8.

Trip Generation

The proposed rezone has 26 parcels totaling 56.06 acres, with five of the parcels consisting of 5.30 acres not being redevelopable. Wetland and assumed future roadways occupy an assumed 14.14 acres, leaving a net area of 36.62 acres available to With Rezone single-family lots. As a RS7.2 zone, 160 lots could be created and as a RS5.0 zone, 231 lots could be created. At present, 21 houses are built, although five homes are on parcels that are not available for redevelopment. According to ITE Trip Generation Manual 8th Edition Land Use Code 210, the total additional evening peak hour trips would be 215 after giving credit for 16 existing trips. The trip generation calculations are shown in Appendix A.

Traffic Forecast With Rezone

The evening peak hour traffic (215 trips) generated by the proposed rezone were added to the Without Rezone forecasts as discussed below. The trip distribution and assignment were obtained from the EMME model run and shown in Appendix 7.

Future With Rezone Forecast

The 2040 With Rezone forecasts are illustrated in Appendix 3 for the evening peak hour and in Appendix 6 for the morning peak hour. The 2040 With Rezone forecasts were derived by adding the rezone's trips to the 2040 Without Rezone forecasts. For the morning peak hour, the new trips generated by the rezone in the evening peak hour were reversed and added to the 2040 Without Rezone traffic volume to develop the 2040 With Rezone forecasts.

Traffic Analysis

The quality of traffic flow at the study intersections is presented in this section of the report. Other issues are also addressed, including the potential need for roadway improvements.

Intersection LOS, delay, queue storage, and volume to capacity ratio calculations were conducted on 57 intersections for the evening peak hour and 11 intersections for the morning peak hour. The intersections analyzed are impacted by 10 new trips during the evening peak hour and 100 new trips for the morning peak hour due to the proposed rezone.

Intersection Operations for Existing, With Rezone, and Without Rezone Conditions.

Delay, volume/capacity ratios, and 95th percentile queue lengths were analyzed at the study intersections. Existing and future scenarios without traffic from the project were analyzed and compared with scenarios where project traffic was added. These parameters reflect conditions for the worst 15 minutes of operation during the peak hour, which is the time period used to address the Level of Service standard in City of Federal Way.

The intersection of Pacific Highway S (SR 99) at S 288th Street, Pacific Highway S (SR 99) at S 312th Street, 16th Avenue S / Enchanted Parkway S (SR 161) at S 348th Street (SR 18), and Enchanted Parkway S (SR 161) / 16th Avenue S at S 356th Street has LOS F for evening peak hours at 2040 in both the Without Rezone scenario and With Rezone scenario. However, the v/c ratios for the above intersections are all in compliance with the City of Federal Way LOS Standard. The poor levels of service in the above signalized intersections are due to longer cycle lengths that the City has provided for PM peak hours. The level of service for existing, With Rezone, and Without Rezone scenarios are presented in Appendix B for signalized and unsignalized intersections.

The only v/c ratio failure noted was at a location that is already programmed for a roundabout at the intersection of Pacific Highway S (SR 99) and S 373rd Street. This unsignalized intersection is over the allowed v/c ratio of 1.0. Volume to Capacity ratios of all of the intersections analyzed for the morning peak hour are in compliance with the City of Federal Way LOS Standard (v/c less than 1.2 for signalized and 1.0 for unsignalized intersections). For the morning peak in the 2018 existing scenario, the intersection of 16th Avenue S / Enchanted Parkway S (SR 161) at S 348th Street (SR 18) is Level of Service F, but for 2040 With Rezone and No-With Rezone scenarios, the Level of Service is D. That is because of reduced approach volumes for the westbound direction due to WSDOT's planned construction of an I-5 southbound off-ramp to Enchanted Parkway S (SR 161), even though the overall volume has increased. Volume to Capacity ratios are shown in Appendix B.

Left- and Right-Turn Lane Storage Lengths

Queuing analysis was conducted to examine the potential for queues to block access to left- and right-turn lanes, and conversely turn lane queue lengths to exceed available storage capacity and provide potential strategies to reduce traffic congestion and improve traffic safety. Inadequate left-turn and right-turn queue storage lengths are presented in Appendix B for the morning peak hour and evening peak hour analysis. 95th percentile queue lengths are used to evaluate if a turn lane queue storage length is adequate. Strategies to minimize left turn storage blockage problem are extending the lengths of turning lanes, lead-lag left turn operation, split phasing, adding additional turning and through lanes and reWith Rezoneing the intersection are considered. Comparing evening peak hour 2040 Without Rezone and With Rezone scenarios, at the intersection of 16th Avenue S and S 344th Street, the eastbound left-turn lane should be extended from 50 feet to 75 feet in length. During the morning peak hour, the intersection of 16th Avenue

S at S 356th Street southbound right-turn lane has inadequate storage length, however both southbound through and right-turn lanes are receiving green simultaneously and this won't be an issue. Queueing storage analysis is for a comprehensive plan amendment due to rezone.

Given the level of uncertainty of predicting future development on a level of specificity adequate to justify mitigation, the City expects to rely on its concurrency permit process. The City analyzes each development for exceeding the adopted level of service standard and has the authority to condition developments to construct mitigating street improvements reasonably related to the traffic impact of a proposed development.

Roadway Safety

No particular intersection displayed a pattern of collisions that the City's Capital Improvement Program doesn't address. However, there is a pattern of run-off-the road collisions on-site at the easterly curve where Milton Road S and S 372nd Street change names. As development occurs, this curve, which currently has a 20 mph advisory curve warning sign in each direction, should be realigned to increase the radius of the curve to meet current City standards.

On-Site Roadway Improvements

Milton Road S and S 372nd Street are classified as Principal Collectors, and are shown in the Comprehensive Plan as Type P streets, which consist of a 32-foot wide roadway with ditches. The change in zoning requires that an urban street section be used with curbs and sidewalks. The potential increase in traffic volumes would also necessitate upgrading to a Type K street, which consists of a 3-lane street with bike lanes, curb and gutter, sidewalks, planter strips with street trees, and street lighting.

S 376th Street is classified as a Minor Collector, and is shown in the Comprehensive Plan as a Type S street, which would connect the stub in Regency Woods Subdivision to Milton Road S.

The City does not plan local street systems, but City standards provide parameters for roadway widths and block perimeter standards to assure connectivity within and between developments.

Findings and Conclusions

1. The proposed development consists of up to 231 (RS5.0) single-family homes. However, 16 homes are already built. According to ITE Trip Generation Manual, the project will generate up to 215 new evening peak hour trips and 570 daily trips.

2. All impacted study intersections meet the City of Federal Way LOS standards with programmed improvements. The results are presented in Appendix B and are discussed in earlier sections.

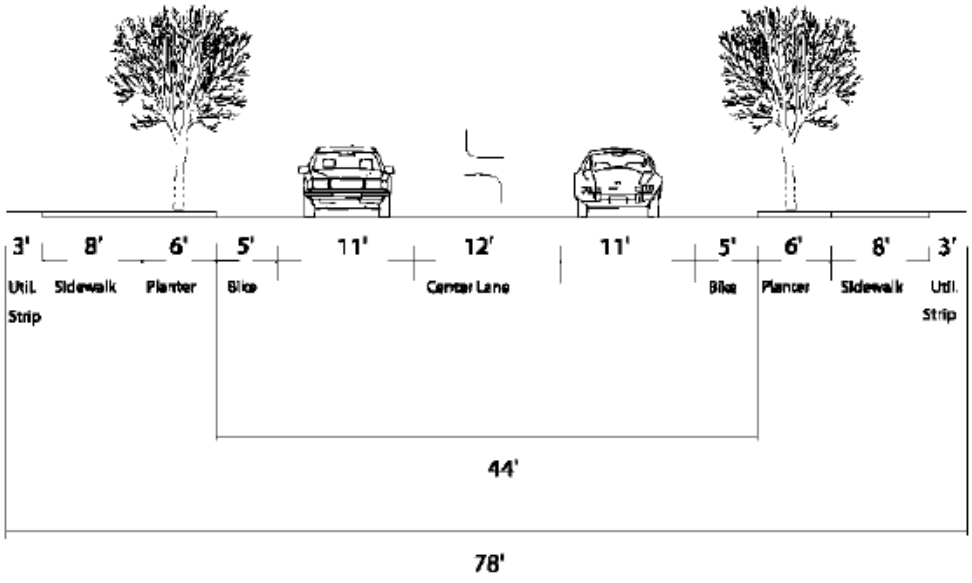
3. Appendix B shows that left- and right-turn locations blocking the through lane traffic and vice versa for all the scenarios. For 2040 With Rezone scenarios, the intersection of 16th Avenue S and S 344th Street eastbound left lane has queue storage problem. The intersection of 16th Avenue S and S 344th Street eastbound left lane needs to extend to 75 feet length from 50 feet. The mitigation will be conditioned during the concurrency and traffic impact analysis for a new development permit process.

4. Additional traffic generated due to rezoning from RS35.0 to RS5.0 single family homes would not adversely impact forecast 2040 traffic conditions.

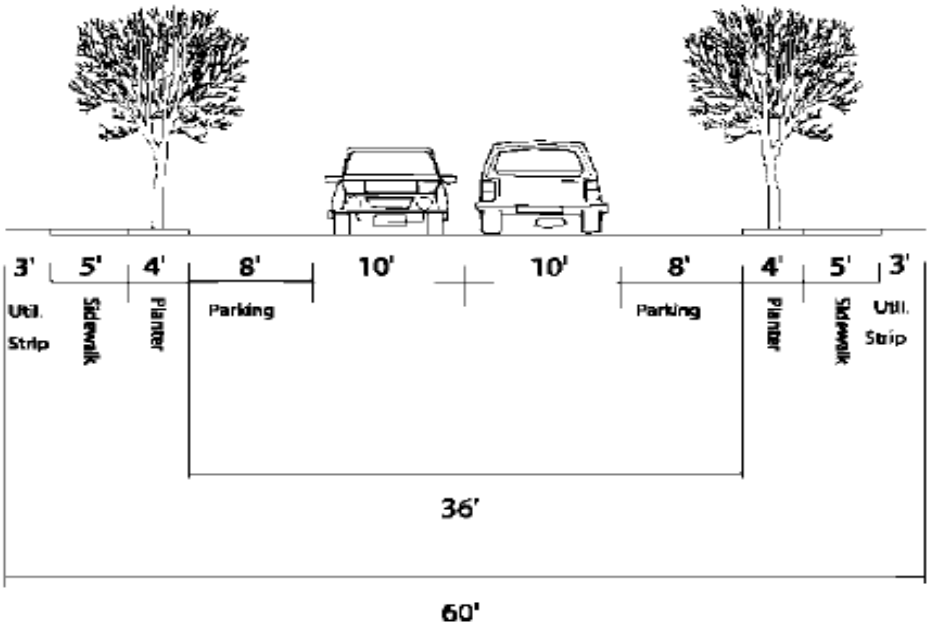
5. S 376th Street is a Minor Collector which will be a Type S street and extended to the stub from Regency Woods Subdivision. Milton Road S is a Principal Collector and will be reclassified as a Type K street from a Type P as a part of the rezoning.

Figure:2

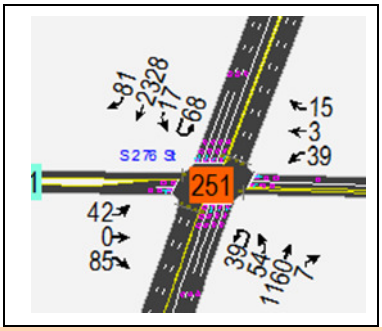
MILTON ROAD S - CROSS SECTION K: 3 Lanes + Bike



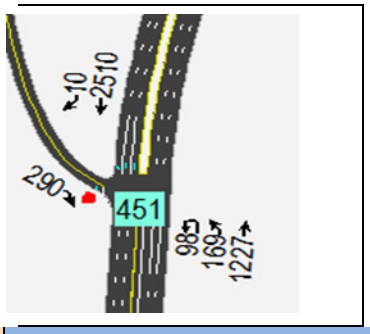
S 376TH STREET - CROSS SECTION S: 2 Lanes + Parking



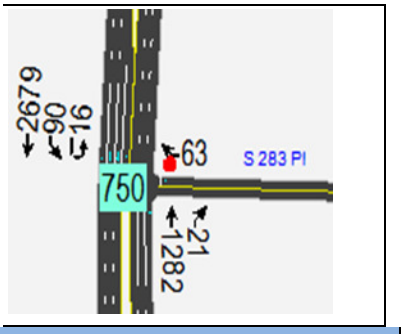
APPENDIX 1: 2018 EVENING PEAK HOUR VOLUME



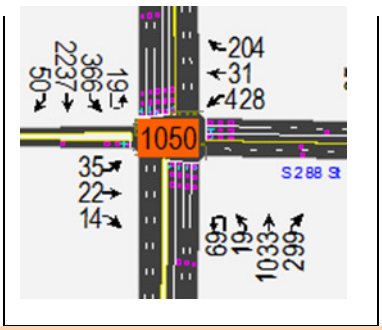
Pacific Hwy S (SR 99)
at S 276th St



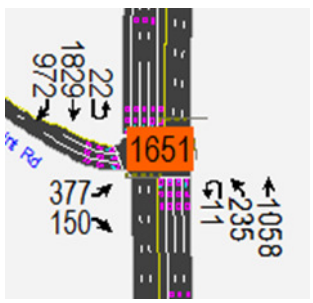
Pacific Hwy S (SR 99)
at 16th Ave S



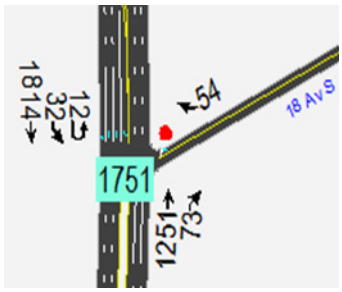
Pacific Hwy S (SR 99)
at S 283rd Pl



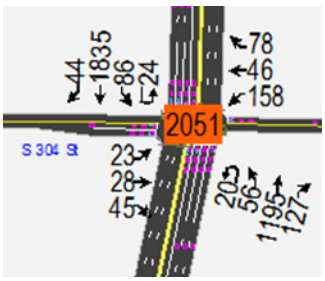
Pacific Hwy S (SR 99)
at S 288th St



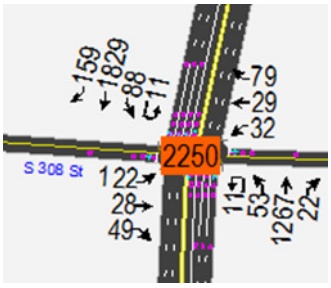
Pacific Hwy S (SR 99)
at S Dash Pt Rd (SR 509)



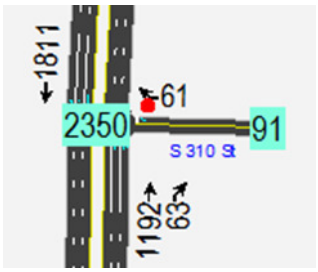
Pacific Hwy S (SR 99)
at 18th Ave S



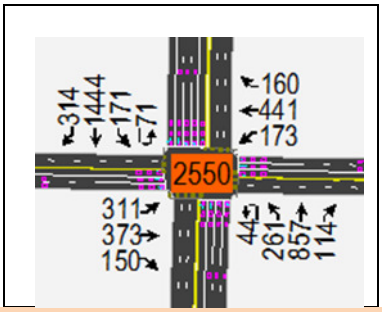
Pacific Hwy S (SR 99)
at S 304th St



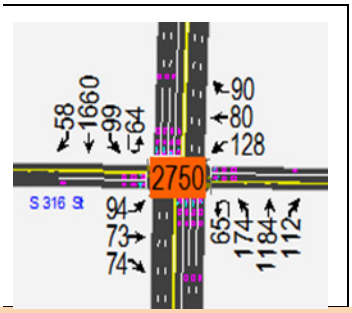
Pacific Hwy S (SR 99)
at S 308th St



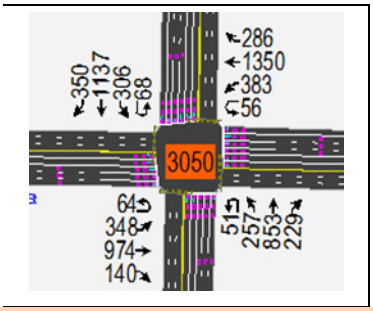
Pacific Hwy S (SR 99)
at S 310th St



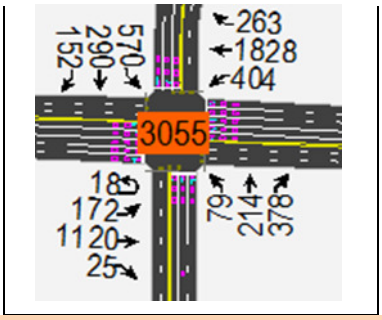
Pacific Hwy S (SR 99) at S 312th St



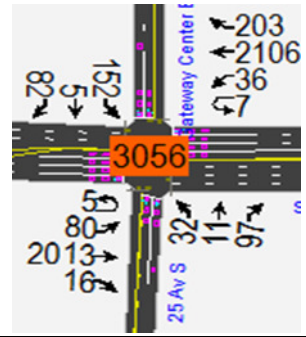
Pacific Hwy S (SR 99) at S 316th St



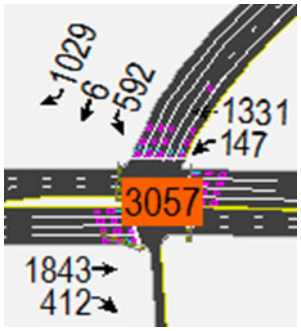
Pacific Hwy S (SR 99) at S 320th St



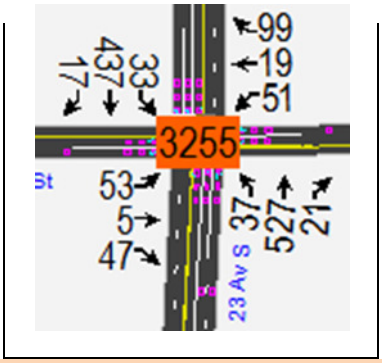
S 320th St at 23rd Ave S



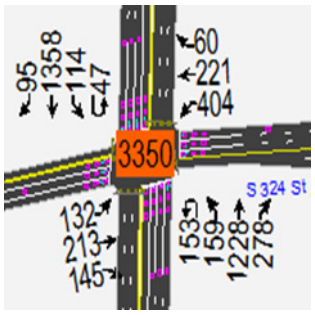
S 320th St at 25th Ave S /Gateway Center Blvd



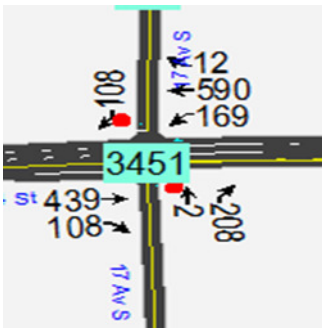
S 320th St at I-5 SB Ramp



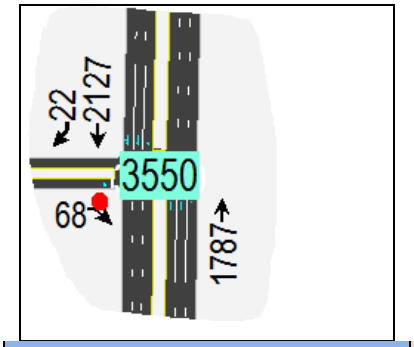
S 322 St at 23rd Ave S



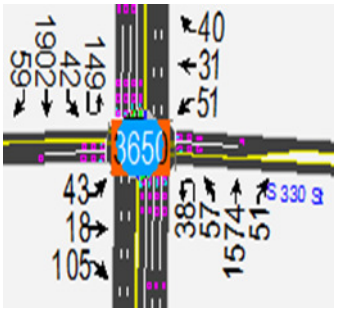
Pacific Hwy S (SR 99) at S 324th St



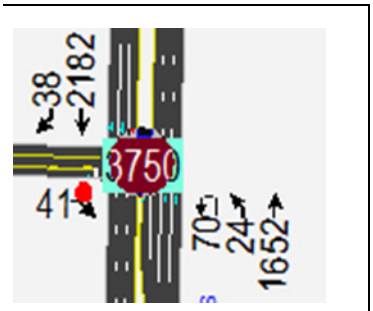
S 324th St at 17th Ave S



Pacific Hwy S (SR 99) at S 328th St

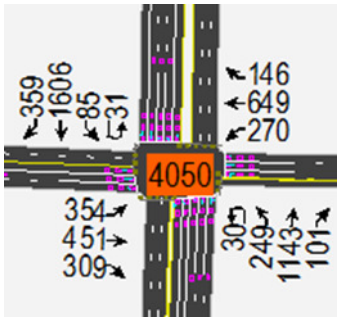


Pacific Hwy S (SR 99) at S 330th St

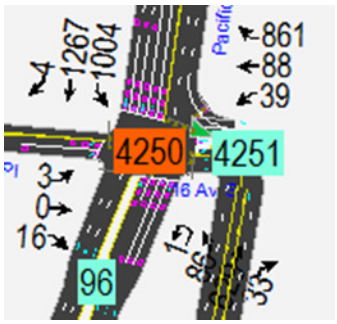


Pacific Hwy S (SR 99) at S 332nd St

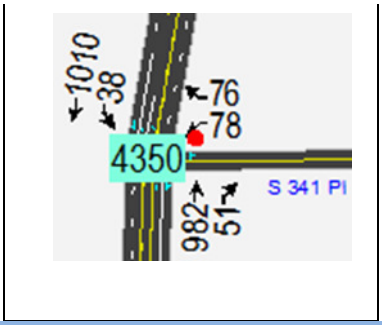
Pacific Hwy S (SR 99) at S 333rd St



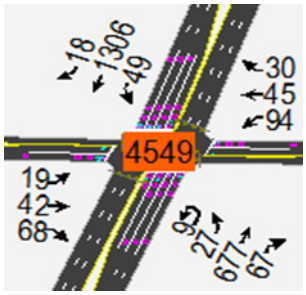
Pacific Hwy S (SR 99) at S 336th St



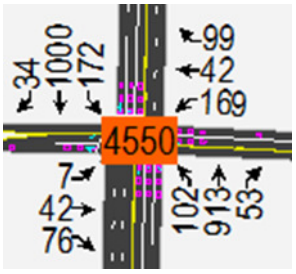
Pacific Hwy S (SR 99) at S 340th Pl / 16th Ave S



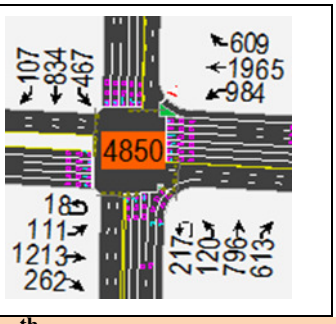
16th Ave S at S 341st Pl



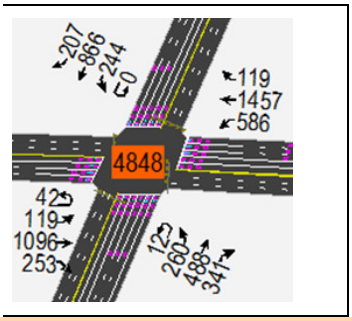
Pacific Hwy S (SR 99) at S344th St



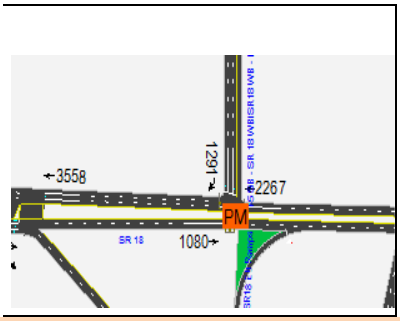
16th Ave S at S 344th St



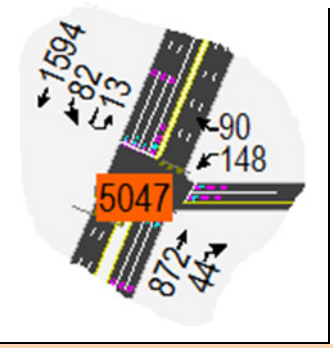
16th Ave S / Enchanted Pkwy S (SR 161) at S 348th St (SR 18)



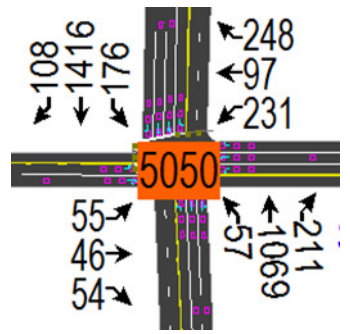
Pacific Hwy S (SR 99) at S 348th St (SR 18)



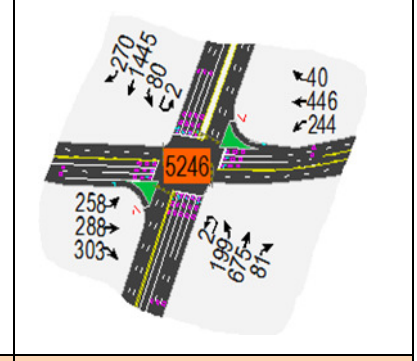
SR 18 at I-5 SB



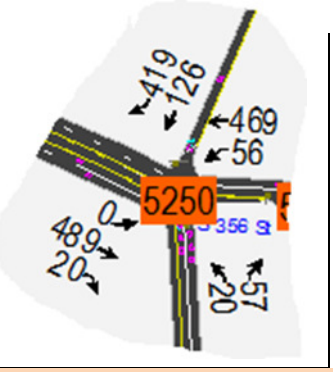
Pacific Hwy S (SR 99) at S 352nd St



Enchanted Pkwy S (SR 161) at S 352nd St

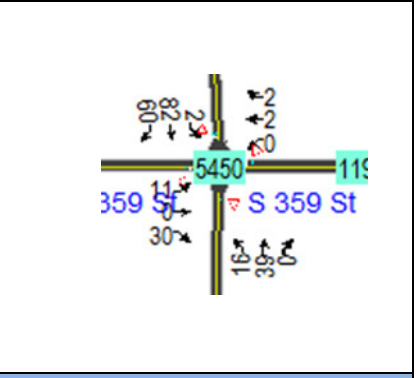


Pacific Hwy S (SR 99) at S 356th St

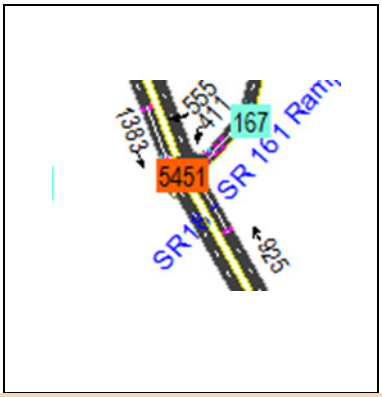


16th Ave S at S 356th St

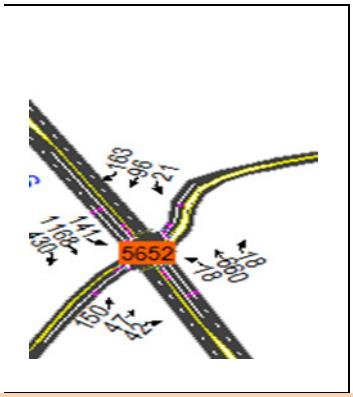
Pacific Hwy S (SR 99) at S 359th St



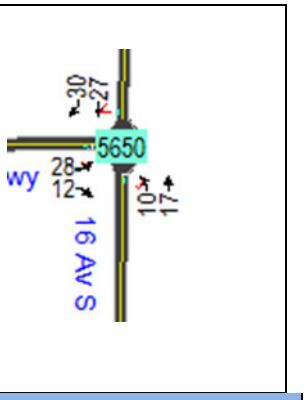
16th Ave S at S 359th St



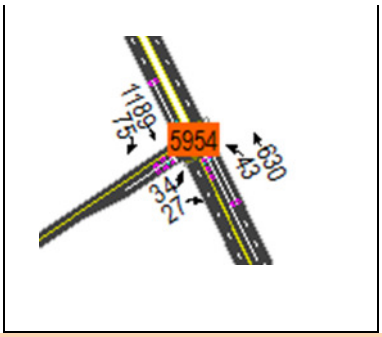
Enchanted Pkwy S (SR 161) at SR 18 Ramp



Enchanted Pkwy S (SR 161) at Milton Rd S

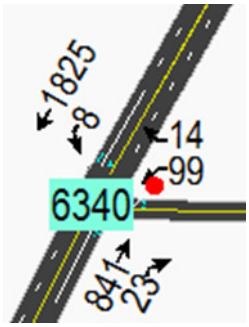


16th Ave S at Todd Beamer HS Dwy

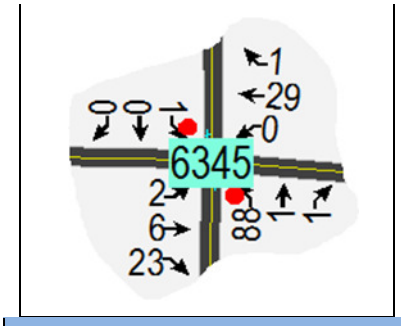


Enchanted Pkwy S (SR 161) at 19th Wy S

Milton Rd S at S 369th St

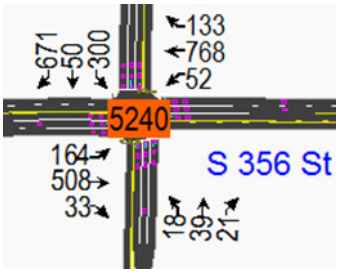


Pacific Hwy S (SR 99) at S 373rd St

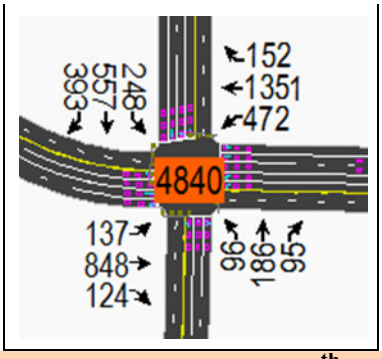


8th Ave S at S 373rd St

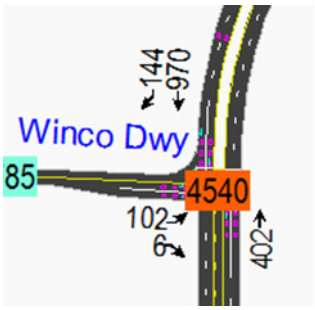
Milton Rd S at S 375th St / S 376th St



S 356th St at 1st Ave S

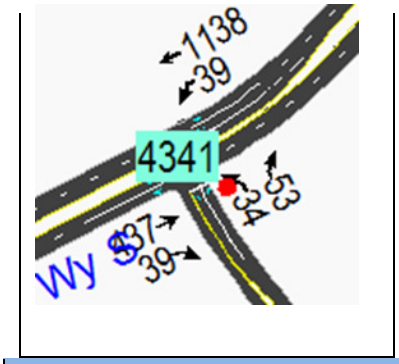


SW Campus Dr / S 348th St at 1st Ave S



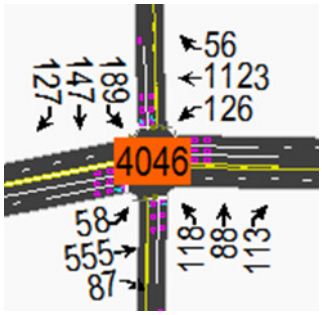
1st Ave S at Winco Dwy

1st Wy S at 1st Pl S

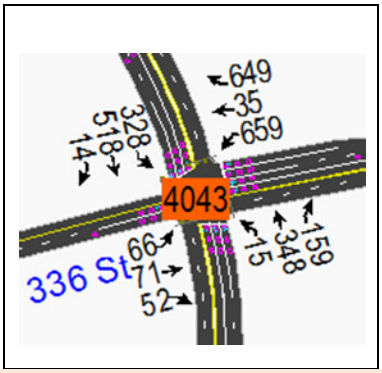


1st Way S at S 342nd St

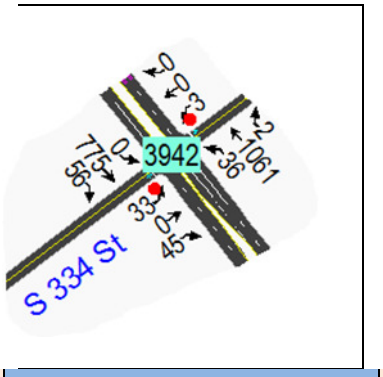
1st Way S at S 340 St



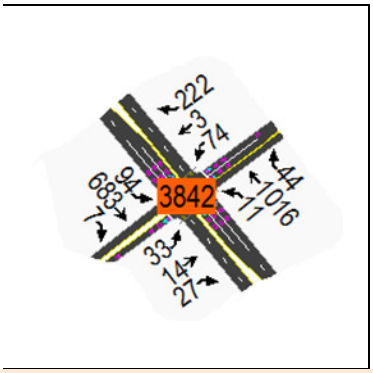
9th Ave S at S 336 St



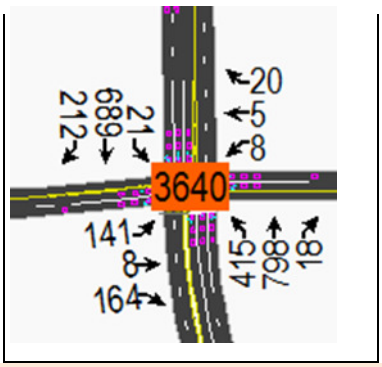
1st Way S at S 336th St



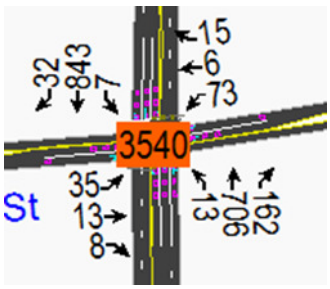
1st Way S at S 334th St



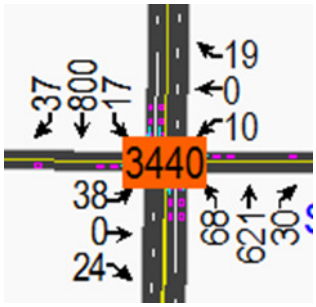
1st Way S at S 333rd St.



1st Ave S at S 330th St

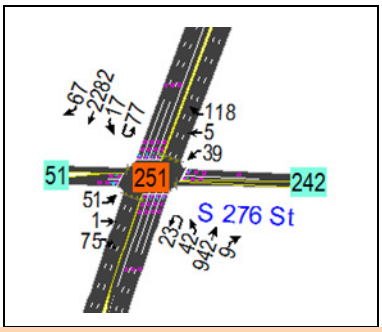


1st Ave S at S 328th St

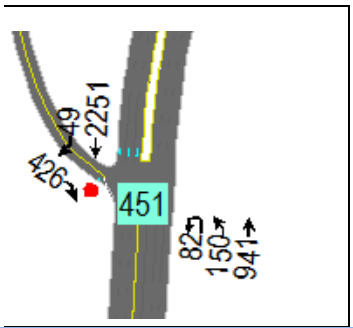


1st Ave S at SW 325th Pl

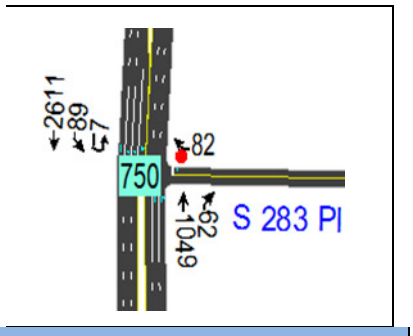
APPENDIX 2: 2040 EVENING PEAK HOUR WITHOUT REZONE VOLUMES



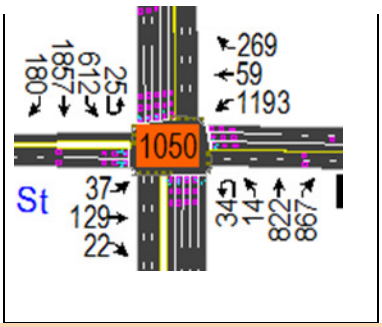
Pacific Hwy S (SR 99) at S 276th St



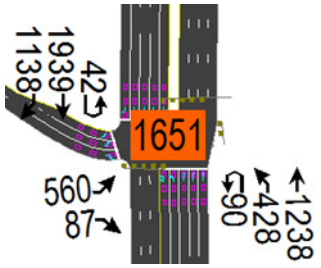
Pacific Hwy S (SR 99) at 16th Ave S



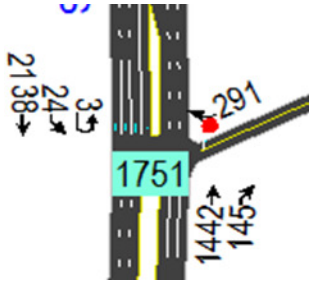
Pacific Hwy S (SR 99) at S 283rd Pl



Pacific Hwy S (SR 99) at S 288th St

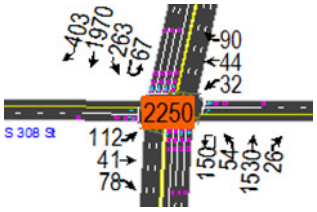


Pacific Hwy S (SR 99) at S Dash Pt Rd (SR 509)

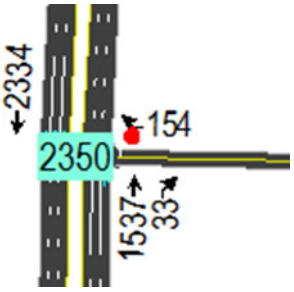


Pacific Hwy S (SR 99) at 18th Ave S

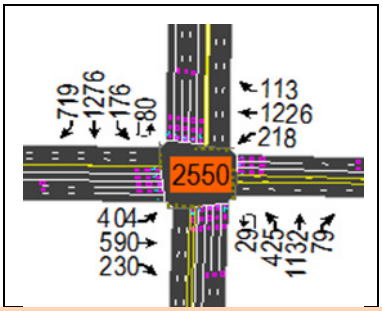
Pacific Hwy S (SR 99) at S 304th St



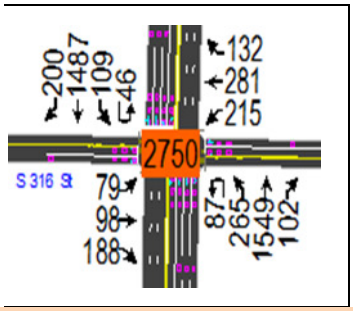
Pacific Hwy S (SR 99) at S 308th St



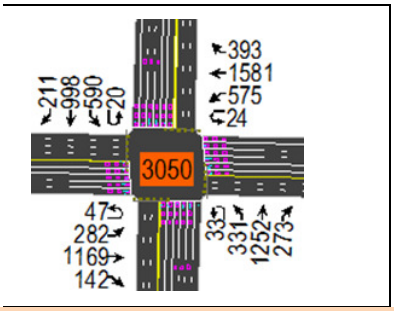
Pacific Hwy S (SR 99) at S 310th St



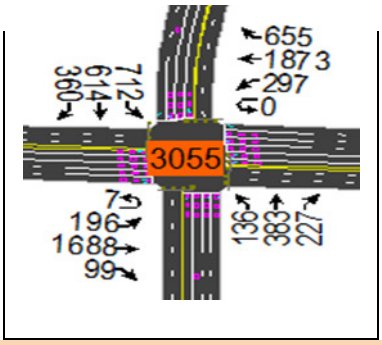
Pacific Hwy S (SR 99) at S 312th St



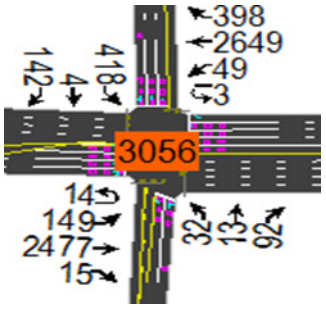
Pacific Hwy S (SR 99) at S 316th St



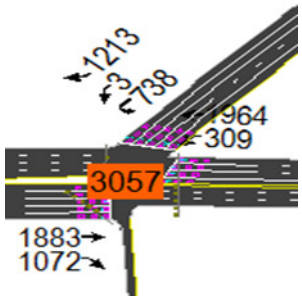
Pacific Hwy S (SR 99) at S 320th St



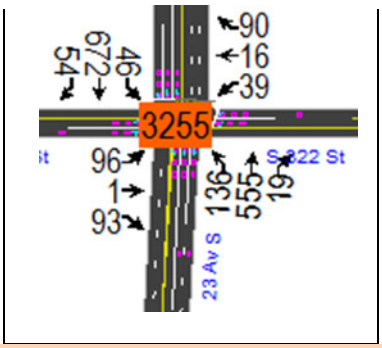
S 320th St at 23rd Ave S



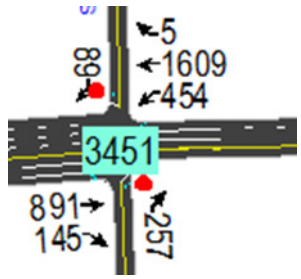
S 320th St at 25th Ave S / Gateway Center Blvd



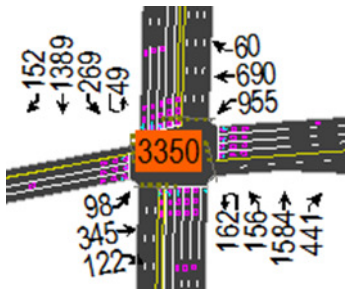
S 320th St at I-5 SB Ramp



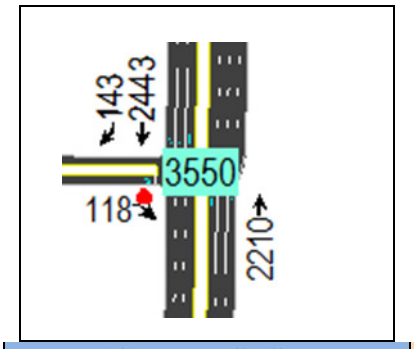
S 322nd St at 23rd Ave S



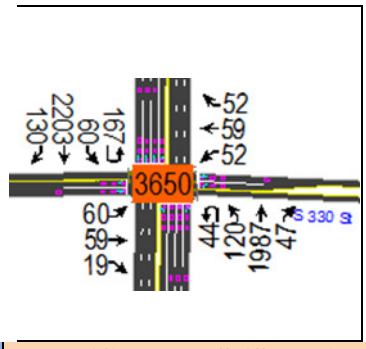
S 324th St at 17th Ave S



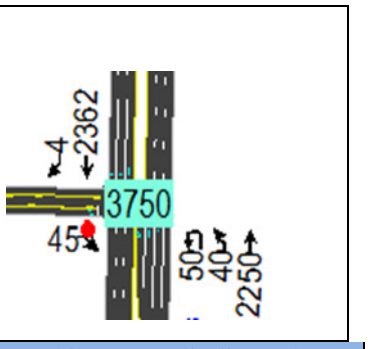
Pacific Hwy S (SR 99) at S 324th St



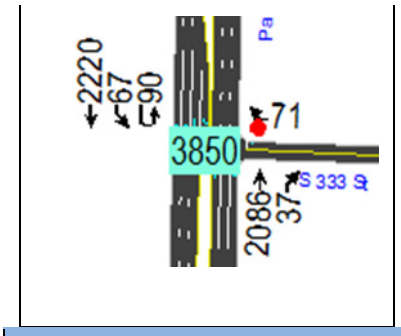
Pacific Hwy S (SR 99) at S 328th St



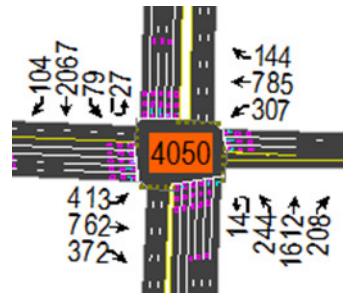
Pacific Hwy S (SR 99) at S 330th St



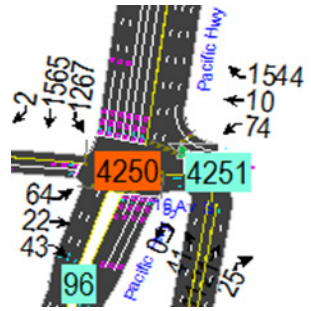
Pacific Hwy S (SR 99) at S 332nd St



Pacific Hwy S (SR 99) at S 333rd St

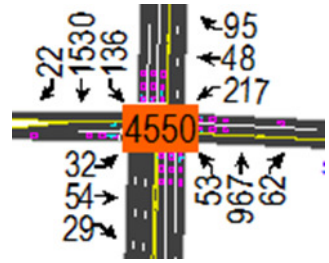


Pacific Hwy S (SR 99) at S 336th St

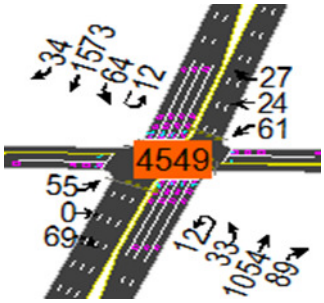


Pacific Hwy S (SR 99) at S 340th Pl / 16th Ave S

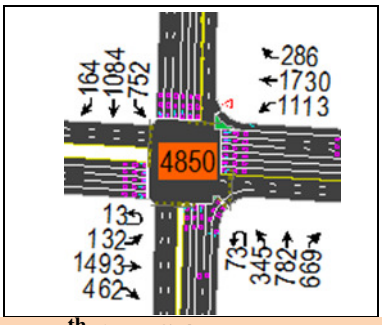
16th Ave S at S 341st Pl



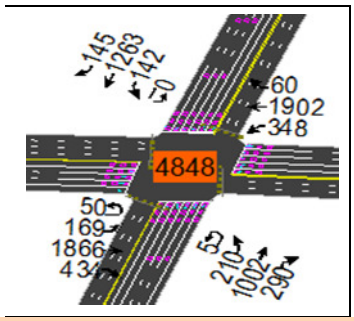
16th Ave S at S 344th St



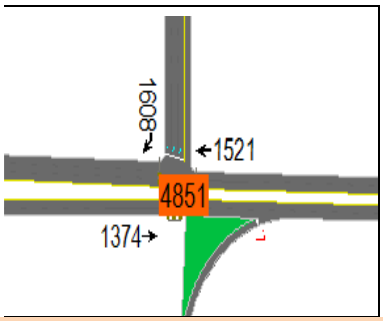
Pacific Hwy S (SR 99) at S 344th St



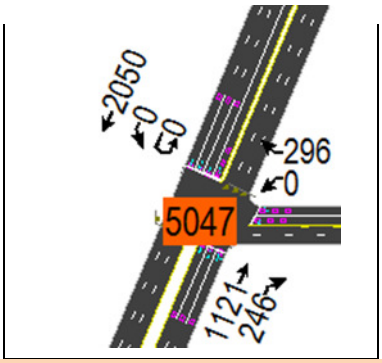
16th Ave S / Enchanted Pkwy S (SR 161) at S 348th St (SR 18)



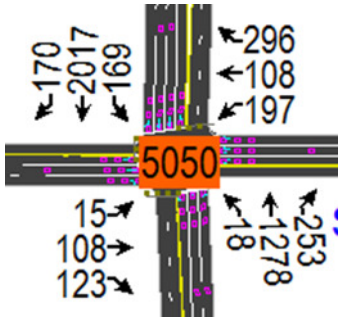
Pacific Hwy S (SR 99) at S 348th St (SR 18)



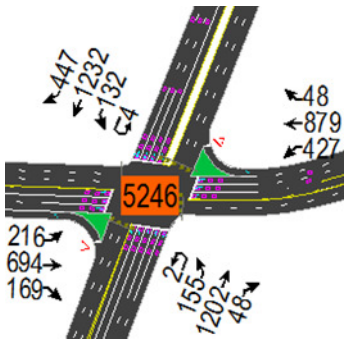
SR 18 at I-5 SB



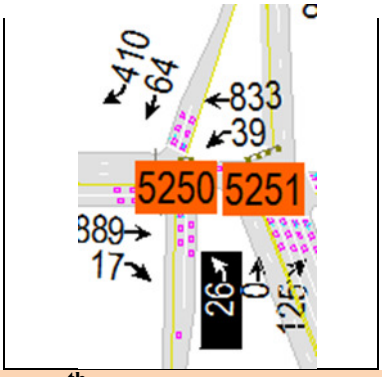
Pacific Hwy S (SR 99) at S 352nd St



Enchanted Pkwy S (SR 161) at S 352nd St

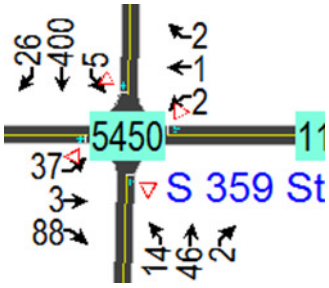


Pacific Hwy S (SR 99) at S 356th St

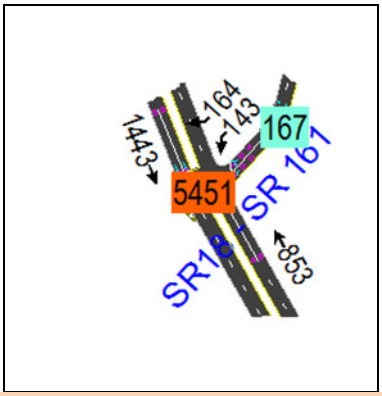


16th Ave S / Enchanted Pkwy S (SR 161) at S 356th St

Pacific Hwy S (SR 99) at S 359th St

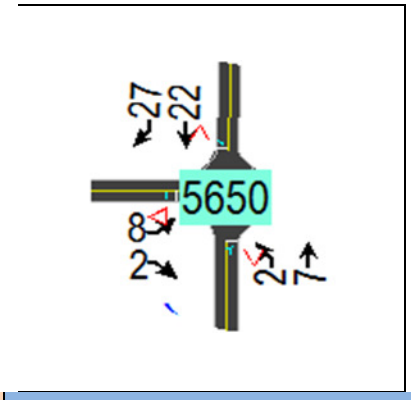


16th Ave S at S 359th St

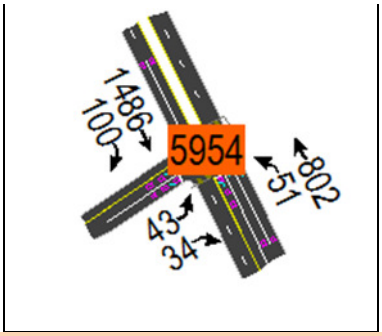


Enchanted Pkwy S (SR 161) at SR 18 Ramp

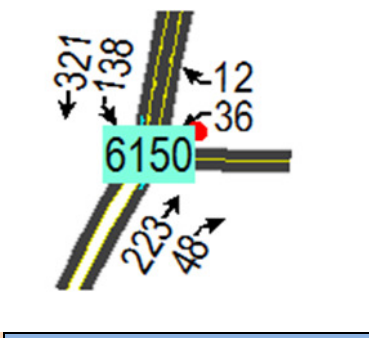
Enchanted Pkwy S (SR 161) at Milton Rd S



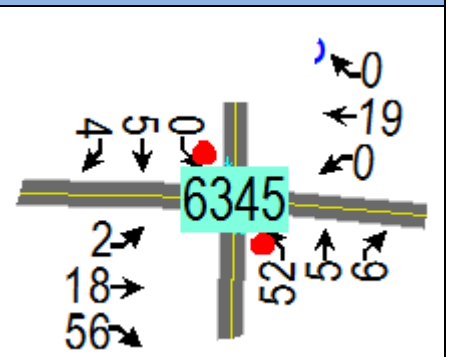
16th Ave S at Todd Beamer HS Dwy



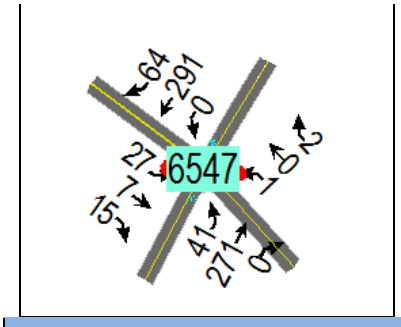
Enchanted Pkwy S (SR 161) at 19th Wy S



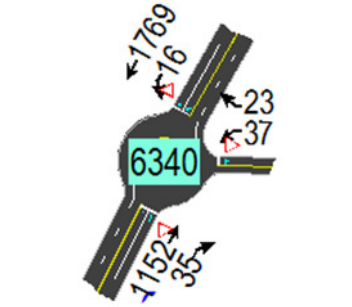
Milton Rd S at S 369th St



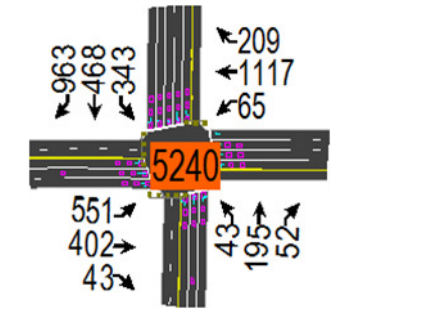
8th Ave S at S 373rd St



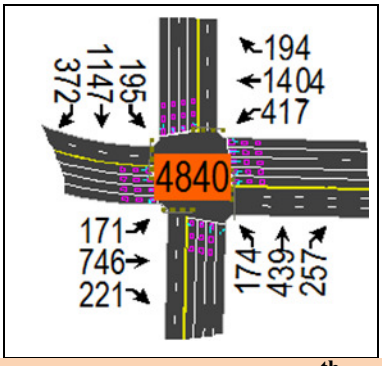
Milton Rd S at S 375th St / S 376th St



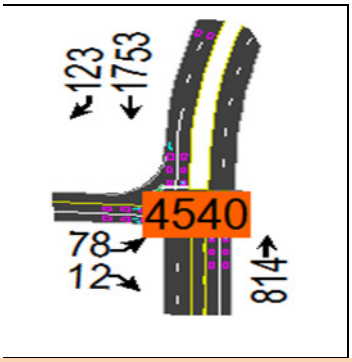
Pacific Hwy S (SR 99) at S 373 St



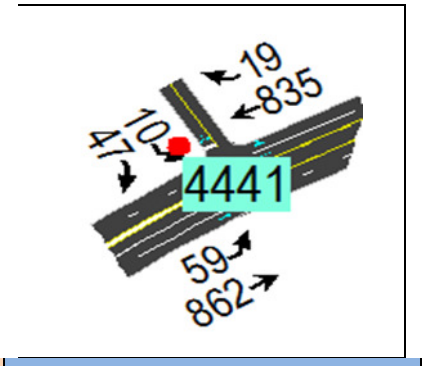
S 356th St at 1st Ave S



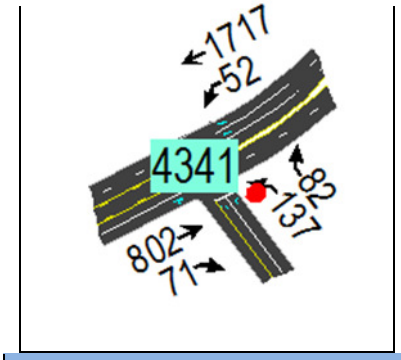
SW Campus Dr / S 348th St at 1st Ave S



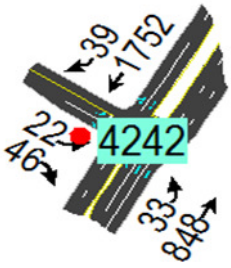
1st Ave S at Winco Dwy



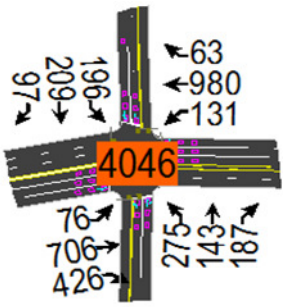
1st Way S at 1st Pl S



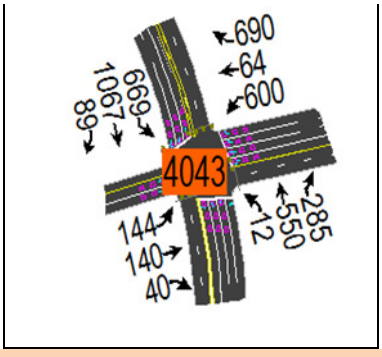
1st Way S at S 342nd St



1st Way S at S 340 St

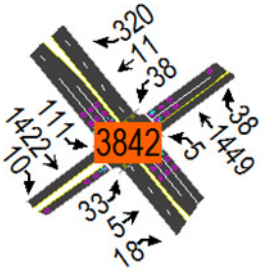


9th Ave S at S 336th St

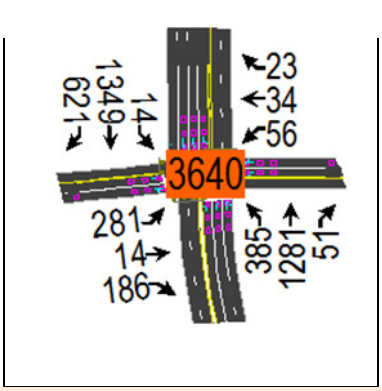
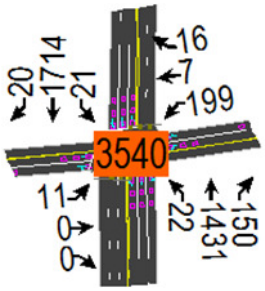
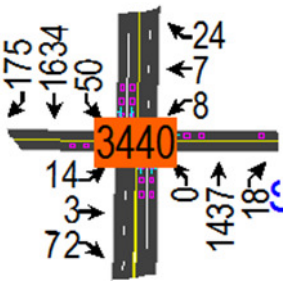


1st Way S at S 336th St

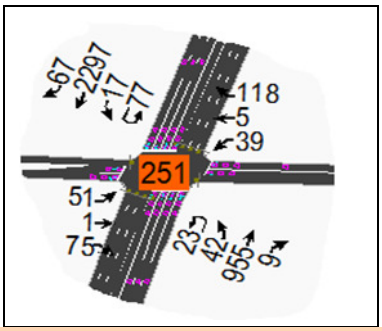
1st Way S at S 334th St



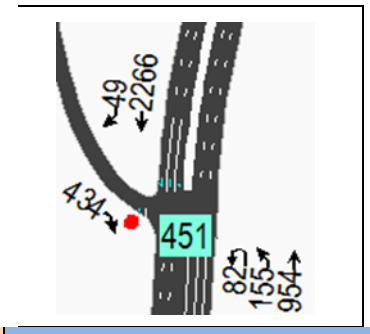
1st Way S at S 333rd St

		
1st Ave S at S 330th St	**1st Ave S at S 328th St**	**1st Ave S at SW 325th Pl**

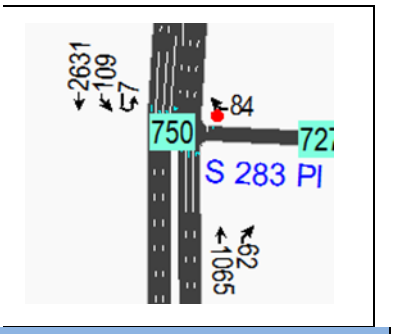
APPENDIX 3: 2040 PM WITH REZONE VOLUME:



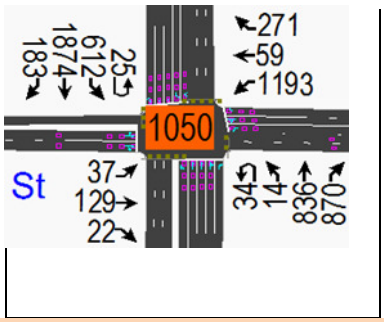
Pacific Hwy S (SR 99) at S 276th St



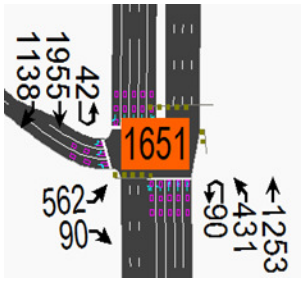
Pacific Hwy S (SR 99) at 16th Ave S



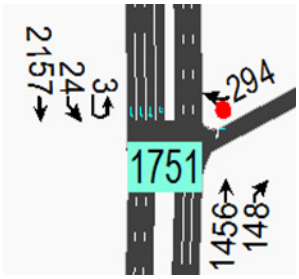
Pacific Hwy S (SR 99) At S 283rd Pl



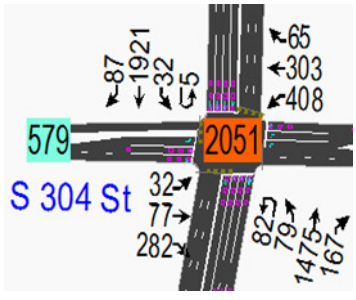
Pacific Hwy S (SR 99) at S 288th St



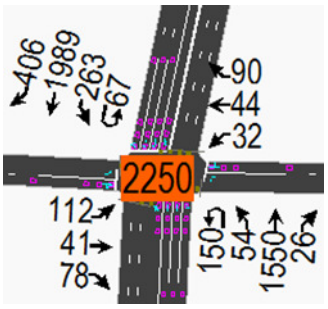
Pacific Hwy S (SR 99) at S Dash Pt Rd (SR 509)



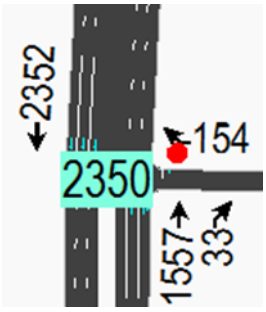
Pacific Hwy S (SR 99) at 18th Ave S



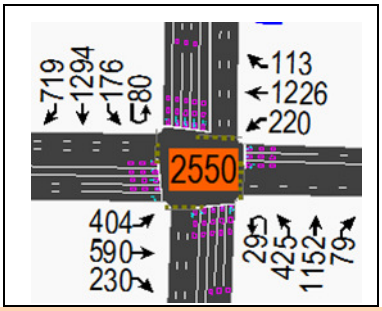
Pacific Hwy S (SR 99) at S 304th St



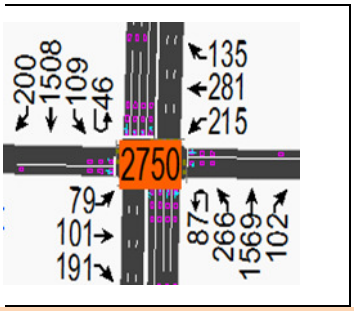
Pacific Hwy S (SR 99) at S 308th St



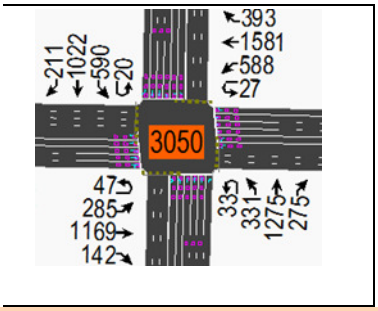
Pacific Hwy S (SR 99) at S 310th St



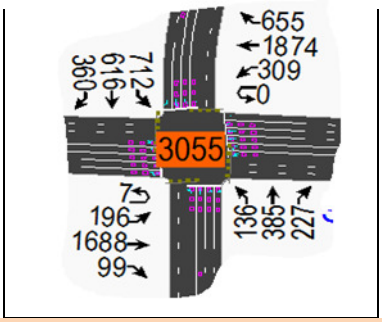
Pacific Hwy S (SR 99) at S 312th St



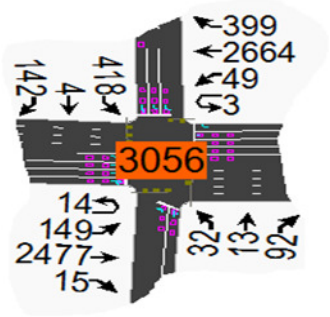
Pacific Hwy S (SR 99) at S 316th St



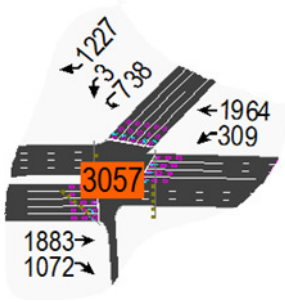
Pacific Hwy S (SR 99) at S 320th St



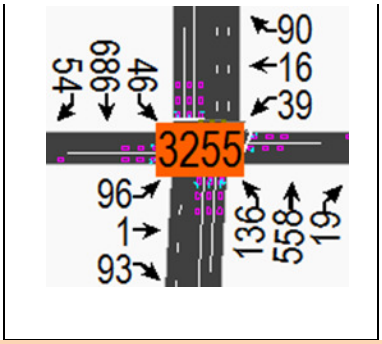
S 320th St at 23rd Ave S



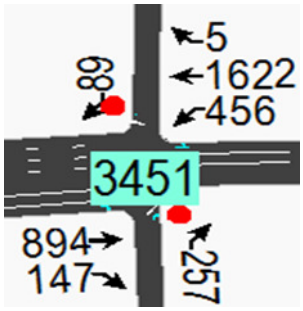
S 320th S at 25th Ave S / Gateway Center Blvd



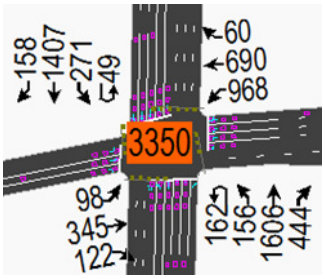
S 320th St at I-5 SB Ramp



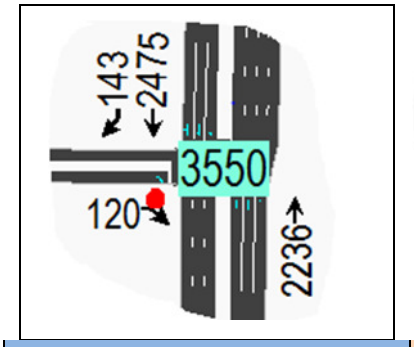
S 322nd St at 23rd Ave S



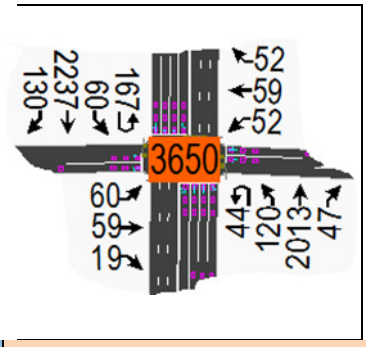
S 324th St at 17th Ave S



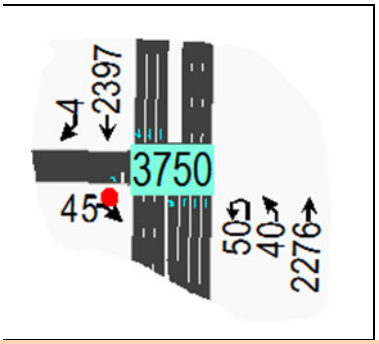
Pacific Hwy S (SR 99) at S 324th St



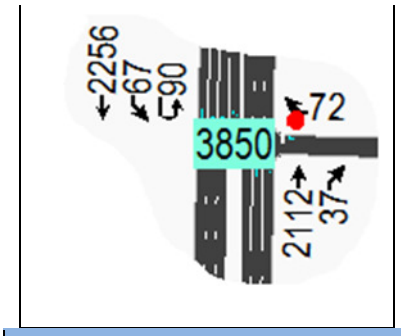
Pacific Hwy S (SR 99) at S 328th St



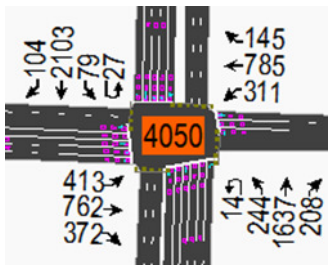
Pacific Hwy S (SR 99) at S 330th St



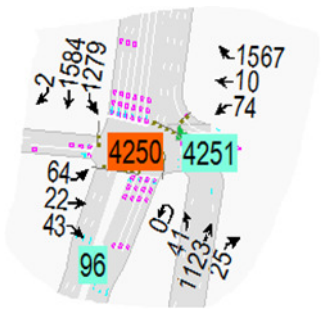
Pacific Hwy S (SR 99) at S 332nd St



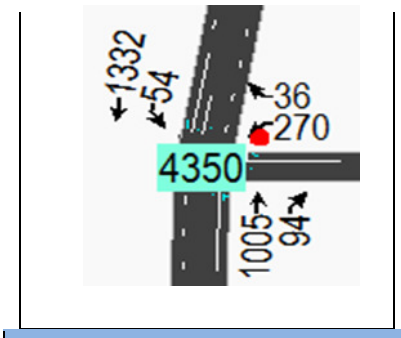
Pacific Hwy S (SR 99) at S 333rd St



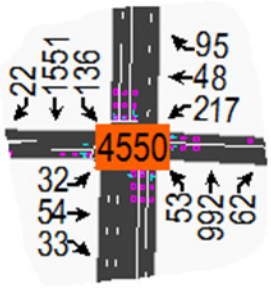
Pacific Hwy S (SR 99) at S 336th St



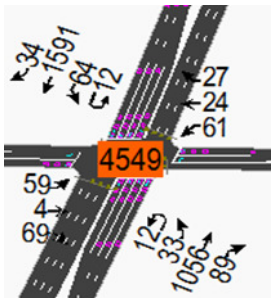
Pacific Hwy S (SR 99) at 16th Ave S / S 340th Pl



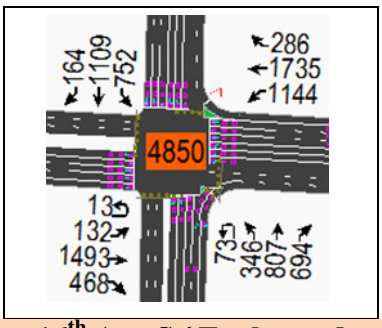
16th Ave S at S 341st Pl



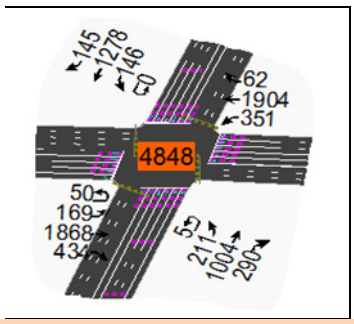
16th Ave S at S 344th St



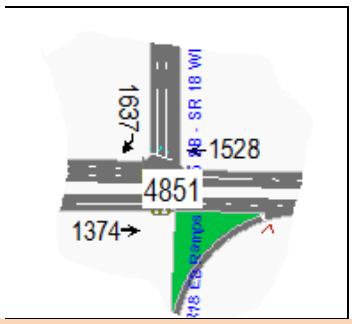
Pacific Hwy S (SR 99) at S 344th St



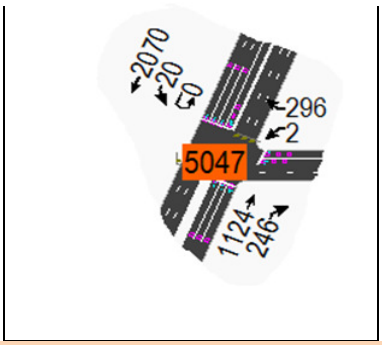
16th Ave S / Enchanted Pkwy S (SR 161) at S 348th St (SR 18)



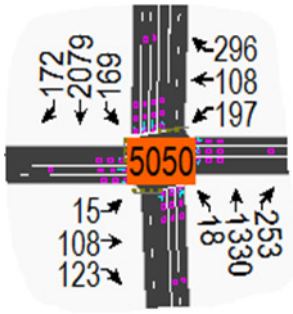
Pacific Hwy S (SR 99) at S 348th St (SR 18)



SR 18 at I-5 SB

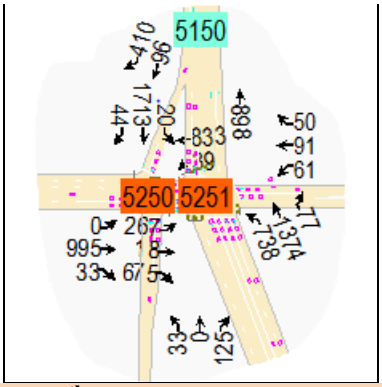


Pacific Hwy S (SR 99) at S 352nd St

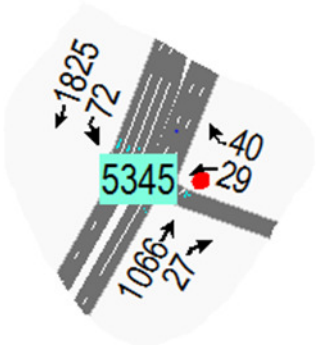


Enchanted Pkwy S (SR 161) at S 352nd St

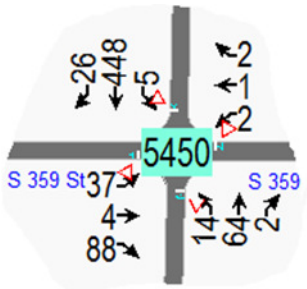
Pacific Hwy S (SR 99) at S 356th St



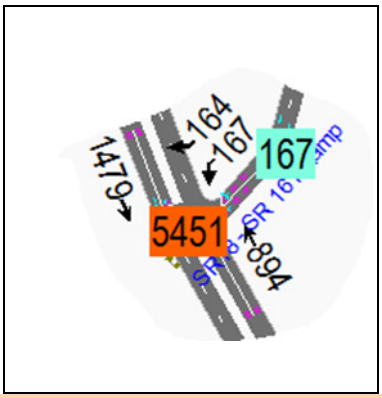
16th Ave S / Enchanted Pkwy S (SR 161) at S 356th St



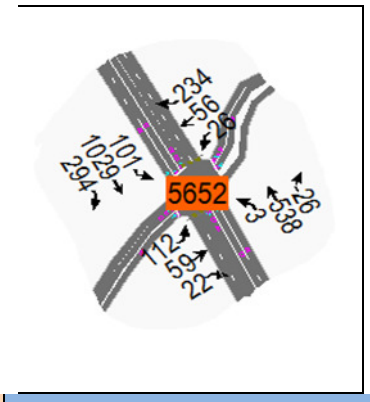
Pacific Hwy S (SR 99) at S 359th St



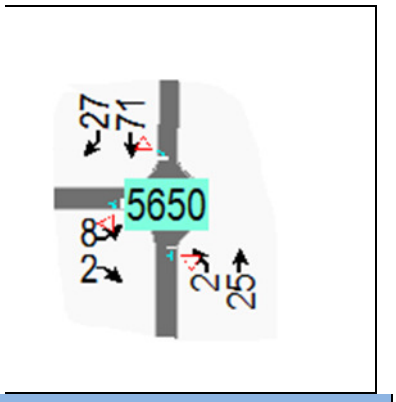
16th Ave S at S 359th St



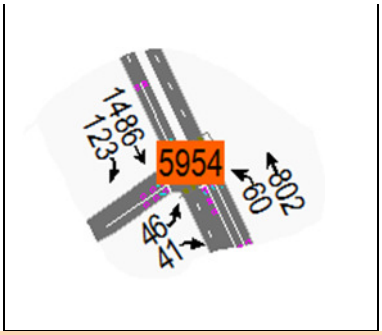
Enchanted Pkwy S (SR 161) at SR 18 Ramp



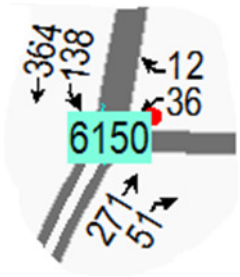
Enchanted Pkwy S (SR 161) at Milton Rd S



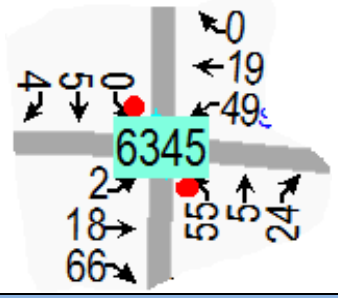
16th Ave S at Todd Beamer HS Dwy



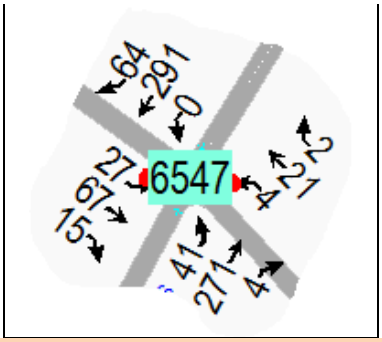
Enchanted Pkwy S (SR 161) at 19th Way S



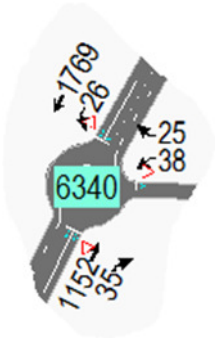
Milton Rd S at S 369th St



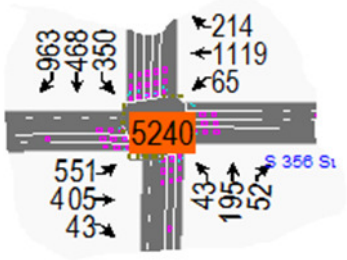
8th Ave S at S 373rd St



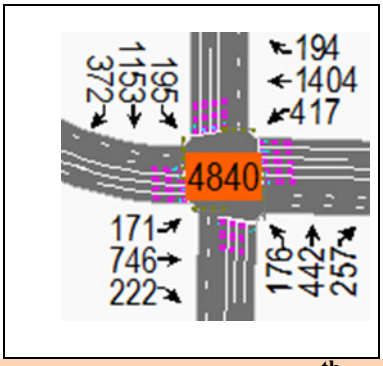
Milton Rd S at S 375th St / S 376th St



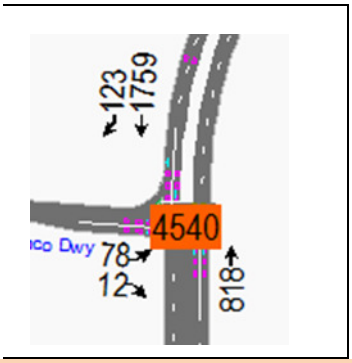
Pacific Hwy S (SR 99) at S 373rd St



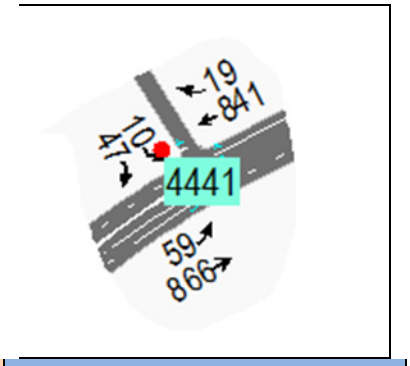
S 356th St at 1st Ave S



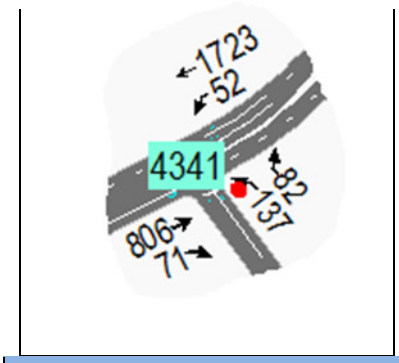
SW Campus Dr / S 348th St at 1st Ave S



1st Way S at Winco Dwy



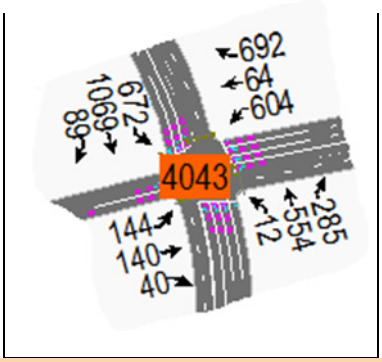
1st Way S at 1st Pl S



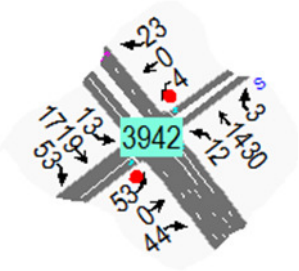
1st Way S at S 342nd St

1st Way S at S 340th St

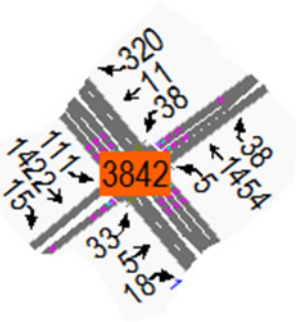
9th Ave S at S 336th St



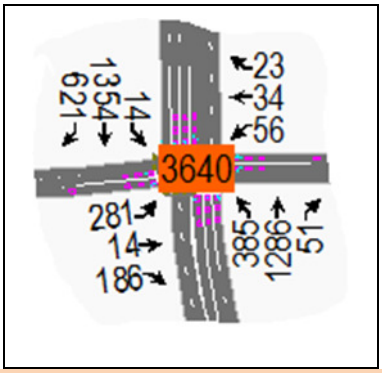
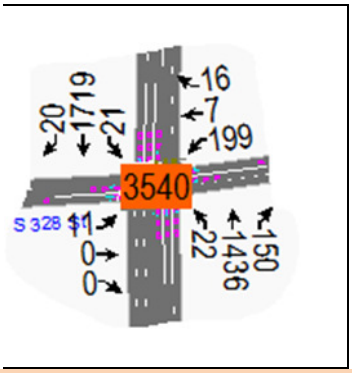
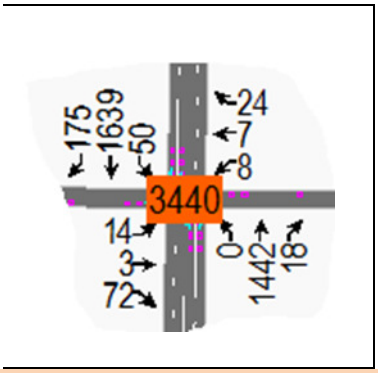
1st Way S at S 336th St



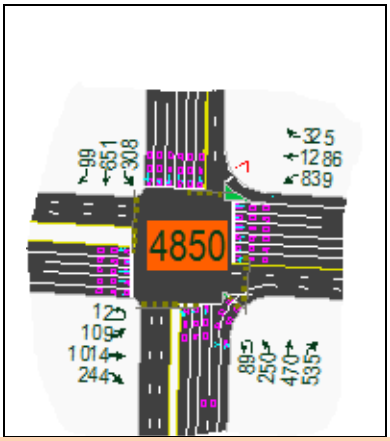
1st Way S at S 334th St



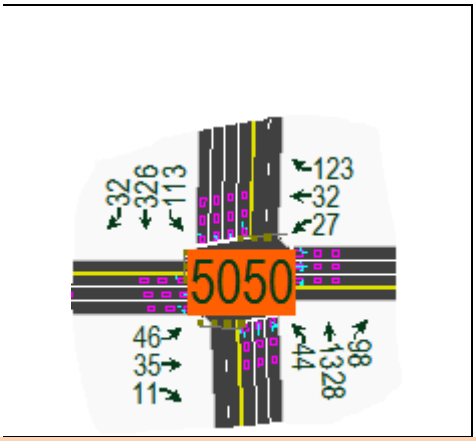
1st Way S at S 333rd St

		
1st Ave S at S 330th St	**1st Ave S at S 328th St**	**1st Ave S at SW 325th Pl**

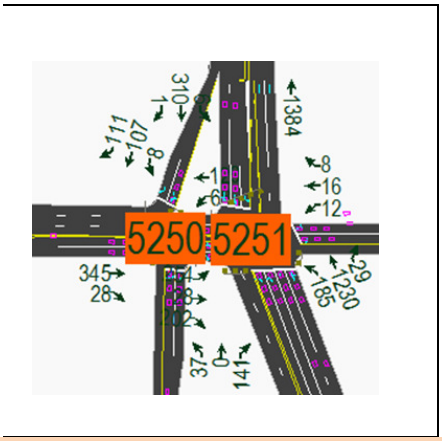
APPENDIX 4: 2018 MORNING PEAK EXISTING VOLUME



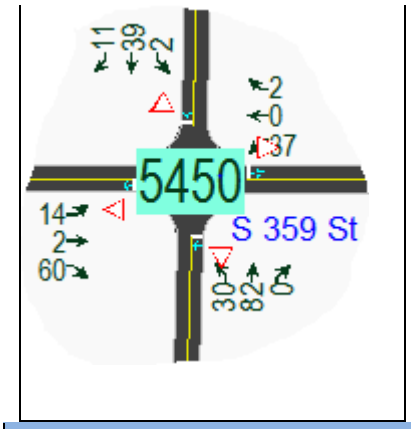
16th Ave S / Enchanted Pkwy S (SR 161) at S 348th St (SR 18)



Enchanted Pkwy S (SR 161) at S 352nd St

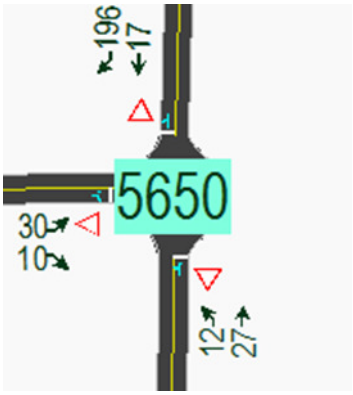


16th Ave S / Enchanted Pkwy S (SR 161) at S 356th St

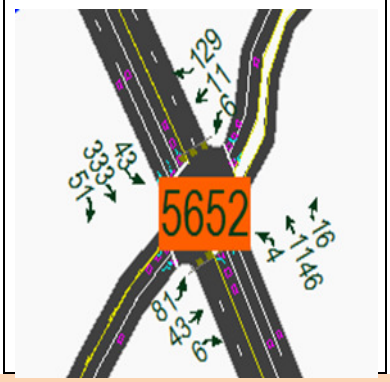


16th Ave S at S 359th St

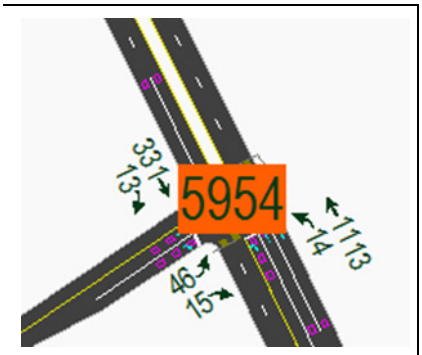
Enchanted Pkwy S (SR 161) at SR 18 Ramp



16th Ave S at Todd Beamer HS Dwy



Enchanted Pkwy S (SR 161) at Milton Rd S



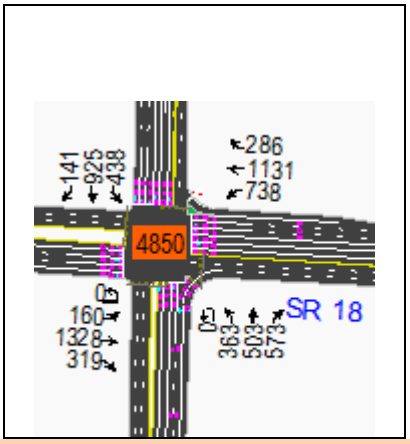
Enchanted Pkwy S (SR 161) at 19th Way S

Milton Rd S at S 369th St

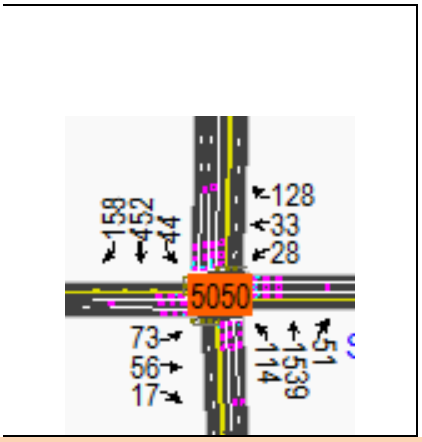
Milton Rd S at S 375th St / S 376th St

S 373rd St at 8th Ave S

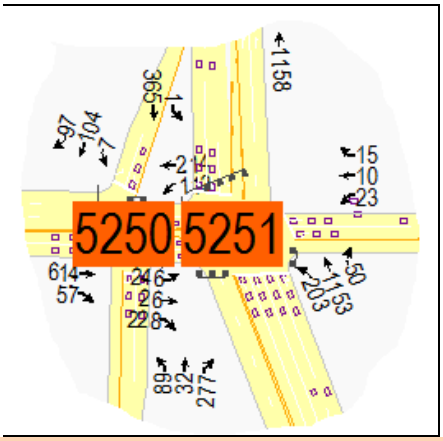
APPENDIX 5: 2040 MORNING PEAK WITHOUT REZONE VOLUME:



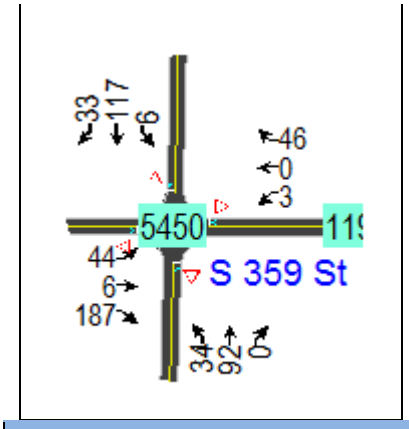
16th Ave S / Enchanted Pkwy S (SR 161) at S 348th St (SR 18)



Enchanted Pkwy S (SR 161) at S 352nd St



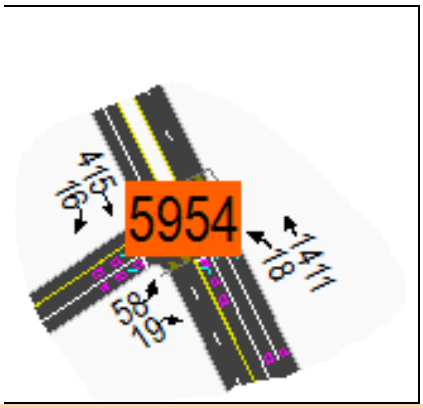
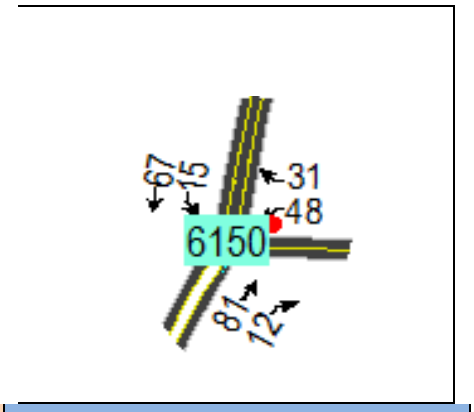
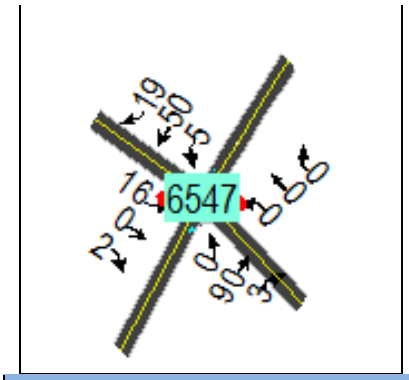
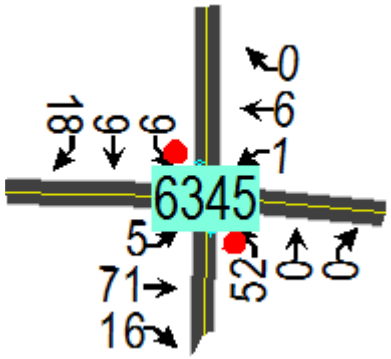
16th Ave S / Enchanted Pkwy S (SR 161) at S 356th St



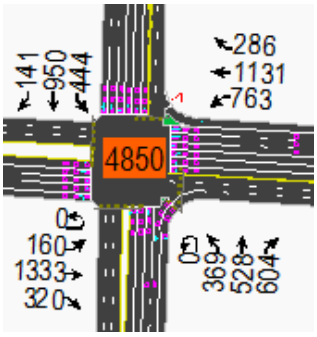
16th Ave S at S 359th St

Enchanted Pkwy S (SR 161) at SR 18 Ramp

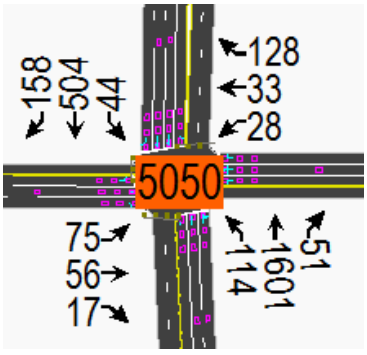
16th Ave S at Todd Beamer HS Dwy

		
Enchanted Pkwy S (SR 161) at Milton Rd S	**Enchanted Pkwy S (SR 161) at 19th Way S**	**Milton Rd S at S 369th St**
		
Milton Rd S at S 375th St / S 376th St	**S 373rd St at 8th Ave S**	

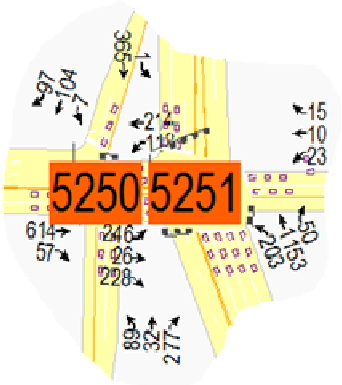
APPENDIX 6: 2040 MORNING PEAK WITH REZONE VOLUME:



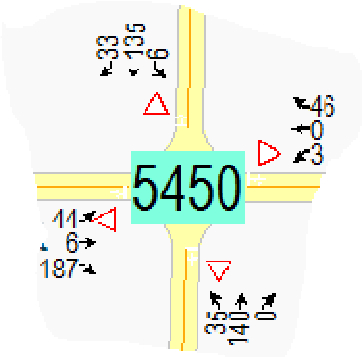
16th Ave S / Enchanted Pkwy S (SR 161) at S 348th St (SR 18)



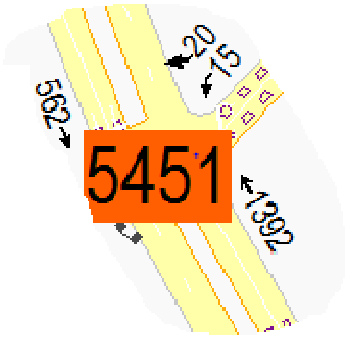
Enchanted Pkwy S (SR 161) at S 352nd S



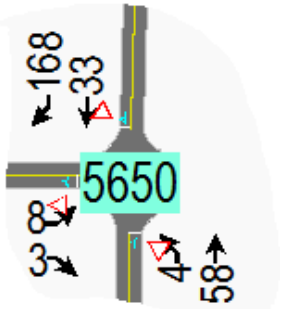
16th Ave S / Enchanted Pkwy S (SR 161) at S 356th St



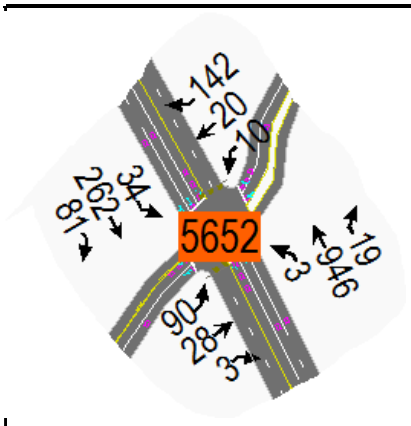
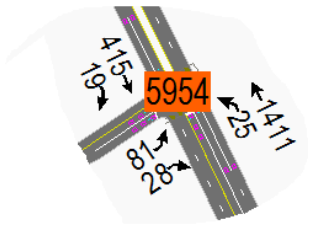
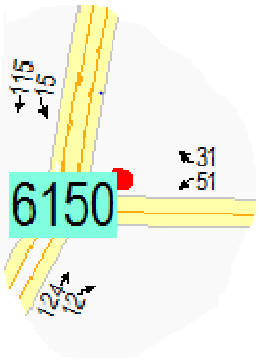
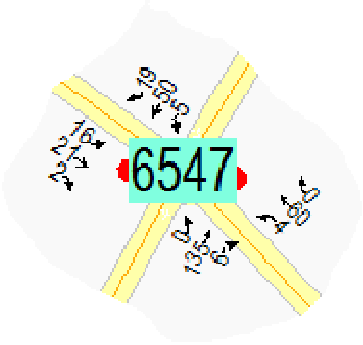
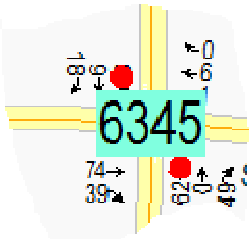
16th Ave S at S 359th St



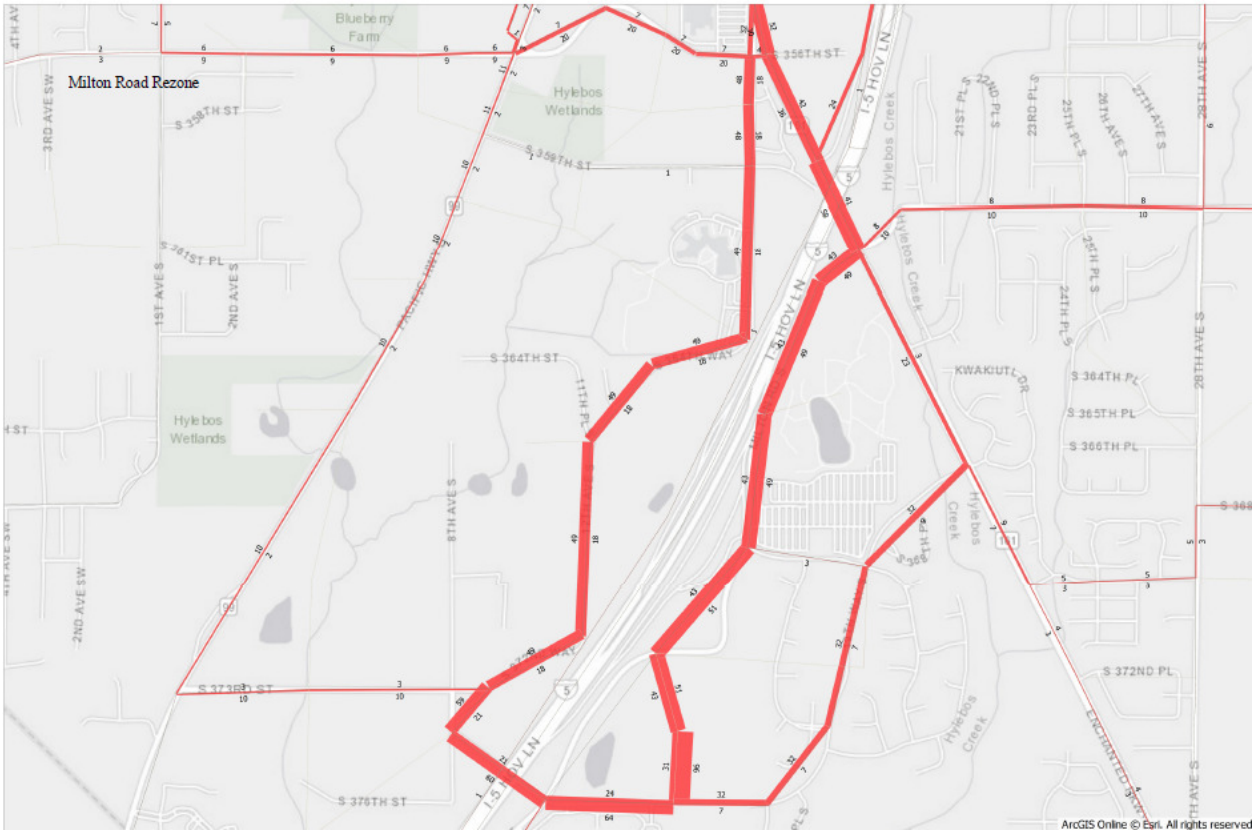
Enchanted Pkwy S (SR 161) at SR 18 Ramp

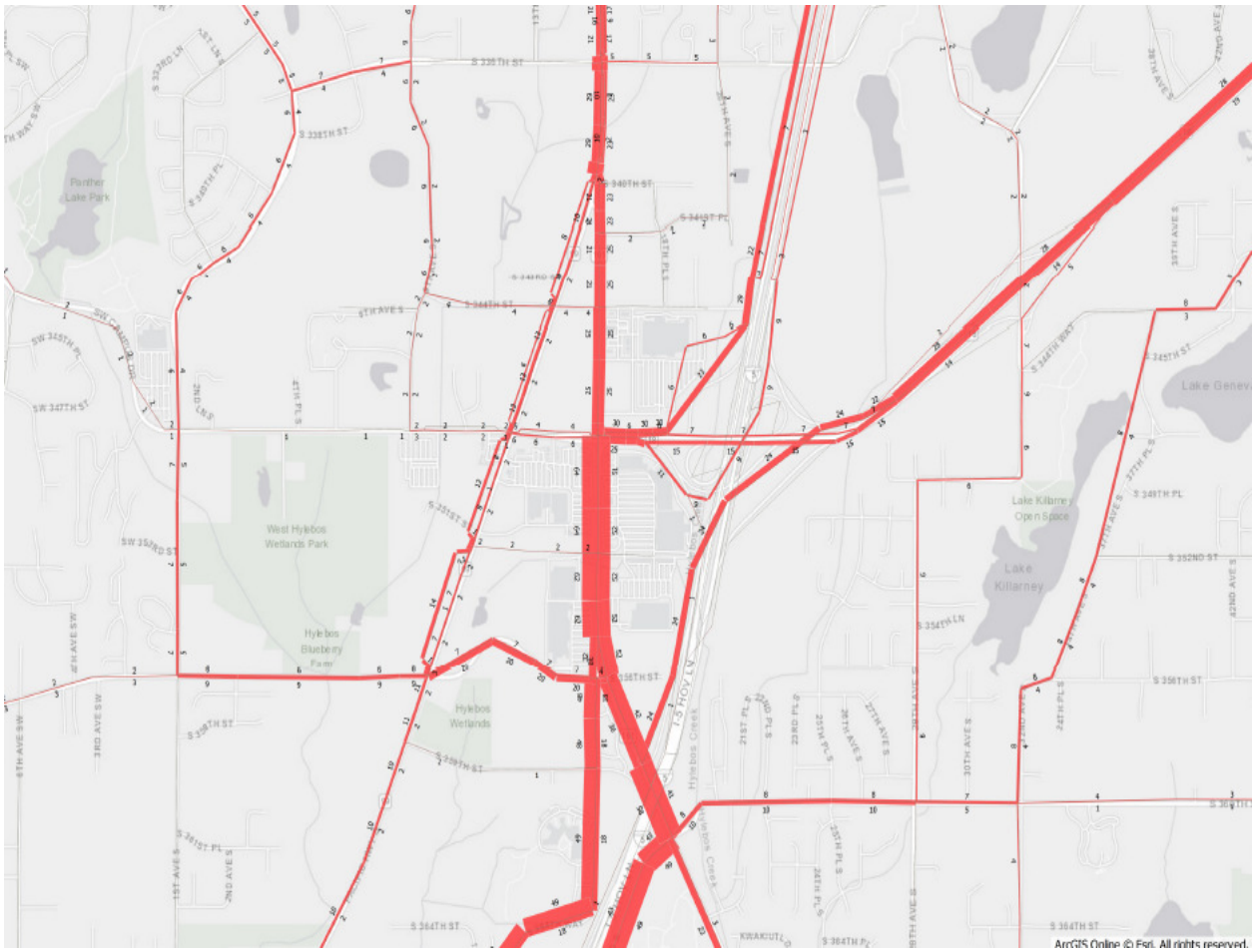


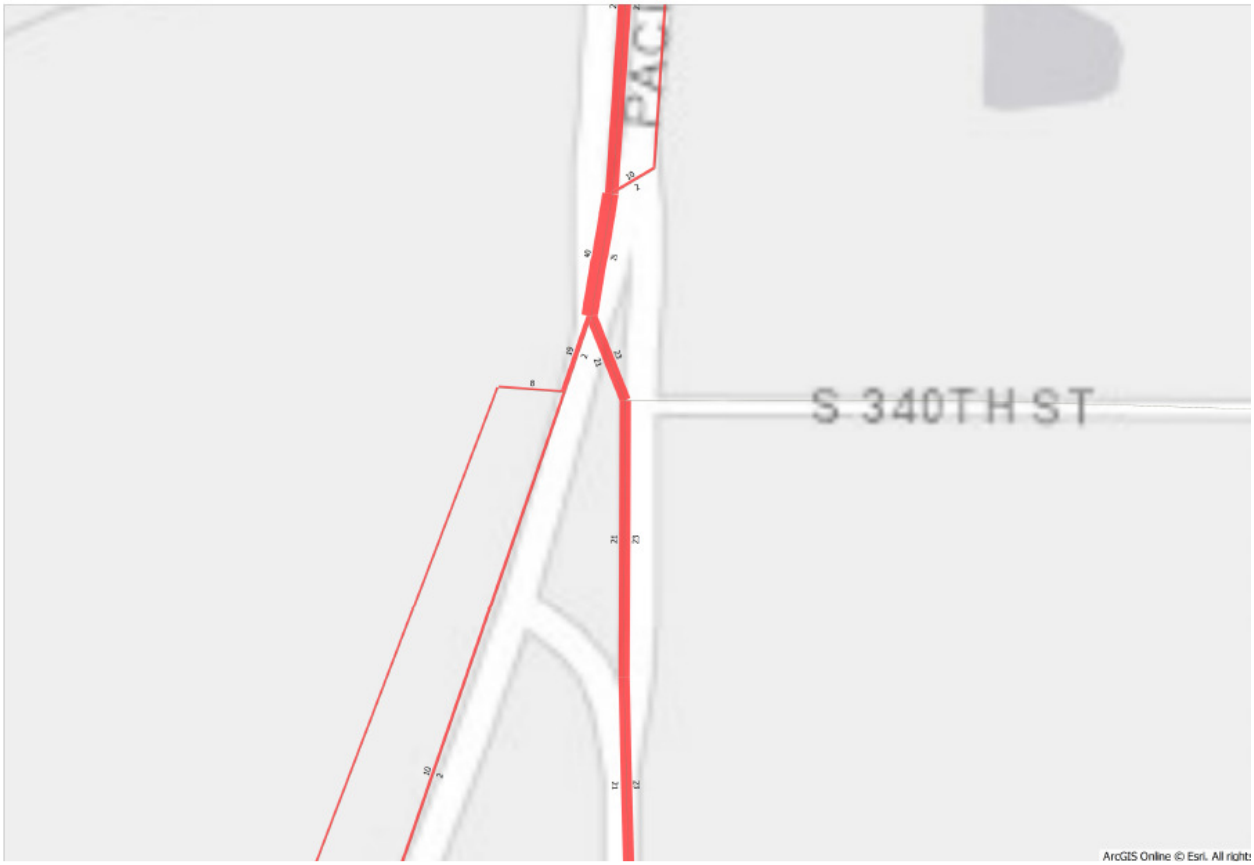
16th Ave S at Todd Beamer HS Dwy

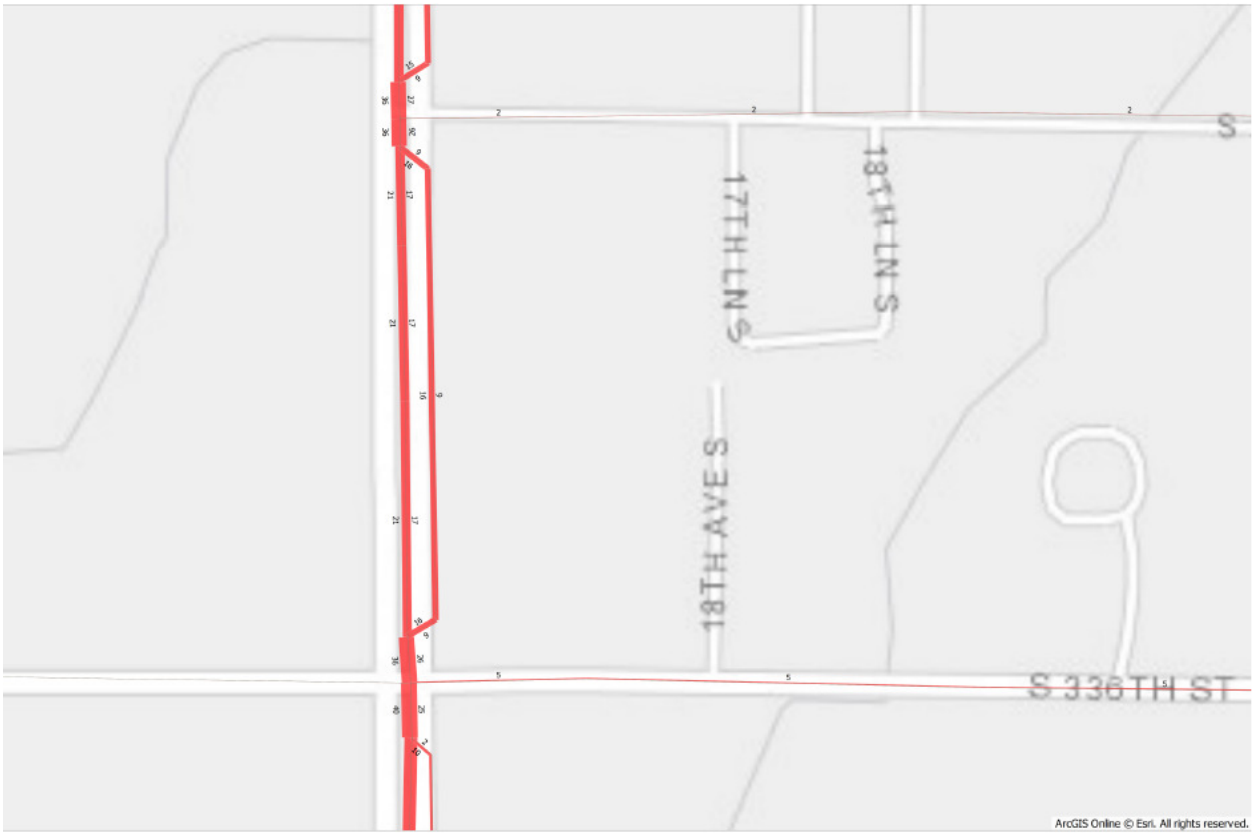
		
Enchanted Pkwy S (SR 161) at Milton Rd S	**Enchanted Pkwy S (SR 161) at 19th Way S**	**Milton Rd S at S 369th St**
		
Milton Rd S at S 375th St / S 376th St	**S 373rd St at 8th Ave S**	

APPENDIX 7: REZONE TRIP DISTRIBUTION AND ASSIGNMENT




S 328TH ST
S 336TH ST
S 340TH ST
S 344TH ST
S 348TH ST
S 352ND ST
S 356TH ST
S 360TH ST
S 364TH ST
Panther Lake Park
West Hylebos Wetlands Park
Hylebos Blueberry Farm
Hylebos Wetlands
Hylebos Creek
Lake Killarney Open Space
Lake Killarney
Lake Geneva
I-5 HOV LN
ArcGIS Online © Esri. All rights reserved.


S 340TH ST
ArcGIS Online © Esri. All rights


17TH LN S
18TH LN S
18TH AVE S
S 336TH ST
ArcGIS Online © Esri. All rights reserved.

APPENDIX 8: MORNING PEAK HOUR ADDITIONAL TRIPS

INTID		NBL	NBT	NBR		SBL	SBT	SBR		EBL	EBT	EBR		WBL	WBT	WBR
4850		6	25	31		0	25	0			5	1		25	0	0
5050		0	62				52			2						
5250		16	32				11					7				
5450		1	48				18									
5451			36	24			41									
5650			49				18									
5652		0	17	6				41		41	2			3	8	
5954		7						3		23		9				
6150			43				48							3		
6345		10		49							3					
6547				3							21			4	60	

APPENDIX A: TRIP GENERATION AND ASSUMPTIONS

APPENDIX A: TRIP GENERATION CALCULATION

Use	*Single Family Detached Housing*			
Period	*Weekday Evening Street Peak*			
Code	*210*			
Parameter	*Dwelling Units*			
Quantity	*215.000*			
Studies	*302*			
Outliers	*0*			
Lower Data Range	*0.000*			
Upper Data Range	*2950.000*			
%Entering	*63*			
Rate	*1.01*			
Std Dev	*1.05*			
Equation Type	*Log*			
Coefficient A	*0.900*			
Constant C	*0.53*			
R^2	*0.91*			
Data Close to Rate?	*Y*			
Data Close to Equation?	*Y*			
Closest Data Point	*E*			
Trips by Rate	217.15	0.00	0.00	0.00
Trips by Equation	213.49	0.00	0.00	0.00
Within Data Range?	YES	NO	NO	NO
N>2?	YES	NO	NO	NO
N>19?	YES	NO	NO	NO
Outliers<5%?	YES	NA	NA	NA
y-intercept	1.70	NA	NA	NA
Near 0?	NO	NA	NA	NA
Std Dev/Rate>1.10?	NO	NA	NA	NA
R^2>0.75?	YES	NO	NO	NO
RECOMMENDATION	EQUATION	STUDY	STUDY	STUDY
Trips	213.49	0.00	0.00	0.00
Weight by Rate	0.96	0.00	0.00	0.00
Weight by Equation	0.91	0.00	0.00	0.00
RESULTS	RATE	EQUATION	AVERAGE	
Weighted Average	217.15	213.49	215.32	
Entering Trips	136.80	134.50	135.65	
Exiting Trips	80.35	78.99	79.67	
Pass-By%				
Total New Trips				
Entering New Trips				
Exiting New Trips				

ASSUMPTIONS FOR NUMBER OF LOTS

Name of Street	From	To	Length	Planned Cross Section Type	Existing Cross Section	Additional sq. ft. needed
Milton Road South/South 372nd Street	Eastern edge of Parcel 322104-9003	S 369th St	0.46 miles/2429ft.	P – 70 ft.	60 ft.[1]	24290 sq. ft./0.56 acres
S 376th St	Eastern end of existing road	19th Way S	0.1 miles/528 ft.	S – 60 ft. (30 ft. on Federal Way side)	No existing road	15,840 sq. ft./0.36 acres

The City's Critical Area Maps identify three Category II Wetlands in this area, one on Parcels 322104-9136, 322104-9036, and 322104-9138, one on Parcel 322104-9063, and one on Parcels 322104-9001 and 721266-1090. Assume buffers of 105 ft.

There also appears to be a wetland on a portion of Parcels 322104-9050, 322104-9126 and 322104-9063. The City's wetland consultant has identified this wetland as a Category III wetland with a 60-ft buffer.

Wetland	Located on Parcels	Size	Category	Buffer	Owner
A	322104-9136, 322104-9036, and 322104-9138	2.45 acres/106,722 sq. ft. (Soundview Consultants)	City Maps - II	105 ft.	Ellingson
			Environmental Design – III	105 ft.	
			Soundview Consultants - III	60 ft.	
B	322104-9050, 322104-9126 and 322104-9063,	3,066 sq. ft.	City Maps - II		Ellingson, Semenyuk, Vondoenhoff
			Environmental Design – III		
			Soundview Consultants -IV	40 ft.	
			Perteet - III	60 ft.	
C	322104-9063		City Maps – II	105 ft.	
			Soundview Consultants - III	60 ft.	
D	322104-9001 and 721266-1090		City - II	105 ft.	City and Kaprosy

The following data is from The City's 1998 Database

[1] Based on page 751E of the Kroll Map

Wetland #	Wetland sq. ft.	Buffer sq. ft.	Total sq. ft. Area		Total Acres	Buffer Applied
A	106300	170547	276847	276847		105 ft.
B	2250	26089	28339	28339		60 ft.
C	64400	135896	200296	200296		105 ft.
D[2]	71700	139691	211391			105 ft.
1/3 of D				70464		
Total			716873	575946	13.22	

Total deductions = 0.56 + 0.36 + 13.22 = 14.14 acres

The following table lists all of the RS 35.0 zoned parcels in this area

	Parcel #	**Owner**	**Sq. ft.**	**Acres**	**# Houses**
1	322104-9086	Johnson	19331	0.44	1
2	322104-9157	Neether	47760	1.1	1
3	322104-9045	Neether	71002	1.63	1
4	322104-9002	Otteson	145490	3.34	1
5	322104-9076	Otteson	36533	0.84	0
6	322104-9114	Beard	87120	2	1
7	322104-9053	Beard	77972	1.79	1
8	322104-9129	Beard	31785	0.73	1
9	322104-9036	Ellingson	167270	3.83	1
10	322104-9138	Ellingson	98881	2.27	0
11	322104-9136	Ellingson	108900	2.5	1
12	322104-9050	Ellingson	207781	4.77	0
13	322104-9064	Dararak	104544	2.4	1
14	322104-9003	Greene	92347	2.12	1

[2] Only about one-third of the wetland and buffer is in the area being considered as developable.

	Parcel #	Owner	Sq. ft.	Acres	# Houses
15	322104-9048	Greene	1350	0.03	0
16	322104-9126	Semenyuk	104108	2.39	1
17	322104-9111	Swenson	16875	0.39	1
18	322104-9001	Kaprosy	133729	3.07	1
19	322104-9011	Neighbors	217800	5	1
20	322104-9063	Vondoenhoff	440661	10.12	1
21	721266-1040	Czerwonka	28507	0.65	1
22	721266-1090	City	54561	1.25	0
23	721266-1050	Germann	42395	0.97	1
24	721266-1060	Ngoc	35000	0.8	1
25	721266-1070	Stadnik	35000	0.8	1
26	721266-1080	Call	35500	0.81	1
Total			**2442202**	**56.06**	**21**

No's 21-26 are located within Regency Woods and they are already developed with single family homes.

	Parcel #	Owner	Sq. ft.	Acres	# Houses
1	322104-9086	Johnson	19331	0.44	1
2	322104-9157	Neether	47760	1.1	1
3	322104-9045	Neether	71002	1.63	1
4	322104-9002	Otteson	145490	3.34	1
5	322104-9076	Otteson	36533	0.84	0
6	322104-9114	Beard	87120	2	1
7	322104-9053	Beard	77972	1.79	1
8	322104-9129	Beard	31785	0.73	1
9	322104-9036	Ellingson	167270	3.83	1
10	322104-9138	Ellingson	98881	2.27	0
11	322104-9136	Ellingson	108900	2.5	1

	Parcel #	Owner	Sq. ft.	Acres	# Houses
12	322104-9050	Ellingson	207781	4.77	0
13	322104-9064	Dararak	104544	2.4	1
14	322104-9003	Greene	92347	2.12	1
15	322104-9048	Greene	1350	0.03	0
16	322104-9126	Semenyuk	104108	2.39	1
17	322104-9111	Swenson	16875	0.39	1
18	322104-9001	Kaprosy	133729	3.07	1
19	322104-9011	Neighbors	217800	5	1
20	322104-9063	Vondoenhoff	440661	10.12	1
Total			**2211239**	**50.76**	**16**

18.55.030 Density.

(1) All lots in conventional subdivisions, both long and short subdivisions, binding site plans, and small lot detached developments shall meet the minimum lot size requirements of FWRC Title 19. Minimum lot sizes and density for zero lot line townhouse development are as allowed in FWRC 19.205.010. Minimum lot sizes and density for cottage housing are as allowed in FWRC 19.205.020.

(2) Lots created in cluster subdivisions may be below the minimum lot size requirements of FWRC Title 19, Zoning and Development Code, provided the total number of lots created does not exceed the number which would be permitted in a conventional subdivision on a site of the same total area, after reservation of required open space as allowed in FWRC 18.55.040. The maximum number of lots permitted will be calculated by subtracting the required 15 percent for open space and 20 percent for streets from the gross land available, then dividing by the minimum lot size of the underlying zoning district.

Net acreage is assumed to be 50.76 – 14.14 = 36.62 acres x 0.725[3] = 26.55 acres = 1,156,518 sq. ft.

Lots at RS 7.2 =160

Lots at RS 5.0 = 231

[3] The assumption is that one-half of required open space shall be fee-in-lieu.

APPENDIX B: VOLUME TO CAPACITY RATIO, DELAY, LOS, AND QUEUE STORAGE FOR AM AND PM PEAK HOUR

Volume to Capacity Ratio for AM Peak Hour

Intersection				2018 Present Conditions		LOS Standard	2040 Without Rezone Conditions		LOS Standard	2040 with Rezone		LOS Standard
ID	Time	North-South Street	East-West Street		V/C	Met?		V/C	Met?		V/C	Met?
4850	AM	16 Av S	SR 18		0.79	Y		0.86	Y		0.89	Y
5050	AM	Enchanted Pkwy S	S 352 St		0.56	Y		0.62	Y		0.64	Y
5250	AM	16 Av S	S 356 St		0.35	Y		0.53	Y		0.57	Y
5251	AM	Enchanted Pkwy S	S 356 St		0.63	Y		0.60	Y		0.60	Y
5450	AM	16 Av S	S 359 St		0.10	Y		0.23	Y		0.23	Y
5451	AM	Enchanted Pkwy S	SR 18/SR161 Ramp		0.59	Y		0.56	Y		0.59	Y
5650	AM	Beamer HS Dwy	16th Ave S		0.21	Y		0.18	Y		0.20	Y
5652	AM	Enchanted Pkwy S	Milton Rd S		0.49	Y		0.39	Y		0.43	Y
5954	AM	Enchanted Pkwy S	19th Wy S		0.53	Y		0.61	Y		0.61	Y
6150	AM	Milton Rd S	S 369 St		0.09	Y		0.09	Y		0.10	Y
6345	AM	8 Av S	S 373 St		0.03	Y		0.07	Y		0.13	Y
6547	AM	Milton Rd S	S 375th St		0.17	Y		0.02	Y		0.10	Y

Volume to Capacity Ratio for Evening Peak Hour

Intersection			2018 Conditions	LOS Standard	2040 Without Rezone Conditions	LOS Standard	2040 With Rezone Conditions	LOS Standard
ID	North-South Street	East-West Street	V/C	Met?	V/C	Met?	V/C	Met?
251	Pacific Hwy S	S 276 St	0.74	Y	0.64	Y	0.65	Y
451	Pacific Hwy S	16 Ave S	0.77	Y	0.53	Y	0.53	Y
750	Pacific Hwy S	S 283 Pl	0.54	Y	0.51	Y	0.52	Y
1050	Pacific Hwy S	S 288 St	0.89	Y	1.08	Y	1.08	Y
1651	Pacific Hwy S	S Dash Point Rd	0.87	Y	0.92	Y	0.93	Y
1751	Pacific Hwy S	18 Av S	0.39	Y	0.62	Y	0.63	Y
2051	Pacific Hwy S	S 304 St	0.77	Y	0.90	Y	0.89	Y
2250	Pacific Hwy S	S 308 St	0.79	Y	0.81	Y	0.81	Y
2350	Pacific Hwy S	S 310 St	0.39	Y	0.46	Y	0.46	Y
2550	Pacific Hwy S	S 312 St	1.01	Y	1.16	Y	1.17	Y
2750	Pacific Hwy S	S 316 St	0.79	Y	0.97	Y	0.98	Y
3050	Pacific Hwy S	S 320 St	0.86	Y	1.01	Y	0.92	Y
3055	23 Av S	S 320 St	0.92	Y	1.07	Y	1.07	Y
3056	25 Av S	S 320 St	0.74	Y	0.90	Y	0.90	Y
3057	I-5 SB Ramp	S 320 St	0.76	Y	0.91	Y	0.91	Y
3255	23 Ave S	S 322 St	0.24	Y	0.35	Y	0.36	Y
3350	Pacific Hwy S	S 324 St	0.87	Y	1.06	Y	1.07	Y
3440	1 Av S	SW 325 Pl	0.33	Y	0.72	Y	0.72	Y

3451	**17 Av S**	**S 324 St**		0.36	**Y**		0.69	Y		0.70	Y
3540	1 Av S	S 328 St		0.35	Y		0.70	Y		0.71	Y
3550	Pacific Hwy S	S 328 St		0.50	**Y**		0.57	Y		0.58	Y
3640	1 Av S	SW 330 St		0.77	Y		0.93	Y		0.93	Y
3650	Pacific Hwy S	S 330 St		0.63	Y		0.78	Y		0.79	Y
3750	Pacific Hwy S	S 332 St		0.51	**Y**		0.56	Y		0.56	Y
3842	1 Wy S	S 333 St		0.54	Y		0.65	Y		0.71	Y
3850	Pacific Hwy S	S 333 St		0.40	Y		0.49	Y		0.50	Y
3942	1 Wy S	S 334 St		0.42	Y		0.56	Y		0.56	Y
4043	1 Wy S	S 336 St		0.65	Y		0.93	Y		1.03	Y
4046	9 Av S	S 336 St		0.67	Y		0.78	Y		0.78	Y
4050	Pacific Hwy S	S 336 St		1.13	Y		1.05	Y		1.06	Y
4242	1 Wy S	S 340 St		0.51	Y		0.71	Y		0.73	Y
4250	Pacific Hwy S	S 340 St		0.59	Y		0.94	Y		0.95	Y
4341	1 Wy S	S 342 St		0.33	Y		0.57	Y		0.57	Y
4350	16 Av S	S 341 Pl		0.39	Y		1.00	Y		1.00	Y
4441	1 Pl S	1 Wy S		0.49	Y		0.33	Y		0.33	Y
4540	1st Wy S	Winco Dwy		0.45	Y		0.63	Y		0.63	Y
4549	Pacific Hwy S	S 344 St		0.41	Y		0.43	Y		0.44	Y
4550	16 Av S	S 344 St		0.56	Y		0.70	Y		0.71	Y
4840	1 Av S	S 348 St		0.81	Y		1.04	Y		1.04	Y
4848	Pacific Hwy S	S 348 St		0.87	Y		0.98	Y		0.98	Y
4850	16 Av S	SR 18		1.06	Y		1.14	Y		1.16	Y
4851	SR 18	I-5 SB Ramp		1.07	Y		0.94	Y		0.95	Y
5047	Pacific Hwy S	S 352 St		0.44	Y		0.54	Y		0.54	Y
5050	Enchanted Pkwy S	S 352 St		0.70	Y		0.92	Y		0.94	Y
5251	Enchanted Pkwy S	S 356 St		0.75	Y		1.09	Y		1.19	Y
5240	1 Av S	S 356 St		0.79	Y		1.04	Y		1.05	Y

5246	Pacific Hwy S	S 356 St		0.91	Y		0.95	Y		0.97	Y
5250	16 Av S	S 356 St		0.72	Y		0.72	Y		0.66	Y
5251	Enchanted Pkwy	S 356 St		0.75	Y		1.09	Y		1.19	Y
5345	Pacific Hwy S	S 359 St		0.57	Y		0.42	Y		0.42	Y
5450	16 Av S	S 359 St		0.14	Y		0.38	Y		0.42	Y
5451	Enchanted Pkwy S	SR 18 Ramp		0.78	Y		0.70	Y		0.72	Y
5650	Beamer HS Dwy	16 Ave S		0.06	Y		0.05	Y		0.10	Y
5652	Enchanted Pkwy S	Milton Rd S		0.92	Y		0.54	Y		0.60	Y
5954	Enchanted Pkwy S	19 Wy S		0.60	Y		0.52	Y		0.53	Y
6150	Milton Rd S	S 369 St		0.08	Y		0.16	Y		0.19	Y
6340	Pacific Hwy S	S 373 St		4.13	N		0.70	Y		0.70	Y
6345	8 Av S	S 373 St		0.15	Y		0.07	Y		0.11	Y
6547	Milton Rd S	S 375 St		0.27	Y		0.12	Y		0.30	Y
					N			Yes			Yes

LOS DELAY AND QUEUEING ANALYSIS

LOS, Delay, and Queue Storage for Morning Peak

Intersection				2018 Present Conditions			2040 Without Rezone Conditions			2040 With Rezone Conditions		
ID	Time	North-South Street	East-West Street	Queue>storage	Delay	LOS	Queue>storage	Delay	LOS	Queue>storage	Delay	LOS
4850	AM	16 Av S	SR 18		52.90	D		49.90	D		51.40	D
5050	AM	Enchanted Pkwy S	S 352 St		14.50	B		11.70	B		15.00	B
5250	AM	16 Av S	S 356 St		41.90	D		54.30	D		43.70	D
5251	AM	Enchanted Pkwy S	S 356 St		26.70	C		37.80	D		41.70	D
5450	AM	16 Av S	S 359 St									
5451	AM	Enchanted Pkwy S	SR 18/SR161 Ramp		31.00	C		29.00	C		18.70	B
5650	AM	Beamer HS Dwy	16th Ave S									
5652	AM	Enchanted Pkwy S	Milton Rd S		17.80	B		14.50	B		17.50	B
5954	AM	Enchanted Pkwy S	19th Wy S		4.00	A		5.30	A		5.50	A
6150	AM	Milton Rd S	S 369 St									
6345	AM	8 Av S	S 373 St									
6547	AM	Milton Rd S	S 375th St									

LOS, Delay and Queue Storage for Evening Peak

Intersection			2018 Conditions			2040 Without Rezone Conditions			2040 With Rezone Conditions		
ID	North-South St	East-West Street	Queue>Storage	Delay	LOS	Queue>Storage	Delay	LOS	Queue>Storage	Delay	LOS
251	Pacific Hwy S	S 276 St	EBL	16.3	B	EBL	11.8	B	EBL	15.7	B
451	Pacific Hwy S	16 Av S									
750	Pacific Hwy S	S 283 Pl									
1050	Pacific Hwy S	S 288 St	WBL,NBL	76.6	E	WBL	69.9	E	WBL	73.1	E
1651	Pacific Hwy S	S Dash Point Rd	EBL	28.3	C	EBL	33.5	C	EBL	36.0	D
1751	Pacific Hwy S	18 Av S									
2051	Pacific Hwy S	S 304 St		15.7	B		24.1	C	WBL	34.0	C
2250	Pacific Hwy S	S 308 St		16.9	B		15.3	B		35.0	D
2350	Pacific Hwy S	S 310 St									
2550	**Pacific Hwy S**	**S 312 St**	EBL,WBL,NBL,SBL	63.1	E	EBL,SBL,SBR	90.1	F	EBL,SBL,SBR	112.0	F
2750	**Pacific Hwy S**	**S 316 St**		34.0	C		35.9	D		42.9	D
3050	**Pacific Hwy S**	**S 320 St**	WBL,SBL	37.9	D	WBL,SBL	52.4	D	WBL,SBL	50.8	D
3055	**23 Av S**	**S 320 St**	EBL,WBL,SBL	50.3	D	SBL	73.8	E	SBL	76.1	E
3056	**Gateway Blvd**	**S 320 St**	EBL,WBL	14.7	B	EBL	27.5	C	EBL	29.4	C
3057	**I-5 SB Ramp**	**S 320 St**	WBL	25.0	C	WBL	44.3	D	WBL	39.3	D
3255	**23rd Ave S**	**S 322nd St**		13.2	B	EBL	13.5	B	EBL	11.3	B
3350	**Pacific Hwy S**	**S 324 St**	NBL	31.5	C		76.9	E		69.7	E
3440	1 Ave S	SW 325 Pl		4.6	A		4.9	A		7.5	A
3451	**17 Av S**	**S 324 St**									
3540	1 Av S	S 328 St		9.2	A	WBL	13.3	B	WBL	12.0	B

3550	Pacific Hwy S	S 328 St									
3640	1 Av S	SW 330 St	EBL,NBL	21.2	C	EBL,NBL	29.7	C	EBL,NBL	28.7	C
3650	Pacific Hwy S	S 330 St	NBL, SBL	21.7	C	NBL,SBL	31.9	C	NBL,SBL	35.4	D
3750	Pacific Hwy S	S 332 St									
3842	1 Wy S	S 333 St	NWL	18.7	B		18.6	B		17.2	B
3850	Pacific Hwy S	S 333 St									
3942	1 Wy S	S 334 St									
4043	1 Wy S	S 336 St	WBL, SBL	37.6	D	WBL, SBL	53.9	D	WBL, SBL	68.3	E
4046	9 Av S	S 336 St	,NBL, SBL	29.9	C	NBL	43.4	D	NBL	36.8	D
4050	Pacific Hwy S	S 336 St	WBL,NBL	58.2	E	WBL	61.2	E	WBL,	68.6	E
4242	1 Wy S	SW 340 St									
4250	Pacific Hwy S	S 340 St	WBL,WBR,NBL,SBL	19.4	B	EBL,WBL,WBR	26.6	C	EBL,WBL,WBR	27.5	C
4341	1 Wy S	S 342 St									
4350	16 Av S	S 341 Pl									
4441	1 Pl S	1 Wy S									
4540	1st Way S	Winco Dwy		7.7	A		5.8	A		9.1	A
4549	Pacific Hwy S	S 344 St	WBL	10.8	B		3.9	A		8.5	A
4550	16 Av S	S 344 St	WBL	19.0	B	WBL	14.1	B	EBL,WBL	27.8	C
4840	1 Av S	S 348 St	WBL,NBL,SBL,SBR	46.8	D	WBL, NBL	61.8	E	WBL, NBL	64.1	E
4848	Pacific Hwy S	S 348 St	EBL	56.7	D	EBL,EBR	46.9	D	EBL,EBR	42.3	D
4850	16 Av S	SR 18	WBL,WBR,NBR	75.5	E	WBL,,NBR	79.6	E	WBL,NBR	79.0	E
4851	SR 18	I5 SB Ramp		48.1	D		27.8	C		39.8	D

5047	Pacific Hwy S	S 352 St		9.0	A		5.4	A		11.9	B
5050	Enchanted Pkwy	S 352 St	WBL	26.3	C	WBL	23.5	C	WBL	22.4	C
5240	1 Av S	S 356 St	SBL,SBR	40.2	D	EBL,SBL	55.5	E	EBL,SBL	42.1	D
5246	Pacific Hwy S	S 356 St	EBL,WBL	63.1	E	WBL	51.9	D	WBL	52.4	D
5250	16 Av S	S 356 St		104.9	F	NBR,SBR	86.1	F	NBR,SBR	155.6	F
5345	Pacific Hwy S	S 359 St									
5450	16 Av S	S 359 St									
5451	Enchanted Pkwy	SR 18/SR161 Ramp		19.5	B		20.3	C		21.2	C
5650	Beamer HS Dw	16th Ave S									
5652	Enchanted Pkwy	Milton Rd S		40.2	D		18.3	B		21.0	C
5954	Enchanted Pkwy	19th Wy S		5.9	A		3.5	A		3.3	A
6150	Milton Rd S	S 369 St									
6340	Pacific Hwy S	S 373 St									
6345	8 Av S	S 373 St									
6547	Milton Rd S	S 375th St									

SYNCHRO ANALYSIS FILES FOR AM V/C RATIO, LOS AND DELAY

2018 EXISTING

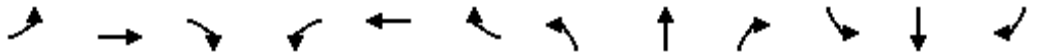
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	12	109	1014	244	839	1286	325	89	250	470	535	308
Future Volume (vph)	12	109	1014	244	839	1286	325	89	250	470	535	308
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%			-4%				2%		
Total Lost time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	0.91	1.00	0.94	0.91	1.00		0.97	0.91	0.91	0.94
Frpb, ped/bikes		1.00	1.00	0.98	1.00	1.00	0.97		1.00	0.99	1.00	1.00
Flpb, ped/bikes		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	0.95	0.85	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1738	5034	1519	5077	5173	1559		3385	3156	1426	5040
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1738	5034	1519	5077	5173	1559		3385	3156	1426	5040
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	109	1014	244	839	1286	325	89	250	470	535	308
RTOR Reduction (vph)	0	0	0	80	0	0	152	0	0	37	53	0
Lane Group Flow (vph)	0	121	1014	164	839	1286	173	0	339	658	257	308
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	2	2	2	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pt+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	2 3	1
Permitted Phases				4			8					
Actuated Green, G (s)		11.2	57.4	57.4	22.1	68.3	68.3		16.3	31.0	53.1	10.0
Effective Green, g (s)		11.2	57.4	57.4	22.1	68.3	68.3		16.3	31.0	53.1	10.0
Actuated g/C Ratio		0.08	0.41	0.41	0.16	0.49	0.49		0.12	0.22	0.38	0.07
Clearance Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)		139	2063	622	801	2523	760		394	698	540	360
v/s Ratio Prot		c0.07	0.20		c0.17	c0.25			c0.10	c0.21	0.18	0.06
v/s Ratio Perm				0.11			0.11					
v/c Ratio		0.87	0.49	0.26	1.05	0.51	0.23		0.86	0.94	0.48	0.86
Uniform Delay, d1		63.7	30.5	27.3	58.9	24.4	20.7		60.7	53.6	32.9	64.3
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00		1.01	1.10	1.13	1.00
Incremental Delay, d2		39.7	0.8	1.0	44.9	0.7	0.7		14.4	18.6	0.2	17.1
Delay (s)		103.4	31.4	28.3	103.9	25.2	21.4		75.9	77.4	37.4	81.4
Level of Service		F	C	C	F	C	C		E	E	D	F
Approach Delay (s)			37.1			51.6				67.8		
Approach LOS			D			D				E		

Intersection Summary			
HCM 2000 Control Delay	54.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		
Description:			

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	651	99
Future Volume (vph)	651	99
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	5007	
Flt Permitted	1.00	
Satd. Flow (perm)	5007	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	651	99
RTOR Reduction (vph)	14	0
Lane Group Flow (vph)	736	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	24.2	
Effective Green, g (s)	24.2	
Actuated g/C Ratio	0.17	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	865	
v/s Ratio Prot	0.15	
v/s Ratio Perm		
v/c Ratio	0.85	
Uniform Delay, d1	56.1	
Progression Factor	1.00	
Incremental Delay, d2	7.8	
Delay (s)	63.9	
Level of Service	E	
Approach Delay (s)	69.0	
Approach LOS	E	

Intersection Summary

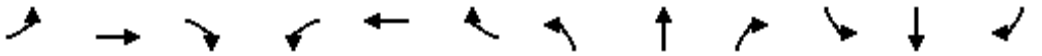


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	35	11	27	32	123	44	1328	98	113	326	32
Future Volume (vph)	46	35	11	27	32	123	44	1328	98	113	326	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-11%			0%			1%	
Total Lost time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.96	0.93	1.00	1.00		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.91	0.85	1.00	0.99		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)	1735	1853	1524	1744	1570	1470	1751	3478		1760	3507	1497
Flt Permitted	0.61	1.00	1.00	0.73	1.00	1.00	0.55	1.00		0.14	1.00	1.00
Satd. Flow (perm)	1112	1853	1524	1348	1570	1470	1023	3478		256	3507	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	35	11	27	32	123	44	1328	98	113	326	32
RTOR Reduction (vph)	0	0	10	0	37	72	0	3	0	0	0	9
Lane Group Flow (vph)	46	35	1	24	45	4	44	1423	0	113	326	23
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3		4	4		3	6			2		6
Actuated Green, G (s)	16.4	7.8	7.8	16.4	8.6	8.6	104.1	97.4		104.1	98.5	98.5
Effective Green, g (s)	14.4	6.8	6.8	14.4	7.6	7.6	104.1	97.4		104.1	98.5	98.5
Actuated g/C Ratio	0.10	0.05	0.05	0.10	0.05	0.05	0.74	0.70		0.74	0.70	0.70
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	144	90	74	160	85	79	789	2419		262	2467	1053
v/s Ratio Prot	0.02	c0.02		0.01	c0.03		0.00	c0.41		c0.02	0.09	
v/s Ratio Perm	0.02		0.00	0.01		0.00	0.04			0.30		0.02
v/c Ratio	0.32	0.39	0.01	0.15	0.53	0.05	0.06	0.59		0.43	0.13	0.02
Uniform Delay, d1	57.9	64.6	63.4	57.4	64.5	62.8	4.8	11.0		8.4	6.8	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.67		2.63	2.23	1.00
Incremental Delay, d2	0.5	1.0	0.0	0.2	3.2	0.1	0.0	0.9		0.2	0.1	0.0
Delay (s)	58.3	65.6	63.4	57.5	67.6	62.9	3.5	8.2		22.2	15.2	6.3
Level of Service	E	E	E	E	E	E	A	A		C	B	A
Approach Delay (s)		61.7			64.3			8.1			16.2	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

Description:

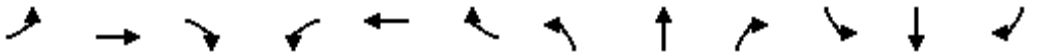
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	345	28	68	129	0	37	0	141	8	107	111
Future Volume (vph)	0	345	28	68	129	0	37	0	141	8	107	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			-1%			3%			0%	
Total Lost time (s)		3.5			3.0			4.0	4.0		3.0	3.0
Lane Util. Factor		0.95			0.95			0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.98	0.96		1.00	0.97
Flpb, ped/bikes		1.00			1.00			0.99	1.00		1.00	1.00
Frt		0.99			1.00			0.91	0.85		1.00	0.85
Flt Protected		1.00			0.98			0.98	1.00		1.00	1.00
Satd. Flow (prot)		3366			3488			1511	1423		1856	1535
Flt Permitted		1.00			0.63			0.82	1.00		0.61	1.00
Satd. Flow (perm)		3366			2233			1267	1423		1130	1535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	345	28	68	129	0	37	0	141	8	107	111
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	49
Lane Group Flow (vph)	0	369	0	0	197	0	0	89	89	0	115	62
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type		NA		custom	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3	6		6
Actuated Green, G (s)		19.8			31.2			13.8	13.8		76.0	76.0
Effective Green, g (s)		20.8			35.2			14.8	14.8		78.0	78.0
Actuated g/C Ratio		0.15			0.25			0.11	0.11		0.56	0.56
Clearance Time (s)		4.5						5.0	5.0		5.0	5.0
Vehicle Extension (s)		2.0						2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		500			677			133	150		629	855
v/s Ratio Prot		c0.11			c0.03							
v/s Ratio Perm					0.05			c0.07	0.06		c0.10	0.04
v/c Ratio		0.74			0.29			0.67	0.59		0.18	0.07
Uniform Delay, d1		57.0			42.3			60.2	59.7		15.3	14.3
Progression Factor		1.00			0.06			1.00	1.00		0.54	0.08
Incremental Delay, d2		4.9			0.1			9.5	4.1		0.6	0.2
Delay (s)		61.8			2.5			69.7	63.9		8.9	1.2
Level of Service		E			A			E	E		A	A
Approach Delay (s)		61.8			2.5			66.8			5.2	
Approach LOS		E			A			E			A	

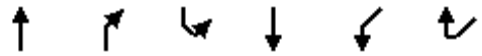
Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	254	28	202	12	16	8	185	1230	29	6	310	1
Future Volume (vph)	254	28	202	12	16	8	185	1230	29	6	310	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			-1%			1%	
Total Lost time (s)		3.5	3.5	2.0	2.0		3.0	4.0		5.0	3.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1756	1523	1739	1754		3450	3526		1761	3505	
Flt Permitted		0.73	1.00	0.59	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1340	1523	1074	1754		3450	3526		1761	3505	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	254	28	202	12	16	8	185	1230	29	6	310	1
RTOR Reduction (vph)	0	0	172	0	7	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	282	30	12	17	0	185	1258	0	6	311	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	3	4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		33.6	19.8	20.3	20.3		10.9	84.9		2.0	76.0	
Effective Green, g (s)		35.6	20.8	22.3	22.3		12.9	85.9		2.0	78.0	
Actuated g/C Ratio		0.25	0.15	0.16	0.16		0.09	0.61		0.01	0.56	
Clearance Time (s)		4.5	4.5	4.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		384	226	171	279		317	2163		25	1952	
v/s Ratio Prot		c0.08			0.01		0.05	c0.36		0.00	c0.09	
v/s Ratio Perm		c0.11	0.02	0.01								
v/c Ratio		0.73	0.13	0.07	0.06		0.58	0.58		0.24	0.16	
Uniform Delay, d1		47.9	51.8	50.0	50.0		61.0	16.3		68.2	15.1	
Progression Factor		0.25	0.52	1.00	1.00		0.77	1.89		0.89	0.52	
Incremental Delay, d2		5.0	0.1	0.1	0.0		1.4	0.9		1.8	0.2	
Delay (s)		17.0	27.2	50.1	50.0		48.7	31.7		62.5	8.0	
Level of Service		B	C	D	D		D	C		E	A	
Approach Delay (s)		21.3			50.0			33.9			9.1	
Approach LOS		C			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1444	0	0	499	46	63
Future Volume (vph)	1444	0	0	499	46	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3543			3560	3219	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3543			3560	3219	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1444	0	0	499	46	63
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	1444	0	0	499	87	0
Bus Blockages (#/hr)	2	0	0	2	2	2
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Actuated Green, G (s)	92.0			38.0	92.0	
Effective Green, g (s)	92.0			38.0	92.0	
Actuated g/C Ratio	0.66			0.27	0.66	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0	
Lane Grp Cap (vph)	2328			966	2115	
v/s Ratio Prot					0.03	
v/s Ratio Perm	c0.41			c0.14		
v/c Ratio	0.62			0.52	0.04	
Uniform Delay, d1	13.9			43.2	8.5	
Progression Factor	2.07			0.80	1.00	
Incremental Delay, d2	1.1			1.9	0.0	
Delay (s)	29.8			36.3	8.5	
Level of Service	C			D	A	
Approach Delay (s)	29.8			36.3	8.5	
Approach LOS	C			D	A	

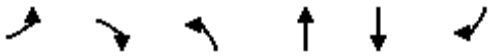
Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Description: WSDOT 2013-03-19

c Critical Lane Group

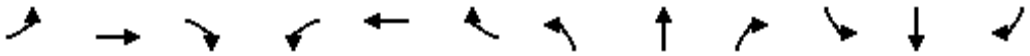
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	4	1146	16	43	333	51	81	43	6	6	11	129
Future Volume (vph)	4	1146	16	43	333	51	81	43	6	6	11	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1743	3461		1787	3451		1712	1772			1812	1478
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (perm)	1743	3461		1787	3451		1712	1772			1812	1478
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	1146	16	43	333	51	81	43	6	6	11	129
RTOR Reduction (vph)	0	0	0	0	5	0	0	4	0	0	0	123
Lane Group Flow (vph)	4	1162	0	43	379	0	81	45	0	0	17	6
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	1.2	89.5		12.6	100.9		11.0	11.0			6.9	6.9
Effective Green, g (s)	1.2	89.5		12.6	100.9		11.0	11.0			6.9	6.9
Actuated g/C Ratio	0.01	0.64		0.09	0.72		0.08	0.08			0.05	0.05
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	14	2212		160	2487		134	139			89	72
v/s Ratio Prot	0.00	c0.34		c0.02	0.11		c0.05	0.03			c0.01	
v/s Ratio Perm												0.00
v/c Ratio	0.29	0.53		0.27	0.15		0.60	0.33			0.19	0.09
Uniform Delay, d1	69.0	13.7		59.4	6.1		62.4	61.0			63.9	63.5
Progression Factor	1.00	1.00		0.86	0.04		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.1	0.9		0.3	0.1		5.2	0.5			0.4	0.2
Delay (s)	73.0	14.6		51.6	0.3		67.6	61.5			64.3	63.7
Level of Service	E	B		D	A		E	E			E	E
Approach Delay (s)		14.8			5.5			65.3			63.8	
Approach LOS		B			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



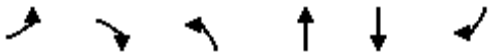
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	15	14	1113	331	13
Future Volume (vph)	46	15	14	1113	331	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	1%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1540	1765	3543	3483	
Flt Permitted	0.95	1.00	0.55	1.00	1.00	
Satd. Flow (perm)	1755	1540	1013	3543	3483	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	15	14	1113	331	13
RTOR Reduction (vph)	0	14	0	0	5	0
Lane Group Flow (vph)	46	1	14	1113	339	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	2.1	2.1	15.6	15.6	15.6	
Effective Green, g (s)	2.1	2.1	15.6	15.6	15.6	
Actuated g/C Ratio	0.08	0.08	0.56	0.56	0.56	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	133	116	570	1995	1961	
v/s Ratio Prot	c0.03			c0.31	0.10	
v/s Ratio Perm		0.00	0.01			
v/c Ratio	0.35	0.01	0.02	0.56	0.17	
Uniform Delay, d1	12.1	11.8	2.7	3.9	2.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.0	0.0	0.2	0.0	
Delay (s)	12.7	11.9	2.7	4.0	2.9	
Level of Service	B	B	A	A	A	
Approach Delay (s)	12.5			4.0	2.9	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	27.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



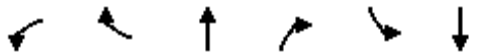
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	14	2	60	37	0	2	30	82	0	2	39	11
Future Volume (veh/h)	14	2	60	37	0	2	30	82	0	2	39	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	2	60	37	0	2	30	82	0	2	39	11
Approach Volume (veh/h)		76			39			112			52	
Crossing Volume (veh/h)		78			126			18			67	
High Capacity (veh/h)		1303			1255			1365			1314	
High v/c (veh/h)		0.06			0.03			0.08			0.04	
Low Capacity (veh/h)		1087			1043			1144			1097	
Low v/c (veh/h)		0.07			0.04			0.10			0.05	

Intersection Summary					
Maximum v/c High	0.08				
Maximum v/c Low	0.10				
Intersection Capacity Utilization	29.4%	ICU Level of Service		A	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	30	10	12	27	17	196
Future Volume (veh/h)	30	10	12	27	17	196
Peak Hour Factor	0.63	0.63	0.56	0.56	0.88	0.88
Hourly flow rate (vph)	48	16	21	48	19	223
Approach Volume (veh/h)	64			69	242	
Crossing Volume (veh/h)	19			48	21	
High Capacity (veh/h)	1364			1334	1362	
High v/c (veh/h)	0.05			0.05	0.18	
Low Capacity (veh/h)	1143			1115	1141	
Low v/c (veh/h)	0.06			0.06	0.21	

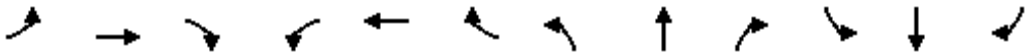
Intersection Summary			
Maximum v/c High	0.18		
Maximum v/c Low	0.21		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	39	25	131	20	19	83
Future Volume (Veh/h)	39	25	131	20	19	83
Sign Control	Stop		Free			Free
Grade	-2%		1%			2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	39	25	131	20	19	83
Pedestrians	2		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	274	153			153	
vC1, stage 1 conf vol	143					
vC2, stage 2 conf vol	131					
vCu, unblocked vol	274	153			153	
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 %	95	97			99	
cM capacity (veh/h)	804	889			1431	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	64	151	102
Volume Left	39	0	19
Volume Right	25	20	0
cSH	836	1700	1431
Volume to Capacity	0.08	0.09	0.01
Queue Length 95th (ft)	6	0	1
Control Delay (s)	9.7	0.0	1.5
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	1.5
Approach LOS	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	30.8%	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)	2	29	88	1	6	0	23	0	0	1	1	2
Future Volume (Veh/h)	2	29	88	1	6	0	23	0	0	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		10%			-5%			-5%			3%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	29	88	1	6	0	23	0	0	1	1	2
Pedestrians		10			10			10			10	
Lane Width (ft)		10.0			10.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	16			127			108	105	93	105	149	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			127			108	105	93	105	149	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	100	100	100	100	100
cM capacity (veh/h)	1603			1461			852	777	956	857	734	1041

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	119	7	23	4
Volume Left	2	1	23	1
Volume Right	88	0	0	2
cSH	1603	1461	852	899
Volume to Capacity	0.00	0.00	0.03	0.00
Queue Length 95th (ft)	0	0	2	0
Control Delay (s)	0.1	1.1	9.3	9.0
Lane LOS	A	A	A	A
Approach Delay (s)	0.1	1.1	9.3	9.0
Approach LOS			A	A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	0	146	1	8	79	30	103	0	14	0	2	0
Future Volume (Veh/h)	0	146	1	8	79	30	103	0	14	0	2	0
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			2%			2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	146	1	8	79	30	103	0	14	0	2	0
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	119			157			278	277	114	290	292	166
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	119			157			278	277	114	290	292	166
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			84	100	98	100	100	100
cM capacity (veh/h)	1438			1411			647	613	918	634	608	868

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	147	117	117	2
Volume Left	0	8	103	0
Volume Right	1	30	14	0
cSH	1438	1411	670	608
Volume to Capacity	0.00	0.01	0.17	0.00
Queue Length 95th (ft)	0	0	16	0
Control Delay (s)	0.0	0.6	11.5	10.9
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.6	11.5	10.9
Approach LOS			B	B

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	34.4%	ICU Level of Service	A	
Analysis Period (min)	15			

2040 NO BUILD

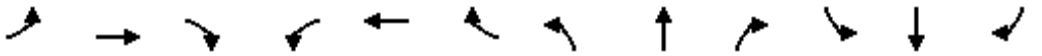
HCM Signalized Intersection Capacity Analysis
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1328	319	738	1131	286	363	503	573	438	925	141
Future Volume (vph)	160	1328	319	738	1131	286	363	503	573	438	925	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-4%			2%			-2%	
Total Lost time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	
Lane Util. Factor	1.00	0.91	1.00	0.94	0.91	1.00	0.97	0.91	0.91	0.94	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes	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	0.95	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	5034	1519	5077	5173	1559	3385	3156	1426	5040	5007	
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)	1738	5034	1519	5077	5173	1559	3385	3156	1426	5040	5007	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1328	319	738	1131	286	363	503	573	438	925	141
RTOR Reduction (vph)	0	0	129	0	0	179	0	38	49	0	14	0
Lane Group Flow (vph)	160	1328	190	738	1131	107	363	706	283	438	1052	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	2	2	2	2	0	0	2	2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	16.7	45.0	45.0	24.0	52.3	52.3	17.8	36.9	60.9	14.6	33.2	
Effective Green, g (s)	16.7	45.0	45.0	24.0	52.3	52.3	17.8	36.9	60.9	14.6	33.2	
Actuated g/C Ratio	0.12	0.32	0.32	0.17	0.37	0.37	0.13	0.26	0.43	0.10	0.24	
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	207	1618	488	870	1932	582	430	831	620	525	1187	
v/s Ratio Prot	0.09	c0.26		c0.15	0.22		c0.11	c0.22	0.20	0.09	0.21	
v/s Ratio Perm			0.13			0.07						
v/c Ratio	0.77	0.82	0.39	0.85	0.59	0.18	0.84	0.85	0.46	0.83	0.89	
Uniform Delay, d1	59.8	43.8	36.8	56.2	35.2	29.5	59.7	48.9	27.9	61.5	51.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.77	1.00	0.73	0.99	1.06	
Incremental Delay, d2	15.0	4.8	2.3	7.4	1.3	0.7	11.0	6.5	0.2	10.5	8.0	
Delay (s)	74.8	48.6	39.2	63.7	36.5	30.2	57.0	55.6	20.5	71.6	62.7	
Level of Service	E	D	D	E	D	C	E	E	C	E	E	
Approach Delay (s)		49.2			44.9			47.8			65.3	
Approach LOS		D			D			D			E	

Intersection Summary				
HCM 2000 Control Delay	51.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	96.6%	ICU Level of Service	F	
Analysis Period (min)	15			
Description:				

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5050: Enchanted Pkwy S & S 352 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	56	17	28	33	128	114	1539	51	44	452	158
Future Volume (vph)	73	56	17	28	33	128	114	1539	51	44	452	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-11%			0%			1%	
Total Lost time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.96	0.94	1.00	1.00		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.91	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)	1735	1853	1524	1744	1570	1472	1757	3503		1761	3507	1497
Flt Permitted	0.59	1.00	1.00	0.72	1.00	1.00	0.48	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1071	1853	1524	1323	1570	1472	890	3503		196	3507	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	73	56	17	28	33	128	114	1539	51	44	452	158
RTOR Reduction (vph)	0	0	16	0	37	75	0	1	0	0	0	51
Lane Group Flow (vph)	73	56	1	25	48	4	114	1589	0	44	452	107
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3		4	4		3	6			2		6
Actuated Green, G (s)	18.8	10.0	10.0	18.8	8.8	8.8	101.7	97.2		101.7	94.7	94.7
Effective Green, g (s)	16.8	9.0	9.0	16.8	7.8	7.8	101.7	97.2		101.7	94.7	94.7
Actuated g/C Ratio	0.12	0.06	0.06	0.12	0.06	0.06	0.73	0.69		0.73	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	171	119	97	182	87	82	689	2432		192	2372	1012
v/s Ratio Prot	0.03	c0.03		0.01	c0.03		0.01	c0.45		0.01	c0.13	
v/s Ratio Perm	0.02		0.00	0.01		0.00	0.11			0.16		0.07
v/c Ratio	0.43	0.47	0.01	0.14	0.55	0.05	0.17	0.65		0.23	0.19	0.11
Uniform Delay, d1	56.6	63.2	61.3	55.3	64.4	62.6	6.6	12.0		9.7	8.4	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.53	0.51		0.46	0.65	0.91
Incremental Delay, d2	0.6	1.1	0.0	0.1	4.3	0.1	0.0	1.3		0.1	0.1	0.1
Delay (s)	57.2	64.3	61.4	55.4	68.7	62.7	3.5	7.3		4.6	5.6	7.3
Level of Service	E	E	E	E	E	E	A	A		A	A	A
Approach Delay (s)		60.4			64.4			7.1			5.9	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
Description:			

c Critical Lane Group

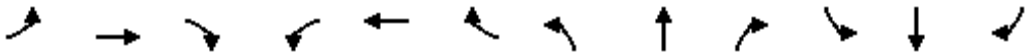
HCM Signalized Intersection Capacity Analysis
5250: 16 Av S & S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	614	50	113	214	0	73	0	277	7	93	97
Future Volume (vph)	0	614	50	113	214	0	73	0	277	7	93	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			-1%			3%			0%	
Total Lost time (s)		3.5			3.0			4.0	4.0		3.0	3.0
Lane Util. Factor		0.95			0.95			0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.98	0.97		1.00	0.97
Flpb, ped/bikes		1.00			1.00			0.99	1.00		1.00	1.00
Frt		0.99			1.00			0.91	0.85		1.00	0.85
Flt Protected		1.00			0.98			0.98	1.00		1.00	1.00
Satd. Flow (prot)		3366			3493			1520	1437		1856	1535
Flt Permitted		1.00			0.54			0.82	1.00		0.61	1.00
Satd. Flow (perm)		3366			1918			1273	1437		1138	1535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	614	50	113	214	0	73	0	277	7	93	97
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	659	0	0	327	0	0	175	175	0	100	41
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type		NA		custom	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3	6		6
Actuated Green, G (s)		30.0			41.6			21.8	21.8		57.6	57.6
Effective Green, g (s)		31.0			45.6			22.8	22.8		59.6	59.6
Actuated g/C Ratio		0.22			0.33			0.16	0.16		0.43	0.43
Clearance Time (s)		4.5						5.0	5.0		5.0	5.0
Vehicle Extension (s)		2.0						2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		745			772			207	234		484	653
v/s Ratio Prot		c0.20			c0.04							
v/s Ratio Perm					0.10			c0.14	0.12		c0.09	0.03
v/c Ratio		0.89			0.42			0.85	0.75		0.21	0.06
Uniform Delay, d1		52.8			36.9			56.9	55.9		25.3	23.7
Progression Factor		1.00			0.44			1.00	1.00		0.92	0.81
Incremental Delay, d2		11.9			0.1			24.9	10.8		1.0	0.2
Delay (s)		64.6			16.3			81.8	66.7		24.4	19.4
Level of Service		E			B			F	E		C	B
Approach Delay (s)		64.6			16.3			74.3			21.9	
Approach LOS		E			B			E			C	

Intersection Summary			
HCM 2000 Control Delay	51.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5251: Enchanted Pkwy S & S 356 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	26	228	23	10	15	197	1123	50	1	323	16
Future Volume (vph)	246	26	228	23	10	15	197	1123	50	1	323	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			-1%			1%	
Total Lost time (s)		3.5	3.5	2.0	2.0		3.0	4.0		5.0	3.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.91		1.00	0.99		1.00	0.99	
Flt Protected		0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1756	1523	1739	1667		3450	3512		1761	3478	
Flt Permitted		0.73	1.00	0.59	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1337	1523	1084	1667		3450	3512		1761	3478	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	246	26	228	23	10	15	197	1123	50	1	323	16
RTOR Reduction (vph)	0	0	178	0	12	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	272	50	23	13	0	197	1171	0	1	337	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	3	4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		51.8	30.0	30.5	30.5		11.1	66.7		2.0	57.6	
Effective Green, g (s)		53.8	31.0	32.5	32.5		13.1	67.7		2.0	59.6	
Actuated g/C Ratio		0.38	0.22	0.23	0.23		0.09	0.48		0.01	0.43	
Clearance Time (s)		4.5	4.5	4.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		582	337	251	386		322	1698		25	1480	
v/s Ratio Prot		c0.08			0.01		0.06	c0.33		0.00	c0.10	
v/s Ratio Perm		c0.10	0.03	0.02								
v/c Ratio		0.47	0.15	0.09	0.03		0.61	0.69		0.04	0.23	
Uniform Delay, d1		32.3	43.9	42.2	41.6		61.0	28.0		68.1	25.6	
Progression Factor		0.07	0.58	1.00	1.00		0.82	1.91		1.02	0.93	
Incremental Delay, d2		0.1	0.0	0.1	0.0		2.0	1.9		0.2	0.4	
Delay (s)		2.2	25.6	42.2	41.6		51.9	55.3		69.4	24.3	
Level of Service		A	C	D	D		D	E		E	C	
Approach Delay (s)		12.9			41.9			54.8			24.4	
Approach LOS		B			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1332	0	0	521	15	20
Future Volume (vph)	1332	0	0	521	15	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3543			3560	3222	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3543			3560	3222	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1332	0	0	521	15	20
RTOR Reduction (vph)	0	0	0	0	7	0
Lane Group Flow (vph)	1332	0	0	521	28	0
Bus Blockages (#/hr)	2	0	0	2	2	2
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Actuated Green, G (s)	89.0			41.0	89.0	
Effective Green, g (s)	89.0			41.0	89.0	
Actuated g/C Ratio	0.64			0.29	0.64	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0	
Lane Grp Cap (vph)	2252			1042	2048	
v/s Ratio Prot					0.01	
v/s Ratio Perm	c0.38			c0.15		
v/c Ratio	0.59			0.50	0.01	
Uniform Delay, d1	14.9			41.0	9.4	
Progression Factor	1.69			0.82	1.00	
Incremental Delay, d2	1.1			1.7	0.0	
Delay (s)	26.3			35.2	9.4	
Level of Service	C			D	A	
Approach Delay (s)	26.3			35.2	9.4	
Approach LOS	C			D	A	

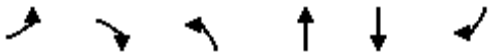
Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		
Description: WSDOT 2013-03-19			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5652: Milton Rd S & Enchanted Pkwy S

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	929	13	34	262	40	49	26	3	7	12	142
Future Volume (vph)	3	929	13	34	262	40	49	26	3	7	12	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1743	3461		1787	3452		1712	1779			1811	1478
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (perm)	1743	3461		1787	3452		1712	1779			1811	1478
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	929	13	34	262	40	49	26	3	7	12	142
RTOR Reduction (vph)	0	0	0	0	5	0	0	3	0	0	0	135
Lane Group Flow (vph)	3	942	0	34	297	0	49	26	0	0	19	7
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	1.1	96.1		9.2	104.2		7.5	7.5			7.2	7.2
Effective Green, g (s)	1.1	96.1		9.2	104.2		7.5	7.5			7.2	7.2
Actuated g/C Ratio	0.01	0.69		0.07	0.74		0.05	0.05			0.05	0.05
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	13	2375		117	2569		91	95			93	76
v/s Ratio Prot	0.00	c0.27		c0.02	0.09		c0.03	0.01			c0.01	
v/s Ratio Perm												0.00
v/c Ratio	0.23	0.40		0.29	0.12		0.54	0.28			0.20	0.10
Uniform Delay, d1	69.0	9.5		62.3	5.0		64.6	63.6			63.7	63.3
Progression Factor	1.00	1.00		0.76	0.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.3	0.5		0.4	0.1		3.0	0.6			0.4	0.2
Delay (s)	72.3	10.0		47.9	0.1		67.6	64.2			64.1	63.5
Level of Service	E	A		D	A		E	E			E	E
Approach Delay (s)		10.2			4.9			66.3			63.6	
Approach LOS		B			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

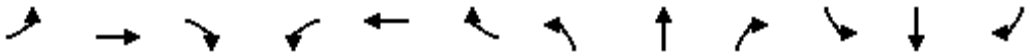
HCM Signalized Intersection Capacity Analysis
5954: Enchanted Pkwy S & 19 Wy S



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	19	18	1411	415	16
Future Volume (vph)	58	19	18	1411	415	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	1%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1537	1763	3543	3483	
Flt Permitted	0.95	1.00	0.50	1.00	1.00	
Satd. Flow (perm)	1755	1537	930	3543	3483	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	19	18	1411	415	16
RTOR Reduction (vph)	0	17	0	0	5	0
Lane Group Flow (vph)	58	2	18	1411	426	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	3.4	3.4	20.9	20.9	20.9	
Effective Green, g (s)	3.4	3.4	20.9	20.9	20.9	
Actuated g/C Ratio	0.10	0.10	0.61	0.61	0.61	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	173	152	566	2158	2122	
v/s Ratio Prot	c0.03			c0.40	0.12	
v/s Ratio Perm		0.00	0.02			
v/c Ratio	0.34	0.01	0.03	0.65	0.20	
Uniform Delay, d1	14.4	13.9	2.7	4.4	3.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.5	0.0	
Delay (s)	14.8	13.9	2.7	4.9	3.0	
Level of Service	B	B	A	A	A	
Approach Delay (s)	14.6			4.9	3.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	34.3	Sum of lost time (s)	10.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

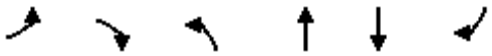
HCM Unsignalized Intersection Capacity Analysis
5450: 16 Av S & S 359 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	44	6	187	3	0	46	34	92	0	6	117	33
Future Volume (veh/h)	44	6	187	3	0	46	34	92	0	6	117	33
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	6	187	3	0	46	34	92	0	6	117	33
Approach Volume (veh/h)		237			49			126			156	
Crossing Volume (veh/h)		126			170			56			37	
High Capacity (veh/h)		1255			1212			1326			1345	
High v/c (veh/h)		0.19			0.04			0.10			0.12	
Low Capacity (veh/h)		1043			1005			1107			1125	
Low v/c (veh/h)		0.23			0.05			0.11			0.14	

Intersection Summary					
Maximum v/c High	0.19				
Maximum v/c Low	0.23				
Intersection Capacity Utilization	49.6%	ICU Level of Service		A	

HCM Unsignalized Intersection Capacity Analysis
5650: 16 Av S & Beamer HS Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	8	3	4	9	15	168
Future Volume (veh/h)	8	3	4	9	15	168
Peak Hour Factor	0.63	0.63	0.56	0.56	0.88	0.88
Hourly flow rate (vph)	13	5	7	16	17	191
Approach Volume (veh/h)	18			23	208	
Crossing Volume (veh/h)	17			13	7	
High Capacity (veh/h)	1366			1371	1377	
High v/c (veh/h)	0.01			0.02	0.15	
Low Capacity (veh/h)	1145			1149	1154	
Low v/c (veh/h)	0.02			0.02	0.18	

Intersection Summary			
Maximum v/c High	0.15		
Maximum v/c Low	0.18		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A

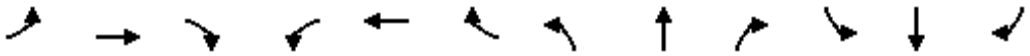
HCM Unsignalized Intersection Capacity Analysis
6150: Milton Rd S & S 369 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	48	31	81	12	15	67
Future Volume (Veh/h)	48	31	81	12	15	67
Sign Control	Stop		Free			Free
Grade	-2%		1%			2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	48	31	81	12	15	67
Pedestrians	2		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	196	99			95	
vC1, stage 1 conf vol	89					
vC2, stage 2 conf vol	107					
vCu, unblocked vol	196	99			95	
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 %	94	97			99	
cM capacity (veh/h)	853	953			1503	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	79	93	82
Volume Left	48	0	15
Volume Right	31	12	0
cSH	889	1700	1503
Volume to Capacity	0.09	0.05	0.01
Queue Length 95th (ft)	7	0	1
Control Delay (s)	9.4	0.0	1.4
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	1.4
Approach LOS	A		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6345: 8 Av S & S 373 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	71	16	1	6	0	52	0	0	9	9	18
Future Volume (Veh/h)	5	71	16	1	6	0	52	0	0	9	9	18
Sign Control		Free			Free			Stop			Stop	
Grade		10%			-5%			-5%			3%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	71	16	1	6	0	52	0	0	9	9	18
Pedestrians		10			10			10			10	
Lane Width (ft)		10.0			10.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	16			97			140	117	99	117	125	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			97			140	117	99	117	125	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			93	100	100	99	99	98
cM capacity (veh/h)	1603			1499			792	764	949	840	756	1041

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	92	7	52	36
Volume Left	5	1	52	9
Volume Right	16	0	0	18
cSH	1603	1499	792	902
Volume to Capacity	0.00	0.00	0.07	0.04
Queue Length 95th (ft)	0	0	5	3
Control Delay (s)	0.4	1.1	9.9	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.4	1.1	9.9	9.2
Approach LOS			A	A

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6547: Milton Rd S & S 376 St/S 375 St

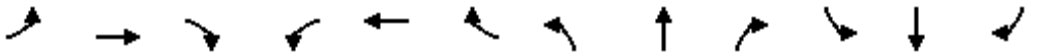
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	0	90	3	5	50	19	16	0	2	0	0	0
Future Volume (Veh/h)	0	90	3	5	50	19	16	0	2	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			2%			2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	90	3	5	50	19	16	0	2	0	0	0
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	79			103			181	182	80	183	190	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	79			103			181	182	80	183	190	112
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			98	100	100	100	100	100
cM capacity (veh/h)	1488			1476			751	694	959	756	694	931

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	93	74	18	0
Volume Left	0	5	16	0
Volume Right	3	19	2	0
cSH	1488	1476	770	1700
Volume to Capacity	0.00	0.00	0.02	0.00
Queue Length 95th (ft)	0	0	2	0
Control Delay (s)	0.0	0.5	9.8	0.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	0.5	9.8	0.0
Approach LOS			A	A

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	19.7%	ICU Level of Service		A
Analysis Period (min)	15			

2040 BUILD

HCM Signalized Intersection Capacity Analysis
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



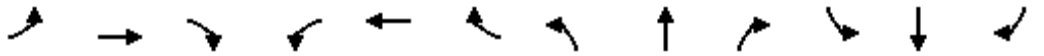
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1333	320	763	1131	286	369	528	604	444	950	141
Future Volume (vph)	160	1333	320	763	1131	286	369	528	604	444	950	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-4%			2%			-2%	
Total Lost time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.5	
Lane Util. Factor	1.00	0.91	1.00	0.94	0.91	1.00	0.97	0.91	0.91	0.94	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes	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	0.95	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	5034	1519	5077	5173	1559	3385	3155	1426	5040	5009	
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)	1738	5034	1519	5077	5173	1559	3385	3155	1426	5040	5009	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1333	320	763	1131	286	369	528	604	444	950	141
RTOR Reduction (vph)	0	0	156	0	0	178	0	37	49	0	14	0
Lane Group Flow (vph)	160	1333	164	763	1131	108	369	745	301	444	1077	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	2	2	2	2	0	0	2	2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	16.7	45.4	45.4	24.0	52.7	52.7	17.4	36.5	60.5	14.6	33.2	
Effective Green, g (s)	16.7	45.4	45.4	24.0	52.7	52.7	17.4	36.5	60.5	14.6	33.2	
Actuated g/C Ratio	0.12	0.32	0.32	0.17	0.38	0.38	0.12	0.26	0.43	0.10	0.24	
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	207	1632	492	870	1947	586	420	822	616	525	1187	
v/s Ratio Prot	0.09	c0.26		c0.15	0.22		0.11	c0.24	0.21	0.09	c0.22	
v/s Ratio Perm			0.11			0.07						
v/c Ratio	0.77	0.82	0.33	0.88	0.58	0.18	0.88	0.91	0.49	0.85	0.91	
Uniform Delay, d1	59.8	43.5	35.8	56.6	34.8	29.2	60.3	50.1	28.6	61.6	51.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.03	0.77	1.00	1.00	
Incremental Delay, d2	15.0	4.7	1.8	9.6	1.3	0.7	14.5	10.7	0.2	11.5	9.9	
Delay (s)	74.8	48.1	37.6	66.2	36.1	29.9	75.7	62.2	22.2	73.1	61.8	
Level of Service	E	D	D	E	D	C	E	E	C	E	E	
Approach Delay (s)		48.6			45.8			56.2			65.0	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

Description:

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5050: Enchanted Pkwy S & S 352 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	56	17	28	33	128	114	1601	51	44	504	158
Future Volume (vph)	75	56	17	28	33	128	114	1601	51	44	504	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-11%			0%			1%	
Total Lost time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.96	0.93	1.00	1.00		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.91	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)	1736	1853	1524	1744	1568	1469	1759	3504		1761	3507	1497
Flt Permitted	0.58	1.00	1.00	0.72	1.00	1.00	0.45	1.00		0.10	1.00	1.00
Satd. Flow (perm)	1060	1853	1524	1323	1568	1469	842	3504		180	3507	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	56	17	28	33	128	114	1601	51	44	504	158
RTOR Reduction (vph)	0	0	16	0	36	75	0	1	0	0	0	49
Lane Group Flow (vph)	75	56	1	25	49	4	114	1651	0	44	504	109
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3		4	4		3	6			2		6
Actuated Green, G (s)	17.8	9.3	9.3	17.8	8.5	8.5	102.7	98.3		102.7	96.8	96.8
Effective Green, g (s)	15.8	8.3	8.3	15.8	7.5	7.5	102.7	98.3		102.7	96.8	96.8
Actuated g/C Ratio	0.11	0.06	0.06	0.11	0.05	0.05	0.73	0.70		0.73	0.69	0.69
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	159	109	90	171	84	78	656	2460		181	2424	1035
v/s Ratio Prot	0.03	c0.03		0.01	c0.03		0.01	c0.47		0.01	c0.14	
v/s Ratio Perm	0.03		0.00	0.01		0.00	0.12			0.17		0.07
v/c Ratio	0.47	0.51	0.01	0.15	0.58	0.05	0.17	0.67		0.24	0.21	0.11
Uniform Delay, d1	57.6	63.9	62.0	56.2	64.7	62.9	6.5	11.7		10.0	7.8	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.52	0.69		2.10	1.74	5.28
Incremental Delay, d2	0.8	1.7	0.0	0.1	6.5	0.1	0.0	1.3		0.1	0.1	0.1
Delay (s)	58.4	65.6	62.0	56.3	71.2	63.0	3.4	9.5		21.2	13.7	38.1
Level of Service	E	E	E	E	E	E	A	A		C	B	D
Approach Delay (s)		61.5			65.8			9.1			19.6	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
Description:			

c Critical Lane Group

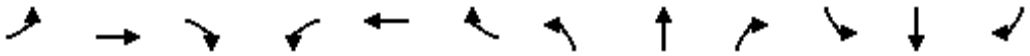
HCM Signalized Intersection Capacity Analysis
5250: 16 Av S & S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	614	57	113	214	0	89	32	277	7	104	97
Future Volume (vph)	0	614	57	113	214	0	89	32	277	7	104	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			-1%			3%			0%	
Total Lost time (s)		3.5			3.0			4.0	4.0		3.0	3.0
Lane Util. Factor		0.95			0.95			0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.99	0.97		1.00	0.97
Flpb, ped/bikes		1.00			1.00			0.99	1.00		1.00	1.00
Frt		0.99			1.00			0.94	0.85		1.00	0.85
Flt Protected		1.00			0.98			0.98	1.00		1.00	1.00
Satd. Flow (prot)		3360			3493			1575	1441		1857	1535
Flt Permitted		1.00			0.53			0.80	1.00		0.59	1.00
Satd. Flow (perm)		3360			1867			1295	1441		1094	1535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	614	57	113	214	0	89	32	277	7	104	97
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	61
Lane Group Flow (vph)	0	666	0	0	327	0	0	201	197	0	111	36
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type		NA		custom	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3	6		6
Actuated Green, G (s)		35.5			52.0			26.0	26.0		43.0	43.0
Effective Green, g (s)		36.5			56.0			27.0	27.0		45.0	45.0
Actuated g/C Ratio		0.26			0.40			0.19	0.19		0.32	0.32
Clearance Time (s)		4.5						5.0	5.0		5.0	5.0
Vehicle Extension (s)		2.0						2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		876			955			249	277		351	493
v/s Ratio Prot		c0.20			c0.04							
v/s Ratio Perm					0.09			c0.16	0.14		c0.10	0.02
v/c Ratio		0.76			0.34			0.81	0.71		0.32	0.07
Uniform Delay, d1		47.7			29.2			54.0	52.9		35.9	33.0
Progression Factor		1.00			0.34			1.00	1.00		0.62	0.74
Incremental Delay, d2		3.5			0.1			16.3	7.0		2.3	0.3
Delay (s)		51.2			10.1			70.3	59.8		24.7	24.7
Level of Service		D			B			E	E		C	C
Approach Delay (s)		51.2			10.1			65.1			24.7	
Approach LOS		D			B			E			C	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5251: Enchanted Pkwy S & S 356 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	26	228	23	10	15	203	1153	50	1	365	0
Future Volume (vph)	246	26	228	23	10	15	203	1153	50	1	365	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			-1%			1%	
Total Lost time (s)		3.5	3.5	2.0	2.0		3.0	4.0		5.0	3.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.91		1.00	0.99		1.00	1.00	
Flt Protected		0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1756	1523	1739	1667		3450	3513		1761	3507	
Flt Permitted		0.73	1.00	0.59	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1337	1523	1084	1667		3450	3513		1761	3507	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	246	26	228	23	10	15	203	1153	50	1	365	0
RTOR Reduction (vph)	0	0	169	0	11	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	272	59	23	14	0	203	1201	0	1	365	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	3	4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		61.5	35.5	36.0	36.0		16.0	58.0		1.0	43.0	
Effective Green, g (s)		63.5	36.5	38.0	38.0		18.0	59.0		1.0	45.0	
Actuated g/C Ratio		0.45	0.26	0.27	0.27		0.13	0.42		0.01	0.32	
Clearance Time (s)		4.5	4.5	4.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		687	397	294	452		443	1480		12	1127	
v/s Ratio Prot		c0.08			0.01		0.06	c0.34		0.00	c0.10	
v/s Ratio Perm		c0.10	0.04	0.02								
v/c Ratio		0.40	0.15	0.08	0.03		0.46	0.81		0.08	0.32	
Uniform Delay, d1		25.5	39.8	38.0	37.5		56.5	35.6		69.0	36.0	
Progression Factor		0.04	0.71	1.00	1.00		1.39	1.63		1.36	0.59	
Incremental Delay, d2		0.1	0.0	0.0	0.0		0.2	3.9		1.1	0.8	
Delay (s)		1.2	28.2	38.0	37.5		78.9	61.9		95.3	21.8	
Level of Service		A	C	D	D		E	E		F	C	
Approach Delay (s)		13.5			37.7			64.3			22.0	
Approach LOS		B			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1392	0	0	562	15	20
Future Volume (vph)	1392	0	0	562	15	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3543			3560	3222	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3543			3560	3222	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1392	0	0	562	15	20
RTOR Reduction (vph)	0	0	0	0	8	0
Lane Group Flow (vph)	1392	0	0	562	27	0
Bus Blockages (#/hr)	2	0	0	2	2	2
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Actuated Green, G (s)	87.0			43.0	87.0	
Effective Green, g (s)	87.0			43.0	87.0	
Actuated g/C Ratio	0.62			0.31	0.62	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0	
Lane Grp Cap (vph)	2201			1093	2002	
v/s Ratio Prot					0.01	
v/s Ratio Perm	c0.39			c0.16		
v/c Ratio	0.63			0.51	0.01	
Uniform Delay, d1	16.5			39.9	10.1	
Progression Factor	0.78			0.71	1.00	
Incremental Delay, d2	1.3			1.7	0.0	
Delay (s)	14.2			29.9	10.1	
Level of Service	B			C	B	
Approach Delay (s)	14.2			29.9	10.1	
Approach LOS	B			C	B	

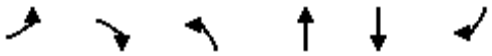
Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
Description: WSDOT 2013-03-19			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5652: Milton Rd S & Enchanted Pkwy S

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	946	19	34	262	81	90	28	3	10	20	142
Future Volume (vph)	3	946	19	34	262	81	90	28	3	10	20	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00			1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.96		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1743	3456		1787	3367		1712	1781			1814	1478
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (perm)	1743	3456		1787	3367		1712	1781			1814	1478
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	946	19	34	262	81	90	28	3	10	20	142
RTOR Reduction (vph)	0	1	0	0	12	0	0	3	0	0	0	134
Lane Group Flow (vph)	3	964	0	34	331	0	90	28	0	0	30	8
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	2.0	95.8		5.0	98.8		11.7	11.7			7.5	7.5
Effective Green, g (s)	2.0	95.8		5.0	98.8		11.7	11.7			7.5	7.5
Actuated g/C Ratio	0.01	0.68		0.04	0.71		0.08	0.08			0.05	0.05
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	24	2364		63	2376		143	148			97	79
v/s Ratio Prot	0.00	c0.28		c0.02	0.10		c0.05	0.02			c0.02	
v/s Ratio Perm												0.01
v/c Ratio	0.12	0.41		0.54	0.14		0.63	0.19			0.31	0.10
Uniform Delay, d1	68.1	9.7		66.4	6.7		62.1	59.7			63.8	63.0
Progression Factor	1.00	1.00		0.70	0.59		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.9	0.5		3.9	0.1		6.1	0.2			0.7	0.2
Delay (s)	69.0	10.2		50.6	4.1		68.2	60.0			64.4	63.2
Level of Service	E	B		D	A		E	E			E	E
Approach Delay (s)		10.4			8.3			66.1			63.4	
Approach LOS		B			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

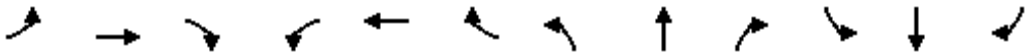
HCM Signalized Intersection Capacity Analysis
5954: Enchanted Pkwy S & 19 Wy S



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	81	28	25	1411	415	19
Future Volume (vph)	81	28	25	1411	415	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	1%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1537	1762	3543	3479	
Flt Permitted	0.95	1.00	0.50	1.00	1.00	
Satd. Flow (perm)	1755	1537	927	3543	3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	81	28	25	1411	415	19
RTOR Reduction (vph)	0	25	0	0	6	0
Lane Group Flow (vph)	81	3	25	1411	428	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	3.7	3.7	22.4	22.4	22.4	
Effective Green, g (s)	3.7	3.7	22.4	22.4	22.4	
Actuated g/C Ratio	0.10	0.10	0.62	0.62	0.62	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	179	157	575	2198	2158	
v/s Ratio Prot	c0.05			c0.40	0.12	
v/s Ratio Perm		0.00	0.03			
v/c Ratio	0.45	0.02	0.04	0.64	0.20	
Uniform Delay, d1	15.2	14.6	2.7	4.3	3.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.0	0.0	0.5	0.0	
Delay (s)	15.9	14.6	2.7	4.8	3.0	
Level of Service	B	B	A	A	A	
Approach Delay (s)	15.6			4.8	3.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	36.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

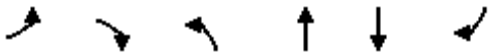
HCM Unsignalized Intersection Capacity Analysis
5450: 16 Av S & S 359 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	44	6	187	3	0	46	35	140	0	6	135	33
Future Volume (veh/h)	44	6	187	3	0	46	35	140	0	6	135	33
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	6	187	3	0	46	35	140	0	6	135	33
Approach Volume (veh/h)		237			49			175			174	
Crossing Volume (veh/h)		144			219			56			38	
High Capacity (veh/h)		1237			1167			1326			1344	
High v/c (veh/h)		0.19			0.04			0.13			0.13	
Low Capacity (veh/h)		1027			963			1107			1124	
Low v/c (veh/h)		0.23			0.05			0.16			0.15	

Intersection Summary					
Maximum v/c High	0.19				
Maximum v/c Low	0.23				
Intersection Capacity Utilization	53.0%	ICU Level of Service		A	

HCM Unsignalized Intersection Capacity Analysis
5650: 16 Av S & Beamer HS Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	8	3	4	58	33	168
Future Volume (veh/h)	8	3	4	58	33	168
Peak Hour Factor	0.63	0.63	0.56	0.56	0.88	0.88
Hourly flow rate (vph)	13	5	7	104	38	191
Approach Volume (veh/h)	18			111	229	
Crossing Volume (veh/h)	38			13	7	
High Capacity (veh/h)	1344			1371	1377	
High v/c (veh/h)	0.01			0.08	0.17	
Low Capacity (veh/h)	1124			1149	1154	
Low v/c (veh/h)	0.02			0.10	0.20	

Intersection Summary			
Maximum v/c High	0.17		
Maximum v/c Low	0.20		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A

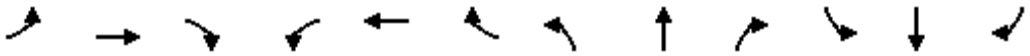
HCM Unsignalized Intersection Capacity Analysis
6150: Milton Rd S & S 369 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	51	31	124	12	15	115
Future Volume (Veh/h)	51	31	124	12	15	115
Sign Control	Stop		Free			Free
Grade	-2%		1%			2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	51	31	124	12	15	115
Pedestrians	2		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	287	142			138	
vC1, stage 1 conf vol	132					
vC2, stage 2 conf vol	155					
vCu, unblocked vol	287	142			138	
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 %	94	97			99	
cM capacity (veh/h)	797	902			1449	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	82	136	130
Volume Left	51	0	15
Volume Right	31	12	0
cSH	834	1700	1449
Volume to Capacity	0.10	0.08	0.01
Queue Length 95th (ft)	8	0	1
Control Delay (s)	9.8	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6345: 8 Av S & S 373 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	74	39	1	6	0	62	0	49	9	9	18
Future Volume (Veh/h)	5	74	39	1	6	0	62	0	49	9	9	18
Sign Control		Free			Free			Stop			Stop	
Grade		10%			-5%			-5%			3%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	74	39	1	6	0	62	0	49	9	9	18
Pedestrians		10			10			10			10	
Lane Width (ft)		10.0			10.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	16			123			154	132	114	180	151	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16			123			154	132	114	180	151	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			92	100	95	99	99	98
cM capacity (veh/h)	1603			1466			775	750	932	724	731	1041

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	118	7	111	36
Volume Left	5	1	62	9
Volume Right	39	0	49	18
cSH	1603	1466	837	856
Volume to Capacity	0.00	0.00	0.13	0.04
Queue Length 95th (ft)	0	0	11	3
Control Delay (s)	0.3	1.1	10.0	9.4
Lane LOS	A	A	A	A
Approach Delay (s)	0.3	1.1	10.0	9.4
Approach LOS			A	A

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	28.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6547: Milton Rd S & S 376 St/S 375 St

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	0	135	6	5	50	19	16	21	2	4	60	0
Future Volume (Veh/h)	0	135	6	5	50	19	16	21	2	4	60	0
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			2%			2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	135	6	5	50	19	16	21	2	4	60	0
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	79			151			258	230	80	240	237	158
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	79			151			258	230	80	240	237	158
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	97	100	99	91	100
cM capacity (veh/h)	1488			1418			622	652	959	677	654	878

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	141	74	39	64
Volume Left	0	5	16	4
Volume Right	6	19	2	0
cSH	1488	1418	650	655
Volume to Capacity	0.00	0.00	0.06	0.10
Queue Length 95th (ft)	0	0	5	8
Control Delay (s)	0.0	0.5	10.9	11.1
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.5	10.9	11.1
Approach LOS			B	B

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

SYNCHRO ANALYSIS FILES FOR PM V/C RATIO, LOS AND DELAY

2018 EXISTING

HCM Signalized Intersection Capacity Analysis
251: Pacific Hwy S & S 276 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	42	0	85	39	3	15	39	54	1160	7	68	17
Future Volume (vph)	42	0	85	39	3	15	39	54	1160	7	68	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		0%			0%				-2%			
Total Lost time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.93		1.00	0.97			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.96	1.00			1.00	1.00			1.00
Frt	1.00	0.85		1.00	0.88			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1710	1546		1537	1580			1805	5136			1746
Flt Permitted	0.74	1.00		0.59	1.00			0.95	1.00			0.20
Satd. Flow (perm)	1330	1546		955	1580			1805	5136			371
Peak-hour factor, PHF	0.86	0.86	0.86	0.65	0.65	0.65	0.96	0.96	0.96	0.96	0.91	0.91
Adj. Flow (vph)	49	0	99	60	5	23	41	56	1208	7	75	19
RTOR Reduction (vph)	0	86	0	0	20	0	0	0	0	0	0	0
Lane Group Flow (vph)	49	13	0	60	8	0	0	97	1215	0	0	94
Confl. Peds. (#/hr)	8		48	34		20		14		46		12
Heavy Vehicles (%)	2%	2%	2%	9%	9%	9%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	3	9	9	0	6	9	0	6	3	6	3
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Actuated Green, G (s)	18.8	18.8		18.3	18.3			9.0	98.8			105.2
Effective Green, g (s)	18.8	18.8		17.3	17.3			9.0	99.3			106.2
Actuated g/C Ratio	0.13	0.13		0.12	0.12			0.06	0.71			0.76
Clearance Time (s)	4.5	4.5		5.0	5.0			6.0	6.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	178	207		118	195			116	3642			349
v/s Ratio Prot		0.01			0.00			c0.05	0.24			0.01
v/s Ratio Perm	0.04			c0.06								0.19
v/c Ratio	0.28	0.06		0.51	0.04			0.84	0.33			0.27
Uniform Delay, d1	54.5	52.9		57.4	54.0			64.8	7.7			4.6
Progression Factor	1.00	1.00		1.00	1.00			0.74	0.25			1.00
Incremental Delay, d2	0.3	0.0		1.3	0.0			31.8	0.2			0.2
Delay (s)	54.8	53.0		58.6	54.1			79.8	2.2			4.8
Level of Service	D	D		E	D			E	A			A
Approach Delay (s)		53.6			57.2				7.9			
Approach LOS		D			E				A			

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		
Description:			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2328	81
Future Volume (vph)	2328	81
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4978	
Flt Permitted	1.00	
Satd. Flow (perm)	4978	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	2558	89
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	2645	0
Confl. Peds. (#/hr)		22
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	96.2	
Effective Green, g (s)	96.7	
Actuated g/C Ratio	0.69	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3438	
v/s Ratio Prot	c0.53	
v/s Ratio Perm		
v/c Ratio	0.77	
Uniform Delay, d1	14.3	
Progression Factor	1.00	
Incremental Delay, d2	1.7	
Delay (s)	16.0	
Level of Service	B	
Approach Delay (s)	15.6	
Approach LOS	B	

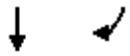
Intersection Summary

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1050: Pacific Hwy S & S 288 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	35	22	14	428	31	204	69	19	1033	299	19	366
Future Volume (vph)	35	22	14	428	31	204	69	19	1033	299	19	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	11	12	12	12	12	12	12	11
Grade (%)		14%			-7%				-2%			
Total Lost time (s)		6.0		5.5	5.5	5.5		5.5	5.5			5.0
Lane Util. Factor		1.00		0.95	0.95	1.00		1.00	0.91			0.97
Frpb, ped/bikes		0.99		1.00	1.00	0.97		1.00	0.99			1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00			1.00
Frt		0.97		1.00	1.00	0.85		1.00	0.97			1.00
Flt Protected		0.98		0.95	0.96	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1777		1711	1731	1585		1787	4869			3318
Flt Permitted		0.98		0.95	0.96	1.00		0.95	1.00			0.95
Satd. Flow (perm)		1777		1711	1731	1585		1787	4869			3318
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.95	0.95
Adj. Flow (vph)	40	25	16	465	34	222	77	21	1148	332	20	385
RTOR Reduction (vph)	0	0	0	0	0	180	0	0	27	0	0	0
Lane Group Flow (vph)	0	81	0	246	253	42	0	98	1453	0	0	405
Confl. Peds. (#/hr)			27			14				22		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	6	0	9	9	0	6	9	0	6	0	6	0
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA		Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8						
Actuated Green, G (s)		21.9		26.3	26.3	26.3		9.0	59.3			10.5
Effective Green, g (s)		20.9		26.3	26.3	26.3		9.5	59.8			11.0
Actuated g/C Ratio		0.15		0.19	0.19	0.19		0.07	0.43			0.08
Clearance Time (s)		5.0		5.5	5.5	5.5		6.0	6.0			5.5
Vehicle Extension (s)		2.0		2.0	2.0	2.0		2.0	2.0			2.0
Lane Grp Cap (vph)		265		321	325	297		121	2079			260
v/s Ratio Prot		c0.05		0.14	c0.15			0.05	c0.30			c0.12
v/s Ratio Perm						0.03						
v/c Ratio		0.31		0.77	0.78	0.14		0.81	0.70			1.56
Uniform Delay, d1		53.1		53.9	54.1	47.4		64.4	32.7			64.5
Progression Factor		1.00		0.90	0.90	0.47		0.69	0.54			0.87
Incremental Delay, d2		0.2		9.3	10.1	0.1		28.7	1.9			265.1
Delay (s)		53.3		58.0	58.8	22.4		73.0	19.5			321.2
Level of Service		D		E	E	C		E	B			F
Approach Delay (s)		53.3			47.3				22.9			
Approach LOS		D			D				C			

Intersection Summary			
HCM 2000 Control Delay	76.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2237	50
Future Volume (vph)	2237	50
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4998	
Flt Permitted	1.00	
Satd. Flow (perm)	4998	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	2355	53
RTOR Reduction (vph)	1	0
Lane Group Flow (vph)	2407	0
Confl. Peds. (#/hr)		19
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	60.8	
Effective Green, g (s)	61.3	
Actuated g/C Ratio	0.44	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2188	
v/s Ratio Prot	c0.48	
v/s Ratio Perm		
v/c Ratio	1.10	
Uniform Delay, d1	39.4	
Progression Factor	0.72	
Incremental Delay, d2	51.2	
Delay (s)	79.6	
Level of Service	E	
Approach Delay (s)	114.4	
Approach LOS	F	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1651: Pacific Hwy S & S Dash Point Rd

Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	377	150	11	235	1058	22	1829	972
Future Volume (vph)	377	150	11	235	1058	22	1829	972
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	12	12
Grade (%)	0%				0%		-1%	
Total Lost time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Lane Util. Factor	0.97	1.00		1.00	0.91	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3311	1482		1787	5095	1753	5099	1583
Flt Permitted	0.95	1.00		0.95	1.00	0.21	1.00	1.00
Satd. Flow (perm)	3311	1482		1787	5095	378	5099	1583
Peak-hour factor, PHF	0.90	0.90	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	419	167	12	250	1126	23	1946	1034
RTOR Reduction (vph)	0	124	0	0	0	0	0	41
Lane Group Flow (vph)	419	43	0	262	1126	23	1946	993
Confl. Peds. (#/hr)		24		10				10
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	9	9	0	6	6	9	0
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Actuated Green, G (s)	35.7	35.7		23.0	83.1	88.8	65.8	101.5
Effective Green, g (s)	35.7	35.7		23.0	83.6	88.8	66.3	101.5
Actuated g/C Ratio	0.26	0.26		0.16	0.60	0.63	0.47	0.72
Clearance Time (s)	5.0	5.0		5.0	5.0	5.5	5.5	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	844	377		293	3042	295	2414	1147
v/s Ratio Prot	0.13			c0.15	0.22	0.00	0.38	c0.22
v/s Ratio Perm		0.03				0.05		0.41
v/c Ratio	0.50	0.11		0.89	0.37	0.08	0.81	0.87
Uniform Delay, d1	44.5	40.0		57.3	14.6	15.2	31.4	14.2
Progression Factor	0.76	1.75		0.80	0.93	0.71	0.67	1.94
Incremental Delay, d2	0.2	0.0		25.0	0.3	0.0	0.9	2.0
Delay (s)	34.1	70.2		70.6	13.9	10.8	22.0	29.6
Level of Service	C	E		E	B	B	C	C
Approach Delay (s)	44.4				24.6		24.5	
Approach LOS	D				C		C	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2051: Pacific Hwy S & S 304 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	23	28	45	158	46	78	20	56	1195	127	24	86
Future Volume (vph)	23	28	45	158	46	78	20	56	1195	127	24	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	12	12	12	12	12
Grade (%)		-4%			5%				-1%			
Total Lost time (s)		6.0	6.0		6.0			5.5	5.5			5.5
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91			1.00
Frpb, ped/bikes		1.00	0.98		0.99			1.00	1.00			1.00
Flpb, ped/bikes		1.00	1.00		1.00			1.00	1.00			1.00
Frt		1.00	0.85		0.96			1.00	0.99			1.00
Flt Protected		0.98	1.00		0.97			0.95	1.00			0.95
Satd. Flow (prot)		1794	1471		1651			1778	4980			1752
Flt Permitted		0.78	1.00		0.78			0.05	1.00			0.15
Satd. Flow (perm)		1428	1471		1332			95	4980			276
Peak-hour factor, PHF	0.68	0.68	0.68	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92
Adj. Flow (vph)	34	41	66	172	50	85	20	57	1219	130	26	93
RTOR Reduction (vph)	0	0	50	0	11	0	0	0	7	0	0	0
Lane Group Flow (vph)	0	75	16	0	296	0	0	77	1342	0	0	119
Confl. Peds. (#/hr)	3		8			6		8		3		3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	6	0	9	9	0	6	9	0	6	0	6	0
Turn Type	Perm	NA	Perm	Perm	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4		4	8			6	6			2	2
Actuated Green, G (s)		35.7	35.7		35.7			88.3	80.3			88.3
Effective Green, g (s)		34.7	34.7		34.7			88.3	80.3			88.3
Actuated g/C Ratio		0.25	0.25		0.25			0.63	0.57			0.63
Clearance Time (s)		5.0	5.0		5.0			5.5	5.5			5.5
Vehicle Extension (s)		2.0	2.0		2.0			2.0	2.0			2.0
Lane Grp Cap (vph)		353	364		330			174	2856			258
v/s Ratio Prot								0.03	c0.27			0.03
v/s Ratio Perm		0.05	0.01		c0.22			0.25				0.26
v/c Ratio		0.21	0.04		0.90			0.44	0.47			0.46
Uniform Delay, d1		41.8	40.0		50.9			42.2	17.4			11.8
Progression Factor		1.00	1.00		1.16			0.68	0.76			1.09
Incremental Delay, d2		0.1	0.0		24.5			0.6	0.5			0.3
Delay (s)		41.9	40.1		83.3			29.3	13.8			13.2
Level of Service		D	D		F			C	B			B
Approach Delay (s)		41.0			83.3				14.6			
Approach LOS		D			F				B			

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

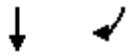
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1835	44
Future Volume (vph)	1835	44
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4948	
Flt Permitted	1.00	
Satd. Flow (perm)	4948	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1995	48
RTOR Reduction (vph)	1	0
Lane Group Flow (vph)	2042	0
Confl. Peds. (#/hr)		11
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	78.8	
Effective Green, g (s)	78.8	
Actuated g/C Ratio	0.56	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2785	
v/s Ratio Prot	c0.41	
v/s Ratio Perm		
v/c Ratio	0.73	
Uniform Delay, d1	22.8	
Progression Factor	0.16	
Incremental Delay, d2	1.2	
Delay (s)	4.8	
Level of Service	A	
Approach Delay (s)	5.3	
Approach LOS	A	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2250: Pacific Hwy S & S 308 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	122	28	49	32	29	79	11	53	1267	22	11	88
Future Volume (vph)	122	28	49	32	29	79	11	53	1267	22	11	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		4%			2%				1%			
Total Lost time (s)		6.0			6.0			5.0	5.0			5.5
Lane Util. Factor		1.00			1.00			1.00	0.91			1.00
Frpb, ped/bikes		0.99			0.99			1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		0.97			0.92			1.00	1.00			1.00
Flt Protected		0.97			0.99			0.95	1.00			0.95
Satd. Flow (prot)		1812			1814			1761	5007			1796
Flt Permitted		0.64			0.88			0.05	1.00			0.15
Satd. Flow (perm)		1190			1606			90	5007			284
Peak-hour factor, PHF	0.70	0.70	0.70	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.92	0.92
Adj. Flow (vph)	174	40	70	39	35	95	12	56	1334	23	12	96
RTOR Reduction (vph)	0	9	0	0	34	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	275	0	0	135	0	0	68	1356	0	0	108
Confl. Peds. (#/hr)	2		13	13		2						
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	6	0	11	11	0	6	11	0	6	0	6	0
Turn Type	Perm	NA		Perm	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8			6	6			2	2
Actuated Green, G (s)		34.4			34.4			90.1	82.7			90.1
Effective Green, g (s)		33.4			33.4			90.1	82.7			90.1
Actuated g/C Ratio		0.24			0.24			0.64	0.59			0.64
Clearance Time (s)		5.0			5.0			5.0	5.0			5.5
Vehicle Extension (s)		2.0			2.0			2.0	2.0			2.0
Lane Grp Cap (vph)		283			383			153	2957			262
v/s Ratio Prot								0.03	c0.27			0.02
v/s Ratio Perm		c0.23			0.08			0.26				0.24
v/c Ratio		0.97			0.35			0.44	0.46			0.41
Uniform Delay, d1		52.8			44.3			42.6	16.1			10.9
Progression Factor		1.00			1.00			1.00	1.00			0.64
Incremental Delay, d2		45.2			0.2			0.8	0.5			0.3
Delay (s)		98.0			44.5			43.3	16.6			7.3
Level of Service		F			D			D	B			A
Approach Delay (s)		98.0			44.5				17.9			
Approach LOS		F			D				B			

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



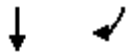
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1829	159
Future Volume (vph)	1829	159
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	-1%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5025	
Flt Permitted	1.00	
Satd. Flow (perm)	5025	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1988	173
RTOR Reduction (vph)	7	0
Lane Group Flow (vph)	2154	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	11	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	82.1	
Effective Green, g (s)	82.1	
Actuated g/C Ratio	0.59	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2946	
v/s Ratio Prot	c0.43	
v/s Ratio Perm		
v/c Ratio	0.73	
Uniform Delay, d1	21.0	
Progression Factor	0.15	
Incremental Delay, d2	1.2	
Delay (s)	4.3	
Level of Service	A	
Approach Delay (s)	4.4	
Approach LOS	A	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2550: Pacific Hwy S & S 312 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	311	373	150	173	441	160	44	261	857	114	71	171
Future Volume (vph)	311	373	150	173	441	160	44	261	857	114	71	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	12	12
Grade (%)		1%			0%				0%			
Total Lost time (s)	5.5	6.0		5.5	6.5			5.0	5.0			5.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.97			1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Frt	1.00	0.96		1.00	0.96			1.00	0.98			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1734	3227		1755	3205			1759	4930			1773
Flt Permitted	0.13	1.00		0.29	1.00			0.09	1.00			0.10
Satd. Flow (perm)	234	3227		539	3205			160	4930			195
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.97	0.97	0.97	0.97	0.92	0.92
Adj. Flow (vph)	338	405	163	190	485	176	45	269	884	118	77	186
RTOR Reduction (vph)	0	28	0	0	24	0	0	0	11	0	0	0
Lane Group Flow (vph)	338	540	0	190	637	0	0	314	991	0	0	263
Confl. Peds. (#/hr)	30		33	18		64		15		52		34
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	2	4	4	4	6	4	4	6	2	6	2
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4			6	6			2	2
Actuated Green, G (s)	59.7	45.7		60.2	33.0			70.3	38.2			70.3
Effective Green, g (s)	57.7	44.7		58.2	32.0			70.3	38.2			70.3
Actuated g/C Ratio	0.38	0.30		0.39	0.21			0.47	0.25			0.47
Clearance Time (s)	4.5	5.0		4.5	5.5			5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	347	961		318	683			331	1255			429
v/s Ratio Prot	c0.17	0.17		0.05	0.20			c0.15	0.20			0.13
v/s Ratio Perm	c0.21			0.18				0.29				0.16
v/c Ratio	0.97	0.56		0.60	0.93			0.95	0.79			0.61
Uniform Delay, d1	45.6	44.4		32.5	57.9			58.8	52.1			45.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	40.9	0.5		2.0	19.4			35.4	5.1			1.8
Delay (s)	86.5	44.8		34.5	77.3			94.2	57.3			47.1
Level of Service	F	D		C	E			F	E			D
Approach Delay (s)		60.4			67.7				66.1			
Approach LOS		E			E				E			

Intersection Summary			
HCM 2000 Control Delay	64.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1444	314
Future Volume (vph)	1444	314
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	0%	
Total Lost time (s)	5.0	5.5
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.94
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5108	1478
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5108	1478
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1570	341
RTOR Reduction (vph)	0	41
Lane Group Flow (vph)	1570	300
Confl. Peds. (#/hr)		45
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	4	4
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	46.2	72.9
Effective Green, g (s)	46.2	70.9
Actuated g/C Ratio	0.31	0.47
Clearance Time (s)	5.0	4.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	1573	698
v/s Ratio Prot	c0.31	0.07
v/s Ratio Perm		0.13
v/c Ratio	1.00	0.43
Uniform Delay, d1	51.9	26.2
Progression Factor	1.00	1.00
Incremental Delay, d2	22.2	0.2
Delay (s)	74.1	26.3
Level of Service	E	C
Approach Delay (s)	63.3	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2750: Pacific Hwy S & S 316 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	94	73	74	128	80	90	65	174	1184	112	64	99
Future Volume (vph)	94	73	74	128	80	90	65	174	1184	112	64	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	12	12
Grade (%)		-2%			0%				2%			
Total Lost time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.97		1.00	0.98			1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00	1.00			1.00
Frt	1.00	0.92		1.00	0.92			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1758	1606		1697	1598			1769	4926			1737
Flt Permitted	0.38	1.00		0.43	1.00			0.95	1.00			0.95
Satd. Flow (perm)	703	1606		761	1598			1769	4926			1737
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.88	0.88	0.88	0.88	0.94	0.94
Adj. Flow (vph)	112	87	88	142	89	100	74	198	1345	127	68	105
RTOR Reduction (vph)	0	29	0	0	33	0	0	0	7	0	0	0
Lane Group Flow (vph)	112	146	0	142	156	0	0	272	1465	0	0	173
Confl. Peds. (#/hr)	6		33	18		16		15		28		10
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	1%	1%	1%	1%	2%	2%
Bus Blockages (#/hr)	6	7	4	4	0	6	4	0	6	7	6	7
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Actuated Green, G (s)	28.7	21.2		28.7	20.0			23.4	70.3			22.0
Effective Green, g (s)	26.7	20.2		26.7	19.0			23.4	70.3			22.0
Actuated g/C Ratio	0.19	0.14		0.19	0.14			0.17	0.50			0.16
Clearance Time (s)	4.0	5.0		4.5	5.5			4.5	4.5			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	192	231		188	216			295	2473			272
v/s Ratio Prot	0.03	0.09		0.03	c0.10			c0.15	0.30			0.10
v/s Ratio Perm	0.08			c0.11								
v/c Ratio	0.58	0.63		0.76	0.72			0.92	0.59			0.64
Uniform Delay, d1	57.3	56.4		52.9	58.0			57.4	24.7			55.3
Progression Factor	1.00	1.00		0.78	0.67			0.94	0.54			1.00
Incremental Delay, d2	2.9	4.1		11.7	7.9			26.3	0.8			3.6
Delay (s)	60.1	60.5		52.7	46.7			80.4	14.2			58.8
Level of Service	E	E		D	D			F	B			E
Approach Delay (s)		60.4			49.3				24.5			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

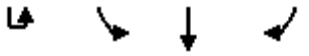
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1660	58
Future Volume (vph)	1660	58
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	-2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5067	
Flt Permitted	1.00	
Satd. Flow (perm)	5067	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1766	62
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	1826	0
Confl. Peds. (#/hr)		21
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	4	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	68.9	
Effective Green, g (s)	68.9	
Actuated g/C Ratio	0.49	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2493	
v/s Ratio Prot	c0.36	
v/s Ratio Perm		
v/c Ratio	0.73	
Uniform Delay, d1	28.2	
Progression Factor	1.00	
Incremental Delay, d2	1.9	
Delay (s)	30.2	
Level of Service	C	
Approach Delay (s)	32.7	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3050: Pacific Hwy S & S 320 St

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	64	348	974	140	56	383	1350	286	51	257	853	229
Future Volume (vph)	64	348	974	140	56	383	1350	286	51	257	853	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-6%				0%				2%	
Total Lost time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	
Lane Util. Factor		0.97	0.91			0.97	0.91	1.00		0.97	0.91	
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.98			1.00	1.00	0.85		1.00	0.97	
Flt Protected		0.95	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)		3536	5097			3433	5031	1548		3344	4851	
Flt Permitted		0.95	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)		3536	5097			3433	5031	1548		3344	4851	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	348	974	140	56	383	1350	286	51	257	853	229
RTOR Reduction (vph)	0	0	14	0	0	0	0	92	0	0	35	0
Lane Group Flow (vph)	0	412	1100	0	0	439	1350	194	0	308	1047	0
Confl. Peds. (#/hr)	10	10		10	10	10		10	10	10		10
Bus Blockages (#/hr)	8	0	4	0	4	0	8	0	0	8	0	4
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2				
Actuated Green, G (s)		18.1	44.5			19.0	44.9	44.9		12.0	41.0	
Effective Green, g (s)		18.1	44.5			19.0	44.9	44.9		12.0	41.0	
Actuated g/C Ratio		0.13	0.32			0.14	0.32	0.32		0.09	0.29	
Clearance Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	
Vehicle Extension (s)		2.0	2.0			2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		457	1620			465	1613	496		286	1420	
v/s Ratio Prot		c0.12	0.22			c0.13	c0.27			c0.09	c0.22	
v/s Ratio Perm								0.13				
v/c Ratio		0.90	0.68			0.94	0.84	0.39		1.08	0.74	
Uniform Delay, d1		60.1	41.5			60.0	44.2	36.9		64.0	44.6	
Progression Factor		0.75	0.79			0.60	0.48	0.26		0.57	0.36	
Incremental Delay, d2		16.1	1.7			20.9	3.6	1.5		66.7	2.4	
Delay (s)		61.2	34.6			56.8	24.6	11.3		103.2	18.4	
Level of Service		E	C			E	C	B		F	B	
Approach Delay (s)			41.8				29.6				37.2	
Approach LOS			D				C				D	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	68	306	1137	350
Future Volume (vph)	68	306	1137	350
Ideal Flow (vphpl)	1900	1900	1900	1900
Grade (%)			-2%	
Total Lost time (s)		5.0	5.0	5.0
Lane Util. Factor		0.97	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3440	5136	1510
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3440	5136	1510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	306	1137	350
RTOR Reduction (vph)	0	0	0	99
Lane Group Flow (vph)	0	374	1137	251
Confl. Peds. (#/hr)	10	10		10
Bus Blockages (#/hr)	0	4	0	8
Turn Type	Prot	Prot	NA	Perm
Protected Phases	7	7	4	
Permitted Phases				4
Actuated Green, G (s)		15.0	44.0	44.0
Effective Green, g (s)		15.0	44.0	44.0
Actuated g/C Ratio		0.11	0.31	0.31
Clearance Time (s)		5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0
Lane Grp Cap (vph)		368	1614	474
v/s Ratio Prot		c0.11	0.22	
v/s Ratio Perm				0.17
v/c Ratio		1.02	0.70	0.53
Uniform Delay, d1		62.5	42.3	39.5
Progression Factor		0.71	0.81	0.85
Incremental Delay, d2		42.6	1.8	2.8
Delay (s)		86.8	36.0	36.2
Level of Service		F	D	D
Approach Delay (s)			46.3	
Approach LOS			D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3055: 23 Av S & S 320 St

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	172	1120	25	404	1828	263	79	214	378	570	290
Future Volume (vph)	18	172	1120	25	404	1828	263	79	214	378	570	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			5%			-5%			1%			0%
Total Lost time (s)		4.5	4.5		5.5	5.5		5.0	6.0	5.5	5.0	6.0
Lane Util. Factor		0.97	0.91		0.97	0.91		1.00	1.00	1.00	0.97	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00		1.00	0.98		1.00	1.00	0.85	1.00	0.95
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3240	4899		3448	5069		1733	1735	1520	3392	1683
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3240	4899		3448	5069		1733	1735	1520	3392	1683
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	172	1120	25	404	1828	263	79	214	378	570	290
RTOR Reduction (vph)	0	0	1	0	0	12	0	0	0	35	0	15
Lane Group Flow (vph)	0	190	1144	0	404	2079	0	79	214	343	570	427
Confl. Peds. (#/hr)	10	10		10	10		10	10		10	10	
Bus Blockages (#/hr)	4	16	6	10	10	4	16	4	16	6	6	10
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	4		3	8		5	2	3	1	6
Permitted Phases										2		
Actuated Green, G (s)		10.2	44.3		25.2	59.3		9.4	25.2	50.4	25.3	41.1
Effective Green, g (s)		10.2	44.3		25.2	59.3		8.9	24.7	50.4	24.8	40.6
Actuated g/C Ratio		0.07	0.32		0.18	0.42		0.06	0.18	0.36	0.18	0.29
Clearance Time (s)		4.5	4.5		5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		236	1550		620	2147		110	306	606	600	488
v/s Ratio Prot		0.06	0.23		0.12	c0.41		0.05	c0.12	c0.10	c0.17	c0.25
v/s Ratio Perm										0.12		
v/c Ratio		0.81	0.74		0.65	0.97		0.72	0.70	0.57	0.95	0.88
Uniform Delay, d1		63.9	42.7		53.3	39.4		64.3	54.2	36.0	57.0	47.3
Progression Factor		0.97	1.11		0.69	0.48		0.98	0.81	0.81	0.80	0.73
Incremental Delay, d2		15.8	3.0		1.4	11.0		16.7	5.5	0.7	22.8	14.2
Delay (s)		77.5	50.2		38.3	30.1		80.0	49.3	29.8	68.5	48.6
Level of Service		E	D		D	C		E	D	C	E	D
Approach Delay (s)			54.1			31.4			41.9			59.8
Approach LOS			D			C			D			E

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	152
Future Volume (vph)	152
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	152
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	10
Bus Blockages (#/hr)	4
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	80	2013	16	7	36	2106	203	32	11	97	152
Future Volume (vph)	5	80	2013	16	7	36	2106	203	32	11	97	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%				-1%			2%		
Total Lost time (s)		4.5	4.5			5.0	5.0		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91			1.00	0.91		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00		1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00			1.00	0.99		1.00	0.87		1.00
Flt Protected		0.95	1.00			0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1752	4986			1778	5009		1724	1561		1725
Flt Permitted		0.95	1.00			0.95	1.00		0.70	1.00		0.60
Satd. Flow (perm)		1752	4986			1778	5009		1267	1561		1095
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	80	2013	16	7	36	2106	203	32	11	97	152
RTOR Reduction (vph)	0	0	0	0	0	0	6	0	0	86	0	0
Lane Group Flow (vph)	0	85	2029	0	0	43	2303	0	32	22	0	152
Confl. Peds. (#/hr)	10	10		10	10	10		10	10		10	10
Bus Blockages (#/hr)	2	0	6	0	6	0	2	0	2	0	6	6
Turn Type	Prot	Prot	NA		Prot	Prot	NA		D.P+P	NA		D.P+P
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases									8			4
Actuated Green, G (s)		10.5	85.4			7.8	82.7		27.3	16.7		27.3
Effective Green, g (s)		10.5	85.4			7.8	82.7		25.3	15.7		25.3
Actuated g/C Ratio		0.08	0.61			0.06	0.59		0.18	0.11		0.18
Clearance Time (s)		4.5	4.5			5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)		2.0	2.0			2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)		131	3041			99	2958		244	175		241
v/s Ratio Prot		c0.05	0.41			0.02	c0.46		0.00	0.01		c0.04
v/s Ratio Perm									0.02			c0.07
v/c Ratio		0.65	0.67			0.43	0.78		0.13	0.13		0.63
Uniform Delay, d1		63.0	18.0			64.0	21.7		48.3	56.0		54.5
Progression Factor		0.83	0.32			0.91	0.55		1.00	1.00		1.04
Incremental Delay, d2		5.1	0.7			0.9	1.7		0.1	0.1		3.9
Delay (s)		57.1	6.5			59.1	13.7		48.3	56.1		60.7
Level of Service		E	A			E	B		D	E		E
Approach Delay (s)			8.5				14.5			54.3		
Approach LOS			A				B			D		

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	5	82
Future Volume (vph)	5	82
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Frt	0.86	
Flt Protected	1.00	
Satd. Flow (prot)	1570	
Flt Permitted	1.00	
Satd. Flow (perm)	1570	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	5	82
RTOR Reduction (vph)	70	0
Lane Group Flow (vph)	17	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	0	2
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	21.6	
Effective Green, g (s)	20.6	
Actuated g/C Ratio	0.15	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	231	
v/s Ratio Prot	0.01	
v/s Ratio Perm		
v/c Ratio	0.07	
Uniform Delay, d1	51.5	
Progression Factor	1.11	
Incremental Delay, d2	0.0	
Delay (s)	57.4	
Level of Service	E	
Approach Delay (s)	59.5	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3057: I-5 SB Ramp/ I-5 SB Ramp & S 320 St/S 320 St

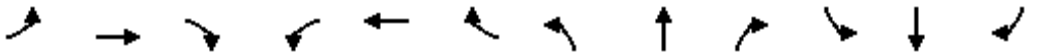
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1843	412	147	1331	0	0	0	0	592	6	1029
Future Volume (vph)	0	1843	412	147	1331	0	0	0	0	592	6	1029
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			2%			2%	
Total Lost time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Lane Util. Factor		0.91	1.00	1.00	0.91					0.95	0.95	0.76
Frpb, ped/bikes		1.00	0.94	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5046	1460	1741	5072					1651	1670	3564
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5046	1460	1741	5072					1651	1670	3564
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1843	412	147	1331	0	0	0	0	592	6	1029
RTOR Reduction (vph)	0	0	167	0	0	0	0	0	0	0	0	42
Lane Group Flow (vph)	0	1843	245	147	1331	0	0	0	0	296	302	987
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	4	4	2	0	2	0	2	2	0	2
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4 5
Permitted Phases			2									
Actuated Green, G (s)		63.4	63.4	20.1	76.4					41.5	41.5	53.6
Effective Green, g (s)		63.4	63.4	20.1	76.4					41.5	41.5	53.6
Actuated g/C Ratio		0.45	0.45	0.14	0.55					0.30	0.30	0.38
Clearance Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	
Lane Grp Cap (vph)		2285	661	249	2767					489	495	1364
v/s Ratio Prot		c0.37		c0.08	0.26					0.18	0.18	c0.28
v/s Ratio Perm			0.17									
v/c Ratio		0.81	0.37	0.59	0.48					0.61	0.61	0.72
Uniform Delay, d1		33.0	25.2	56.1	19.6					42.2	42.3	36.9
Progression Factor		0.42	0.19	0.96	0.80					1.00	1.00	1.00
Incremental Delay, d2		2.5	1.2	2.4	0.6					1.5	1.6	1.6
Delay (s)		16.4	6.1	56.0	16.3					43.7	43.9	38.5
Level of Service		B	A	E	B					D	D	D
Approach Delay (s)		14.5			20.3			0.0			40.4	
Approach LOS		B			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

Description: All Traffic Data Services - 11/4/04

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3255: 23 Av S & S 322 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	5	47	51	19	99	37	527	21	33	437	17
Future Volume (vph)	53	5	47	51	19	99	37	527	21	33	437	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			-2%	
Total Lost time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.86		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1723	1600		1705	1613		1771	3476		1795	3518	
Flt Permitted	0.46	1.00		0.72	1.00		0.48	1.00		0.43	1.00	
Satd. Flow (perm)	834	1600		1298	1613		897	3476		818	3518	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	5	47	51	19	99	37	527	21	33	437	17
RTOR Reduction (vph)	0	43	0	0	90	0	0	1	0	0	1	0
Lane Group Flow (vph)	53	9	0	51	28	0	37	547	0	33	453	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	10	0	10	10	0	10	0	10	0	0	10	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.3	13.3		20.3	13.2		101.2	97.8		101.2	96.7	
Effective Green, g (s)	18.3	12.3		18.3	12.2		100.2	97.3		100.2	96.2	
Actuated g/C Ratio	0.13	0.09		0.13	0.09		0.72	0.69		0.72	0.69	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.5		5.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	147	140		187	140		666	2415		605	2417	
v/s Ratio Prot	c0.02	0.01		0.01	0.02		c0.00	c0.16		0.00	0.13	
v/s Ratio Perm	c0.03			0.02			0.04			0.04		
v/c Ratio	0.36	0.07		0.27	0.20		0.06	0.23		0.05	0.19	
Uniform Delay, d1	54.6	58.6		54.5	59.4		5.8	7.7		5.8	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.20	1.22		0.65	0.46	
Incremental Delay, d2	0.6	0.1		0.3	0.3		0.0	0.2		0.0	0.1	
Delay (s)	55.2	58.6		54.8	59.6		7.0	9.6		3.8	3.8	
Level of Service	E	E		D	E		A	A		A	A	
Approach Delay (s)		56.9			58.2			9.5			3.8	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3350: Pacific Hwy S & S 324 St

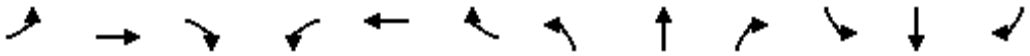
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	132	213	145	404	221	60	153	159	1228	278	47	114
Future Volume (vph)	132	213	145	404	221	60	153	159	1228	278	47	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%				0%			
Total Lost time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99			1.00	0.99			1.00
Flpb, ped/bikes	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	0.97			1.00	0.97			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1778	1812	1516	3375	1770			1755	4900			1713
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.08	1.00			0.08
Satd. Flow (perm)	1778	1812	1516	3375	1770			141	4900			136
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	132	213	145	404	221	60	153	159	1228	278	47	114
RTOR Reduction (vph)	0	0	123	0	8	0	0	0	22	0	0	0
Lane Group Flow (vph)	132	213	22	404	273	0	0	312	1484	0	0	161
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	0	8	6	6	2	0	6	2	0	8	0	8
Turn Type	Prot	NA	Perm	Prot	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4				6	6			2	2
Actuated Green, G (s)	16.5	22.0	22.0	20.5	26.0			77.5	58.5			77.5
Effective Green, g (s)	16.0	21.5	21.5	20.0	25.5			77.5	58.5			77.5
Actuated g/C Ratio	0.11	0.15	0.15	0.14	0.18			0.55	0.42			0.55
Clearance Time (s)	4.5	5.0	5.0	5.0	5.5			5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	203	278	232	482	322			332	2047			289
v/s Ratio Prot	0.07	0.12		c0.12	c0.15			c0.15	0.30			0.08
v/s Ratio Perm			0.01					c0.37				0.23
v/c Ratio	0.65	0.77	0.10	0.84	0.85			0.94	0.72			0.56
Uniform Delay, d1	59.3	56.8	50.9	58.4	55.4			42.8	34.0			42.4
Progression Factor	0.91	0.84	0.50	0.94	0.99			1.03	0.36			0.41
Incremental Delay, d2	5.5	10.7	0.1	11.6	17.6			29.5	1.9			0.8
Delay (s)	59.3	58.5	25.3	66.7	72.2			73.5	14.3			18.0
Level of Service	E	E	C	E	E			E	B			B
Approach Delay (s)		48.9			68.9				24.5			
Approach LOS		D			E				C			

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1358	95
Future Volume (vph)	1358	95
Ideal Flow (vphpl)	1900	1900
Grade (%)	0%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4979	
Flt Permitted	1.00	
Satd. Flow (perm)	4979	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1358	95
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	1448	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	6	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	55.4	
Effective Green, g (s)	55.4	
Actuated g/C Ratio	0.40	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1970	
v/s Ratio Prot	0.29	
v/s Ratio Perm		
v/c Ratio	0.74	
Uniform Delay, d1	36.0	
Progression Factor	0.31	
Incremental Delay, d2	1.6	
Delay (s)	12.9	
Level of Service	B	
Approach Delay (s)	13.4	
Approach LOS	B	

Intersection Summary

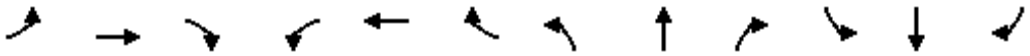
HCM Signalized Intersection Capacity Analysis
3440: 1 Av S & SW 325 Pl



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	0	24	10	0	19	68	621	30	17	800	37
Future Volume (vph)	38	0	24	10	0	19	68	621	30	17	800	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			0%			1%			-1%	
Total Lost time (s)		5.5			5.5			4.5			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			1.00			1.00			1.00	
Frt		0.95			0.91			0.99			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1732			1642			3475			3524	
Flt Permitted		0.80			0.87			0.81			0.94	
Satd. Flow (perm)		1421			1454			2831			3308	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	0	24	10	0	19	68	621	30	17	800	37
RTOR Reduction (vph)	0	28	0	0	26	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	34	0	0	3	0	0	717	0	0	851	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)		8.2			8.2			52.8			52.3	
Effective Green, g (s)		7.2			7.2			52.8			52.3	
Actuated g/C Ratio		0.10			0.10			0.75			0.75	
Clearance Time (s)		4.5			4.5			4.5			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		146			149			2135			2471	
v/s Ratio Prot												
v/s Ratio Perm		c0.02			0.00			0.25			c0.26	
v/c Ratio		0.23			0.02			0.34			0.34	
Uniform Delay, d1		28.9			28.2			2.8			3.0	
Progression Factor		1.00			1.00			0.68			1.00	
Incremental Delay, d2		0.3			0.0			0.4			0.4	
Delay (s)		29.2			28.2			2.3			3.4	
Level of Service		C			C			A			A	
Approach Delay (s)		29.2			28.2			2.3			3.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
Description:			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3540: 1 Av S & S 328 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	13	8	73	6	15	13	706	162	7	843	32
Future Volume (vph)	35	13	8	73	6	15	13	706	162	7	843	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			2%			-3%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.96		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1756		1704	1596		1752	3353		1789	3573	
Flt Permitted	0.83	1.00		0.87	1.00		0.30	1.00		0.31	1.00	
Satd. Flow (perm)	1552	1756		1560	1596		559	3353		581	3573	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	13	8	73	6	15	13	706	162	7	843	32
RTOR Reduction (vph)	0	8	0	0	14	0	0	7	0	0	1	0
Lane Group Flow (vph)	35	13	0	73	7	0	13	861	0	7	874	0
Confl. Peds. (#/hr)				10		10			10	10		
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.2	4.6		11.2	4.8		108.8	107.8		108.8	105.4	
Effective Green, g (s)	11.2	4.6		11.2	4.8		108.8	107.8		108.8	105.4	
Actuated g/C Ratio	0.08	0.03		0.08	0.03		0.78	0.77		0.78	0.75	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	134	57		131	54		463	2581		460	2689	
v/s Ratio Prot	0.01	0.01		c0.03	0.00		c0.00	c0.26		0.00	0.24	
v/s Ratio Perm	0.01			c0.02			0.02			0.01		
v/c Ratio	0.26	0.23		0.56	0.12		0.03	0.33		0.02	0.33	
Uniform Delay, d1	60.4	66.0		61.6	65.6		5.3	5.0		5.0	5.7	
Progression Factor	1.00	1.00		1.00	1.00		0.36	0.58		1.72	1.24	
Incremental Delay, d2	0.4	0.8		2.9	0.4		0.0	0.3		0.0	0.3	
Delay (s)	60.8	66.7		64.5	65.9		1.9	3.2		8.6	7.4	
Level of Service	E	E		E	E		A	A		A	A	
Approach Delay (s)		63.0			64.8			3.2			7.4	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3640: 1 Wy S/1 Av S & SW 330 St/S 330 St

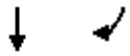
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	8	164	8	5	20	415	798	18	21	689	212
Future Volume (vph)	141	8	164	8	5	20	415	798	18	21	689	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			3%			7%			-5%	
Total Lost time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.88		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1786	1587		1735	1580		1537	3400		1809	3450	
Flt Permitted	0.74	1.00		0.45	1.00		0.21	1.00		0.31	1.00	
Satd. Flow (perm)	1393	1587		823	1580		339	3400		583	3450	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	141	8	164	8	5	20	415	798	18	21	689	212
RTOR Reduction (vph)	0	138	0	0	18	0	0	1	0	0	17	0
Lane Group Flow (vph)	141	34	0	8	7	0	415	815	0	21	884	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Parking (#/hr)							0					
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.3	23.6		24.8	14.6		95.7	93.0		96.2	64.1	
Effective Green, g (s)	23.3	22.6		22.8	13.6		95.7	93.0		96.2	64.1	
Actuated g/C Ratio	0.17	0.16		0.16	0.10		0.68	0.66		0.69	0.46	
Clearance Time (s)	5.0	4.5		5.0	4.0		4.5	4.5		5.0	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	259	256		135	153		502	2258		428	1579	
v/s Ratio Prot	c0.04	0.02		0.00	0.00		c0.19	0.24		0.00	0.26	
v/s Ratio Perm	c0.05			0.01			c0.38			0.03		
v/c Ratio	0.54	0.13		0.06	0.05		0.83	0.36		0.05	0.56	
Uniform Delay, d1	52.8	50.3		53.2	57.3		21.6	10.4		7.3	27.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.50	0.70	
Incremental Delay, d2	1.3	0.1		0.1	0.0		10.2	0.4		0.0	1.4	
Delay (s)	54.1	50.4		53.2	57.4		31.9	10.8		3.7	20.9	
Level of Service	D	D		D	E		C	B		A	C	
Approach Delay (s)		52.1			56.4			17.9			20.5	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3650: Pacific Hwy S & S 330 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	43	18	105	51	31	40	38	57	1574	51	149	42
Future Volume (vph)	43	18	105	51	31	40	38	57	1574	51	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%				2%			
Total Lost time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00	1.00			1.00
Frt	1.00	0.87		1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1747	1621		1718	1681			1752	4962			1787
Flt Permitted	0.71	1.00		0.53	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1307	1621		965	1681			1752	4962			1787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	43	18	105	51	31	40	38	57	1574	51	149	42
RTOR Reduction (vph)	0	94	0	0	36	0	0	0	2	0	0	0
Lane Group Flow (vph)	43	29	0	51	35	0	0	95	1623	0	0	191
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	6	0	6	6	0	6	6	0	6	0	6	0
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Actuated Green, G (s)	22.2	15.9		22.7	15.9			18.0	79.6			17.2
Effective Green, g (s)	20.2	14.9		20.7	14.9			18.0	79.6			17.2
Actuated g/C Ratio	0.14	0.11		0.15	0.11			0.13	0.57			0.12
Clearance Time (s)	5.0	5.0		5.0	5.5			5.0	5.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	205	172		173	178			225	2821			219
v/s Ratio Prot	0.01	0.02		c0.01	0.02			0.05	c0.33			c0.11
v/s Ratio Perm	0.02			c0.03								
v/c Ratio	0.21	0.17		0.29	0.20			0.42	0.58			0.87
Uniform Delay, d1	52.6	56.9		52.4	57.1			56.2	19.4			60.3
Progression Factor	0.96	0.97		1.00	1.00			0.64	0.43			1.00
Incremental Delay, d2	0.2	0.2		0.3	0.2			0.3	0.5			22.8
Delay (s)	50.5	55.2		52.8	57.3			36.0	8.9			83.1
Level of Service	D	E		D	E			D	A			F
Approach Delay (s)		54.0			55.4				10.4			
Approach LOS		D			E				B			

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1902	59
Future Volume (vph)	1902	59
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5062	
Flt Permitted	1.00	
Satd. Flow (perm)	5062	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1902	59
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	1959	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	6	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	78.8	
Effective Green, g (s)	78.8	
Actuated g/C Ratio	0.56	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2849	
v/s Ratio Prot	c0.39	
v/s Ratio Perm		
v/c Ratio	0.69	
Uniform Delay, d1	21.8	
Progression Factor	0.89	
Incremental Delay, d2	1.0	
Delay (s)	20.5	
Level of Service	C	
Approach Delay (s)	26.1	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3842: S 333 St & 1 Wy S

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	94	683	7	11	1016	44	33	14	27	74	3	222
Future Volume (vph)	94	683	7	11	1016	44	33	14	27	74	3	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-6%			1%	
Total Lost time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99			0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1780	3570		1726	3439			1744		1723	1533	
Flt Permitted	0.24	1.00		0.38	1.00			0.20		0.66	1.00	
Satd. Flow (perm)	450	3570		682	3439			349		1199	1533	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	683	7	11	1016	44	33	14	27	74	3	222
RTOR Reduction (vph)	0	0	0	0	1	0	0	18	0	0	197	0
Lane Group Flow (vph)	94	690	0	11	1059	0	0	56	0	74	28	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	2	0	0	0	2	0	2	2	2	0	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	110.3	105.3		110.3	104.3			15.7		15.7	15.7	
Effective Green, g (s)	110.3	105.3		110.3	104.3			15.7		15.7	15.7	
Actuated g/C Ratio	0.79	0.75		0.79	0.74			0.11		0.11	0.11	
Clearance Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	411	2685		574	2562			39		134	171	
v/s Ratio Prot	0.01	c0.19		0.00	c0.31						0.02	
v/s Ratio Perm	0.17			0.01				c0.16		0.06		
v/c Ratio	0.23	0.26		0.02	0.41			1.44		0.55	0.16	
Uniform Delay, d1	3.9	5.3		4.1	6.6			62.1		58.8	56.2	
Progression Factor	1.00	1.00		0.91	0.92			1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.0	0.5			299.1		2.8	0.2	
Delay (s)	4.0	5.6		3.7	6.5			361.2		61.6	56.4	
Level of Service	A	A		A	A			F		E	E	
Approach Delay (s)		5.4			6.5			361.2			57.7	
Approach LOS		A			A			F			E	

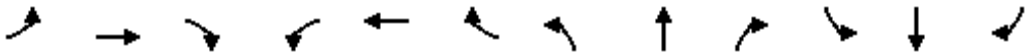
Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4043: 1 Wy S & S 336 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	71	52	659	35	649	15	348	159	328	518	14
Future Volume (vph)	66	71	52	659	35	649	15	348	159	328	518	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-6%			-1%			3%			-5%	
Total Lost time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		0.95	0.95	0.88	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.95		1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1808	1777		1676	1702	2733	1733	3283		1812	3593	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.40	1.00		0.27	1.00	
Satd. Flow (perm)	1808	1777		1676	1702	2733	738	3283		517	3593	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	66	71	52	659	35	649	15	348	159	328	518	14
RTOR Reduction (vph)	0	21	0	0	0	326	0	37	0	0	1	0
Lane Group Flow (vph)	66	102	0	349	345	323	15	470	0	328	531	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6			2		
Actuated Green, G (s)	17.3	17.3		31.8	31.8	69.6	71.4	33.6		71.4	69.1	
Effective Green, g (s)	16.3	16.3		31.8	31.8	69.6	71.4	33.6		71.4	69.1	
Actuated g/C Ratio	0.12	0.12		0.23	0.23	0.50	0.51	0.24		0.51	0.49	
Clearance Time (s)	4.5	4.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	210	206		380	386	1358	392	787		613	1773	
v/s Ratio Prot	0.04	c0.06		c0.21	0.20	0.06	0.00	c0.14		c0.14	0.15	
v/s Ratio Perm						0.05	0.02			0.13		
v/c Ratio	0.31	0.49		0.92	0.89	0.24	0.04	0.60		0.54	0.30	
Uniform Delay, d1	56.7	58.0		52.8	52.5	20.1	17.2	47.2		21.6	21.1	
Progression Factor	1.00	1.00		1.03	1.03	4.00	1.00	1.00		0.79	0.82	
Incremental Delay, d2	0.3	0.7		23.5	19.4	0.0	0.0	0.8		0.4	0.4	
Delay (s)	57.0	58.7		78.1	73.5	80.3	17.2	48.0		17.4	17.7	
Level of Service	E	E		E	E	F	B	D		B	B	
Approach Delay (s)		58.1			78.0			47.1			17.6	
Approach LOS		E			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4046: 9 Av S & S 336 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	555	87	126	1123	56	118	88	113	189	147	127
Future Volume (vph)	58	555	87	126	1123	56	118	88	113	189	147	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-4%	
Total Lost time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3428		1758	3521		1750	1662		1786	1732	
Flt Permitted	0.18	1.00		0.36	1.00		0.20	1.00		0.28	1.00	
Satd. Flow (perm)	331	3428		672	3521		374	1662		532	1732	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	555	87	126	1123	56	118	88	113	189	147	127
RTOR Reduction (vph)	0	6	0	0	2	0	0	44	0	0	26	0
Lane Group Flow (vph)	58	636	0	126	1177	0	118	157	0	189	248	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	2	2	0	0	0	0	2	2	2	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	91.4	79.4		91.4	87.4		29.6	19.1		29.6	24.6	
Effective Green, g (s)	90.4	78.9		90.4	86.9		28.6	18.6		28.6	24.1	
Actuated g/C Ratio	0.65	0.56		0.65	0.62		0.20	0.13		0.20	0.17	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	249	1931		523	2185		120	220		198	298	
v/s Ratio Prot	0.01	c0.19		0.02	c0.33		0.03	0.09		0.07	0.14	
v/s Ratio Perm	0.14			0.14			c0.17			c0.13		
v/c Ratio	0.23	0.33		0.24	0.54		0.98	0.71		0.95	0.83	
Uniform Delay, d1	11.2	16.4		14.5	15.1		62.5	58.1		52.5	56.0	
Progression Factor	0.41	0.30		0.64	0.46		1.14	1.17		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.1	0.9		76.2	8.7		50.3	16.8	
Delay (s)	4.7	5.4		9.4	7.8		147.2	76.9		102.8	72.8	
Level of Service	A	A		A	A		F	E		F	E	
Approach Delay (s)		5.3			7.9			102.9			85.1	
Approach LOS		A			A			F			F	

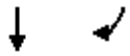
Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4050: Pacific Hwy S & S 336 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	354	451	309	270	649	146	30	249	1143	101	31	85
Future Volume (vph)	354	451	309	270	649	146	30	249	1143	101	31	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%				3%			
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5			5.0	5.0			5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			0.97	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00			1.00
Flpb, ped/bikes	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	0.97			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1718	1853	1516	1732	3397			3368	4888			1796
Flt Permitted	0.11	1.00	1.00	0.17	1.00			0.95	1.00			0.95
Satd. Flow (perm)	206	1853	1516	315	3397			3368	4888			1796
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	354	451	309	270	649	146	30	249	1143	101	31	85
RTOR Reduction (vph)	0	0	93	0	15	0	0	0	7	0	0	0
Lane Group Flow (vph)	354	451	216	270	780	0	0	279	1237	0	0	116
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	6	0	4	4	2	6	4	2	6	0	6	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4								
Actuated Green, G (s)	52.2	41.7	41.7	52.2	37.7			12.9	51.8			15.5
Effective Green, g (s)	52.2	41.7	41.7	52.2	37.7			12.9	51.8			15.5
Actuated g/C Ratio	0.37	0.30	0.30	0.37	0.27			0.09	0.37			0.11
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5			5.0	5.0			5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	233	551	451	223	914			310	1808			198
v/s Ratio Prot	c0.16	0.24		0.09	0.23			c0.08	0.25			0.06
v/s Ratio Perm	c0.41		0.14	0.36								
v/c Ratio	1.52	0.82	0.48	1.21	0.85			0.90	0.68			0.59
Uniform Delay, d1	55.6	45.6	40.3	39.6	48.5			62.9	37.2			59.2
Progression Factor	0.88	0.82	0.65	1.35	1.23			0.92	0.80			0.72
Incremental Delay, d2	253.2	8.2	0.3	120.7	5.5			25.6	2.0			2.3
Delay (s)	302.1	45.9	26.6	174.3	65.2			83.7	31.6			45.2
Level of Service	F	D	C	F	E			F	C			D
Approach Delay (s)		121.9			92.9				41.2			
Approach LOS		F			F				D			

Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1606	359
Future Volume (vph)	1606	359
Ideal Flow (vphpl)	1900	1900
Grade (%)	-3%	
Total Lost time (s)	5.5	4.5
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5134	1554
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5134	1554
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1606	359
RTOR Reduction (vph)	0	48
Lane Group Flow (vph)	1606	311
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	4	2
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	54.4	68.9
Effective Green, g (s)	54.4	68.9
Actuated g/C Ratio	0.39	0.49
Clearance Time (s)	5.5	4.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	1994	764
v/s Ratio Prot	c0.31	0.04
v/s Ratio Perm		0.16
v/c Ratio	0.81	0.41
Uniform Delay, d1	38.1	22.6
Progression Factor	0.59	0.60
Incremental Delay, d2	3.0	0.1
Delay (s)	25.4	13.7
Level of Service	C	B
Approach Delay (s)	24.5	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4250: Pacific Hwy S & S 340 Pl/16 Av S

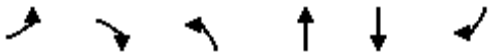
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	3	0	16	39	88	861	1	86	629	33	1004	1267
Future Volume (vph)	3	0	16	39	88	861	1	86	629	33	1004	1267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-5%				2%			-2%
Total Lost time (s)	5.0	5.0		5.0	5.0	6.5		5.0	5.0		5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00	0.88		1.00	0.91		0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	0.85		1.00	1.00	0.85		1.00	0.99		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583		1799	1909	2793		1751	4965		3454	5120
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.17	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583		1799	1909	2793		319	4965		3454	5120
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	0	16	39	88	861	1	86	629	33	1004	1267
RTOR Reduction (vph)	0	14	0	0	0	182	0	0	5	0	0	0
Lane Group Flow (vph)	3	2	0	39	88	679	0	87	657	0	1004	1271
Confl. Peds. (#/hr)				10		10	10			10	10	
Bus Blockages (#/hr)	0	0	0	2	0	4	0	0	4	2	2	2
Turn Type	Prot	NA		Prot	NA	pm+ov	D.P+P	D.P+P	NA		Prot	NA
Protected Phases	7	4		3	8	5	1	1	6		5	2
Permitted Phases						8	2	2				
Actuated Green, G (s)	1.1	14.2		12.8	25.9	87.8		92.5	30.6		61.9	84.9
Effective Green, g (s)	1.1	14.2		12.8	25.9	85.8		92.5	30.6		61.9	84.9
Actuated g/C Ratio	0.01	0.10		0.09	0.18	0.61		0.66	0.22		0.44	0.61
Clearance Time (s)	5.0	5.0		5.0	5.0	5.5		5.0	5.0		5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	13	160		164	353	1711		288	1085		1527	3104
v/s Ratio Prot	c0.00	0.00		0.02	0.05	c0.17		0.02	c0.13		c0.29	0.25
v/s Ratio Perm						0.07		0.18				
v/c Ratio	0.23	0.01		0.24	0.25	0.40		0.30	0.61		0.66	0.41
Uniform Delay, d1	69.0	56.6		59.1	48.7	13.9		9.4	49.3		30.7	14.4
Progression Factor	1.00	1.00		0.81	0.70	0.44		2.58	1.02		0.59	0.55
Incremental Delay, d2	3.3	0.0		0.2	0.1	0.1		0.2	0.7		1.3	0.2
Delay (s)	72.3	56.6		48.1	34.2	6.2		24.4	50.7		19.3	8.2
Level of Service	E	E		D	C	A		C	D		B	A
Approach Delay (s)		59.1			10.4				47.6			13.1
Approach LOS		E			B				D			B

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4540: 1 Av S/1 Wy S & Winco Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	102	6	0	402	970	144
Future Volume (vph)	102	6	0	402	970	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			-3%	-1%	
Total Lost time (s)	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.98	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1729	1518		3578	3459	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1729	1518		3578	3459	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	102	6	0	402	970	144
RTOR Reduction (vph)	0	5	0	0	11	0
Lane Group Flow (vph)	102	1	0	402	1103	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4		2		
Actuated Green, G (s)	9.9	9.9		41.1	41.1	
Effective Green, g (s)	8.9	8.9		41.1	41.1	
Actuated g/C Ratio	0.15	0.15		0.69	0.69	
Clearance Time (s)	4.0	4.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	256	225		2450	2369	
v/s Ratio Prot	c0.06			0.11	c0.32	
v/s Ratio Perm		0.00				
v/c Ratio	0.40	0.00		0.16	0.47	
Uniform Delay, d1	23.1	21.8		3.4	4.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		0.1	0.7	
Delay (s)	23.5	21.8		3.5	5.0	
Level of Service	C	C		A	A	
Approach Delay (s)	23.4			3.5	5.0	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4549: Pacific Hwy S & S 344 St

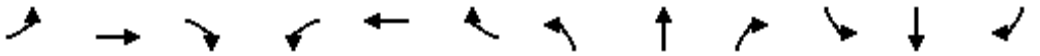
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	19	42	68	94	45	30	9	27	677	67	18	1306
Future Volume (vph)	19	42	68	94	45	30	9	27	677	67	18	1306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-3%				2%			-2%
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.97		1.00	0.98			1.00	0.99		1.00	1.00
Flpb, ped/bikes	0.98	1.00		0.99	1.00			1.00	1.00		0.99	1.00
Frt	1.00	0.91		1.00	0.94			1.00	0.99		1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1698	1622		1759	1742			1752	4916		1776	5079
Flt Permitted	0.70	1.00		0.49	1.00			0.16	1.00		0.35	1.00
Satd. Flow (perm)	1247	1622		914	1742			300	4916		647	5079
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	42	68	94	45	30	9	27	677	67	18	1306
RTOR Reduction (vph)	0	46	0	0	18	0	0	0	5	0	0	2
Lane Group Flow (vph)	19	64	0	94	57	0	0	36	739	0	18	1353
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	
Bus Blockages (#/hr)	2	0	2	2	0	2	0	0	2	0	0	2
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA		D.P+P	NA
Protected Phases	7	4		3	8		5	5	2		1	6
Permitted Phases	8			4			6	6			2	
Actuated Green, G (s)	22.7	11.9		22.7	18.8			97.3	95.2		97.3	92.9
Effective Green, g (s)	22.7	11.9		22.7	18.8			97.3	95.2		97.3	92.9
Actuated g/C Ratio	0.16	0.09		0.16	0.13			0.69	0.68		0.69	0.66
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	214	137		213	233			254	3342		466	3370
v/s Ratio Prot	0.00	c0.04		c0.03	0.03			c0.00	0.15		0.00	c0.27
v/s Ratio Perm	0.01			0.04				0.09			0.03	
v/c Ratio	0.09	0.47		0.44	0.24			0.14	0.22		0.04	0.40
Uniform Delay, d1	49.7	61.0		52.0	54.2			7.3	8.4		6.6	10.8
Progression Factor	1.07	1.07		1.20	1.27			0.53	0.51		0.22	0.39
Incremental Delay, d2	0.1	0.9		0.5	0.2			0.1	0.1		0.0	0.3
Delay (s)	53.2	66.3		63.1	68.8			4.0	4.4		1.5	4.6
Level of Service	D	E		E	E			A	A		A	A
Approach Delay (s)		64.4			65.6				4.4			4.5
Approach LOS		E			E				A			A

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	49
Future Volume (vph)	49
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	49
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	10
Bus Blockages (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

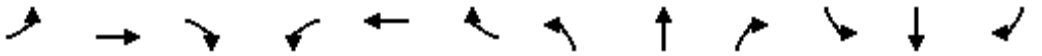
HCM Signalized Intersection Capacity Analysis
4550: 16 Av S & S 344 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	42	76	169	42	99	102	913	53	172	1000	34
Future Volume (vph)	7	42	76	169	42	99	102	913	53	172	1000	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-5%			3%			-1%	
Total Lost time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.89		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1725	1637		1788	1672		1743	3434		1778	3518	
Flt Permitted	0.56	1.00		0.54	1.00		0.21	1.00		0.20	1.00	
Satd. Flow (perm)	1023	1637		1020	1672		383	3434		378	3518	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	42	76	169	42	99	102	913	53	172	1000	34
RTOR Reduction (vph)	0	51	0	0	62	0	0	2	0	0	1	0
Lane Group Flow (vph)	7	67	0	169	79	0	102	964	0	172	1033	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	31.9	19.4		31.9	30.8		89.1	71.0		89.1	81.8	
Effective Green, g (s)	31.9	19.4		31.9	30.8		89.1	71.0		89.1	81.8	
Actuated g/C Ratio	0.23	0.14		0.23	0.22		0.64	0.51		0.64	0.58	
Clearance Time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	238	226		300	367		314	1741		421	2055	
v/s Ratio Prot	0.00	0.04		c0.05	0.05		0.02	c0.28		0.05	c0.29	
v/s Ratio Perm	0.01			c0.08			0.19			0.21		
v/c Ratio	0.03	0.30		0.56	0.22		0.32	0.55		0.41	0.50	
Uniform Delay, d1	42.0	54.2		46.2	44.7		11.7	23.6		28.0	17.1	
Progression Factor	1.44	1.60		1.00	1.00		1.00	1.00		0.21	0.37	
Incremental Delay, d2	0.0	0.3		1.4	0.1		0.2	1.3		0.2	0.8	
Delay (s)	60.3	87.1		47.6	44.8		11.9	24.9		6.0	7.2	
Level of Service	E	F		D	D		B	C		A	A	
Approach Delay (s)		85.6			46.3			23.7			7.0	
Approach LOS		F			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4840: 1 Av S & SW Campus Dr/S 348 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	848	124	472	1351	152	96	186	95	248	557	393
Future Volume (vph)	137	848	124	472	1351	152	96	186	95	248	557	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-1%			7%			-3%	
Total Lost time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5		5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3351	3375		3436	3543	1543	1694	3201		1782	3578	1562
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3351	3375		3436	3543	1543	1694	3201		1782	3578	1562
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	848	124	472	1351	152	96	186	95	248	557	393
RTOR Reduction (vph)	0	8	0	0	0	50	0	50	0	0	0	67
Lane Group Flow (vph)	137	964	0	472	1351	102	96	231	0	248	557	326
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Actuated Green, G (s)	11.5	63.7		19.0	71.2	90.7	9.6	18.8		19.5	28.2	39.7
Effective Green, g (s)	11.5	63.7		19.0	71.2	90.7	9.6	18.8		19.5	28.2	39.7
Actuated g/C Ratio	0.08	0.46		0.14	0.51	0.65	0.07	0.13		0.14	0.20	0.28
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5		5.0	5.0	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	275	1535		466	1801	1054	116	429		248	720	442
v/s Ratio Prot	0.04	c0.29		c0.14	c0.38	0.01	c0.06	0.07		c0.14	c0.16	0.06
v/s Ratio Perm						0.05						0.15
v/c Ratio	0.50	0.63		1.01	0.75	0.10	0.83	0.54		1.00	0.77	0.74
Uniform Delay, d1	61.5	29.1		60.5	27.3	9.3	64.4	56.5		60.2	52.9	45.4
Progression Factor	1.00	1.00		1.23	0.37	0.05	1.18	1.30		1.00	1.00	1.00
Incremental Delay, d2	0.5	2.0		42.2	2.6	0.0	33.5	0.6		57.2	4.7	5.4
Delay (s)	62.0	31.1		116.4	12.7	0.4	109.2	73.9		117.4	57.6	50.9
Level of Service	E	C		F	B	A	F	E		F	E	D
Approach Delay (s)		34.9			36.5			82.9			67.8	
Approach LOS		C			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	47.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

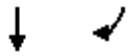
HCM Signalized Intersection Capacity Analysis
4848: Pacific Hwy S & S 348 St

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	42	119	1096	253	586	1457	119	12	260	488	341	244
Future Volume (vph)	42	119	1096	253	586	1457	119	12	260	488	341	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%			1%				2%		
Total Lost time (s)		4.5	5.0		5.0	5.0			5.0	5.0	5.0	5.5
Lane Util. Factor		1.00	0.91		0.97	0.91			0.97	0.86	0.86	0.97
Frpb, ped/bikes		1.00	1.00		1.00	1.00			1.00	0.99	0.99	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00
Frt		1.00	0.97		1.00	0.99			1.00	0.96	0.85	1.00
Flt Protected		0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)		1720	4823		3402	4980			3385	4552	1333	3485
Flt Permitted		0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)		1720	4823		3402	4980			3385	4552	1333	3485
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	119	1096	253	586	1457	119	12	260	488	341	244
RTOR Reduction (vph)	0	0	26	0	0	7	0	0	0	40	56	0
Lane Group Flow (vph)	0	161	1323	0	586	1569	0	0	272	601	132	244
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	0	2	2	0	0
Turn Type	Prot	Prot	NA		Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases											2	
Actuated Green, G (s)		20.5	48.2		27.3	55.5			13.5	31.4	58.7	12.6
Effective Green, g (s)		20.5	48.2		27.3	55.5			13.5	31.4	58.7	12.6
Actuated g/C Ratio		0.15	0.34		0.20	0.40			0.10	0.22	0.42	0.09
Clearance Time (s)		4.5	5.0		5.0	5.0			5.0	5.0	5.0	5.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0			2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		251	1660		663	1974			326	1020	606	313
v/s Ratio Prot		0.09	c0.27		c0.17	0.32			c0.08	0.13	0.04	0.07
v/s Ratio Perm											0.06	
v/c Ratio		0.64	0.80		0.88	0.80			0.83	0.59	0.22	0.78
Uniform Delay, d1		56.3	41.5		54.8	37.2			62.2	48.5	26.0	62.3
Progression Factor		0.80	0.77		1.00	1.00			1.33	1.44	1.83	1.01
Incremental Delay, d2		3.3	3.3		13.0	3.4			15.7	0.6	0.1	10.1
Delay (s)		48.6	35.2		67.8	40.6			98.1	70.4	47.5	73.3
Level of Service		D	D		E	D			F	E	D	E
Approach Delay (s)			36.7			48.0				73.3		
Approach LOS			D			D				E		

Intersection Summary			
HCM 2000 Control Delay	57.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

Description:

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	866	207
Future Volume (vph)	866	207
Ideal Flow (vphpl)	1900	1900
Grade (%)	-3%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.97	
Flt Protected	1.00	
Satd. Flow (prot)	4977	
Flt Permitted	1.00	
Satd. Flow (perm)	4977	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	866	207
RTOR Reduction (vph)	29	0
Lane Group Flow (vph)	1044	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	30.5	
Effective Green, g (s)	30.5	
Actuated g/C Ratio	0.22	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1084	
v/s Ratio Prot	c0.21	
v/s Ratio Perm		
v/c Ratio	0.96	
Uniform Delay, d1	54.2	
Progression Factor	1.24	
Incremental Delay, d2	18.1	
Delay (s)	85.5	
Level of Service	F	
Approach Delay (s)	83.2	
Approach LOS	F	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	18	111	1213	262	984	1965	609	217	120	796	613	467
Future Volume (vph)	18	111	1213	262	984	1965	609	217	120	796	613	467
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%			-4%				2%		
Total Lost time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	0.91	1.00	0.94	0.91	1.00		0.97	0.91	0.91	0.97
Frpb, ped/bikes		1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00	0.98	1.00
Flpb, ped/bikes		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	0.97	0.85	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1738	5034	1516	5077	5173	1556		3385	3233	1404	3467
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1738	5034	1516	5077	5173	1556		3385	3233	1404	3467
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	111	1213	262	984	1965	609	217	120	796	613	467
RTOR Reduction (vph)	0	0	0	104	0	0	163	0	0	12	25	0
Lane Group Flow (vph)	0	129	1213	158	984	1965	446	0	337	968	404	467
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	2	2	2	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4			8				2	
Actuated Green, G (s)		13.2	49.5	49.5	29.0	65.3	65.3		28.5	47.0	76.0	15.0
Effective Green, g (s)		13.2	49.5	49.5	29.0	65.3	65.3		28.5	47.0	76.0	15.0
Actuated g/C Ratio		0.08	0.31	0.31	0.18	0.41	0.41		0.18	0.29	0.48	0.09
Clearance Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		143	1557	469	920	2111	635		602	949	666	325
v/s Ratio Prot		0.07	0.24		c0.19	c0.38			0.10	c0.30	0.11	c0.13
v/s Ratio Perm				0.10			0.29				0.18	
v/c Ratio		0.90	0.78	0.34	1.07	0.93	0.70		0.56	1.02	0.61	1.44
Uniform Delay, d1		72.8	50.3	42.6	65.5	45.2	39.3		60.0	56.5	31.0	72.5
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		46.3	3.9	1.9	50.1	8.9	6.4		0.6	34.4	1.1	213.4
Delay (s)		119.1	54.2	44.6	115.6	54.1	45.6		60.7	90.9	32.0	285.9
Level of Service		F	D	D	F	D	D		E	F	C	F
Approach Delay (s)			57.8			69.7				70.6		
Approach LOS			E			E				E		

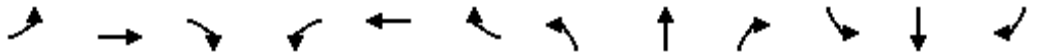
Intersection Summary			
HCM 2000 Control Delay	80.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		

Description:

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	834	107
Future Volume (vph)	834	107
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	5022	
Flt Permitted	1.00	
Satd. Flow (perm)	5022	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	834	107
RTOR Reduction (vph)	10	0
Lane Group Flow (vph)	931	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	33.0	
Effective Green, g (s)	33.0	
Actuated g/C Ratio	0.21	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1035	
v/s Ratio Prot	0.19	
v/s Ratio Perm		
v/c Ratio	0.90	
Uniform Delay, d1	61.9	
Progression Factor	1.00	
Incremental Delay, d2	10.2	
Delay (s)	72.0	
Level of Service	E	
Approach Delay (s)	143.0	
Approach LOS	F	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1291
Future Volume (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0				5.0			5.0
Lane Util. Factor		0.95			0.95				1.00			0.76
Frpb, ped/bikes		1.00			1.00				0.99			1.00
Flpb, ped/bikes		1.00			1.00				1.00			1.00
Frt		1.00			1.00				0.86			0.85
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3539			3539				1587			3600
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			3539				1587			3600
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1291
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	11
Lane Group Flow (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1280
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	2
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Actuated Green, G (s)		140.0			86.0				140.0			44.0
Effective Green, g (s)		140.0			86.0				140.0			44.0
Actuated g/C Ratio		1.00			0.61				1.00			0.31
Clearance Time (s)		5.0			5.0							5.0
Vehicle Extension (s)		2.0			2.0							2.0
Lane Grp Cap (vph)		3539			2173				1587			1131
v/s Ratio Prot		0.31			c0.64							c0.36
v/s Ratio Perm									0.72			
v/c Ratio		0.31			1.04				0.72			1.13
Uniform Delay, d1		0.0			27.0				0.0			48.0
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		0.2			31.7				2.9			70.8
Delay (s)		0.2			58.7				2.9			118.8
Level of Service		A			E				A			F
Approach Delay (s)		0.2			58.7			2.9			118.8	
Approach LOS		A			E			A			F	

Intersection Summary			
HCM 2000 Control Delay	50.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

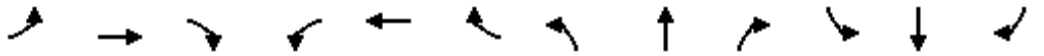
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5047: Pacific Hwy S & S 352 St

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	148	90	872	44	13	82	1594
Future Volume (vph)	148	90	872	44	13	82	1594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%		2%				-2%
Total Lost time (s)	5.0	5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	1.00	0.91			1.00	0.91
Frt	1.00	0.85	0.99			1.00	1.00
Flt Protected	0.95	1.00	1.00			0.95	1.00
Satd. Flow (prot)	1770	1583	4998			1787	5136
Flt Permitted	0.95	1.00	1.00			0.28	1.00
Satd. Flow (perm)	1770	1583	4998			524	5136
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	148	90	872	44	13	82	1594
RTOR Reduction (vph)	0	80	3	0	0	0	0
Lane Group Flow (vph)	148	10	913	0	0	95	1594
Turn Type	Prot	Perm	NA		D.P+P	D.P+P	NA
Protected Phases	8		2		1	1	6
Permitted Phases		8			2	2	
Actuated Green, G (s)	16.1	16.1	90.9			108.9	113.9
Effective Green, g (s)	16.1	16.1	90.9			108.9	113.9
Actuated g/C Ratio	0.12	0.12	0.65			0.78	0.81
Clearance Time (s)	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	203	182	3245			569	4178
v/s Ratio Prot	c0.08		0.18			0.02	c0.31
v/s Ratio Perm		0.01				0.11	
v/c Ratio	0.73	0.06	0.28			0.17	0.38
Uniform Delay, d1	59.8	55.2	10.5			6.0	3.5
Progression Factor	0.74	0.77	1.02			0.69	0.72
Incremental Delay, d2	10.1	0.0	0.2			0.0	0.1
Delay (s)	54.3	42.7	10.9			4.2	2.6
Level of Service	D	D	B			A	A
Approach Delay (s)	50.0		10.9				2.7
Approach LOS	D		B				A

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5050: Enchanted Pkwy S & S 352 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	46	54	231	97	248	57	1069	211	176	1416	108
Future Volume (vph)	55	46	54	231	97	248	57	1069	211	176	1416	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-11%			0%			1%	
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.92		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1680		1840	1965	1575	1770	3412		1761	3507	1497
Flt Permitted	0.61	1.00		0.62	1.00	1.00	0.12	1.00		0.14	1.00	1.00
Satd. Flow (perm)	1113	1680		1192	1965	1575	222	3412		252	3507	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	46	54	231	97	248	57	1069	211	176	1416	108
RTOR Reduction (vph)	0	35	0	0	0	229	0	9	0	0	0	34
Lane Group Flow (vph)	55	65	0	231	97	19	57	1271	0	176	1416	74
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3			4		3	6			2		6
Actuated Green, G (s)	29.1	17.1		29.1	12.0	12.0	91.4	81.2		91.4	87.4	87.4
Effective Green, g (s)	27.1	16.1		27.1	11.0	11.0	91.4	81.2		91.4	87.4	87.4
Actuated g/C Ratio	0.19	0.12		0.19	0.08	0.08	0.65	0.58		0.65	0.62	0.62
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	286	193		281	154	123	189	1978		274	2189	934
v/s Ratio Prot	0.02	0.04		c0.06	0.05		0.01	c0.37		0.05	c0.40	
v/s Ratio Perm	0.02			c0.09		0.01	0.19			0.37		0.05
v/c Ratio	0.19	0.34		0.82	0.63	0.16	0.30	0.64		0.64	0.65	0.08
Uniform Delay, d1	48.7	57.1		52.9	62.5	60.2	27.8	19.7		15.2	16.6	10.4
Progression Factor	0.74	0.69		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.4		16.6	5.7	0.2	0.3	1.6		3.8	1.5	0.2
Delay (s)	36.3	39.7		69.5	68.2	60.4	28.1	21.3		19.0	18.1	10.6
Level of Service	D	D		E	E	E	C	C		B	B	B
Approach Delay (s)		38.5			65.4			21.6			17.7	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

Description:

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5240: 1 Av S & SW 356 St/S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	508	33	52	768	133	18	39	21	300	50	671
Future Volume (vph)	164	508	33	52	768	133	18	39	21	300	50	671
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			5%			3%			1%	
Total Lost time (s)	5.5	5.5	5.5	4.5	4.5		5.0	4.5	4.5	5.0	4.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00	1.00	0.98	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		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)	1791	1900	1530	1725	3336		1710	1820	1489	1730	1853	1540
Flt Permitted	0.20	1.00	1.00	0.32	1.00		0.72	1.00	1.00	0.73	1.00	1.00
Satd. Flow (perm)	370	1900	1530	585	3336		1304	1820	1489	1332	1853	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	164	508	33	52	768	133	18	39	21	300	50	671
RTOR Reduction (vph)	0	0	17	0	9	0	0	0	19	0	0	108
Lane Group Flow (vph)	164	508	16	52	892	0	18	39	2	300	50	563
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	0	0	2	2	2	2	0	0	0	2
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6			8		4	4		8
Actuated Green, G (s)	88.2	69.1	69.1	88.2	61.8		32.3	13.5	13.5	32.3	27.0	53.4
Effective Green, g (s)	88.2	69.1	69.1	88.2	61.8		32.3	13.5	13.5	32.3	27.0	53.4
Actuated g/C Ratio	0.63	0.49	0.49	0.63	0.44		0.23	0.10	0.10	0.23	0.19	0.38
Clearance Time (s)	5.5	5.5	5.5	4.5	4.5		5.0	4.5	4.5	5.0	4.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	501	937	755	524	1472		316	175	143	360	357	647
v/s Ratio Prot	0.06	0.27		0.01	c0.27		0.00	0.02		c0.11	0.03	c0.16
v/s Ratio Perm	0.14		0.01	0.05			0.01		0.00	0.08		0.20
v/c Ratio	0.33	0.54	0.02	0.10	0.61		0.06	0.22	0.01	0.83	0.14	0.87
Uniform Delay, d1	27.9	24.5	18.1	20.9	29.8		42.0	58.4	57.2	49.5	46.9	40.1
Progression Factor	1.00	1.00	1.00	0.72	0.75		1.00	1.00	1.00	0.99	1.03	1.53
Incremental Delay, d2	0.1	2.3	0.1	0.0	1.6		0.0	0.2	0.0	9.1	0.0	7.5
Delay (s)	28.1	26.8	18.2	15.1	24.1		42.0	58.6	57.2	58.1	48.5	68.8
Level of Service	C	C	B	B	C		D	E	E	E	D	E
Approach Delay (s)		26.7			23.6			54.4			64.7	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5246: Pacific Hwy S & S 356 St

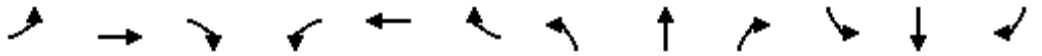
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	258	288	303	244	446	40	2	199	675	81	2	80
Future Volume (vph)	258	288	303	244	446	40	2	199	675	81	2	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-3%				2%			
Total Lost time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.97	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98		1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.99
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1764	3557	1537	1782	3592	1555		3399	4924			1771
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.30
Satd. Flow (perm)	1764	3557	1537	1782	3592	1555		3399	4924			552
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	258	288	303	244	446	40	2	199	675	81	2	80
RTOR Reduction (vph)	0	0	129	0	0	33	0	0	8	0	0	0
Lane Group Flow (vph)	258	288	174	244	446	7	0	201	748	0	0	82
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	2	0	2	2	0	2	2	0	2	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA		custom	Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases			4			8					1	
Actuated Green, G (s)	14.0	21.5	21.5	17.7	24.2	24.2		9.5	65.3			13.5
Effective Green, g (s)	14.0	21.5	21.5	17.7	24.2	23.2		10.5	66.3			13.5
Actuated g/C Ratio	0.10	0.15	0.15	0.13	0.17	0.17		0.08	0.47			0.10
Clearance Time (s)	7.0	5.0	5.0	6.0	5.0	5.0		5.5	5.5			5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0
Lane Grp Cap (vph)	176	546	236	225	620	257		254	2331			53
v/s Ratio Prot	c0.15	0.08		c0.14	0.12			c0.06	0.15			
v/s Ratio Perm			c0.11			0.00						c0.15
v/c Ratio	1.47	0.53	0.74	1.08	0.72	0.03		0.79	0.32			1.55
Uniform Delay, d1	63.0	54.6	56.6	61.1	54.7	48.9		63.7	22.9			63.2
Progression Factor	0.86	0.77	0.87	1.20	1.25	1.00		1.00	1.00			1.24
Incremental Delay, d2	233.0	0.3	8.1	73.0	2.2	0.0		14.4	0.4			316.9
Delay (s)	287.1	42.3	57.1	146.6	70.4	48.9		78.1	23.2			395.3
Level of Service	F	D	E	F	E	D		E	C			F
Approach Delay (s)		122.0			94.7				34.8			
Approach LOS		F			F				C			

Intersection Summary			
HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1445	270
Future Volume (vph)	1445	270
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	4978	
Flt Permitted	1.00	
Satd. Flow (perm)	4978	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1445	270
RTOR Reduction (vph)	15	0
Lane Group Flow (vph)	1700	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	69.3	
Effective Green, g (s)	69.3	
Actuated g/C Ratio	0.49	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2464	
v/s Ratio Prot	c0.34	
v/s Ratio Perm		
v/c Ratio	0.69	
Uniform Delay, d1	27.1	
Progression Factor	0.95	
Incremental Delay, d2	1.5	
Delay (s)	27.2	
Level of Service	C	
Approach Delay (s)	44.0	
Approach LOS	D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5250: S 356 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	489	20	56	469	0	20	0	57	0	126	419
Future Volume (vph)	0	489	20	56	469	0	20	0	57	0	126	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0		5.0		5.0	
Lane Util. Factor		0.95			0.95		1.00		1.00		1.00	
Frt		0.99			1.00		1.00		0.85		0.90	
Flt Protected		1.00			0.99		0.95		1.00		1.00	
Satd. Flow (prot)		3518			3520		1770		1583		1669	
Flt Permitted		1.00			0.82		0.95		1.00		1.00	
Satd. Flow (perm)		3518			2897		1770		1583		1669	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	489	20	56	469	0	20	0	57	0	126	419
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	35	0	82	0
Lane Group Flow (vph)	0	506	0	0	525	0	20	0	22	0	463	0
Turn Type		NA		Perm	NA		Prot		Perm		NA	
Protected Phases		4			8		7				6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		23.2			28.8		12.8		55.2		55.2	
Effective Green, g (s)		23.2			28.8		12.8		55.2		55.2	
Actuated g/C Ratio		0.17			0.21		0.09		0.39		0.39	
Clearance Time (s)		5.0			5.0		5.0		5.0		5.0	
Vehicle Extension (s)		2.0			2.0		2.0		2.0		2.0	
Lane Grp Cap (vph)		582			595		161		624		658	
v/s Ratio Prot		c0.14					c0.01				c0.28	
v/s Ratio Perm					c0.18				0.01			
v/c Ratio		0.87			0.88		0.12		0.04		0.70	
Uniform Delay, d1		56.9			54.0		58.4		26.1		35.6	
Progression Factor		1.19			1.67		1.00		1.00		1.00	
Incremental Delay, d2		12.0			11.5		1.6		0.1		6.2	
Delay (s)		79.9			101.6		60.0		26.2		41.8	
Level of Service		E			F		E		C		D	
Approach Delay (s)		79.9			101.6			35.0			41.8	
Approach LOS		E			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	72.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
Description: Analyze as ROUNDABOUT			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	925	0	0	1383	411	555
Future Volume (vph)	925	0	0	1383	411	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3543			3560	3221	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3543			3560	3221	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	925	0	0	1383	411	555
RTOR Reduction (vph)	0	0	0	0	324	0
Lane Group Flow (vph)	925	0	0	1383	642	0
Bus Blockages (#/hr)	2	0	0	2	2	2
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Actuated Green, G (s)	25.0			25.0	25.0	
Effective Green, g (s)	25.0			25.0	25.0	
Actuated g/C Ratio	0.42			0.42	0.42	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0	
Lane Grp Cap (vph)	1476			1483	1342	
v/s Ratio Prot					0.20	
v/s Ratio Perm	c0.26			c0.39		
v/c Ratio	0.63			0.93	0.48	
Uniform Delay, d1	13.8			16.7	12.8	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.0			12.0	0.1	
Delay (s)	15.8			28.7	12.8	
Level of Service	B			C	B	
Approach Delay (s)	15.8			28.7	12.8	
Approach LOS	B			C	B	

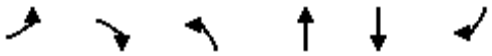
Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
Description: WSDOT 2013-03-19			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5652: Milton Rd S & Enchanted Pkwy S

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	18	660	18	141	1168	430	150	47	42	21	96	163
Future Volume (vph)	18	660	18	141	1168	430	150	47	42	21	96	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.96		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1743	3454		1787	3369		1712	1663			1828	1507
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	1743	3454		1787	3369		1712	1663			1828	1507
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	660	18	141	1168	430	150	47	42	21	96	163
RTOR Reduction (vph)	0	2	0	0	28	0	0	36	0	0	0	143
Lane Group Flow (vph)	18	676	0	141	1570	0	150	53	0	0	117	20
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	1.2	18.5		13.2	30.5		10.3	10.3			8.8	8.8
Effective Green, g (s)	1.2	18.5		13.2	30.5		10.3	10.3			8.8	8.8
Actuated g/C Ratio	0.02	0.26		0.19	0.43		0.15	0.15			0.12	0.12
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	29	902		333	1451		249	241			227	187
v/s Ratio Prot	0.01	c0.20		0.08	c0.47		c0.09	0.03			c0.06	
v/s Ratio Perm												0.01
v/c Ratio	0.62	0.75		0.42	1.08		0.60	0.22			0.52	0.11
Uniform Delay, d1	34.6	24.0		25.4	20.1		28.3	26.7			29.0	27.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	26.1	3.0		0.3	49.1		2.8	0.2			0.8	0.1
Delay (s)	60.7	27.0		25.8	69.2		31.1	26.9			29.8	27.6
Level of Service	E	C		C	E		C	C			C	C
Approach Delay (s)		27.9			65.7			29.5			28.5	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5954: Enchanted Pkwy S & 19 Wy S



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	27	43	630	1189	75
Future Volume (vph)	34	27	43	630	1189	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	1%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1540	1775	3543	3470	
Flt Permitted	0.95	1.00	0.26	1.00	1.00	
Satd. Flow (perm)	1755	1540	492	3543	3470	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	27	43	630	1189	75
RTOR Reduction (vph)	0	12	0	0	8	0
Lane Group Flow (vph)	34	15	43	630	1256	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	2.4	2.4	15.2	15.2	15.2	
Effective Green, g (s)	2.4	2.4	15.2	15.2	15.2	
Actuated g/C Ratio	0.09	0.09	0.55	0.55	0.55	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	152	133	270	1951	1911	
v/s Ratio Prot	c0.02			0.18	c0.36	
v/s Ratio Perm		0.01	0.09			
v/c Ratio	0.22	0.11	0.16	0.32	0.66	
Uniform Delay, d1	11.7	11.6	3.1	3.4	4.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.1	0.1	0.0	0.6	
Delay (s)	12.0	11.8	3.2	3.4	5.0	
Level of Service	B	B	A	A	A	
Approach Delay (s)	11.9			3.4	5.0	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	27.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
451: Pacific Hwy S & 16 Av S

Movement	NBU	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations							
Traffic Volume (veh/h)	98	169	1227	2510	10	0	290
Future Volume (Veh/h)	98	169	1227	2510	10	0	290
Sign Control			Free	Free		Stop	
Grade			-3%	2%		4%	
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.84	0.84
Hourly flow rate (vph)	0	176	1278	2728	11	0	345
Pedestrians			10	10		10	
Lane Width (ft)			12.0	12.0		12.0	
Walking Speed (ft/s)			4.0	4.0		4.0	
Percent Blockage			1	1		1	
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)				989			
pX, platoon unblocked	0.00	0.63				0.63	0.63
vC, conflicting volume	0	2749				3532	935
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	1722				2963	0
tC, single (s)	0.0	4.1				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	23				100	49
cM capacity (veh/h)	0	227				2	672

Direction, Lane #	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SE 1
Volume Total	176	426	426	426	1091	1091	557	345
Volume Left	176	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	11	345
cSH	227	1700	1700	1700	1700	1700	1700	672
Volume to Capacity	0.77	0.25	0.25	0.25	0.64	0.64	0.33	0.51
Queue Length 95th (ft)	138	0	0	0	0	0	0	74
Control Delay (s)	60.2	0.0	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS	F							C
Approach Delay (s)	7.3				0.0			15.9
Approach LOS								C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
750: Pacific Hwy S & S 283 Pl

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	63	1282	21	16	90	2679
Future Volume (Veh/h)	0	63	1282	21	16	90	2679
Sign Control	Stop		Free				Free
Grade	-11%		-3%				3%
Peak Hour Factor	0.82	0.82	0.92	0.92	0.98	0.98	0.98
Hourly flow rate (vph)	0	77	1393	23	0	92	2734
Pedestrians	8		10				10
Lane Width (ft)	12.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	1		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	2518	494			0	1424	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2518	494			0	1424	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	85			0	80	
cM capacity (veh/h)	19	519			0	471	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	77	557	557	302	92	911	911	911
Volume Left	0	0	0	0	92	0	0	0
Volume Right	77	0	0	23	0	0	0	0
cSH	519	1700	1700	1700	471	1700	1700	1700
Volume to Capacity	0.15	0.33	0.33	0.18	0.20	0.54	0.54	0.54
Queue Length 95th (ft)	13	0	0	0	18	0	0	0
Control Delay (s)	13.1	0.0	0.0	0.0	14.5	0.0	0.0	0.0
Lane LOS	B				B			
Approach Delay (s)	13.1	0.0			0.5			
Approach LOS	B							

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1751: Pacific Hwy S & 18 Av S

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	54	1251	73	12	32	1814
Future Volume (Veh/h)	0	54	1251	73	12	32	1814
Sign Control	Stop		Free				Free
Grade	-10%		-4%				3%
Peak Hour Factor	0.73	0.73	0.97	0.97	0.92	0.92	0.92
Hourly flow rate (vph)	0	74	1290	75	0	35	1972
Pedestrians	2		10				10
Lane Width (ft)	10.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	0		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							720
pX, platoon unblocked	0.68				0.00		
vC, conflicting volume	2067	480			0	1367	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	909	480			0	1367	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	86			0	93	
cM capacity (veh/h)	174	533			0	503	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	74	516	516	333	35	657	657	657
Volume Left	0	0	0	0	35	0	0	0
Volume Right	74	0	0	75	0	0	0	0
cSH	533	1700	1700	1700	503	1700	1700	1700
Volume to Capacity	0.14	0.30	0.30	0.20	0.07	0.39	0.39	0.39
Queue Length 95th (ft)	12	0	0	0	6	0	0	0
Control Delay (s)	12.8	0.0	0.0	0.0	12.7	0.0	0.0	0.0
Lane LOS	B				B			
Approach Delay (s)	12.8	0.0			0.2			
Approach LOS	B							

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

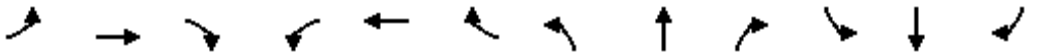
HCM Unsignalized Intersection Capacity Analysis
2350: Pacific Hwy S & S 310 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	61	1192	63	0	1811
Future Volume (Veh/h)	0	61	1192	63	0	1811
Sign Control	Stop		Free			Free
Grade	0%		1%			0%
Peak Hour Factor	0.78	0.78	0.94	0.94	0.90	0.90
Hourly flow rate (vph)	0	78	1268	67	0	2012
Pedestrians	16		16			12
Lane Width (ft)	10.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			660			662
pX, platoon unblocked	0.78	0.83			0.83	
vC, conflicting volume	2004	484			1351	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			726	
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	91			100	
cM capacity (veh/h)	781	891			720	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	78	507	507	321	671	671	671
Volume Left	0	0	0	0	0	0	0
Volume Right	78	0	0	67	0	0	0
cSH	891	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.09	0.30	0.30	0.19	0.39	0.39	0.39
Queue Length 95th (ft)	7	0	0	0	0	0	0
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.4	0.0			0.0		
Approach LOS	A						

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3451: 17 Av S & S 324 St

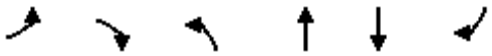


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	439	108	169	590	12	0	0	208	0	0	108
Future Volume (Veh/h)	0	439	108	169	590	12	0	0	208	0	0	108
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			-1%			-1%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	439	108	169	590	12	0	0	208	0	0	108
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		383										
pX, platoon unblocked				0.91			0.91	0.91	0.91	0.91	0.91	
vC, conflicting volume	612			557			1102	1399	459	1601	1501	223
vC1, stage 1 conf vol							449	449		944	944	
vC2, stage 2 conf vol							653	950		657	557	
vCu, unblocked vol	612			463			1062	1389	355	1611	1501	223
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			83			100	100	64	100	100	86
cM capacity (veh/h)	955			987			274	255	574	94	226	768

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	439	108	316	295	160	208	108
Volume Left	0	0	169	0	0	0	0
Volume Right	0	108	0	0	12	208	108
cSH	1700	1700	987	1700	1700	574	768
Volume to Capacity	0.26	0.06	0.17	0.17	0.09	0.36	0.14
Queue Length 95th (ft)	0	0	15	0	0	41	12
Control Delay (s)	0.0	0.0	5.8	0.0	0.0	14.8	10.5
Lane LOS			A			B	B
Approach Delay (s)	0.0		2.4			14.8	10.5
Approach LOS						B	B

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3550: Pacific Hwy S & S 328 St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	68	0	1787	2127	22
Future Volume (Veh/h)	0	68	0	1787	2127	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	-2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	68	0	1787	2127	22
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				641		
pX, platoon unblocked	0.79					
vC, conflicting volume	2754	740	2159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2302	740	2159			
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	81	100			
cM capacity (veh/h)	25	353	243			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	68	596	596	596	851	851	447
Volume Left	0	0	0	0	0	0	0
Volume Right	68	0	0	0	0	0	22
cSH	353	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.19	0.35	0.35	0.35	0.50	0.50	0.26
Queue Length 95th (ft)	18	0	0	0	0	0	0
Control Delay (s)	17.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C						
Approach Delay (s)	17.6	0.0			0.0		
Approach LOS	C						

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	57.5%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3750: Pacific Hwy S & S 332 St

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	0	41	70	24	1652	2182	38
Future Volume (Veh/h)	0	41	70	24	1652	2182	38
Sign Control	Stop				Free	Free	
Grade	0%				2%	-2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	41	0	24	1652	2182	38
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)						680	
pX, platoon unblocked	0.72	0.72	0.00	0.72			
vC, conflicting volume	2800	746	0	2220			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2144	0	0	1341			
tC, single (s)	6.8	6.9	0.0	4.1			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	2.2			
p0 queue free %	100	95	0	93			
cM capacity (veh/h)	28	783	0	368			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	41	24	551	551	551	873	873	474
Volume Left	0	24	0	0	0	0	0	0
Volume Right	41	0	0	0	0	0	0	38
cSH	783	368	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.07	0.32	0.32	0.32	0.51	0.51	0.28
Queue Length 95th (ft)	4	5	0	0	0	0	0	0
Control Delay (s)	9.9	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	C						
Approach Delay (s)	9.9	0.2				0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3850: Pacific Hwy S & S 333 St

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	59	1589	40	66	59	2029
Future Volume (Veh/h)	0	59	1589	40	66	59	2029
Sign Control	Stop		Free				Free
Grade	-2%		2%				-2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	59	1589	40	0	59	2029
Pedestrians	10		10				10
Lane Width (ft)	12.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	1		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			890				1110
pX, platoon unblocked	0.84	0.80			0.00	0.80	
vC, conflicting volume	2423	570			0	1639	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	467	0			0	943	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	93			0	90	
cM capacity (veh/h)	390	858			0	577	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	59	636	636	358	59	676	676	676
Volume Left	0	0	0	0	59	0	0	0
Volume Right	59	0	0	40	0	0	0	0
cSH	858	1700	1700	1700	577	1700	1700	1700
Volume to Capacity	0.07	0.37	0.37	0.21	0.10	0.40	0.40	0.40
Queue Length 95th (ft)	6	0	0	0	9	0	0	0
Control Delay (s)	9.5	0.0	0.0	0.0	12.0	0.0	0.0	0.0
Lane LOS	A				B			
Approach Delay (s)	9.5	0.0			0.3			
Approach LOS	A							

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3942: S 334 St & 1 Wy S

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	775	56	36	1061	2	33	0	45	3	0	0
Future Volume (Veh/h)	0	775	56	36	1061	2	33	0	45	3	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		-1%			0%			-8%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	775	56	36	1061	2	33	0	45	3	0	0
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		358			764							
pX, platoon unblocked	0.94			0.94			0.96	0.96	0.94	0.96	0.96	0.94
vC, conflicting volume	1073			841			1426	1958	436	1586	1985	552
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	941			708			1098	1650	278	1265	1678	384
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			78	100	93	97	100	100
cM capacity (veh/h)	672			828			152	89	667	106	85	565

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NW 3	NE 1	SW 1
Volume Total	388	444	36	707	356	78	3
Volume Left	0	0	36	0	0	33	3
Volume Right	0	56	0	0	2	45	0
cSH	672	1700	828	1700	1700	274	106
Volume to Capacity	0.00	0.26	0.04	0.42	0.21	0.28	0.03
Queue Length 95th (ft)	0	0	3	0	0	28	2
Control Delay (s)	0.0	0.0	9.5	0.0	0.0	23.3	39.8
Lane LOS			A			C	E
Approach Delay (s)	0.0		0.3			23.3	39.8
Approach LOS						C	E

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	45.4%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4242: 1 Wy S & S 340 St

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	17	497	1299	41	21	27
Future Volume (Veh/h)	17	497	1299	41	21	27
Sign Control		Free	Free		Stop	
Grade		3%	-1%		-1%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	497	1299	41	21	27
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1146			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	1350				1622	690
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1219				1513	507
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				78	94
cM capacity (veh/h)	522				98	465

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SE 1
Volume Total	17	248	248	866	474	48
Volume Left	17	0	0	0	0	21
Volume Right	0	0	0	0	41	27
cSH	522	1700	1700	1700	1700	223
Volume to Capacity	0.03	0.15	0.15	0.51	0.28	0.22
Queue Length 95th (ft)	3	0	0	0	0	20
Control Delay (s)	12.1	0.0	0.0	0.0	0.0	30.1
Lane LOS	B					D
Approach Delay (s)	0.4			0.0		30.1
Approach LOS						D

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4341: S 342 St & 1 Wy S

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	437	39	39	1138	34	53
Future Volume (Veh/h)	437	39	39	1138	34	53
Sign Control	Free			Free	Stop	
Grade	3%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	437	39	39	1138	34	53
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1264					
pX, platoon unblocked						
vC, conflicting volume			486		1124	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			486		1124	258
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		82	93
cM capacity (veh/h)			1064		189	729

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	291	185	39	569	569	34	53
Volume Left	0	0	39	0	0	34	0
Volume Right	0	39	0	0	0	0	53
cSH	1700	1700	1064	1700	1700	189	729
Volume to Capacity	0.17	0.11	0.04	0.33	0.33	0.18	0.07
Queue Length 95th (ft)	0	0	3	0	0	16	6
Control Delay (s)	0.0	0.0	8.5	0.0	0.0	28.2	10.3
Lane LOS			A			D	B
Approach Delay (s)	0.0		0.3			17.3	
Approach LOS						C	

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

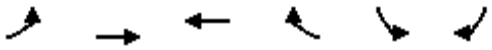
HCM Unsignalized Intersection Capacity Analysis
4350: 16 Av S & S 341 Pl

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	78	76	982	51	38	1010
Future Volume (Veh/h)	78	76	982	51	38	1010
Sign Control	Stop		Free			Free
Grade	0%		-5%			-1%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	78	76	982	51	38	1010
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			805			701
pX, platoon unblocked	0.81	0.81			0.81	
vC, conflicting volume	1608	536			1043	
vC1, stage 1 conf vol	1018					
vC2, stage 2 conf vol	591					
vCu, unblocked vol	1290	0			594	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	91			95	
cM capacity (veh/h)	335	867			789	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	154	655	378	38	505	505
Volume Left	78	0	0	38	0	0
Volume Right	76	0	51	0	0	0
cSH	481	1700	1700	789	1700	1700
Volume to Capacity	0.32	0.39	0.22	0.05	0.30	0.30
Queue Length 95th (ft)	34	0	0	4	0	0
Control Delay (s)	16.0	0.0	0.0	9.8	0.0	0.0
Lane LOS	C			A		
Approach Delay (s)	16.0	0.0		0.4		
Approach LOS	C					

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4441: 1 Wy S & 1 Pl S



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	93	510	1250	27	20	63
Future Volume (Veh/h)	93	510	1250	27	20	63
Sign Control		Free	Free		Stop	
Grade		0%	0%		-7%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	93	510	1250	27	20	63
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		926				
pX, platoon unblocked						
vC, conflicting volume	1287				1724	658
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1287				1724	658
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				69	84
cM capacity (veh/h)	530				65	400

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	93	255	255	833	444	83
Volume Left	93	0	0	0	0	20
Volume Right	0	0	0	0	27	63
cSH	530	1700	1700	1700	1700	179
Volume to Capacity	0.18	0.15	0.15	0.49	0.26	0.46
Queue Length 95th (ft)	16	0	0	0	0	55
Control Delay (s)	13.2	0.0	0.0	0.0	0.0	41.4
Lane LOS	B					E
Approach Delay (s)	2.0			0.0		41.4
Approach LOS						E

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	61.0%	ICU Level of Service		B
Analysis Period (min)	15			

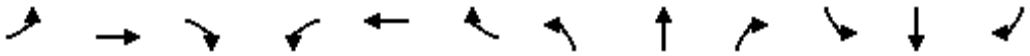
HCM Unsignalized Intersection Capacity Analysis
5345: Pacific Hwy S & S 359 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	33	955	13	36	2223
Future Volume (Veh/h)	46	33	955	13	36	2223
Sign Control	Stop		Free			Free
Grade	2%		3%			-3%
Peak Hour Factor	0.63	0.63	0.91	0.91	0.96	0.96
Hourly flow rate (vph)	73	52	1049	14	38	2316
Pedestrians			10			10
Lane Width (ft)			12.0			12.0
Walking Speed (ft/s)			4.0			4.0
Percent Blockage			1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						755
pX, platoon unblocked	0.75					
vC, conflicting volume	1914	542			1063	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1059	542			1063	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	53	89			94	
cM capacity (veh/h)	156	486			639	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3	SB 4
Volume Total	125	699	364	38	772	772	772
Volume Left	73	0	0	38	0	0	0
Volume Right	52	0	14	0	0	0	0
cSH	217	1700	1700	639	1700	1700	1700
Volume to Capacity	0.57	0.41	0.21	0.06	0.45	0.45	0.45
Queue Length 95th (ft)	80	0	0	5	0	0	0
Control Delay (s)	41.8	0.0	0.0	11.0	0.0	0.0	0.0
Lane LOS	E			B			
Approach Delay (s)	41.8	0.0		0.2			
Approach LOS	E						

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

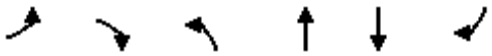
HCM Unsignalized Intersection Capacity Analysis
5450: 16 Av S & S 359 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	11	0	30	0	2	2	16	39	0	2	82	60
Future Volume (veh/h)	11	0	30	0	2	2	16	39	0	2	82	60
Peak Hour Factor	0.63	0.63	0.63	0.40	0.40	0.40	0.63	0.63	0.63	0.90	0.90	0.90
Hourly flow rate (vph)	17	0	48	0	5	5	25	62	0	2	91	67
Approach Volume (veh/h)		65			10			87			160	
Crossing Volume (veh/h)		93			104			19			30	
High Capacity (veh/h)		1288			1277			1364			1353	
High v/c (veh/h)		0.05			0.01			0.06			0.12	
Low Capacity (veh/h)		1073			1063			1143			1132	
Low v/c (veh/h)		0.06			0.01			0.08			0.14	

Intersection Summary					
Maximum v/c High	0.12				
Maximum v/c Low	0.14				
Intersection Capacity Utilization	30.8%	ICU Level of Service		A	

HCM Unsignalized Intersection Capacity Analysis
5650: 16 Av S & Beamer HS Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	28	12	10	17	27	30
Future Volume (veh/h)	28	12	10	17	27	30
Peak Hour Factor	0.63	0.63	0.56	0.56	0.88	0.88
Hourly flow rate (vph)	44	19	18	30	31	34
Approach Volume (veh/h)	63			48	65	
Crossing Volume (veh/h)	31			44	18	
High Capacity (veh/h)	1352			1338	1365	
High v/c (veh/h)	0.05			0.04	0.05	
Low Capacity (veh/h)	1131			1119	1144	
Low v/c (veh/h)	0.06			0.04	0.06	

Intersection Summary			
Maximum v/c High	0.05		
Maximum v/c Low	0.06		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis
6150: Milton Rd S & S 369 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	19	83	39	25	541
Future Volume (Veh/h)	20	19	83	39	25	541
Sign Control	Stop		Free			Free
Grade	-2%		1%			2%
Peak Hour Factor	0.80	0.80	0.91	0.91	0.82	0.82
Hourly flow rate (vph)	25	24	91	43	30	660
Pedestrians	2		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	844	124			136	
vC1, stage 1 conf vol	114					
vC2, stage 2 conf vol	730					
vCu, unblocked vol	844	124			136	
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 %	94	97			98	
cM capacity (veh/h)	450	922			1452	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	49	134	690
Volume Left	25	0	30
Volume Right	24	43	0
cSH	601	1700	1452
Volume to Capacity	0.08	0.08	0.02
Queue Length 95th (ft)	7	0	2
Control Delay (s)	11.5	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	11.5	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

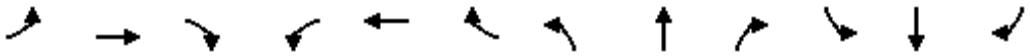
HCM Unsignalized Intersection Capacity Analysis
6340: Pacific Hwy S & S 373 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	99	14	841	23	8	1825
Future Volume (Veh/h)	99	14	841	23	8	1825
Sign Control	Stop		Free			Free
Grade	3%		-2%			0%
Peak Hour Factor	0.81	0.81	0.92	0.92	0.98	0.98
Hourly flow rate (vph)	122	17	914	25	8	1862
Pedestrians	1		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1884	480			940	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1884	480			940	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	97			99	
cM capacity (veh/h)	62	532			712	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	139	609	330	629	1241
Volume Left	122	0	0	8	0
Volume Right	17	0	25	0	0
cSH	70	1700	1700	712	1700
Volume to Capacity	1.99	0.36	0.19	0.01	0.73
Queue Length 95th (ft)	318	0	0	1	0
Control Delay (s)	588.3	0.0	0.0	0.3	0.0
Lane LOS	F			A	
Approach Delay (s)	588.3	0.0		0.1	
Approach LOS	F				

Intersection Summary			
Average Delay	27.8		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6345: 8 Av S & S 373 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	6	23	0	29	1	88	1	1	1	0	0
Future Volume (Veh/h)	2	6	23	0	29	1	88	1	1	1	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		10%			-5%			-5%			3%	
Peak Hour Factor	0.84	0.84	0.84	0.63	0.63	0.63	0.68	0.68	0.68	0.38	0.38	0.38
Hourly flow rate (vph)	2	7	27	0	46	2	129	1	1	3	0	0
Pedestrians		10			10			10			10	
Lane Width (ft)		10.0			10.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	58			44			92	92	40	93	105	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	58			44			92	92	40	93	105	67
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			85	100	100	100	100	100
cM capacity (veh/h)	1548			1566			875	789	1022	871	777	988

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	48	131	3
Volume Left	2	0	129	3
Volume Right	27	2	1	0
cSH	1548	1566	875	871
Volume to Capacity	0.00	0.00	0.15	0.00
Queue Length 95th (ft)	0	0	13	0
Control Delay (s)	0.4	0.0	9.8	9.1
Lane LOS	A		A	A
Approach Delay (s)	0.4	0.0	9.8	9.1
Approach LOS			A	A

Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	16.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6547: Milton Rd S & S 376 St/S 375 St

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	14	79	0	4	458	103	30	2	27	8	0	1
Future Volume (Veh/h)	14	79	0	4	458	103	30	2	27	8	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			2%			2%	
Peak Hour Factor	0.79	0.79	0.79	0.84	0.84	0.84	0.61	0.61	0.61	0.50	0.50	0.50
Hourly flow rate (vph)	18	100	0	5	545	123	49	3	44	16	0	2
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	678			110			774	772	626	818	834	120
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	678			110			774	772	626	818	834	120
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			84	99	91	94	100	100
cM capacity (veh/h)	892			1468			297	314	472	255	294	921

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	118	673	96	18
Volume Left	18	5	49	16
Volume Right	0	123	44	2
cSH	892	1468	359	277
Volume to Capacity	0.02	0.00	0.27	0.06
Queue Length 95th (ft)	2	0	27	5
Control Delay (s)	1.6	0.1	18.7	18.9
Lane LOS	A	A	C	C
Approach Delay (s)	1.6	0.1	18.7	18.9
Approach LOS			C	C

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	42.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCS7 Two-Way Stop-Control Report

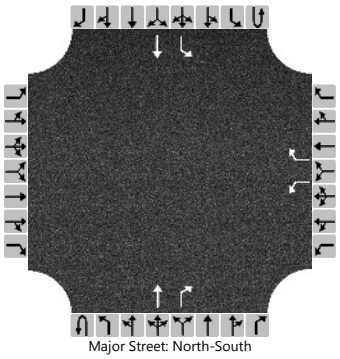
General Information

Analyst	SC
Agency/Co.	City of Federal Way
Date Performed	1/2/2019
Analysis Year	2019
Time Analyzed	
Intersection Orientation	North-South
Project Description	Milton Rd Rezone -2018 PM Peak

Site Information

Intersection	Pacific Hwy and S 373 St
Jurisdiction	
East/West Street	S 373 St
North/South Street	Pacific Hwy
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						99		14			841	23		8	1825	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No					No					
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.22						4.12		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						99		14						8		
Capacity, c (veh/h)						24		365						779		
v/c Ratio						4.13		0.04						0.01		
95% Queue Length, Q_{95} (veh)						41.1		0.1						0.0		
Control Delay (s/veh)						5982.6		15.3						9.7		
Level of Service (LOS)						F		C						A		
Approach Delay (s/veh)						5243.3								0.0		
Approach LOS						F										

2040 NO BUILD

HCM Signalized Intersection Capacity Analysis
251: Pacific Hwy S & S 276 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	51	1	75	39	5	118	23	42	942	9	77	17
Future Volume (vph)	51	1	75	39	5	118	23	42	942	9	77	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		0%			0%				-2%			
Total Lost time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.93		1.00	0.96			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.96	1.00			1.00	1.00			1.00
Frt	1.00	0.85		1.00	0.86			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1713	1551		1533	1534			1805	5129			1743
Flt Permitted	0.48	1.00		0.63	1.00			0.95	1.00			0.28
Satd. Flow (perm)	873	1551		1021	1534			1805	5129			514
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	1	75	39	5	118	23	42	942	9	77	17
RTOR Reduction (vph)	0	51	0	0	109	0	0	0	1	0	0	0
Lane Group Flow (vph)	51	25	0	39	14	0	0	65	950	0	0	94
Confl. Peds. (#/hr)	8		48	34		20		14		46		12
Heavy Vehicles (%)	2%	2%	2%	9%	9%	9%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	3	9	9	0	6	9	0	6	3	6	3
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Actuated Green, G (s)	12.2	12.2		11.7	11.7			8.4	104.0			111.8
Effective Green, g (s)	12.2	12.2		10.7	10.7			8.4	104.5			112.8
Actuated g/C Ratio	0.09	0.09		0.08	0.08			0.06	0.75			0.81
Clearance Time (s)	4.5	4.5		5.0	5.0			6.0	6.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	76	135		78	117			108	3828			486
v/s Ratio Prot		0.02			0.01			c0.04	0.19			0.01
v/s Ratio Perm	c0.06			0.04								0.14
v/c Ratio	0.67	0.18		0.50	0.12			0.60	0.25			0.19
Uniform Delay, d1	62.0	59.3		62.1	60.3			64.2	5.5			4.0
Progression Factor	1.00	1.00		1.00	1.00			0.82	0.37			1.00
Incremental Delay, d2	16.8	0.2		1.8	0.2			4.3	0.1			0.1
Delay (s)	78.7	59.5		63.9	60.4			56.7	2.1			4.0
Level of Service	E	E		E	E			E	A			A
Approach Delay (s)		67.2			61.3				5.6			
Approach LOS		E			E				A			

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
Description:			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2282	67
Future Volume (vph)	2282	67
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4985	
Flt Permitted	1.00	
Satd. Flow (perm)	4985	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	2282	67
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	2347	0
Confl. Peds. (#/hr)		22
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	103.4	
Effective Green, g (s)	103.9	
Actuated g/C Ratio	0.74	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3699	
v/s Ratio Prot	c0.47	
v/s Ratio Perm		
v/c Ratio	0.63	
Uniform Delay, d1	8.8	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	9.6	
Level of Service	A	
Approach Delay (s)	9.4	
Approach LOS	A	

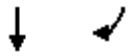
Intersection Summary

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1050: Pacific Hwy S & S 288 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	37	129	22	1193	59	269	34	14	822	867	25	612
Future Volume (vph)	37	129	22	1193	59	269	34	14	822	867	25	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	11	12	12	12	12	12	12	11
Grade (%)		14%			-7%				-2%			
Total Lost time (s)		6.0		5.5	5.5	5.5		5.5	5.5	7.0		5.0
Lane Util. Factor		0.95		0.95	0.95	1.00		1.00	0.86	0.86		0.97
Frpb, ped/bikes		0.98		1.00	1.00	0.97		1.00	0.98	0.95		1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.98		1.00	1.00	0.85		1.00	0.95	0.85		1.00
Flt Protected		0.99		0.95	0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		3428		1711	1728	1585		1787	4487	1307		3318
Flt Permitted		0.99		0.95	0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		3428		1711	1728	1585		1787	4487	1307		3318
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	129	22	1193	59	269	34	14	822	867	25	612
RTOR Reduction (vph)	0	0	0	0	0	120	0	0	68	324	0	0
Lane Group Flow (vph)	0	188	0	620	632	149	0	48	1188	109	0	637
Confl. Peds. (#/hr)			27			14				22		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	6	0	9	9	0	6	9	0	6	0	6	0
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8				2		
Actuated Green, G (s)		9.8		46.5	46.5	46.5		7.2	36.2	36.2		25.5
Effective Green, g (s)		8.8		46.5	46.5	46.5		7.7	36.7	35.2		26.0
Actuated g/C Ratio		0.06		0.33	0.33	0.33		0.06	0.26	0.25		0.19
Clearance Time (s)		5.0		5.5	5.5	5.5		6.0	6.0	6.0		5.5
Vehicle Extension (s)		2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Lane Grp Cap (vph)		215		568	573	526		98	1176	328		616
v/s Ratio Prot		c0.05		0.36	c0.37			0.03	c0.26			0.19
v/s Ratio Perm						0.09				0.08		
v/c Ratio		0.87		1.09	1.10	0.28		0.49	1.01	0.33		1.03
Uniform Delay, d1		65.1		46.8	46.8	34.5		64.2	51.6	42.8		57.0
Progression Factor		1.00		1.00	1.00	1.00		0.72	0.62	0.96		0.86
Incremental Delay, d2		29.4		65.1	68.9	0.1		1.2	27.2	2.4		43.1
Delay (s)		94.4		111.9	115.7	34.6		47.3	59.3	43.3		92.0
Level of Service		F		F	F	C		D	E	D		F
Approach Delay (s)		94.4			99.8				55.0			
Approach LOS		F			F				D			

Intersection Summary			
HCM 2000 Control Delay	75.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1857	180
Future Volume (vph)	1857	180
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4921	
Flt Permitted	1.00	
Satd. Flow (perm)	4921	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1857	180
RTOR Reduction (vph)	8	0
Lane Group Flow (vph)	2029	0
Confl. Peds. (#/hr)		19
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	54.5	
Effective Green, g (s)	55.0	
Actuated g/C Ratio	0.39	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1933	
v/s Ratio Prot	c0.41	
v/s Ratio Perm		
v/c Ratio	1.05	
Uniform Delay, d1	42.5	
Progression Factor	0.83	
Incremental Delay, d2	33.8	
Delay (s)	69.1	
Level of Service	E	
Approach Delay (s)	74.6	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1651: Pacific Hwy S & S Dash Point Rd

Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	560	87	90	428	1238	42	1939	1138
Future Volume (vph)	560	87	90	428	1238	42	1939	1138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	12	12
Grade (%)	0%				0%		-1%	
Total Lost time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Lane Util. Factor	0.97	1.00		0.97	0.91	1.00	0.86	0.86
Frpb, ped/bikes	1.00	0.96		1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.97	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3311	1482		3467	5095	1753	4661	1358
Flt Permitted	0.95	1.00		0.95	1.00	0.19	1.00	1.00
Satd. Flow (perm)	3311	1482		3467	5095	347	4661	1358
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	560	87	90	428	1238	42	1939	1138
RTOR Reduction (vph)	0	69	0	0	0	0	23	6
Lane Group Flow (vph)	560	18	0	518	1238	42	2360	688
Confl. Peds. (#/hr)		24		10				10
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	9	9	0	6	6	9	0
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Actuated Green, G (s)	27.0	27.0		22.0	93.0	97.5	75.5	102.5
Effective Green, g (s)	27.0	27.0		22.0	93.5	97.5	76.0	102.5
Actuated g/C Ratio	0.19	0.19		0.16	0.67	0.70	0.54	0.73
Clearance Time (s)	5.0	5.0		5.0	5.0	5.5	5.5	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	638	285		544	3402	286	2530	994
v/s Ratio Prot	c0.17			c0.15	0.24	0.00	c0.51	0.13
v/s Ratio Perm		0.01				0.10		0.37
v/c Ratio	0.88	0.06		0.95	0.36	0.15	0.93	0.69
Uniform Delay, d1	54.9	46.2		58.5	10.2	7.1	29.6	10.2
Progression Factor	1.00	1.00		1.03	1.01	0.72	0.69	1.12
Incremental Delay, d2	12.6	0.0		25.0	0.3	0.0	0.9	0.2
Delay (s)	67.5	46.2		85.2	10.6	5.1	21.2	11.5
Level of Service	E	D		F	B	A	C	B
Approach Delay (s)	64.6				32.6		18.8	
Approach LOS	E				C		B	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2051: Pacific Hwy S & S 304 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	29	77	279	408	303	65	82	77	1457	167	5	32
Future Volume (vph)	29	77	279	408	303	65	82	77	1457	167	5	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	12	12	12	12	12
Grade (%)		-4%			5%				-1%			
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			5.5	5.5			5.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00			1.00
Flpb, ped/bikes	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	0.97			1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1762	1837	1471	3320	1720			1778	4981			1752
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.06	1.00			0.09
Satd. Flow (perm)	1762	1837	1471	3320	1720			114	4981			173
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	29	77	279	408	303	65	82	77	1457	167	5	32
RTOR Reduction (vph)	0	0	161	0	5	0	0	0	9	0	0	0
Lane Group Flow (vph)	29	77	118	408	363	0	0	159	1615	0	0	37
Confl. Peds. (#/hr)	3		8			6		8		3		3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	6	0	9	9	0	6	9	0	6	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4				6	6			2	2
Actuated Green, G (s)	4.8	17.9	17.9	19.9	33.0			81.2	76.4			81.2
Effective Green, g (s)	3.8	16.9	16.9	18.9	32.0			81.2	76.4			81.2
Actuated g/C Ratio	0.03	0.12	0.12	0.13	0.23			0.58	0.55			0.58
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.5	5.5			5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	47	221	177	448	393			251	2718			154
v/s Ratio Prot	0.02	0.04		c0.12	c0.21			0.07	c0.32			0.01
v/s Ratio Perm			0.08					0.30				0.13
v/c Ratio	0.62	0.35	0.67	0.91	0.92			0.63	0.59			0.24
Uniform Delay, d1	67.4	56.5	58.9	59.7	52.8			48.3	21.4			15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.44	0.26			0.28
Incremental Delay, d2	15.7	0.3	7.2	22.1	26.5			3.3	0.8			0.1
Delay (s)	83.1	56.8	66.0	81.9	79.3			24.3	6.4			4.4
Level of Service	F	E	E	F	E			C	A			A
Approach Delay (s)		65.5			80.7				8.0			
Approach LOS		E			F				A			

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1902	87
Future Volume (vph)	1902	87
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4926	
Flt Permitted	1.00	
Satd. Flow (perm)	4926	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1902	87
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	1986	0
Confl. Peds. (#/hr)		11
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	65.6	
Effective Green, g (s)	65.6	
Actuated g/C Ratio	0.47	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2308	
v/s Ratio Prot	c0.40	
v/s Ratio Perm		
v/c Ratio	0.86	
Uniform Delay, d1	33.1	
Progression Factor	0.25	
Incremental Delay, d2	2.1	
Delay (s)	10.2	
Level of Service	B	
Approach Delay (s)	10.1	
Approach LOS	B	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2250: Pacific Hwy S & S 308 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	112	41	78	32	44	90	150	54	1530	26	67	263
Future Volume (vph)	112	41	78	32	44	90	150	54	1530	26	67	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		4%			2%				1%			
Total Lost time (s)	6.0	6.0		6.0	6.0			5.0	5.0			5.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99			1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00	1.00			1.00
Frt	1.00	0.90		1.00	0.90			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1689	1723		1685	1787			1761	5007			1796
Flt Permitted	0.53	1.00		0.58	1.00			0.04	1.00			0.11
Satd. Flow (perm)	939	1723		1029	1787			83	5007			211
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	41	78	32	44	90	150	54	1530	26	67	263
RTOR Reduction (vph)	0	51	0	0	55	0	0	0	1	0	0	0
Lane Group Flow (vph)	112	68	0	32	79	0	0	204	1555	0	0	330
Confl. Peds. (#/hr)	2		13	13		2						
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	6	0	11	11	0	6	11	0	6	0	6	0
Turn Type	Perm	NA		Perm	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8			6	6			2	2
Actuated Green, G (s)	18.9	18.9		18.9	18.9			105.6	81.6			105.6
Effective Green, g (s)	17.9	17.9		17.9	17.9			105.6	81.6			105.6
Actuated g/C Ratio	0.13	0.13		0.13	0.13			0.75	0.58			0.75
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	120	220		131	228			260	2918			430
v/s Ratio Prot		0.04			0.04			0.09	0.31			c0.13
v/s Ratio Perm	c0.12			0.03				c0.50				0.45
v/c Ratio	0.93	0.31		0.24	0.35			0.78	0.53			0.77
Uniform Delay, d1	60.5	55.4		55.0	55.7			37.4	17.7			26.9
Progression Factor	1.00	1.00		1.00	1.00			1.05	0.25			0.99
Incremental Delay, d2	60.7	0.3		0.4	0.3			5.1	0.2			4.2
Delay (s)	121.2	55.7		55.3	56.0			44.5	4.6			30.9
Level of Service	F	E		E	E			D	A			C
Approach Delay (s)		87.4			55.9				9.2			
Approach LOS		F			E				A			

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1970	403
Future Volume (vph)	1970	403
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	-1%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.97	
Flt Protected	1.00	
Satd. Flow (prot)	4956	
Flt Permitted	1.00	
Satd. Flow (perm)	4956	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1970	403
RTOR Reduction (vph)	17	0
Lane Group Flow (vph)	2356	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	11	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	89.1	
Effective Green, g (s)	89.1	
Actuated g/C Ratio	0.64	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3154	
v/s Ratio Prot	0.48	
v/s Ratio Perm		
v/c Ratio	0.75	
Uniform Delay, d1	17.6	
Progression Factor	0.32	
Incremental Delay, d2	0.9	
Delay (s)	6.7	
Level of Service	A	
Approach Delay (s)	9.6	
Approach LOS	A	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2550: Pacific Hwy S & S 312 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	404	590	230	218	1226	113	29	425	1132	79	80	176
Future Volume (vph)	404	590	230	218	1226	113	29	425	1132	79	80	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	12	12
Grade (%)		1%			0%				0%			
Total Lost time (s)	5.5	6.0	6.0	5.5	6.5			5.0	5.0			5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95			0.97	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99			1.00	0.99			1.00
Flpb, ped/bikes	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	0.99			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	3408	3424	1488	1755	3358			3439	5006			1773
Flt Permitted	0.95	1.00	1.00	0.30	1.00			0.95	1.00			0.95
Satd. Flow (perm)	3408	3424	1488	558	3358			3439	5006			1773
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	404	590	230	218	1226	113	29	425	1132	79	80	176
RTOR Reduction (vph)	0	0	135	0	5	0	0	0	6	0	0	0
Lane Group Flow (vph)	404	590	95	218	1334	0	0	454	1205	0	0	256
Confl. Peds. (#/hr)	30		33	18		64		15		52		34
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	2	4	4	4	6	4	4	6	2	6	2
Turn Type	Prot	NA	Perm	D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4	4								
Actuated Green, G (s)	11.5	46.9	46.9	61.5	49.5			17.0	38.0			21.0
Effective Green, g (s)	10.5	45.9	45.9	59.5	48.5			17.0	38.0			21.0
Actuated g/C Ratio	0.08	0.33	0.33	0.42	0.35			0.12	0.27			0.15
Clearance Time (s)	4.5	5.0	5.0	4.5	5.5			5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	255	1122	487	353	1163			417	1358			265
v/s Ratio Prot	c0.12	0.17		0.06	c0.40			c0.13	0.24			0.14
v/s Ratio Perm			0.06	0.20								
v/c Ratio	1.58	0.53	0.19	0.62	1.15			1.09	0.89			0.97
Uniform Delay, d1	64.8	38.2	33.8	27.3	45.8			61.5	48.9			59.1
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.50	0.68			0.96
Incremental Delay, d2	280.9	0.2	0.1	2.3	76.5			62.3	6.1			37.5
Delay (s)	345.6	38.4	33.9	29.6	122.3			93.1	39.3			94.5
Level of Service	F	D	C	C	F			F	D			F
Approach Delay (s)		139.0			109.3				54.0			
Approach LOS		F			F				D			

Intersection Summary			
HCM 2000 Control Delay	95.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	111.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1276	719
Future Volume (vph)	1276	719
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	0%	
Total Lost time (s)	5.0	6.0
Lane Util. Factor	0.86	0.86
Frpb, ped/bikes	0.98	0.91
Flpb, ped/bikes	1.00	1.00
Frt	0.97	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4630	1232
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4630	1232
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1276	719
RTOR Reduction (vph)	20	120
Lane Group Flow (vph)	1522	333
Confl. Peds. (#/hr)		45
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	4	4
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	42.0	42.0
Effective Green, g (s)	42.0	41.0
Actuated g/C Ratio	0.30	0.29
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	1389	360
v/s Ratio Prot	c0.33	
v/s Ratio Perm		0.27
v/c Ratio	1.10	0.93
Uniform Delay, d1	49.0	48.0
Progression Factor	0.94	0.94
Incremental Delay, d2	51.9	25.6
Delay (s)	98.2	70.9
Level of Service	F	E
Approach Delay (s)	92.3	
Approach LOS	F	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2750: Pacific Hwy S & S 316 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	79	98	188	215	281	132	87	265	1549	102	46	109
Future Volume (vph)	79	98	188	215	281	132	87	265	1549	102	46	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	12	12
Grade (%)		-2%			0%				2%			
Total Lost time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.97		1.00	0.99			1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Frt	1.00	0.90		1.00	0.95			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1761	1553		1704	1664			1769	4959			1737
Flt Permitted	0.14	1.00		0.25	1.00			0.95	1.00			0.95
Satd. Flow (perm)	265	1553		452	1664			1769	4959			1737
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	98	188	215	281	132	87	265	1549	102	46	109
RTOR Reduction (vph)	0	49	0	0	12	0	0	0	5	0	0	0
Lane Group Flow (vph)	79	237	0	215	401	0	0	352	1646	0	0	155
Confl. Peds. (#/hr)	6		33	18		16		15		28		10
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	1%	1%	1%	1%	2%	2%
Bus Blockages (#/hr)	6	7	4	4	0	6	4	0	6	7	6	7
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Actuated Green, G (s)	41.3	28.0		41.3	35.4			29.6	64.4			15.3
Effective Green, g (s)	39.3	27.0		39.3	34.4			29.6	64.4			15.3
Actuated g/C Ratio	0.28	0.19		0.28	0.25			0.21	0.46			0.11
Clearance Time (s)	4.0	5.0		4.5	5.5			4.5	4.5			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	126	299		236	408			374	2281			189
v/s Ratio Prot	0.02	0.15		0.08	c0.24			c0.20	0.33			0.09
v/s Ratio Perm	0.15			c0.17								
v/c Ratio	0.63	0.79		0.91	0.98			0.94	0.72			0.82
Uniform Delay, d1	40.3	53.8		55.6	52.5			54.3	30.6			61.0
Progression Factor	1.00	1.00		1.00	1.00			0.54	0.24			0.81
Incremental Delay, d2	6.8	12.5		34.9	39.6			18.9	1.0			11.3
Delay (s)	47.2	66.3		90.5	92.1			47.9	8.3			60.5
Level of Service	D	E		F	F			D	A			E
Approach Delay (s)		62.2			91.6				15.3			
Approach LOS		E			F				B			

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

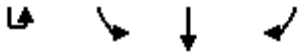
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1487	200
Future Volume (vph)	1487	200
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	-2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	4963	
Flt Permitted	1.00	
Satd. Flow (perm)	4963	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1487	200
RTOR Reduction (vph)	12	0
Lane Group Flow (vph)	1675	0
Confl. Peds. (#/hr)		21
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	4	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	50.1	
Effective Green, g (s)	50.1	
Actuated g/C Ratio	0.36	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1776	
v/s Ratio Prot	c0.34	
v/s Ratio Perm		
v/c Ratio	0.94	
Uniform Delay, d1	43.6	
Progression Factor	0.57	
Incremental Delay, d2	6.0	
Delay (s)	30.7	
Level of Service	C	
Approach Delay (s)	33.2	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3050: Pacific Hwy S & S 320 St

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	47	282	1169	142	24	575	1581	393	33	331	1252	273
Future Volume (vph)	47	282	1169	142	24	575	1581	393	33	331	1252	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-6%				0%				2%	
Total Lost time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	6.0
Lane Util. Factor		0.97	0.91			0.97	0.91	1.00		0.97	0.91	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98		1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00
Frt		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	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3536	5112			3433	5031	1548		3344	5034	1508
Flt Permitted		0.95	1.00			0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3536	5112			3433	5031	1548		3344	5034	1508
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	282	1169	142	24	575	1581	393	33	331	1252	273
RTOR Reduction (vph)	0	0	10	0	0	0	0	192	0	0	0	148
Lane Group Flow (vph)	0	329	1301	0	0	599	1581	201	0	364	1252	125
Confl. Peds. (#/hr)	10	10		10	10	10		10	10	10		10
Bus Blockages (#/hr)	8	0	4	0	4	0	8	0	0	8	0	4
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2				8
Actuated Green, G (s)		13.5	35.5			25.0	46.5	46.5		18.9	35.0	35.0
Effective Green, g (s)		13.5	35.5			25.0	46.5	46.5		18.9	35.0	34.0
Actuated g/C Ratio		0.10	0.25			0.18	0.33	0.33		0.13	0.25	0.24
Clearance Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0			2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		340	1296			613	1671	514		451	1258	366
v/s Ratio Prot		0.09	0.25			c0.17	c0.31			0.11	c0.25	
v/s Ratio Perm								0.13				0.08
v/c Ratio		0.97	1.00			0.98	0.95	0.39		0.81	1.00	0.34
Uniform Delay, d1		63.0	52.2			57.2	45.5	35.9		58.8	52.4	43.7
Progression Factor		1.00	1.00			1.00	1.00	1.00		0.34	0.51	0.60
Incremental Delay, d2		39.5	25.8			30.2	12.5	2.2		3.1	12.9	0.8
Delay (s)		102.6	78.1			87.4	58.0	38.1		23.0	39.4	27.2
Level of Service		F	E			F	E	D		C	D	C
Approach Delay (s)			83.0				61.8				34.5	
Approach LOS			F				E				C	

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	115.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	590	998	211
Future Volume (vph)	20	590	998	211
Ideal Flow (vphpl)	1900	1900	1900	1900
Grade (%)			-2%	
Total Lost time (s)		5.0	5.0	5.0
Lane Util. Factor		0.97	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3440	5136	1510
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		3440	5136	1510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	590	998	211
RTOR Reduction (vph)	0	0	0	103
Lane Group Flow (vph)	0	610	998	108
Confl. Peds. (#/hr)	10	10		10
Bus Blockages (#/hr)	0	4	0	8
Turn Type	Prot	Prot	NA	Perm
Protected Phases	7	7	4	
Permitted Phases				4
Actuated Green, G (s)		24.0	40.1	40.1
Effective Green, g (s)		24.0	40.1	40.1
Actuated g/C Ratio		0.17	0.29	0.29
Clearance Time (s)		5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0
Lane Grp Cap (vph)		589	1471	432
v/s Ratio Prot		c0.18	0.19	
v/s Ratio Perm				0.07
v/c Ratio		1.04	0.68	0.25
Uniform Delay, d1		58.0	44.2	38.4
Progression Factor		0.64	0.52	0.25
Incremental Delay, d2		32.4	1.0	0.5
Delay (s)		69.2	23.9	10.2
Level of Service		E	C	B
Approach Delay (s)			37.5	
Approach LOS			D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3055: 23 Av S & S 320 St

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	196	1688	99	297	1873	655	136	383	227	712	614
Future Volume (vph)	7	196	1688	99	297	1873	655	136	383	227	712	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			5%			-5%			1%			0%
Total Lost time (s)		4.5	4.5		5.5	5.5	6.5	5.0	6.0	5.5	5.0	6.0
Lane Util. Factor		0.97	0.91		0.97	0.91	1.00	1.00	1.00	0.88	0.97	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3240	4870		3448	5185	1476	1733	1735	2675	3392	1788
Flt Permitted		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3240	4870		3448	5185	1476	1733	1735	2675	3392	1788
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	196	1688	99	297	1873	655	136	383	227	712	614
RTOR Reduction (vph)	0	0	5	0	0	0	270	0	0	136	0	0
Lane Group Flow (vph)	0	203	1782	0	297	1873	385	136	383	91	712	614
Confl. Peds. (#/hr)	10	10		10	10		10	10		10	10	
Bus Blockages (#/hr)	4	16	6	10	10	4	16	4	16	6	6	10
Turn Type	Prot	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)		10.5	48.5		12.5	50.5	50.5	11.5	30.5	30.5	28.5	47.5
Effective Green, g (s)		10.5	48.5		12.5	50.5	49.5	11.0	30.0	30.5	28.0	47.0
Actuated g/C Ratio		0.08	0.35		0.09	0.36	0.35	0.08	0.21	0.22	0.20	0.34
Clearance Time (s)		4.5	4.5		5.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		243	1687		307	1870	521	136	371	582	678	600
v/s Ratio Prot		0.06	c0.37		c0.09	0.36		0.08	0.22		c0.21	c0.34
v/s Ratio Perm							0.26			0.03		
v/c Ratio		0.84	1.06		0.97	1.00	0.74	1.00	1.03	0.16	1.05	1.02
Uniform Delay, d1		63.9	45.8		63.5	44.8	39.6	64.5	55.0	44.3	56.0	46.5
Progression Factor		1.00	1.00		0.60	0.51	0.43	0.99	0.63	0.37	1.00	1.00
Incremental Delay, d2		20.4	38.6		25.8	14.2	4.1	76.3	54.8	0.0	48.5	42.8
Delay (s)		84.3	84.3		63.6	36.9	21.2	139.9	89.2	16.3	104.5	89.3
Level of Service		F	F		E	D	C	F	F	B	F	F
Approach Delay (s)			84.3			36.1			76.3			85.1
Approach LOS			F			D			E			F

Intersection Summary			
HCM 2000 Control Delay	64.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	360
Future Volume (vph)	360
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1522
Flt Permitted	1.00
Satd. Flow (perm)	1522
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	360
RTOR Reduction (vph)	72
Lane Group Flow (vph)	288
Confl. Peds. (#/hr)	10
Bus Blockages (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	47.5
Effective Green, g (s)	46.5
Actuated g/C Ratio	0.33
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	505
v/s Ratio Prot	
v/s Ratio Perm	0.19
v/c Ratio	0.57
Uniform Delay, d1	38.5
Progression Factor	1.00
Incremental Delay, d2	1.0
Delay (s)	39.5
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	149	2477	15	3	49	2649	398	32	13	92	418
Future Volume (vph)	14	149	2477	15	3	49	2649	398	32	13	92	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%				-1%			2%		
Total Lost time (s)		4.5	4.5			5.0	5.0	6.0	6.0	6.0		6.0
Lane Util. Factor		1.00	0.91			1.00	0.91	1.00	1.00	1.00		0.97
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.95	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00			1.00	1.00	0.85	1.00	0.87		1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		1752	4988			1778	5097	1517	1738	1568		3409
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		1752	4988			1778	5097	1517	1738	1568		3409
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	149	2477	15	3	49	2649	398	32	13	92	418
RTOR Reduction (vph)	0	0	0	0	0	0	0	118	0	72	0	0
Lane Group Flow (vph)	0	163	2492	0	0	52	2649	280	32	33	0	418
Confl. Peds. (#/hr)	10	10		10	10	10		10	10		10	10
Bus Blockages (#/hr)	2	0	6	0	6	0	2	0	2	0	6	6
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6				
Actuated Green, G (s)		15.3	83.0			8.0	75.7	75.7	8.4	7.4		22.1
Effective Green, g (s)		15.3	83.0			8.0	75.7	74.7	7.4	6.4		21.1
Actuated g/C Ratio		0.11	0.59			0.06	0.54	0.53	0.05	0.05		0.15
Clearance Time (s)		4.5	4.5			5.0	5.0	5.0	5.0	5.0		5.0
Vehicle Extension (s)		2.0	2.0			2.0	2.0	2.0	2.0	2.0		2.0
Lane Grp Cap (vph)		191	2957			101	2756	809	91	71		513
v/s Ratio Prot		c0.09	c0.50			0.03	c0.52		0.02	c0.02		c0.12
v/s Ratio Perm								0.18				
v/c Ratio		0.85	0.84			0.51	0.96	0.35	0.35	0.47		0.81
Uniform Delay, d1		61.2	23.2			64.1	30.7	18.7	64.0	65.1		57.6
Progression Factor		0.78	0.13			1.00	0.76	0.49	1.00	1.00		1.00
Incremental Delay, d2		9.3	0.9			1.1	7.1	0.7	0.9	1.8		9.2
Delay (s)		57.1	4.0			65.5	30.6	9.9	64.8	66.9		66.7
Level of Service		E	A			E	C	A	E	E		E
Approach Delay (s)			7.2				28.5			66.4		
Approach LOS			A				C			E		

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	4	142
Future Volume (vph)	4	142
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1560	
Flt Permitted	1.00	
Satd. Flow (perm)	1560	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	4	142
RTOR Reduction (vph)	99	0
Lane Group Flow (vph)	47	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	0	2
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	21.1	
Effective Green, g (s)	20.1	
Actuated g/C Ratio	0.14	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	223	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.21	
Uniform Delay, d1	52.9	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	53.1	
Level of Service	D	
Approach Delay (s)	63.2	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp

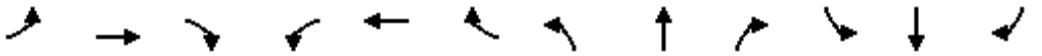
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1213
Future Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%		2%			2%	
Total Lost time (s)		5.0	5.0	5.0	5.0				5.0	5.0	5.0
Lane Util. Factor		0.91	0.88	1.00	0.91				0.95	0.95	0.76
Frpb, ped/bikes		1.00	0.94	1.00	1.00				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00				1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95	0.95	1.00
Satd. Flow (prot)		5046	2591	1741	5072				1651	1664	3564
Flt Permitted		1.00	1.00	0.95	1.00				0.95	0.95	1.00
Satd. Flow (perm)		5046	2591	1741	5072				1651	1664	3564
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1883	1072	309	1964	0	0	0	738	3	1213
RTOR Reduction (vph)	0	0	440	0	0	0	0	0	0	0	34
Lane Group Flow (vph)	0	1883	632	309	1964	0	0	0	369	372	1179
Confl. Peds. (#/hr)	10		10	10		10	10	10	10	10	10
Bus Blockages (#/hr)	0	2	4	4	2	0	2	0	2	0	2
Turn Type		NA	Perm	Prot	NA				Prot	Prot	custom
Protected Phases		2		1	6				4	4	4 5
Permitted Phases			2								
Actuated Green, G (s)		61.0	61.0	25.0	76.8				39.0	39.0	53.2
Effective Green, g (s)		61.0	61.0	25.0	76.8				39.0	39.0	53.2
Actuated g/C Ratio		0.44	0.44	0.18	0.55				0.28	0.28	0.38
Clearance Time (s)		5.0	5.0	5.0	5.0				5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0				2.0	2.0	
Lane Grp Cap (vph)		2198	1128	310	2782				459	463	1354
v/s Ratio Prot		c0.37		c0.18	0.39				0.22	0.22	c0.33
v/s Ratio Perm			0.24								
v/c Ratio		0.86	0.56	1.00	0.71				0.80	0.80	0.87
Uniform Delay, d1		35.6	29.5	57.5	23.3				46.9	46.9	40.2
Progression Factor		0.97	1.14	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		2.6	1.1	49.9	1.5				9.3	9.2	6.2
Delay (s)		37.1	34.6	107.3	24.8				56.3	56.1	46.4
Level of Service		D	C	F	C				E	E	D
Approach Delay (s)		36.2			36.0		0.0			50.1	
Approach LOS		D			D		A			D	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

Description: All Traffic Data Services - 11/4/04

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3255: 23 Av S & S 322 St



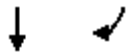
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1	93	39	16	90	136	555	19	46	672	54
Future Volume (vph)	96	1	93	39	16	90	136	555	19	46	672	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			-2%	
Total Lost time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1687	1542		1709	1610		1764	3445		1778	3464	
Flt Permitted	0.54	1.00		0.63	1.00		0.34	1.00		0.41	1.00	
Satd. Flow (perm)	951	1542		1135	1610		625	3445		772	3464	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	96	1	93	39	16	90	136	555	19	46	672	54
RTOR Reduction (vph)	0	81	0	0	82	0	0	1	0	0	3	0
Lane Group Flow (vph)	96	13	0	39	24	0	136	573	0	46	723	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		
Bus Blockages (#/hr)	10	0	10	10	0	10	0	10	0	0	10	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.3	19.2		25.3	14.2		96.2	91.5		96.2	88.2	
Effective Green, g (s)	23.3	18.2		23.3	13.2		95.2	91.0		95.2	87.7	
Actuated g/C Ratio	0.17	0.13		0.17	0.09		0.68	0.65		0.68	0.63	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.5		5.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	211	200		209	151		486	2239		555	2169	
v/s Ratio Prot	c0.03	0.01		0.01	0.02		c0.01	c0.17		0.00	c0.21	
v/s Ratio Perm	c0.04			c0.02			0.18			0.05		
v/c Ratio	0.45	0.07		0.19	0.16		0.28	0.26		0.08	0.33	
Uniform Delay, d1	51.6	53.4		49.8	58.3		8.1	10.3		7.4	12.3	
Progression Factor	1.00	1.00		1.00	1.00		1.63	1.67		0.09	0.09	
Incremental Delay, d2	0.6	0.1		0.2	0.2		0.1	0.2		0.0	0.0	
Delay (s)	52.2	53.5		49.9	58.5		13.3	17.4		0.7	1.2	
Level of Service	D	D		D	E		B	B		A	A	
Approach Delay (s)		52.8			56.2			16.6			1.1	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3350: Pacific Hwy S & S 324 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	98	345	122	955	690	60	162	156	1584	441	49	269
Future Volume (vph)	98	345	122	955	690	60	162	156	1584	441	49	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%				0%			
Total Lost time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0	6.0		5.0
Lane Util. Factor	1.00	1.00	1.00	0.94	1.00			0.97	0.91	1.00		0.97
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00	0.97		1.00
Flpb, ped/bikes	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	0.99			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1778	1812	1516	4926	1813			3419	5085	1488		3378
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1778	1812	1516	4926	1813			3419	5085	1488		3378
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	98	345	122	955	690	60	162	156	1584	441	49	269
RTOR Reduction (vph)	0	0	92	0	2	0	0	0	0	214	0	0
Lane Group Flow (vph)	98	345	30	955	748	0	0	318	1584	227	0	318
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	0	8	6	6	2	0	6	2	0	8	0	8
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Actuated Green, G (s)	10.0	35.2	35.2	29.3	54.5			13.0	42.5	42.5		13.0
Effective Green, g (s)	9.5	34.7	34.7	28.8	54.0			13.0	42.5	41.5		13.0
Actuated g/C Ratio	0.07	0.25	0.25	0.21	0.39			0.09	0.30	0.30		0.09
Clearance Time (s)	4.5	5.0	5.0	5.0	5.5			5.0	5.0	5.0		5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	120	449	375	1013	699			317	1543	441		313
v/s Ratio Prot	0.06	c0.19		0.19	c0.41			0.09	c0.31			0.09
v/s Ratio Perm			0.02							0.15		
v/c Ratio	0.82	0.77	0.08	0.94	1.07			1.00	1.03	0.51		1.02
Uniform Delay, d1	64.4	48.9	40.4	54.8	43.0			63.5	48.8	40.9		63.5
Progression Factor	1.00	1.00	1.00	0.88	0.98			1.15	1.21	2.12		0.81
Incremental Delay, d2	31.7	7.0	0.0	16.0	54.1			44.1	26.7	3.1		44.6
Delay (s)	96.1	55.9	40.4	64.4	96.2			117.3	85.7	89.7		96.0
Level of Service	F	E	D	E	F			F	F	F		F
Approach Delay (s)		59.5			78.4				90.8			
Approach LOS		E			E				F			

Intersection Summary			
HCM 2000 Control Delay	82.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1389	152
Future Volume (vph)	1389	152
Ideal Flow (vphpl)	1900	1900
Grade (%)	0%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4946	
Flt Permitted	1.00	
Satd. Flow (perm)	4946	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1389	152
RTOR Reduction (vph)	10	0
Lane Group Flow (vph)	1531	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	6	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	42.5	
Effective Green, g (s)	42.5	
Actuated g/C Ratio	0.30	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1501	
v/s Ratio Prot	c0.31	
v/s Ratio Perm		
v/c Ratio	1.02	
Uniform Delay, d1	48.8	
Progression Factor	1.14	
Incremental Delay, d2	23.8	
Delay (s)	79.5	
Level of Service	E	
Approach Delay (s)	82.3	
Approach LOS	F	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3440: 1 Av S & SW 325 Pl

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	3	72	8	7	24	0	1437	18	50	1634	175
Future Volume (vph)	14	3	72	8	7	24	0	1437	18	50	1634	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			0%			1%			-1%	
Total Lost time (s)		5.5			5.5			4.5			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.89			0.92			1.00			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1642			1655			3513			3482	
Flt Permitted		0.96			0.74			1.00			0.82	
Satd. Flow (perm)		1586			1243			3513			2853	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	3	72	8	7	24	0	1437	18	50	1634	175
RTOR Reduction (vph)	0	69	0	0	23	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	20	0	0	16	0	0	1455	0	0	1854	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)		7.4			7.4			123.6			123.1	
Effective Green, g (s)		6.4			6.4			123.6			123.1	
Actuated g/C Ratio		0.05			0.05			0.88			0.88	
Clearance Time (s)		4.5			4.5			4.5			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		72			56			3101			2508	
v/s Ratio Prot								0.41				
v/s Ratio Perm		0.01			c0.01						c0.65	
v/c Ratio		0.28			0.29			0.47			0.74	
Uniform Delay, d1		64.6			64.6			1.6			2.9	
Progression Factor		1.00			1.00			0.13			1.00	
Incremental Delay, d2		0.8			1.0			0.4			2.0	
Delay (s)		65.4			65.6			0.6			4.9	
Level of Service		E			E			A			A	
Approach Delay (s)		65.4			65.6			0.6			4.9	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		

Description:

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3540: 1 Av S & S 328 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	0	199	7	16	22	1431	150	21	1714	20
Future Volume (vph)	11	0	0	199	7	16	22	1431	150	21	1714	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			2%			-3%	
Total Lost time (s)	5.0			5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00			1.00	0.97		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00			0.96	1.00		1.00	1.00		1.00	1.00	
Frt	1.00			1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95			0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770			1694	1603		1752	3427		1796	3586	
Flt Permitted	0.74			1.00	1.00		0.08	1.00		0.11	1.00	
Satd. Flow (perm)	1383			1783	1603		148	3427		201	3586	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	0	0	199	7	16	22	1431	150	21	1714	20
RTOR Reduction (vph)	0	0	0	0	14	0	0	4	0	0	0	0
Lane Group Flow (vph)	11	0	0	199	9	0	22	1577	0	21	1734	0
Confl. Peds. (#/hr)				10		10			10	10		
Turn Type	D.P+P			D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	20.5			20.5	18.1		99.5	96.5		99.5	96.5	
Effective Green, g (s)	20.5			20.5	18.1		99.5	96.5		99.5	96.5	
Actuated g/C Ratio	0.15			0.15	0.13		0.71	0.69		0.71	0.69	
Clearance Time (s)	5.0			5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	209			249	207		139	2362		177	2471	
v/s Ratio Prot	0.00			c0.10	0.01		c0.00	0.46		0.00	c0.48	
v/s Ratio Perm	0.01			c0.01			0.11			0.08		
v/c Ratio	0.05			0.80	0.04		0.16	0.67		0.12	0.70	
Uniform Delay, d1	51.3			56.1	53.4		25.2	12.5		20.4	13.1	
Progression Factor	1.00			1.00	1.00		0.53	0.57		0.89	0.82	
Incremental Delay, d2	0.0			15.3	0.0		0.2	1.2		0.1	1.2	
Delay (s)	51.4			71.4	53.4		13.4	8.4		18.2	11.9	
Level of Service	D			E	D		B	A		B	B	
Approach Delay (s)		51.4			69.5			8.4			12.0	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3640: 1 Wy S/1 Av S & SW 330 St/S 330 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	14	186	56	34	23	385	1281	51	14	1349	621
Future Volume (vph)	281	14	186	56	34	23	385	1281	51	14	1349	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			3%			7%			-5%	
Total Lost time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	6.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1594		1738	1705		1708	3388		1814	3628	1525
Flt Permitted	0.72	1.00		0.33	1.00		0.06	1.00		0.15	1.00	1.00
Satd. Flow (perm)	1354	1594		600	1705		114	3388		278	3628	1525
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	281	14	186	56	34	23	385	1281	51	14	1349	621
RTOR Reduction (vph)	0	160	0	0	18	0	0	2	0	0	0	231
Lane Group Flow (vph)	281	40	0	56	39	0	385	1330	0	14	1349	390
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		8
Actuated Green, G (s)	28.1	20.8		27.6	7.1		92.9	91.3		93.4	63.2	63.2
Effective Green, g (s)	26.1	19.8		25.6	6.1		92.9	91.3		93.4	63.2	62.2
Actuated g/C Ratio	0.19	0.14		0.18	0.04		0.66	0.65		0.67	0.45	0.44
Clearance Time (s)	5.0	4.5		5.0	4.0		4.5	4.5		5.0	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	314	225		156	74		413	2209		208	1637	677
v/s Ratio Prot	c0.13	0.03		0.01	0.02		c0.20	0.39		0.00	0.37	
v/s Ratio Perm	c0.04			0.05			c0.42			0.04		0.26
v/c Ratio	0.89	0.18		0.36	0.52		0.93	0.60		0.07	0.82	0.58
Uniform Delay, d1	54.3	52.9		48.6	65.5		44.6	13.9		10.4	33.5	29.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.62	0.77	0.43
Incremental Delay, d2	25.5	0.1		0.5	3.1		27.5	1.2		0.0	3.8	2.7
Delay (s)	79.8	53.1		49.2	68.6		72.2	15.2		6.5	29.6	15.3
Level of Service	E	D		D	E		E	B		A	C	B
Approach Delay (s)		68.7			59.0			28.0			25.0	
Approach LOS		E			E			C			C	

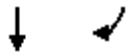
Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3650: Pacific Hwy S & S 330 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	60	59	19	52	59	52	44	120	1987	47	167	60
Future Volume (vph)	60	59	19	52	59	52	44	120	1987	47	167	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%				2%			
Total Lost time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00	1.00			1.00
Frt	1.00	0.96		1.00	0.93			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1751	1819		1713	1711			1752	4970			1787
Flt Permitted	0.55	1.00		0.71	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1009	1819		1273	1711			1752	4970			1787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	59	19	52	59	52	44	120	1987	47	167	60
RTOR Reduction (vph)	0	8	0	0	23	0	0	0	1	0	0	0
Lane Group Flow (vph)	60	70	0	52	88	0	0	164	2033	0	0	227
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	6	0	6	6	0	6	6	0	6	0	6	0
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Actuated Green, G (s)	15.1	10.7		15.6	11.1			16.5	77.4			26.5
Effective Green, g (s)	13.1	9.7		13.6	10.1			16.5	77.4			26.5
Actuated g/C Ratio	0.09	0.07		0.10	0.07			0.12	0.55			0.19
Clearance Time (s)	5.0	5.0		5.0	5.5			5.0	5.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	110	126		135	123			206	2747			338
v/s Ratio Prot	c0.01	0.04		0.01	c0.05			0.09	c0.41			0.13
v/s Ratio Perm	0.04			0.03								
v/c Ratio	0.55	0.55		0.39	0.71			0.80	0.74			0.67
Uniform Delay, d1	62.3	63.0		59.5	63.5			60.1	23.7			52.7
Progression Factor	1.00	1.00		1.00	1.00			0.74	0.96			1.21
Incremental Delay, d2	2.9	3.0		0.7	15.0			10.6	1.0			1.7
Delay (s)	65.3	66.0		60.2	78.6			55.1	23.8			65.2
Level of Service	E	E		E	E			E	C			E
Approach Delay (s)		65.7			72.7				26.1			
Approach LOS		E			E				C			

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2203	130
Future Volume (vph)	2203	130
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5035	
Flt Permitted	1.00	
Satd. Flow (perm)	5035	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	2203	130
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2329	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	6	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	87.4	
Effective Green, g (s)	87.4	
Actuated g/C Ratio	0.62	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3143	
v/s Ratio Prot	c0.46	
v/s Ratio Perm		
v/c Ratio	0.74	
Uniform Delay, d1	18.4	
Progression Factor	1.40	
Incremental Delay, d2	0.7	
Delay (s)	26.5	
Level of Service	C	
Approach Delay (s)	29.9	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3842: S 333 St & 1 Wy S

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	111	1422	10	5	1449	38	33	5	18	38	11	320
Future Volume (vph)	111	1422	10	5	1449	38	33	5	18	38	11	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-6%			1%	
Total Lost time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00			0.96		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.97		0.95	1.00	
Satd. Flow (prot)	1782	3573		1734	3450			1746		1721	1539	
Flt Permitted	0.12	1.00		0.15	1.00			0.18		0.73	1.00	
Satd. Flow (perm)	230	3573		266	3450			332		1326	1539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	111	1422	10	5	1449	38	33	5	18	38	11	320
RTOR Reduction (vph)	0	0	0	0	1	0	0	13	0	0	127	0
Lane Group Flow (vph)	111	1432	0	5	1486	0	0	43	0	38	204	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	2	0	0	0	2	0	2	2	2	0	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	103.4	102.4		103.4	96.3			22.6		22.6	22.6	
Effective Green, g (s)	103.4	102.4		103.4	96.3			22.6		22.6	22.6	
Actuated g/C Ratio	0.74	0.73		0.74	0.69			0.16		0.16	0.16	
Clearance Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	248	2613		206	2373			53		214	248	
v/s Ratio Prot	c0.02	c0.40		0.00	c0.43						c0.13	
v/s Ratio Perm	0.31			0.02				0.13		0.03		
v/c Ratio	0.45	0.55		0.02	0.63			0.80		0.18	0.82	
Uniform Delay, d1	9.7	8.4		6.6	12.0			56.6		50.7	56.7	
Progression Factor	1.00	1.00		0.69	0.73			1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.8		0.0	0.8			54.8		0.1	18.3	
Delay (s)	10.1	9.3		4.5	9.6			111.4		50.8	75.0	
Level of Service	B	A		A	A			F		D	E	
Approach Delay (s)		9.3			9.6			111.4			72.6	
Approach LOS		A			A			F			E	

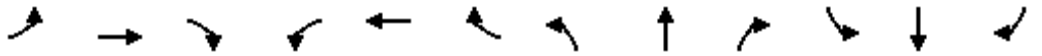
Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4043: 1 Wy S & S 336 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	40	600	64	690	12	550	285	669	1067	89
Future Volume (vph)	144	140	40	600	64	690	12	550	285	669	1067	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-6%			-1%			3%			-5%	
Total Lost time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1808	1844		1676	1709	1565	1743	3472	1520	1813	3555	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.15	1.00	1.00	0.17	1.00	
Satd. Flow (perm)	1808	1844		1676	1709	1565	284	3472	1520	329	3555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	144	140	40	600	64	690	12	550	285	669	1067	89
RTOR Reduction (vph)	0	8	0	0	0	100	0	0	240	0	3	0
Lane Group Flow (vph)	144	172	0	330	334	590	12	550	45	669	1153	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA	Perm	D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6		2	2		
Actuated Green, G (s)	18.3	18.3		25.0	25.0	79.0	77.2	23.2	23.2	77.2	75.0	
Effective Green, g (s)	17.3	17.3		25.0	25.0	79.0	77.2	23.2	22.2	77.2	75.0	
Actuated g/C Ratio	0.12	0.12		0.18	0.18	0.56	0.55	0.17	0.16	0.55	0.54	
Clearance Time (s)	4.5	4.5		5.0	5.0	5.5	4.5	4.5	4.5	5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	223	227		299	305	883	179	575	241	753	1904	
v/s Ratio Prot	0.08	c0.09		c0.20	0.20	0.26	0.00	c0.16		c0.34	0.32	
v/s Ratio Perm						0.12	0.04		0.03	0.15		
v/c Ratio	0.65	0.76		1.10	1.10	0.67	0.07	0.96	0.19	0.89	0.61	
Uniform Delay, d1	58.4	59.3		57.5	57.5	21.3	17.0	57.9	51.1	32.7	22.3	
Progression Factor	1.00	1.00		0.76	0.76	1.10	0.47	0.77	2.23	1.08	0.93	
Incremental Delay, d2	4.7	12.1		75.9	72.5	1.1	0.1	26.3	0.1	11.4	1.3	
Delay (s)	63.2	71.4		119.4	116.0	24.7	8.1	70.9	114.0	46.7	22.2	
Level of Service	E	E		F	F	C	A	E	F	D	C	
Approach Delay (s)		67.8			70.3			84.5			31.2	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	56.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	113.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4046: 9 Av S & S 336 St



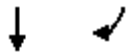
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	706	426	131	980	63	275	143	187	196	209	97
Future Volume (vph)	76	706	426	131	980	63	275	143	187	196	209	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-4%	
Total Lost time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.99		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3258		1764	3511		1751	1661		1789	1780	
Flt Permitted	0.17	1.00		0.12	1.00		0.16	1.00		0.17	1.00	
Satd. Flow (perm)	315	3258		232	3511		296	1661		314	1780	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	76	706	426	131	980	63	275	143	187	196	209	97
RTOR Reduction (vph)	0	59	0	0	3	0	0	37	0	0	12	0
Lane Group Flow (vph)	76	1073	0	131	1040	0	275	293	0	196	294	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	2	2	0	0	0	0	2	2	2	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	75.4	64.4		75.4	68.5		45.6	29.0		45.6	26.1	
Effective Green, g (s)	74.4	63.9		74.4	68.0		44.6	28.5		44.6	25.6	
Actuated g/C Ratio	0.53	0.46		0.53	0.49		0.32	0.20		0.32	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	233	1487		238	1705		291	338		269	325	
v/s Ratio Prot	0.01	c0.33		0.04	c0.30		c0.13	c0.18		0.08	0.17	
v/s Ratio Perm	0.16			0.25			0.17			0.15		
v/c Ratio	0.33	0.72		0.55	0.61		0.95	0.87		0.73	0.90	
Uniform Delay, d1	18.9	30.8		45.4	26.3		55.0	53.9		53.8	56.0	
Progression Factor	0.61	0.72		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.2		1.6	1.6		37.6	19.4		8.1	26.5	
Delay (s)	11.8	24.5		47.0	27.9		92.7	73.3		61.9	82.5	
Level of Service	B	C		D	C		F	E		E	F	
Approach Delay (s)		23.7			30.1			82.1			74.4	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4050: Pacific Hwy S & S 336 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	413	762	372	307	785	144	14	244	1612	208	27	79
Future Volume (vph)	413	762	372	307	785	144	14	244	1612	208	27	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%				3%			
Total Lost time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	6.0		5.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95			0.97	0.91	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00	0.95		1.00
Flpb, ped/bikes	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	0.98			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	3375	3522	1516	1733	3414			3368	4969	1480		1796
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	3375	3522	1516	1733	3414			3368	4969	1480		1796
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	413	762	372	307	785	144	14	244	1612	208	27	79
RTOR Reduction (vph)	0	0	108	0	11	0	0	0	0	100	0	0
Lane Group Flow (vph)	413	762	264	307	918	0	0	258	1612	108	0	106
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	6	0	4	4	2	6	4	2	6	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Actuated Green, G (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.0	55.0		11.5
Effective Green, g (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.0	54.0		11.5
Actuated g/C Ratio	0.12	0.20	0.20	0.17	0.26			0.07	0.39	0.39		0.08
Clearance Time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	5.0		5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	397	716	308	290	890			240	1952	570		147
v/s Ratio Prot	0.12	0.22		c0.18	c0.27			c0.08	0.32			0.06
v/s Ratio Perm			0.17							0.07		
v/c Ratio	1.04	1.06	0.86	1.06	1.03			1.07	0.83	0.19		0.72
Uniform Delay, d1	61.8	55.8	53.8	58.2	51.8			65.0	38.2	28.5		62.7
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.88	0.69	0.46		0.86
Incremental Delay, d2	56.0	52.0	19.5	69.1	38.5			56.6	1.5	0.3		10.4
Delay (s)	117.8	107.8	73.3	127.4	90.2			113.4	28.1	13.3		64.1
Level of Service	F	F	E	F	F			F	C	B		E
Approach Delay (s)		102.2			99.5				37.2			
Approach LOS		F			F				D			

Intersection Summary			
HCM 2000 Control Delay	63.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2067	104
Future Volume (vph)	2067	104
Ideal Flow (vphpl)	1900	1900
Grade (%)	-3%	
Total Lost time (s)	5.5	4.5
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5134	1555
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5134	1555
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	2067	104
RTOR Reduction (vph)	0	50
Lane Group Flow (vph)	2067	54
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	4	2
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	56.5	73.0
Effective Green, g (s)	56.5	73.0
Actuated g/C Ratio	0.40	0.52
Clearance Time (s)	5.5	4.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	2071	810
v/s Ratio Prot	c0.40	0.01
v/s Ratio Perm		0.03
v/c Ratio	1.00	0.07
Uniform Delay, d1	41.7	16.6
Progression Factor	0.58	0.77
Incremental Delay, d2	16.5	0.0
Delay (s)	40.7	12.9
Level of Service	D	B
Approach Delay (s)	40.5	
Approach LOS	D	

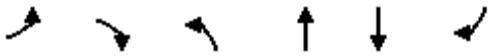
Intersection Summary

HCM Signalized Intersection Capacity Analysis
4250: Pacific Hwy S & S 340 Pl/16 Av S

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	22	43	74	10	1544	41	1121	25	1267	1565	2
Future Volume (vph)	64	22	43	74	10	1544	41	1121	25	1267	1565	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-5%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	0.88	1.00	0.91		0.94	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1678		1799	1909	2833	1752	4989		5027	5121	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.09	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1678		1799	1909	2833	165	4989		5027	5121	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	22	43	74	10	1544	41	1121	25	1267	1565	2
RTOR Reduction (vph)	0	40	0	0	0	72	0	2	0	0	0	0
Lane Group Flow (vph)	64	25	0	74	10	1472	41	1144	0	1267	1567	0
Confl. Peds. (#/hr)				10		10			10	10		
Bus Blockages (#/hr)	0	0	0	2	0	4	0	4	2	2	2	0
Turn Type	Prot	NA		Prot	NA	pt+ov	D.P+P	NA		Prot	NA	
Protected Phases	7	4		3	8	8 5	1	6		5	2	
Permitted Phases							2					
Actuated Green, G (s)	7.4	8.7		37.2	38.5	80.1	73.6	32.0		41.6	68.6	
Effective Green, g (s)	7.4	8.7		37.2	38.5	78.1	73.6	32.0		41.6	68.6	
Actuated g/C Ratio	0.05	0.06		0.27	0.28	0.56	0.53	0.23		0.30	0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	93	104		478	524	1580	143	1140		1493	2509	
v/s Ratio Prot	c0.04	0.01		0.04	0.01	c0.52	0.01	c0.23		0.25	0.31	
v/s Ratio Perm							0.14					
v/c Ratio	0.69	0.24		0.15	0.02	0.93	0.29	1.00		0.85	0.62	
Uniform Delay, d1	65.2	62.5		39.4	37.0	28.5	19.4	54.0		46.2	26.2	
Progression Factor	1.00	1.00		0.75	0.73	0.75	0.85	0.53		0.48	0.30	
Incremental Delay, d2	15.5	0.4		0.1	0.0	9.9	0.4	27.2		2.0	0.4	
Delay (s)	80.7	62.9		29.5	27.1	31.4	16.9	55.6		24.3	8.3	
Level of Service	F	E		C	C	C	B	E		C	A	
Approach Delay (s)		71.7			31.3			54.2			15.5	
Approach LOS		E			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4540: 1 Av S/1 Wy S & Winco Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	12	0	814	1753	123
Future Volume (vph)	78	12	0	814	1753	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			-3%	-1%	
Total Lost time (s)	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1729	1503		3578	3496	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1729	1503		3578	3496	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	78	12	0	814	1753	123
RTOR Reduction (vph)	0	11	0	0	2	0
Lane Group Flow (vph)	78	1	0	814	1874	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4		2		
Actuated Green, G (s)	15.5	15.5		115.5	115.5	
Effective Green, g (s)	14.5	14.5		115.5	115.5	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	179	155		2951	2884	
v/s Ratio Prot	c0.05			0.23	c0.54	
v/s Ratio Perm		0.00				
v/c Ratio	0.44	0.01		0.28	0.65	
Uniform Delay, d1	58.9	56.3		2.8	4.6	
Progression Factor	1.00	1.00		0.23	0.72	
Incremental Delay, d2	0.6	0.0		0.2	1.1	
Delay (s)	59.5	56.3		0.8	4.4	
Level of Service	E	E		A	A	
Approach Delay (s)	59.1			0.8	4.4	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4549: Pacific Hwy S & S 344 St

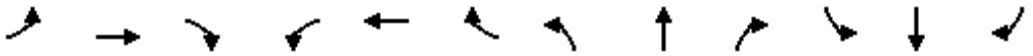
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	55	0	69	61	24	27	12	33	1054	89	12	64
Future Volume (vph)	55	0	69	61	24	27	12	33	1054	89	12	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-3%				2%			
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.95		1.00	0.97			1.00	0.99			1.00
Flpb, ped/bikes	0.97	1.00		0.98	1.00			1.00	1.00			1.00
Frt	1.00	0.85		1.00	0.92			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1694	1490		1742	1695			1752	4931			1782
Flt Permitted	0.72	1.00		0.68	1.00			0.13	1.00			0.22
Satd. Flow (perm)	1291	1490		1243	1695			232	4931			413
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	0	69	61	24	27	12	33	1054	89	12	64
RTOR Reduction (vph)	0	66	0	0	26	0	0	0	5	0	0	0
Lane Group Flow (vph)	55	3	0	61	25	0	0	45	1138	0	0	76
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	0	2	0	0	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4			6	6			2	2
Actuated Green, G (s)	13.5	5.9		13.5	6.2			106.5	100.6			106.5
Effective Green, g (s)	13.5	5.9		13.5	6.2			106.5	100.6			106.5
Actuated g/C Ratio	0.10	0.04		0.10	0.04			0.76	0.72			0.76
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	145	62		146	75			224	3543			371
v/s Ratio Prot	0.02	0.00		c0.02	0.01			0.01	0.23			c0.01
v/s Ratio Perm	0.02			c0.02				0.15				0.15
v/c Ratio	0.38	0.05		0.42	0.34			0.20	0.32			0.20
Uniform Delay, d1	59.1	64.4		59.2	64.9			4.9	7.2			4.4
Progression Factor	1.16	1.00		0.90	0.86			0.58	0.04			0.21
Incremental Delay, d2	0.6	0.1		0.7	0.9			0.1	0.1			0.1
Delay (s)	69.2	64.5		53.9	57.0			2.9	0.4			1.0
Level of Service	E	E		D	E			A	A			A
Approach Delay (s)		66.6			55.3				0.5			
Approach LOS		E			E				A			

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1573	34
Future Volume (vph)	1573	34
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5097	
Flt Permitted	1.00	
Satd. Flow (perm)	5097	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1573	34
RTOR Reduction (vph)	1	0
Lane Group Flow (vph)	1606	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	102.1	
Effective Green, g (s)	102.1	
Actuated g/C Ratio	0.73	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3717	
v/s Ratio Prot	c0.32	
v/s Ratio Perm		
v/c Ratio	0.43	
Uniform Delay, d1	7.5	
Progression Factor	0.13	
Incremental Delay, d2	0.3	
Delay (s)	1.3	
Level of Service	A	
Approach Delay (s)	1.3	
Approach LOS	A	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4550: 16 Av S & S 344 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	54	29	217	48	95	53	967	62	136	1530	22
Future Volume (vph)	32	54	29	217	48	95	53	967	62	136	1530	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-5%			3%			-1%	
Total Lost time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1727	1731		1786	1685		1743	3430		1778	3532	
Flt Permitted	0.52	1.00		0.60	1.00		0.09	1.00		0.20	1.00	
Satd. Flow (perm)	945	1731		1125	1685		166	3430		382	3532	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	54	29	217	48	95	53	967	62	136	1530	22
RTOR Reduction (vph)	0	14	0	0	50	0	0	3	0	0	1	0
Lane Group Flow (vph)	32	69	0	217	93	0	53	1026	0	136	1551	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	29.2	11.5		29.2	24.8		91.8	79.9		91.8	86.9	
Effective Green, g (s)	29.2	11.5		29.2	24.8		91.8	79.9		91.8	86.9	
Actuated g/C Ratio	0.21	0.08		0.21	0.18		0.66	0.57		0.66	0.62	
Clearance Time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	221	142		318	298		164	1957		369	2192	
v/s Ratio Prot	0.00	0.04		c0.09	0.06		0.01	c0.30		0.03	c0.44	
v/s Ratio Perm	0.03			c0.06			0.20			0.21		
v/c Ratio	0.14	0.49		0.68	0.31		0.32	0.52		0.37	0.71	
Uniform Delay, d1	44.8	61.4		49.9	50.2		15.2	18.4		23.4	18.0	
Progression Factor	0.68	0.86		1.00	1.00		1.09	0.19		0.47	0.51	
Incremental Delay, d2	0.1	0.9		4.8	0.2		0.1	0.3		0.2	1.6	
Delay (s)	30.4	53.8		54.7	50.4		16.7	3.7		11.2	10.7	
Level of Service	C	D		D	D		B	A		B	B	
Approach Delay (s)		47.3			53.0			4.3			10.7	
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	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4840: 1 Av S & SW Campus Dr/S 348 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	746	221	417	1404	194	174	439	257	195	1147	372
Future Volume (vph)	171	746	221	417	1404	194	174	439	257	195	1147	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-1%			7%			-3%	
Total Lost time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	5.5	5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	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	0.97		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)	3351	3313		3436	3543	1550	1694	3402	1476	1782	3578	1558
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3351	3313		3436	3543	1550	1694	3402	1476	1782	3578	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	171	746	221	417	1404	194	174	439	257	195	1147	372
RTOR Reduction (vph)	0	20	0	0	0	34	0	0	215	0	0	56
Lane Group Flow (vph)	171	947	0	417	1404	160	174	439	42	195	1147	316
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	10.5	46.5		19.0	55.0	86.4	13.0	24.1	24.1	31.4	42.0	52.5
Effective Green, g (s)	10.5	46.5		19.0	55.0	86.4	13.0	24.1	23.1	31.4	42.0	52.5
Actuated g/C Ratio	0.08	0.33		0.14	0.39	0.62	0.09	0.17	0.17	0.22	0.30	0.38
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	4.5	5.0	5.0	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	251	1100		466	1391	1011	157	585	243	399	1073	584
v/s Ratio Prot	0.05	0.29		c0.12	c0.40	0.04	c0.10	0.13		0.11	c0.32	0.04
v/s Ratio Perm						0.07			0.03			0.16
v/c Ratio	0.68	0.86		0.89	1.01	0.16	1.11	0.75	0.17	0.49	1.07	0.54
Uniform Delay, d1	63.1	43.7		59.5	42.5	11.4	63.5	55.1	50.3	47.3	49.0	34.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.88	0.86	2.31	0.83	0.85	0.59
Incremental Delay, d2	5.9	8.9		18.9	26.4	0.0	79.0	2.1	0.1	0.3	44.7	0.4
Delay (s)	69.1	52.6		78.4	68.9	11.4	134.8	49.7	116.2	39.3	86.3	20.8
Level of Service	E	D		E	E	B	F	D	F	D	F	C
Approach Delay (s)		55.1			65.3			86.4			66.7	
Approach LOS		E			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	66.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4848: Pacific Hwy S & S 348 St

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	50	169	1866	434	348	1902	60	5	210	1002	290	142
Future Volume (vph)	50	169	1866	434	348	1902	60	5	210	1002	290	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%			1%				2%		
Total Lost time (s)		4.5	5.0	6.0	5.0	5.0			5.0	5.0	5.0	5.5
Lane Util. Factor		1.00	0.91	1.00	0.97	0.91			0.97	0.86	0.86	0.97
Frpb, ped/bikes		1.00	1.00	0.98	1.00	1.00			1.00	1.00	0.99	1.00
Flpb, ped/bikes		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			1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)		1720	4984	1505	3402	5020			3385	4722	1328	3485
Flt Permitted		0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)		1720	4984	1505	3402	5020			3385	4722	1328	3485
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	169	1866	434	348	1902	60	5	210	1002	290	142
RTOR Reduction (vph)	0	0	0	67	0	2	0	0	0	2	63	0
Lane Group Flow (vph)	0	219	1866	367	348	1960	0	0	215	1029	198	142
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	0	2	2	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4							2	
Actuated Green, G (s)		18.5	60.0	60.0	15.0	57.0			10.0	34.5	49.5	10.0
Effective Green, g (s)		18.5	60.0	59.0	15.0	57.0			10.0	34.5	49.5	10.0
Actuated g/C Ratio		0.13	0.43	0.42	0.11	0.41			0.07	0.25	0.35	0.07
Clearance Time (s)		4.5	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.5
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		227	2136	634	364	2043			241	1163	469	248
v/s Ratio Prot		0.13	c0.37		0.10	c0.39			c0.06	0.22	0.05	0.04
v/s Ratio Perm				0.24							0.10	
v/c Ratio		0.96	0.87	0.58	0.96	0.96			0.89	0.88	0.42	0.57
Uniform Delay, d1		60.4	36.5	31.0	62.2	40.4			64.5	50.8	34.4	62.9
Progression Factor		1.00	1.00	1.00	0.68	0.86			0.80	0.56	0.60	0.63
Incremental Delay, d2		49.1	5.3	3.8	22.6	7.3			29.4	7.7	0.2	1.9
Delay (s)		109.6	41.9	34.8	65.1	42.0			80.8	36.0	20.9	41.6
Level of Service		F	D	C	E	D			F	D	C	D
Approach Delay (s)			46.5			45.4				39.7		
Approach LOS			D			D				D		

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		
Description:			

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1263	145
Future Volume (vph)	1263	145
Ideal Flow (vphpl)	1900	1900
Grade (%)	-3%	
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5148	1558
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5148	1558
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1263	145
RTOR Reduction (vph)	0	102
Lane Group Flow (vph)	1263	43
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	34.5	34.5
Effective Green, g (s)	34.5	34.5
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	1268	383
v/s Ratio Prot	c0.25	
v/s Ratio Perm		0.03
v/c Ratio	1.00	0.11
Uniform Delay, d1	52.7	40.9
Progression Factor	0.75	0.52
Incremental Delay, d2	23.3	0.0
Delay (s)	62.9	21.2
Level of Service	E	C
Approach Delay (s)	57.1	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	132	1493	462	1113	1730	286	73	345	782	669	752
Future Volume (vph)	13	132	1493	462	1113	1730	286	73	345	782	669	752
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%			-4%				2%		
Total Lost time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	0.91	1.00	0.94	0.91	1.00		0.97	0.91	0.91	0.94
Frpb, ped/bikes		1.00	1.00	0.98	1.00	1.00	0.97		1.00	0.99	1.00	1.00
Flpb, ped/bikes		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	0.97	0.85	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1738	5034	1519	5077	5173	1559		3385	3213	1426	5040
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1738	5034	1519	5077	5173	1559		3385	3213	1426	5040
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	132	1493	462	1113	1730	286	73	345	782	669	752
RTOR Reduction (vph)	0	0	0	68	0	0	128	0	0	18	48	0
Lane Group Flow (vph)	0	145	1493	394	1113	1730	159	0	418	991	394	752
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	2	2	2	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pt+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	2 3	1
Permitted Phases				4			8					
Actuated Green, G (s)		12.5	41.5	41.5	26.0	55.0	55.0		18.0	36.0	62.0	17.0
Effective Green, g (s)		12.5	41.5	41.5	26.0	55.0	55.0		18.0	36.0	62.0	17.0
Actuated g/C Ratio		0.09	0.30	0.30	0.19	0.39	0.39		0.13	0.26	0.44	0.12
Clearance Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)		155	1492	450	942	2032	612		435	826	631	612
v/s Ratio Prot		0.08	c0.30		c0.22	0.33			0.12	c0.31	0.28	c0.15
v/s Ratio Perm				0.26			0.10					
v/c Ratio		0.94	1.00	0.88	1.18	0.85	0.26		0.96	1.20	0.62	1.23
Uniform Delay, d1		63.3	49.2	46.8	57.0	38.8	28.7		60.7	52.0	30.0	61.5
Progression Factor		0.84	0.60	0.47	1.00	0.99	1.03		1.20	1.04	1.31	0.74
Incremental Delay, d2		36.4	17.5	12.7	85.7	1.7	0.4		28.0	99.1	1.1	114.3
Delay (s)		89.4	47.3	34.6	142.8	40.1	29.8		100.5	153.3	40.5	160.1
Level of Service		F	D	C	F	D	C		F	F	D	F
Approach Delay (s)			47.4			75.7				114.8		
Approach LOS			D			E				F		

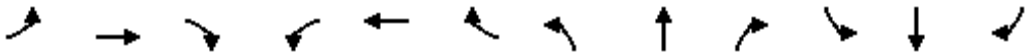
Intersection Summary			
HCM 2000 Control Delay	83.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

Description:

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1084	164
Future Volume (vph)	1084	164
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	5007	
Flt Permitted	1.00	
Satd. Flow (perm)	5007	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1084	164
RTOR Reduction (vph)	14	0
Lane Group Flow (vph)	1234	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	34.5	
Effective Green, g (s)	34.5	
Actuated g/C Ratio	0.25	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1233	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	1.00	
Uniform Delay, d1	52.8	
Progression Factor	0.96	
Incremental Delay, d2	23.0	
Delay (s)	73.9	
Level of Service	E	
Approach Delay (s)	106.3	
Approach LOS	F	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1608
Future Volume (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1608
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0				5.0			5.0
Lane Util. Factor		0.95			0.95				1.00			0.76
Frpb, ped/bikes		1.00			1.00				0.99			1.00
Flpb, ped/bikes		1.00			1.00				1.00			1.00
Frt		1.00			1.00				0.86			0.85
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3539			3539				1587			3600
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			3539				1587			3600
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1608
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	17
Lane Group Flow (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1591
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	2
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Actuated Green, G (s)		140.0			67.2				140.0			62.8
Effective Green, g (s)		140.0			67.2				140.0			62.8
Actuated g/C Ratio		1.00			0.48				1.00			0.45
Clearance Time (s)		5.0			5.0							5.0
Vehicle Extension (s)		2.0			2.0							2.0
Lane Grp Cap (vph)		3539			1698				1587			1614
v/s Ratio Prot		0.39			c0.43							c0.44
v/s Ratio Perm									0.72			
v/c Ratio		0.39			0.90				0.72			0.99
Uniform Delay, d1		0.0			33.2				0.0			38.2
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		0.0			7.8				2.9			18.9
Delay (s)		0.0			41.0				2.9			57.1
Level of Service		A			D				A			E
Approach Delay (s)		0.0			41.0			2.9			57.1	
Approach LOS		A			D			A			E	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5047: Pacific Hwy S & S 352 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	296	1121	246	0	2050
Future Volume (vph)	0	296	1121	246	0	2050
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		2%			-2%
Total Lost time (s)		5.0	5.0			5.0
Lane Util. Factor		1.00	0.91			0.91
Frt		0.85	0.97			1.00
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		1583	4899			5136
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		1583	4899			5136
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	296	1121	246	0	2050
RTOR Reduction (vph)	0	166	10	0	0	0
Lane Group Flow (vph)	0	130	1357	0	0	2050
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	8		2		1	6
Permitted Phases		8			2	
Actuated Green, G (s)		15.5	114.5			114.5
Effective Green, g (s)		15.5	114.5			114.5
Actuated g/C Ratio		0.11	0.82			0.82
Clearance Time (s)		5.0	5.0			5.0
Vehicle Extension (s)		2.0	2.0			2.0
Lane Grp Cap (vph)		175	4006			4200
v/s Ratio Prot			0.28			c0.40
v/s Ratio Perm		c0.08				
v/c Ratio		0.74	0.34			0.49
Uniform Delay, d1		60.3	3.2			3.9
Progression Factor		0.60	0.57			0.62
Incremental Delay, d2		12.6	0.2			0.2
Delay (s)		49.1	2.0			2.6
Level of Service		D	A			A
Approach Delay (s)	49.1		2.0			2.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5050: Enchanted Pkwy S & S 352 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	108	123	197	108	296	18	1278	253	169	2017	170
Future Volume (vph)	15	108	123	197	108	296	18	1278	253	169	2017	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-11%			0%			1%	
Total Lost time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99	0.97	1.00	0.99		1.00	1.00	0.95
Flpb, ped/bikes	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	0.94	0.85	1.00	0.98		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)	1744	1853	1524	1751	1644	1520	1770	3412		1761	3507	1497
Flt Permitted	0.22	1.00	1.00	0.47	1.00	1.00	0.04	1.00		0.08	1.00	1.00
Satd. Flow (perm)	404	1853	1524	875	1644	1520	84	3412		142	3507	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	108	123	197	108	296	18	1278	253	169	2017	170
RTOR Reduction (vph)	0	0	115	0	18	177	0	11	0	0	0	42
Lane Group Flow (vph)	15	108	8	177	202	27	18	1520	0	169	2017	128
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3		4	4		3	6			2		6
Actuated Green, G (s)	29.4	10.2	10.2	29.4	19.2	19.2	91.1	80.1		91.1	89.1	89.1
Effective Green, g (s)	27.4	9.2	9.2	27.4	18.2	18.2	91.1	80.1		91.1	89.1	89.1
Actuated g/C Ratio	0.20	0.07	0.07	0.20	0.13	0.13	0.65	0.57		0.65	0.64	0.64
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	167	121	100	285	213	197	78	1952		219	2231	952
v/s Ratio Prot	0.01	c0.06		0.08	c0.12		0.00	c0.45		0.06	c0.58	
v/s Ratio Perm	0.01		0.01	0.04		0.02	0.15			0.44		0.09
v/c Ratio	0.09	0.89	0.08	0.62	0.95	0.13	0.23	0.78		0.77	0.90	0.13
Uniform Delay, d1	46.3	64.9	61.4	52.6	60.4	53.9	51.6	23.1		28.6	21.8	10.1
Progression Factor	0.37	1.07	2.17	1.00	1.00	1.00	0.73	0.62		0.97	0.60	0.05
Incremental Delay, d2	0.1	47.7	0.1	3.0	46.0	0.1	0.5	2.9		1.4	0.7	0.0
Delay (s)	17.2	117.3	133.5	55.6	106.4	54.0	38.3	17.2		29.2	13.7	0.6
Level of Service	B	F	F	E	F	D	D	B		C	B	A
Approach Delay (s)		119.3			73.7			17.4			13.9	
Approach LOS		F			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

Description:

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5240: 1 Av S & SW 356 St/S 356 St

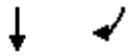
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	551	402	43	65	1117	209	43	195	52	343	468	963
Future Volume (vph)	551	402	43	65	1117	209	43	195	52	343	468	963
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			5%			3%			1%	
Total Lost time (s)	5.5	5.5	5.5	4.5	4.5	5.5	5.0	4.5	4.5	5.0	4.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98
Flpb, ped/bikes	1.00	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	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)	1791	1900	1564	1720	3437	1455	1727	1820	1489	1755	3522	2706
Flt Permitted	0.09	1.00	1.00	0.44	1.00	1.00	0.25	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	164	1900	1564	802	3437	1455	453	1820	1489	477	3522	2706
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	551	402	43	65	1117	209	43	195	52	343	468	963
RTOR Reduction (vph)	0	0	19	0	0	103	0	0	46	0	0	92
Lane Group Flow (vph)	551	402	24	65	1117	106	43	195	6	343	468	871
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	0	0	2	2	2	2	0	0	0	2
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6		2	8		4	4		8
Actuated Green, G (s)	83.6	78.2	78.2	83.6	46.1	46.1	36.9	15.5	15.5	36.9	27.5	65.0
Effective Green, g (s)	83.6	78.2	78.2	83.6	46.1	45.1	36.9	15.5	15.5	36.9	27.5	65.0
Actuated g/C Ratio	0.60	0.56	0.56	0.60	0.33	0.32	0.26	0.11	0.11	0.26	0.20	0.46
Clearance Time (s)	5.5	5.5	5.5	4.5	4.5	4.5	5.0	4.5	4.5	5.0	4.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	533	1061	873	514	1131	468	204	201	164	321	691	1362
v/s Ratio Prot	c0.28	0.21		0.00	0.32		0.01	0.11		c0.16	0.13	0.17
v/s Ratio Perm	c0.34		0.02	0.07		0.07	0.04		0.00	c0.12		0.15
v/c Ratio	1.03	0.38	0.03	0.13	0.99	0.23	0.21	0.97	0.04	1.07	0.68	0.64
Uniform Delay, d1	47.5	17.3	13.9	12.4	46.7	34.7	50.9	62.0	55.6	47.7	52.1	28.6
Progression Factor	1.00	1.00	1.00	1.73	1.18	1.82	1.00	1.00	1.00	1.06	1.00	1.15
Incremental Delay, d2	48.0	1.0	0.1	0.0	16.5	0.6	0.2	54.5	0.0	37.3	0.2	0.1
Delay (s)	95.5	18.3	13.9	21.4	71.5	63.9	51.1	116.5	55.6	87.9	52.1	33.0
Level of Service	F	B	B	C	E	E	D	F	E	F	D	C
Approach Delay (s)		60.8			68.0			95.9			48.7	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	60.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5246: Pacific Hwy S & S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	216	694	169	427	879	48	2	155	1202	48	4	132
Future Volume (vph)	216	694	169	427	879	48	2	155	1202	48	4	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-3%				2%			
Total Lost time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.97	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98		1.00	1.00			1.00
Flpb, ped/bikes	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	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1764	3557	1537	1781	3592	1555		3399	4986			1787
Flt Permitted	0.10	1.00	1.00	0.14	1.00	1.00		0.95	1.00			0.10
Satd. Flow (perm)	191	3557	1537	268	3592	1555		3399	4986			186
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	216	694	169	427	879	48	2	155	1202	48	4	132
RTOR Reduction (vph)	0	0	125	0	0	35	0	0	3	0	0	0
Lane Group Flow (vph)	216	694	44	427	879	13	0	157	1247	0	0	136
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	2	0	2	2	0	2	2	0	2	0	0	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4		8					2	2
Actuated Green, G (s)	57.0	28.0	28.0	58.0	38.8	38.8		9.1	49.2			60.0
Effective Green, g (s)	57.0	28.0	28.0	58.0	38.8	37.8		10.1	50.2			60.0
Actuated g/C Ratio	0.41	0.20	0.20	0.41	0.28	0.27		0.07	0.36			0.43
Clearance Time (s)	7.0	5.0	5.0	6.0	5.0	5.0		5.5	5.5			5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0
Lane Grp Cap (vph)	282	711	307	435	995	419		245	1787			203
v/s Ratio Prot	0.10	0.20		c0.21	0.24			0.05	0.25			c0.05
v/s Ratio Perm	0.21		0.03	c0.20		0.01						0.23
v/c Ratio	0.77	0.98	0.14	0.98	0.88	0.03		0.64	0.70			0.67
Uniform Delay, d1	53.0	55.7	46.1	51.1	48.4	37.6		63.2	38.4			28.4
Progression Factor	0.96	0.92	1.00	1.09	0.82	1.00		1.00	1.00			0.88
Incremental Delay, d2	9.5	25.6	0.1	32.7	7.2	0.0		4.2	2.3			5.7
Delay (s)	60.5	76.7	46.0	88.6	47.1	37.6		67.4	40.7			30.7
Level of Service	E	E	D	F	D	D		E	D			C
Approach Delay (s)		68.7			59.8				43.7			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1232	447
Future Volume (vph)	1232	447
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	4879	
Flt Permitted	1.00	
Satd. Flow (perm)	4879	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1232	447
RTOR Reduction (vph)	46	0
Lane Group Flow (vph)	1633	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	50.9	
Effective Green, g (s)	50.9	
Actuated g/C Ratio	0.36	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1773	
v/s Ratio Prot	c0.33	
v/s Ratio Perm		
v/c Ratio	0.92	
Uniform Delay, d1	42.6	
Progression Factor	0.87	
Incremental Delay, d2	8.5	
Delay (s)	45.4	
Level of Service	D	
Approach Delay (s)	44.3	
Approach LOS	D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5250: 16 Av S & S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	889	17	39	833	0	26	0	125	0	64	410
Future Volume (vph)	0	889	17	39	833	0	26	0	125	0	64	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			-1%			3%			0%	
Total Lost time (s)		3.5			3.0			4.0	4.0		3.0	3.0
Lane Util. Factor		0.95			0.95			0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.97	0.96		1.00	0.97
Flpb, ped/bikes		1.00			1.00			0.99	1.00		1.00	1.00
Frt		1.00			1.00			0.90	0.85		1.00	0.85
Flt Protected		1.00			1.00			0.98	1.00		1.00	1.00
Satd. Flow (prot)		3403			3549			1492	1417		1863	1535
Flt Permitted		1.00			0.68			0.87	1.00		1.00	1.00
Satd. Flow (perm)		3403			2419			1323	1417		1863	1535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	889	17	39	833	0	26	0	125	0	64	410
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	155
Lane Group Flow (vph)	0	905	0	0	872	0	0	76	75	0	64	255
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type		NA		custom	NA		Perm	NA	Perm		NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3			6
Actuated Green, G (s)		26.5			49.0			12.1	12.1		59.9	59.9
Effective Green, g (s)		27.5			53.0			13.1	13.1		61.9	61.9
Actuated g/C Ratio		0.20			0.38			0.09	0.09		0.44	0.44
Clearance Time (s)		4.5						5.0	5.0		5.0	5.0
Vehicle Extension (s)		2.0						2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		668			1109			123	132		823	678
v/s Ratio Prot		c0.27			c0.13						0.03	
v/s Ratio Perm					0.16			c0.06	0.05			c0.17
v/c Ratio		1.36			0.79			0.62	0.57		0.08	0.38
Uniform Delay, d1		56.2			38.5			61.0	60.7		22.6	26.1
Progression Factor		0.31			0.62			1.00	1.00		0.67	0.29
Incremental Delay, d2		164.5			0.3			6.3	3.3		0.2	1.4
Delay (s)		182.1			24.0			67.4	64.1		15.4	9.0
Level of Service		F			C			E	E		B	A
Approach Delay (s)		182.1			24.0			65.7			9.9	
Approach LOS		F			C			E			A	

Intersection Summary			
HCM 2000 Control Delay	83.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

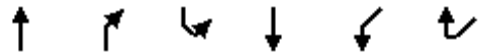
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5251: Enchanted Pkwy S & S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	18	669	61	91	50	738	1332	77	20	1683	44
Future Volume (vph)	267	18	669	61	91	50	738	1332	77	20	1683	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			-1%			1%	
Total Lost time (s)		3.5	3.5	2.0	2.0		3.0	4.0		5.0	3.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected		0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1762	1523	1739	1747		3450	3504		1761	3491	
Flt Permitted		0.47	1.00	0.59	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		863	1523	1071	1747		3450	3504		1761	3491	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	267	18	669	61	91	50	738	1332	77	20	1683	44
RTOR Reduction (vph)	0	0	434	0	14	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	285	235	61	127	0	738	1407	0	20	1726	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	3	4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		38.6	26.5	27.0	27.0		22.0	75.9		6.0	59.9	
Effective Green, g (s)		40.6	27.5	29.0	29.0		24.0	76.9		6.0	61.9	
Actuated g/C Ratio		0.29	0.20	0.21	0.21		0.17	0.55		0.04	0.44	
Clearance Time (s)		4.5	4.5	4.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		334	299	221	361		591	1924		75	1543	
v/s Ratio Prot		c0.08			0.07		c0.21	0.40		0.01	c0.49	
v/s Ratio Perm		c0.17	0.15	0.06								
v/c Ratio		0.85	0.79	0.28	0.35		1.25	0.73		0.27	1.12	
Uniform Delay, d1		46.9	53.5	46.7	47.5		58.0	23.8		64.9	39.0	
Progression Factor		0.92	2.49	1.00	1.00		0.88	0.67		0.80	0.68	
Incremental Delay, d2		2.0	1.2	0.2	0.2		125.2	2.4		0.5	60.9	
Delay (s)		45.2	134.1	46.9	47.7		176.2	18.3		52.3	87.3	
Level of Service		D	F	D	D		F	B		D	F	
Approach Delay (s)		107.5			47.4			72.6			86.9	
Approach LOS		F			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	83.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	113.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5451: Enchanted Pkwy S & SR18 - SR 161 Ramp



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	853	0	0	1443	143	164
Future Volume (vph)	853	0	0	1443	143	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	0.92	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3543			3560	3236	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3543			3560	3236	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	853	0	0	1443	143	164
RTOR Reduction (vph)	0	0	0	0	105	0
Lane Group Flow (vph)	853	0	0	1443	202	0
Bus Blockages (#/hr)	2	0	0	2	2	2
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Actuated Green, G (s)	50.0			80.0	50.0	
Effective Green, g (s)	50.0			80.0	50.0	
Actuated g/C Ratio	0.36			0.57	0.36	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0	
Lane Grp Cap (vph)	1265			2034	1155	
v/s Ratio Prot					0.06	
v/s Ratio Perm	c0.24			c0.41		
v/c Ratio	0.67			0.71	0.17	
Uniform Delay, d1	38.1			21.6	30.9	
Progression Factor	0.94			0.46	1.00	
Incremental Delay, d2	2.8			0.2	0.0	
Delay (s)	38.7			10.2	30.9	
Level of Service	D			B	C	
Approach Delay (s)	38.7			10.2	30.9	
Approach LOS	D			B	C	

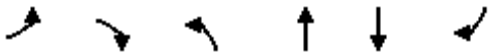
Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
Description: WSDOT 2013-03-19			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5652: Milton Rd S & Enchanted Pkwy S

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	538	23	101	1012	253	71	51	22	20	54	234
Future Volume (vph)	3	538	23	101	1012	253	71	51	22	20	54	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99			1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.95			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	1743	3439		1787	3397		1712	1708			1820	1478
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	1743	3439		1787	3397		1712	1708			1820	1478
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	538	23	101	1012	253	71	51	22	20	54	234
RTOR Reduction (vph)	0	2	0	0	9	0	0	11	0	0	0	217
Lane Group Flow (vph)	3	559	0	101	1256	0	71	62	0	0	74	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	1.1	78.8		21.0	98.7		9.9	9.9			10.3	10.3
Effective Green, g (s)	1.1	78.8		21.0	98.7		9.9	9.9			10.3	10.3
Actuated g/C Ratio	0.01	0.56		0.15	0.71		0.07	0.07			0.07	0.07
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	13	1935		268	2394		121	120			133	108
v/s Ratio Prot	0.00	c0.16		0.06	c0.37		c0.04	0.04			c0.04	
v/s Ratio Perm												0.01
v/c Ratio	0.23	0.29		0.38	0.52		0.59	0.52			0.56	0.16
Uniform Delay, d1	69.0	16.0		53.6	9.7		63.1	62.7			62.6	60.8
Progression Factor	1.03	1.26		0.63	0.57		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.2	0.4		0.2	0.6		4.6	1.6			2.8	0.3
Delay (s)	74.0	20.5		34.1	6.2		67.7	64.3			65.5	61.0
Level of Service	E	C		C	A		E	E			E	E
Approach Delay (s)		20.8			8.2			66.0			62.1	
Approach LOS		C			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5954: Enchanted Pkwy S & 19 Wy S



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	34	51	802	1486	100
Future Volume (vph)	43	34	51	802	1486	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	1%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.95	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1493	1771	3543	3456	
Flt Permitted	0.95	1.00	0.15	1.00	1.00	
Satd. Flow (perm)	1755	1493	273	3543	3456	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	43	34	51	802	1486	100
RTOR Reduction (vph)	0	32	0	0	2	0
Lane Group Flow (vph)	43	2	51	802	1584	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.9	6.9	123.1	123.1	123.1	
Effective Green, g (s)	6.9	6.9	123.1	123.1	123.1	
Actuated g/C Ratio	0.05	0.05	0.88	0.88	0.88	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	86	73	240	3115	3038	
v/s Ratio Prot	c0.02			0.23	c0.46	
v/s Ratio Perm		0.00	0.19			
v/c Ratio	0.50	0.02	0.21	0.26	0.52	
Uniform Delay, d1	64.9	63.3	1.3	1.3	1.9	
Progression Factor	1.00	1.00	1.00	1.00	0.71	
Incremental Delay, d2	1.7	0.0	2.0	0.2	0.6	
Delay (s)	66.5	63.4	3.3	1.5	1.9	
Level of Service	E	E	A	A	A	
Approach Delay (s)	65.1			1.6	1.9	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
451: Pacific Hwy S & 16 Av S

Movement	NBU	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations							
Traffic Volume (veh/h)	82	150	941	2251	49	0	426
Future Volume (Veh/h)	82	150	941	2251	49	0	426
Sign Control			Free	Free		Stop	
Grade			-3%	2%		4%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	150	941	2251	49	0	426
Pedestrians			10	10		10	
Lane Width (ft)			12.0	12.0		12.0	
Walking Speed (ft/s)			4.0	4.0		4.0	
Percent Blockage			1	1		1	
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)				989			
pX, platoon unblocked	0.00	0.77				0.77	0.77
vC, conflicting volume	0	2310				2909	795
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	1654				2433	0
tC, single (s)	0.0	4.1				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	49				100	48
cM capacity (veh/h)	0	295				10	821

Direction, Lane #	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SE 1
Volume Total	150	314	314	314	900	900	499	426
Volume Left	150	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	49	426
cSH	295	1700	1700	1700	1700	1700	1700	821
Volume to Capacity	0.51	0.18	0.18	0.18	0.53	0.53	0.29	0.52
Queue Length 95th (ft)	68	0	0	0	0	0	0	76
Control Delay (s)	29.3	0.0	0.0	0.0	0.0	0.0	0.0	14.0
Lane LOS	D							B
Approach Delay (s)	4.0				0.0			14.0
Approach LOS								B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
750: Pacific Hwy S & S 283 Pl

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	82	1049	62	7	89	2611
Future Volume (Veh/h)	0	82	1049	62	7	89	2611
Sign Control	Stop		Free				Free
Grade	-11%		-3%				3%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	82	1049	62	0	89	2611
Pedestrians	8		10				10
Lane Width (ft)	12.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	1		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	2146	399			0	1119	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2146	399			0	1119	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	86			0	86	
cM capacity (veh/h)	36	598			0	616	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	82	420	420	272	89	870	870	870
Volume Left	0	0	0	0	89	0	0	0
Volume Right	82	0	0	62	0	0	0	0
cSH	598	1700	1700	1700	616	1700	1700	1700
Volume to Capacity	0.14	0.25	0.25	0.16	0.14	0.51	0.51	0.51
Queue Length 95th (ft)	12	0	0	0	13	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	11.8	0.0	0.0	0.0
Lane LOS	B				B			
Approach Delay (s)	12.0	0.0			0.4			
Approach LOS	B							

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

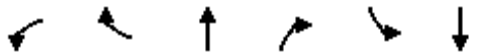
HCM Unsignalized Intersection Capacity Analysis
1751: Pacific Hwy S & 18 Av S

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	291	1442	145	3	24	2138
Future Volume (Veh/h)	0	291	1442	145	3	24	2138
Sign Control	Stop		Free				Free
Grade	-10%		-4%				3%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	291	1442	145	0	24	2138
Pedestrians	2		10				10
Lane Width (ft)	10.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	0		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							720
pX, platoon unblocked	0.55				0.00		
vC, conflicting volume	2287	565			0	1589	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	458	565			0	1589	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	38			0	94	
cM capacity (veh/h)	275	469			0	413	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	291	577	577	433	24	713	713	713
Volume Left	0	0	0	0	24	0	0	0
Volume Right	291	0	0	145	0	0	0	0
cSH	469	1700	1700	1700	413	1700	1700	1700
Volume to Capacity	0.62	0.34	0.34	0.25	0.06	0.42	0.42	0.42
Queue Length 95th (ft)	103	0	0	0	5	0	0	0
Control Delay (s)	24.4	0.0	0.0	0.0	14.2	0.0	0.0	0.0
Lane LOS	C				B			
Approach Delay (s)	24.4	0.0			0.2			
Approach LOS	C							

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2350: Pacific Hwy S & S 310 St

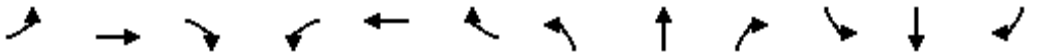


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	154	1537	33	0	2334
Future Volume (Veh/h)	0	154	1537	33	0	2334
Sign Control	Stop		Free			Free
Grade	0%		1%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	154	1537	33	0	2334
Pedestrians	16		16			12
Lane Width (ft)	10.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			660			662
pX, platoon unblocked	0.79	0.79			0.79	
vC, conflicting volume	2364	557			1586	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			789	
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	82			100	
cM capacity (veh/h)	790	839			642	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	154	615	615	340	778	778	778
Volume Left	0	0	0	0	0	0	0
Volume Right	154	0	0	33	0	0	0
cSH	839	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.18	0.36	0.36	0.20	0.46	0.46	0.46
Queue Length 95th (ft)	17	0	0	0	0	0	0
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	10.3	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3451: 17 Av S & S 324 St

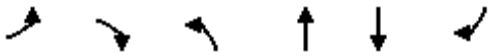


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	891	145	454	1609	5	0	0	257	0	0	89
Future Volume (Veh/h)	0	891	145	454	1609	5	0	0	257	0	0	89
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			-1%			-1%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	891	145	454	1609	5	0	0	257	0	0	89
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		383										
pX, platoon unblocked												
vC, conflicting volume	1624			1046			2444	3433	466	3242	3576	559
vC1, stage 1 conf vol							901	901		2530	2530	
vC2, stage 2 conf vol							1543	2532		712	1046	
vCu, unblocked vol	1624			1046			2444	3433	466	3242	3576	559
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			31			100	100	52	100	100	81
cM capacity (veh/h)	393			655			29	16	535	1	2	465

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	446	446	145	856	804	407	257	89
Volume Left	0	0	0	454	0	0	0	0
Volume Right	0	0	145	0	0	5	257	89
cSH	1700	1700	1700	655	1700	1700	535	465
Volume to Capacity	0.26	0.26	0.09	0.69	0.47	0.24	0.48	0.19
Queue Length 95th (ft)	0	0	0	139	0	0	65	18
Control Delay (s)	0.0	0.0	0.0	21.0	0.0	0.0	17.8	14.6
Lane LOS				C			C	B
Approach Delay (s)	0.0			8.7			17.8	14.6
Approach LOS							C	B

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	73.4%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3550: Pacific Hwy S & S 328 St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	118	0	2210	2443	143
Future Volume (Veh/h)	0	118	0	2210	2443	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	-2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	118	0	2210	2443	143
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				641		
pX, platoon unblocked	0.69					
vC, conflicting volume	3271	906	2596			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2722	906	2596			
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	57	100			
cM capacity (veh/h)	11	274	163			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	118	737	737	737	977	977	632
Volume Left	0	0	0	0	0	0	0
Volume Right	118	0	0	0	0	0	143
cSH	274	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.43	0.43	0.43	0.43	0.57	0.57	0.37
Queue Length 95th (ft)	51	0	0	0	0	0	0
Control Delay (s)	27.7	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D						
Approach Delay (s)	27.7	0.0			0.0		
Approach LOS	D						

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	68.5%	ICU Level of Service		C
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3750: Pacific Hwy S & S 332 St

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	0	45	50	40	2250	2362	4
Future Volume (Veh/h)	0	45	50	40	2250	2362	4
Sign Control	Stop				Free	Free	
Grade	0%				2%	-2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	45	0	40	2250	2362	4
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)						680	
pX, platoon unblocked	0.67	0.67	0.00	0.67			
vC, conflicting volume	3194	789	0	2366			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2556	0	0	1323			
tC, single (s)	6.8	6.9	0.0	4.1			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	2.2			
p0 queue free %	100	94	0	89			
cM capacity (veh/h)	13	728	0	348			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	45	40	750	750	750	945	945	476
Volume Left	0	40	0	0	0	0	0	0
Volume Right	45	0	0	0	0	0	0	4
cSH	728	348	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.11	0.44	0.44	0.44	0.56	0.56	0.28
Queue Length 95th (ft)	5	10	0	0	0	0	0	0
Control Delay (s)	10.3	16.7	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	C						
Approach Delay (s)	10.3	0.3				0.0		
Approach LOS	B							

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	66.5%	ICU Level of Service		C
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3850: Pacific Hwy S & S 333 St

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	71	2086	37	90	67	2220
Future Volume (Veh/h)	0	71	2086	37	90	67	2220
Sign Control	Stop		Free				Free
Grade	-2%		2%				-2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	71	2086	37	0	67	2220
Pedestrians	10		10				10
Lane Width (ft)	12.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	1		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			890				1110
pX, platoon unblocked	0.83	0.71			0.00	0.71	
vC, conflicting volume	2998	734			0	2133	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	381	0			0	1184	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	91			0	84	
cM capacity (veh/h)	408	761			0	415	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	71	834	834	454	67	740	740	740
Volume Left	0	0	0	0	67	0	0	0
Volume Right	71	0	0	37	0	0	0	0
cSH	761	1700	1700	1700	415	1700	1700	1700
Volume to Capacity	0.09	0.49	0.49	0.27	0.16	0.44	0.44	0.44
Queue Length 95th (ft)	8	0	0	0	14	0	0	0
Control Delay (s)	10.2	0.0	0.0	0.0	15.4	0.0	0.0	0.0
Lane LOS	B				C			
Approach Delay (s)	10.2	0.0			0.4			
Approach LOS	B							

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3942: S 334 St & 1 Wy S

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	1713	53	12	1426	3	53	0	44	4	0	23
Future Volume (Veh/h)	13	1713	53	12	1426	3	53	0	44	4	0	23
Sign Control		Free			Free			Stop			Stop	
Grade		-1%			0%			-8%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	1713	53	12	1426	3	53	0	44	4	0	23
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		358			764							
pX, platoon unblocked	0.85			0.81			0.89	0.89	0.81	0.89	0.89	0.85
vC, conflicting volume	1439			1776			2546	3238	903	2398	3264	734
vC1, stage 1 conf vol							1776	1776		1462	1462	
vC2, stage 2 conf vol							770	1463		936	1802	
vCu, unblocked vol	1167			1494			1735	2517	420	1569	2545	340
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			46	100	91	97	100	96
cM capacity (veh/h)	502			359			99	116	466	150	107	549

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NW 3	NE 1	NE 2	SW 1
Volume Total	870	910	12	951	478	53	44	27
Volume Left	13	0	12	0	0	53	0	4
Volume Right	0	53	0	0	3	0	44	23
cSH	502	1700	359	1700	1700	99	466	394
Volume to Capacity	0.03	0.54	0.03	0.56	0.28	0.54	0.09	0.07
Queue Length 95th (ft)	2	0	3	0	0	61	8	5
Control Delay (s)	0.8	0.0	15.4	0.0	0.0	77.6	13.5	14.8
Lane LOS	A		C			F	B	B
Approach Delay (s)	0.4		0.1			48.5		14.8
Approach LOS						E		B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	77.2%	ICU Level of Service		D
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4242: 1 Wy S & S 340 St

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	33	848	1752	39	22	46
Future Volume (Veh/h)	33	848	1752	39	22	46
Sign Control		Free	Free		Stop	
Grade		3%	-1%		-1%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	848	1752	39	22	46
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1146			
pX, platoon unblocked	0.78				0.78	0.78
vC, conflicting volume	1801				2282	916
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1463				2079	328
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				31	91
cM capacity (veh/h)	354				32	513

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SE 1
Volume Total	33	424	424	1168	623	68
Volume Left	33	0	0	0	0	22
Volume Right	0	0	0	0	39	46
cSH	354	1700	1700	1700	1700	95
Volume to Capacity	0.09	0.25	0.25	0.69	0.37	0.71
Queue Length 95th (ft)	8	0	0	0	0	91
Control Delay (s)	16.2	0.0	0.0	0.0	0.0	105.9
Lane LOS	C					F
Approach Delay (s)	0.6			0.0		105.9
Approach LOS						F

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4341: S 342 St & 1 Wy S

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	802	71	52	1717	137	82
Future Volume (Veh/h)	802	71	52	1717	137	82
Sign Control	Free			Free	Stop	
Grade	3%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	802	71	52	1717	137	82
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)	1264					
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			883		1820	456
vC1, stage 1 conf vol					848	
vC2, stage 2 conf vol					972	
vCu, unblocked vol			854		1804	422
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			93		43	85
cM capacity (veh/h)			764		239	563

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NW 1	NW 2
Volume Total	535	338	52	858	858	137	82
Volume Left	0	0	52	0	0	137	0
Volume Right	0	71	0	0	0	0	82
cSH	1700	1700	764	1700	1700	239	563
Volume to Capacity	0.31	0.20	0.07	0.51	0.51	0.57	0.15
Queue Length 95th (ft)	0	0	5	0	0	80	13
Control Delay (s)	0.0	0.0	10.1	0.0	0.0	38.4	12.5
Lane LOS			B			E	B
Approach Delay (s)	0.0		0.3			28.7	
Approach LOS						D	

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

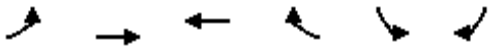
HCM Unsignalized Intersection Capacity Analysis
4350: 16 Av S & S 341 Pl

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	270	36	982	92	54	1311
Future Volume (Veh/h)	270	36	982	92	54	1311
Sign Control	Stop		Free			Free
Grade	0%		-5%			-1%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	270	36	982	92	54	1311
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			805			701
pX, platoon unblocked	0.82	0.82			0.82	
vC, conflicting volume	1812	557			1084	
vC1, stage 1 conf vol	1038					
vC2, stage 2 conf vol	774					
vCu, unblocked vol	1558	37			676	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	4	96			93	
cM capacity (veh/h)	282	833			745	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	270	36	655	419	54	656	656
Volume Left	270	0	0	0	54	0	0
Volume Right	0	36	0	92	0	0	0
cSH	282	833	1700	1700	745	1700	1700
Volume to Capacity	0.96	0.04	0.39	0.25	0.07	0.39	0.39
Queue Length 95th (ft)	234	3	0	0	6	0	0
Control Delay (s)	83.1	9.5	0.0	0.0	10.2	0.0	0.0
Lane LOS	F	A			B		
Approach Delay (s)	74.4		0.0		0.4		
Approach LOS	F						

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4441: 1 Wy S & 1 Pl S



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	862	835	19	10	47
Future Volume (Veh/h)	59	862	835	19	10	47
Sign Control		Free	Free		Stop	
Grade		0%	0%		-7%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	59	862	835	19	10	47
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)		926				
pX, platoon unblocked					0.97	
vC, conflicting volume	864				1414	447
vC1, stage 1 conf vol					854	
vC2, stage 2 conf vol					559	
vCu, unblocked vol	864				1363	447
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				97	91
cM capacity (veh/h)	768				318	550

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	59	431	431	557	297	57
Volume Left	59	0	0	0	0	10
Volume Right	0	0	0	0	19	47
cSH	768	1700	1700	1700	1700	488
Volume to Capacity	0.08	0.25	0.25	0.33	0.17	0.12
Queue Length 95th (ft)	6	0	0	0	0	10
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	13.4
Lane LOS	B					B
Approach Delay (s)	0.6			0.0		13.4
Approach LOS						B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

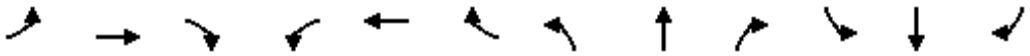
HCM Unsignalized Intersection Capacity Analysis
5345: Pacific Hwy S & S 359 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	40	1064	27	71	1815
Future Volume (Veh/h)	29	40	1064	27	71	1815
Sign Control	Stop		Free			Free
Grade	2%		3%			-3%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	29	40	1064	27	71	1815
Pedestrians			10			10
Lane Width (ft)			12.0			12.0
Walking Speed (ft/s)			4.0			4.0
Percent Blockage			1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						755
pX, platoon unblocked	0.71					
vC, conflicting volume	1834	556			1091	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	556			1091	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	92			89	
cM capacity (veh/h)	225	476			624	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3	SB 4
Volume Total	69	709	382	71	605	605	605
Volume Left	29	0	0	71	0	0	0
Volume Right	40	0	27	0	0	0	0
cSH	324	1700	1700	624	1700	1700	1700
Volume to Capacity	0.21	0.42	0.22	0.11	0.36	0.36	0.36
Queue Length 95th (ft)	20	0	0	10	0	0	0
Control Delay (s)	19.1	0.0	0.0	11.5	0.0	0.0	0.0
Lane LOS	C			B			
Approach Delay (s)	19.1	0.0		0.4			
Approach LOS	C						

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

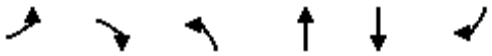
HCM Unsignalized Intersection Capacity Analysis
5450: 16 Av S & S 359 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	37	3	88	2	1	2	14	46	2	5	400	26
Future Volume (veh/h)	37	3	88	2	1	2	14	46	2	5	400	26
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	37	3	88	2	1	2	14	46	2	5	400	26
Approach Volume (veh/h)		128			5			62			431	
Crossing Volume (veh/h)		407			97			45			17	
High Capacity (veh/h)		1005			1284			1337			1366	
High v/c (veh/h)		0.13			0.00			0.05			0.32	
Low Capacity (veh/h)		818			1069			1118			1145	
Low v/c (veh/h)		0.16			0.00			0.06			0.38	

Intersection Summary					
Maximum v/c High	0.32				
Maximum v/c Low	0.38				
Intersection Capacity Utilization	41.1%	ICU Level of Service		A	

HCM Unsignalized Intersection Capacity Analysis
5650: 16 Av S & Beamer HS Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	8	2	2	7	22	27
Future Volume (veh/h)	8	2	2	7	22	27
Peak Hour Factor	0.63	0.63	0.56	0.56	0.88	0.88
Hourly flow rate (vph)	13	3	4	13	25	31
Approach Volume (veh/h)	16			17	56	
Crossing Volume (veh/h)	25			13	4	
High Capacity (veh/h)	1358			1371	1380	
High v/c (veh/h)	0.01			0.01	0.04	
Low Capacity (veh/h)	1137			1149	1157	
Low v/c (veh/h)	0.01			0.01	0.05	

Intersection Summary			
Maximum v/c High	0.04		
Maximum v/c Low	0.05		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis
6150: Milton Rd S & S 369 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	12	223	48	138	321
Future Volume (Veh/h)	36	12	223	48	138	321
Sign Control	Stop		Free			Free
Grade	-2%		1%			2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	12	223	48	138	321
Pedestrians	2		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	856	259			273	
vC1, stage 1 conf vol	249					
vC2, stage 2 conf vol	607					
vCu, unblocked vol	856	259			273	
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 %	92	98			89	
cM capacity (veh/h)	456	777			1294	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	271	459
Volume Left	36	0	138
Volume Right	12	48	0
cSH	509	1700	1294
Volume to Capacity	0.09	0.16	0.11
Queue Length 95th (ft)	8	0	9
Control Delay (s)	12.8	0.0	3.2
Lane LOS	B		A
Approach Delay (s)	12.8	0.0	3.2
Approach LOS	B		

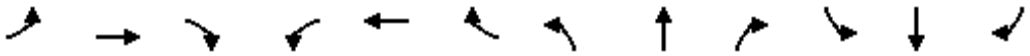
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6340: Pacific Hwy S & S 373 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Right Turn Channelized						
Traffic Volume (veh/h)	37	23	1152	35	16	1769
Future Volume (veh/h)	37	23	1152	35	16	1769
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	37	23	1152	35	16	1769
Approach Volume (veh/h)	60		1187			1785
Crossing Volume (veh/h)	1152		16			37
High Capacity (veh/h)	549		1367			1345
High v/c (veh/h)	0.11		0.87			1.33
Low Capacity (veh/h)	420		1146			1125
Low v/c (veh/h)	0.14		1.04			1.59

Intersection Summary				
Maximum v/c High	1.33			
Maximum v/c Low	1.59			
Intersection Capacity Utilization	72.3%	ICU Level of Service		C

HCM Unsignalized Intersection Capacity Analysis
6345: 8 Av S & S 373 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	18	56	0	19	0	52	5	6	0	5	4
Future Volume (Veh/h)	2	18	56	0	19	0	52	5	6	0	5	4
Sign Control		Free			Free			Stop			Stop	
Grade		10%			-5%			-5%			3%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	18	56	0	19	0	52	5	6	0	5	4
Pedestrians		10			10			10			10	
Lane Width (ft)		10.0			10.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	29			84			96	89	66	98	117	39
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	29			84			96	89	66	98	117	39
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			94	99	99	100	99	100
cM capacity (veh/h)	1586			1515			862	793	990	858	765	1024

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	76	19	63	9
Volume Left	2	0	52	0
Volume Right	56	0	6	4
cSH	1586	1515	867	862
Volume to Capacity	0.00	0.00	0.07	0.01
Queue Length 95th (ft)	0	0	6	1
Control Delay (s)	0.2	0.0	9.5	9.2
Lane LOS	A		A	A
Approach Delay (s)	0.2	0.0	9.5	9.2
Approach LOS			A	A

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	24.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6547: Milton Rd S & S 376 St/S 375 St

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	41	271	0	0	291	64	27	7	15	1	0	2
Future Volume (Veh/h)	41	271	0	0	291	64	27	7	15	1	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			2%			2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	271	0	0	291	64	27	7	15	1	0	2
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	365			281			698	696	343	714	728	291
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	365			281			698	696	343	714	728	291
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 %	96			100			92	98	98	100	100	100
cM capacity (veh/h)	1167			1271			332	344	683	317	334	740

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	312	355	49	3
Volume Left	41	0	27	1
Volume Right	0	64	15	2
cSH	1167	1271	396	512
Volume to Capacity	0.04	0.00	0.12	0.01
Queue Length 95th (ft)	3	0	10	0
Control Delay (s)	1.4	0.0	15.4	12.1
Lane LOS	A		C	B
Approach Delay (s)	1.4	0.0	15.4	12.1
Approach LOS			C	B

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	52.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCS7 Roundabouts Report

General Information

Analyst	SC
Agency or Co.	City of Federal Way
Date Performed	10/8/2018
Analysis Year	2018
Time Analyzed	
Project Description	Milton Rezone

Site Information

Intersection	6340 Pac Hwy S_S 373rd St
E/W Street Name	S 373 rd St
N/S Street Name	Pacific Hwy S
Analysis Time Period (hrs)	1.00
Peak Hour Factor	1.00
Jurisdiction	No Build

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment							LR		T		TR		LT		T	
Volume (V), veh/h					0	37		23	0		1152	35	0	16	1769	
Percent Heavy Vehicles, %					2	2		2	2		2	2	2	2	2	
Flow Rate (v_{PCE}), pc/h					0	38		23	0		1175	36	0	16	1804	
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes					1				1				1			
Pedestrians Crossing, p/h					0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)					4.9763		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway (s)					2.6087		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h					61.00		569.17	641.83		855.40	964.60	
Entry Volume veh/h					59.80		558.01	629.25		838.63	945.69	
Circulating Flow (v_c), pc/h	1858			1175			16			38		
Exiting Flow (v_{ex}), pc/h	52			0			1198			1842		
Capacity (c_{pce}), pc/h					416.28		1399.48	1399.48		1371.74	1371.74	
Capacity (c), veh/h					408.12		1372.04	1372.04		1344.84	1344.84	
v/c Ratio (x)					0.15		0.41	0.46		0.62	0.70	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					11.1		6.5	7.1		10.2	12.5	
Lane LOS					B		A	A		B	B	
95% Queue, veh					0.5		2.0	2.5		4.9	6.9	
Approach Delay, s/veh				11.1			6.8			11.4		
Approach LOS				B			A			B		
Intersection Delay, s/veh | LOS	9.6						A					

2040 BUILD

HCM Signalized Intersection Capacity Analysis
251: Pacific Hwy S & S 276 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	51	1	75	39	5	118	23	42	955	9	77	17
Future Volume (vph)	51	1	75	39	5	118	23	42	955	9	77	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		0%			0%				-2%			
Total Lost time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.93		1.00	0.96			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.96	1.00			1.00	1.00			1.00
Frt	1.00	0.85		1.00	0.86			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1713	1551		1533	1534			1805	5129			1744
Flt Permitted	0.48	1.00		0.63	1.00			0.95	1.00			0.28
Satd. Flow (perm)	873	1551		1021	1534			1805	5129			507
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	1	75	39	5	118	23	42	955	9	77	17
RTOR Reduction (vph)	0	50	0	0	109	0	0	0	1	0	0	0
Lane Group Flow (vph)	51	26	0	39	14	0	0	65	963	0	0	94
Confl. Peds. (#/hr)	8		48	34		20		14		46		12
Heavy Vehicles (%)	2%	2%	2%	9%	9%	9%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	3	9	9	0	6	9	0	6	3	6	3
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Actuated Green, G (s)	12.2	12.2		11.7	11.7			8.4	104.0			111.8
Effective Green, g (s)	12.2	12.2		10.7	10.7			8.4	104.5			112.8
Actuated g/C Ratio	0.09	0.09		0.08	0.08			0.06	0.75			0.81
Clearance Time (s)	4.5	4.5		5.0	5.0			6.0	6.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	76	135		78	117			108	3828			481
v/s Ratio Prot		0.02			0.01			c0.04	0.19			0.01
v/s Ratio Perm	c0.06			0.04								0.15
v/c Ratio	0.67	0.19		0.50	0.12			0.60	0.25			0.20
Uniform Delay, d1	62.0	59.3		62.1	60.3			64.2	5.5			4.0
Progression Factor	1.00	1.00		1.00	1.00			1.07	2.84			1.00
Incremental Delay, d2	16.8	0.3		1.8	0.2			4.3	0.1			0.1
Delay (s)	78.7	59.6		63.9	60.4			73.2	15.8			4.1
Level of Service	E	E		E	E			E	B			A
Approach Delay (s)		67.3			61.3				19.5			
Approach LOS		E			E				B			

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
Description:			

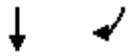
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2297	67
Future Volume (vph)	2297	67
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4985	
Flt Permitted	1.00	
Satd. Flow (perm)	4985	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	2297	67
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	2362	0
Confl. Peds. (#/hr)		22
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	103.4	
Effective Green, g (s)	103.9	
Actuated g/C Ratio	0.74	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3699	
v/s Ratio Prot	c0.47	
v/s Ratio Perm		
v/c Ratio	0.64	
Uniform Delay, d1	8.8	
Progression Factor	1.00	
Incremental Delay, d2	0.9	
Delay (s)	9.7	
Level of Service	A	
Approach Delay (s)	9.5	
Approach LOS	A	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1050: Pacific Hwy S & S 288 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
Future Volume (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	11	12	12	12	12	12	12	11
Grade (%)		14%			-7%				-2%			
Total Lost time (s)		6.0		5.5	5.5	5.5		5.5	5.5	7.0		5.0
Lane Util. Factor		0.95		0.95	0.95	1.00		1.00	0.86	0.86		0.97
Frpb, ped/bikes		0.98		1.00	1.00	0.97		1.00	0.98	0.95		1.00
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt		0.98		1.00	1.00	0.85		1.00	0.95	0.85		1.00
Flt Protected		0.99		0.95	0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		3428		1711	1728	1585		1787	4490	1307		3318
Flt Permitted		0.99		0.95	0.96	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		3428		1711	1728	1585		1787	4490	1307		3318
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
RTOR Reduction (vph)	0	0	0	0	0	122	0	0	68	329	0	0
Lane Group Flow (vph)	0	188	0	620	632	149	0	48	1203	106	0	637
Confl. Peds. (#/hr)			27			14				22		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	6	0	9	9	0	6	9	0	6	0	6	0
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8				2		
Actuated Green, G (s)		9.8		46.5	46.5	46.5		6.6	35.0	35.0		26.7
Effective Green, g (s)		8.8		46.5	46.5	46.5		7.1	35.5	34.0		27.2
Actuated g/C Ratio		0.06		0.33	0.33	0.33		0.05	0.25	0.24		0.19
Clearance Time (s)		5.0		5.5	5.5	5.5		6.0	6.0	6.0		5.5
Vehicle Extension (s)		2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Lane Grp Cap (vph)		215		568	573	526		90	1138	317		644
v/s Ratio Prot		c0.05		0.36	c0.37			0.03	c0.27			0.19
v/s Ratio Perm						0.09				0.08		
v/c Ratio		0.87		1.09	1.10	0.28		0.53	1.06	0.33		0.99
Uniform Delay, d1		65.1		46.8	46.8	34.5		64.8	52.2	43.7		56.3
Progression Factor		1.00		1.00	1.00	1.00		0.54	0.79	3.39		0.91
Incremental Delay, d2		29.4		65.1	68.9	0.1		2.6	41.6	2.5		30.1
Delay (s)		94.4		111.9	115.7	34.6		37.9	82.8	150.3		81.0
Level of Service		F		F	F	C		D	F	F		F
Approach Delay (s)		94.4			99.7				98.3			
Approach LOS		F			F				F			

Intersection Summary			
HCM 2000 Control Delay	87.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1874	185
Future Volume (vph)	1874	185
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4919	
Flt Permitted	1.00	
Satd. Flow (perm)	4919	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1874	185
RTOR Reduction (vph)	8	0
Lane Group Flow (vph)	2051	0
Confl. Peds. (#/hr)		19
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	55.1	
Effective Green, g (s)	55.6	
Actuated g/C Ratio	0.40	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1953	
v/s Ratio Prot	c0.42	
v/s Ratio Perm		
v/c Ratio	1.05	
Uniform Delay, d1	42.2	
Progression Factor	0.87	
Incremental Delay, d2	33.9	
Delay (s)	70.6	
Level of Service	E	
Approach Delay (s)	73.1	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1651: Pacific Hwy S & S Dash Point Rd

Movement	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	562	90	90	431	1253	42	1955	1138
Future Volume (vph)	562	90	90	431	1253	42	1955	1138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	12	12
Grade (%)	0%				0%		-1%	
Total Lost time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Lane Util. Factor	0.97	1.00		0.97	0.91	1.00	0.86	0.86
Frpb, ped/bikes	1.00	0.96		1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.97	0.85
Flt Protected	0.95	1.00		0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3311	1482		3467	5095	1753	4666	1359
Flt Permitted	0.95	1.00		0.95	1.00	0.18	1.00	1.00
Satd. Flow (perm)	3311	1482		3467	5095	334	4666	1359
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	562	90	90	431	1253	42	1955	1138
RTOR Reduction (vph)	0	73	0	0	0	0	22	6
Lane Group Flow (vph)	562	17	0	521	1253	42	2365	700
Confl. Peds. (#/hr)		24		10				10
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	9	9	0	6	6	9	0
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Actuated Green, G (s)	27.2	27.2		22.0	89.7	97.3	75.3	102.5
Effective Green, g (s)	27.2	27.2		22.0	90.2	97.3	75.8	102.5
Actuated g/C Ratio	0.19	0.19		0.16	0.64	0.69	0.54	0.73
Clearance Time (s)	5.0	5.0		5.0	5.0	5.5	5.5	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	643	287		544	3282	309	2526	994
v/s Ratio Prot	c0.17			c0.15	0.25	0.01	c0.51	0.14
v/s Ratio Perm		0.01				0.09		0.38
v/c Ratio	0.87	0.06		0.96	0.38	0.14	0.94	0.70
Uniform Delay, d1	54.7	46.0		58.5	11.7	12.2	29.9	10.4
Progression Factor	1.00	1.00		0.63	1.14	0.52	0.96	1.63
Incremental Delay, d2	12.2	0.0		25.9	0.3	0.0	0.9	0.2
Delay (s)	67.0	46.0		62.5	13.7	6.4	29.7	17.0
Level of Service	E	D		E	B	A	C	B
Approach Delay (s)	64.1				28.0		26.5	
Approach LOS	E				C		C	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2051: Pacific Hwy S & S 304 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	32	77	282	408	303	65	82	79	1475	167	5	32
Future Volume (vph)	32	77	282	408	303	65	82	79	1475	167	5	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12	12	12	12	12	12	12
Grade (%)		-4%			5%				-1%			
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			5.5	5.5			5.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00			1.00
Flpb, ped/bikes	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	0.97			1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1762	1837	1471	3320	1720			1778	4982			1752
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.06	1.00			0.09
Satd. Flow (perm)	1762	1837	1471	3320	1720			114	4982			168
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	77	282	408	303	65	82	79	1475	167	5	32
RTOR Reduction (vph)	0	0	161	0	5	0	0	0	9	0	0	0
Lane Group Flow (vph)	32	77	121	408	363	0	0	161	1633	0	0	37
Confl. Peds. (#/hr)	3		8			6		8		3		3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	6	0	9	9	0	6	9	0	6	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4				6	6			2	2
Actuated Green, G (s)	5.0	18.1	18.1	19.9	33.0			81.0	76.2			81.0
Effective Green, g (s)	4.0	17.1	17.1	18.9	32.0			81.0	76.2			81.0
Actuated g/C Ratio	0.03	0.12	0.12	0.13	0.23			0.58	0.54			0.58
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.5	5.5			5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	50	224	179	448	393			251	2711			151
v/s Ratio Prot	0.02	0.04		c0.12	c0.21			0.07	c0.33			0.01
v/s Ratio Perm			0.08					0.30				0.13
v/c Ratio	0.64	0.34	0.68	0.91	0.92			0.64	0.60			0.25
Uniform Delay, d1	67.3	56.3	58.8	59.7	52.8			48.9	21.6			15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.36	1.58			0.27
Incremental Delay, d2	19.0	0.3	7.8	22.1	26.5			3.5	0.8			0.1
Delay (s)	86.3	56.6	66.6	81.9	79.3			69.8	35.1			4.4
Level of Service	F	E	E	F	E			E	D			A
Approach Delay (s)		66.2			80.7				38.2			
Approach LOS		E			F				D			

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1921	87
Future Volume (vph)	1921	87
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	4927	
Flt Permitted	1.00	
Satd. Flow (perm)	4927	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1921	87
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	2005	0
Confl. Peds. (#/hr)		11
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	9	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	65.4	
Effective Green, g (s)	65.4	
Actuated g/C Ratio	0.47	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2301	
v/s Ratio Prot	c0.41	
v/s Ratio Perm		
v/c Ratio	0.87	
Uniform Delay, d1	33.5	
Progression Factor	0.25	
Incremental Delay, d2	2.2	
Delay (s)	10.6	
Level of Service	B	
Approach Delay (s)	10.5	
Approach LOS	B	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2250: Pacific Hwy S & S 308 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
Future Volume (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		4%			2%				1%			
Total Lost time (s)	6.0	6.0		6.0	6.0			5.0	5.0			5.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99			1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00			1.00	1.00			1.00
Frt	1.00	0.90		1.00	0.90			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1689	1723		1685	1787			1761	5007			1796
Flt Permitted	0.53	1.00		0.58	1.00			0.04	1.00			0.11
Satd. Flow (perm)	939	1723		1029	1787			83	5007			204
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
RTOR Reduction (vph)	0	51	0	0	55	0	0	0	1	0	0	0
Lane Group Flow (vph)	112	68	0	32	79	0	0	204	1575	0	0	330
Confl. Peds. (#/hr)	2		13	13		2						
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	6	0	11	11	0	6	11	0	6	0	6	0
Turn Type	Perm	NA		Perm	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8			6	6			2	2
Actuated Green, G (s)	18.9	18.9		18.9	18.9			105.6	81.6			105.6
Effective Green, g (s)	17.9	17.9		17.9	17.9			105.6	81.6			105.6
Actuated g/C Ratio	0.13	0.13		0.13	0.13			0.75	0.58			0.75
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	120	220		131	228			260	2918			426
v/s Ratio Prot		0.04			0.04			0.09	0.31			c0.13
v/s Ratio Perm	c0.12			0.03				c0.50				0.45
v/c Ratio	0.93	0.31		0.24	0.35			0.78	0.54			0.77
Uniform Delay, d1	60.5	55.4		55.0	55.7			37.8	17.8			27.3
Progression Factor	1.00	1.00		1.00	1.00			0.96	1.61			0.89
Incremental Delay, d2	60.7	0.3		0.4	0.3			1.3	0.1			4.5
Delay (s)	121.2	55.7		55.3	56.0			37.8	28.6			28.7
Level of Service	F	E		E	E			D	C			C
Approach Delay (s)		87.4			55.9				29.7			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1989	406
Future Volume (vph)	1989	406
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	-1%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.97	
Flt Protected	1.00	
Satd. Flow (prot)	4956	
Flt Permitted	1.00	
Satd. Flow (perm)	4956	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1989	406
RTOR Reduction (vph)	17	0
Lane Group Flow (vph)	2378	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	11	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	89.1	
Effective Green, g (s)	89.1	
Actuated g/C Ratio	0.64	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3154	
v/s Ratio Prot	0.48	
v/s Ratio Perm		
v/c Ratio	0.75	
Uniform Delay, d1	17.8	
Progression Factor	1.61	
Incremental Delay, d2	1.0	
Delay (s)	29.6	
Level of Service	C	
Approach Delay (s)	29.5	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2550: Pacific Hwy S & S 312 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
Future Volume (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	12	12
Grade (%)		1%			0%				0%			
Total Lost time (s)	6.0	6.0	6.0	5.5	6.5			5.0	5.0			5.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95			0.97	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99			1.00	0.99			1.00
Flpb, ped/bikes	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	0.99			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	3397	3424	1488	1755	3358			3439	5007			1773
Flt Permitted	0.08	1.00	1.00	0.31	1.00			0.08	1.00			0.11
Satd. Flow (perm)	298	3424	1488	576	3358			284	5007			207
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
RTOR Reduction (vph)	0	0	59	0	5	0	0	0	6	0	0	0
Lane Group Flow (vph)	404	590	171	220	1334	0	0	454	1225	0	0	256
Confl. Peds. (#/hr)	30		33	18		64		15		52		34
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	6	2	4	4	4	6	4	4	6	2	6	2
Turn Type	Perm	NA	Perm	D.P+P	NA		Perm	Perm	NA		Perm	D.P+P
Protected Phases		4		3	8				2			1
Permitted Phases	4		4	4			2	2			6	2
Actuated Green, G (s)	49.1	49.1	49.1	59.5	63.5			51.0	51.0			61.0
Effective Green, g (s)	48.1	48.1	48.1	57.5	62.5			51.0	51.0			61.0
Actuated g/C Ratio	0.34	0.34	0.34	0.41	0.45			0.36	0.36			0.44
Clearance Time (s)	5.0	5.0	5.0	4.5	5.5			5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	102	1176	511	315	1499			103	1823			202
v/s Ratio Prot		0.17		0.05	c0.40				0.24			c0.09
v/s Ratio Perm	c1.36		0.11	0.24				c1.60				0.46
v/c Ratio	3.96	0.50	0.33	0.70	0.89			4.41	0.67			1.27
Uniform Delay, d1	46.0	36.4	34.1	31.1	35.6			44.5	37.5			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.83	0.77			1.08
Incremental Delay, d2	1355.6	0.1	0.1	5.4	6.7			1548.0	1.3			145.3
Delay (s)	1401.5	36.6	34.2	36.5	42.3			1584.8	30.3			200.4
Level of Service	F	D	C	D	D			F	C			F
Approach Delay (s)		486.6			41.5				449.1			
Approach LOS		F			D				F			

Intersection Summary			
HCM 2000 Control Delay	228.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	112.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

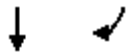
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1294	719
Future Volume (vph)	1294	719
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	0%	
Total Lost time (s)	5.0	6.0
Lane Util. Factor	0.86	0.86
Frpb, ped/bikes	0.98	0.91
Flpb, ped/bikes	1.00	1.00
Frt	0.97	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	4633	1232
Flt Permitted	1.00	1.00
Satd. Flow (perm)	4633	1232
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1294	719
RTOR Reduction (vph)	10	29
Lane Group Flow (vph)	1550	424
Confl. Peds. (#/hr)		45
Heavy Vehicles (%)	1%	1%
Bus Blockages (#/hr)	4	4
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	66.0	66.0
Effective Green, g (s)	66.0	65.0
Actuated g/C Ratio	0.47	0.46
Clearance Time (s)	5.0	5.0
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	2184	572
v/s Ratio Prot	0.33	
v/s Ratio Perm		0.34
v/c Ratio	0.71	0.74
Uniform Delay, d1	29.4	30.6
Progression Factor	1.08	1.06
Incremental Delay, d2	1.4	6.1
Delay (s)	33.2	38.4
Level of Service	C	D
Approach Delay (s)	53.1	
Approach LOS	D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2750: Pacific Hwy S & S 316 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	79	101	191	215	281	135	87	266	1569	102	46	109
Future Volume (vph)	79	101	191	215	281	135	87	266	1569	102	46	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	12	12	12
Grade (%)		-2%			0%				2%			
Total Lost time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.97		1.00	0.99			1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Frt	1.00	0.90		1.00	0.95			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1761	1554		1704	1662			1769	4960			1737
Flt Permitted	0.14	1.00		0.24	1.00			0.95	1.00			0.95
Satd. Flow (perm)	259	1554		426	1662			1769	4960			1737
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	101	191	215	281	135	87	266	1569	102	46	109
RTOR Reduction (vph)	0	48	0	0	12	0	0	0	5	0	0	0
Lane Group Flow (vph)	79	244	0	215	404	0	0	353	1666	0	0	155
Confl. Peds. (#/hr)	6		33	18		16		15		28		10
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	1%	1%	1%	1%	2%	2%
Bus Blockages (#/hr)	6	7	4	4	0	6	4	0	6	7	6	7
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Actuated Green, G (s)	41.4	27.9		41.4	35.5			29.5	64.3			15.3
Effective Green, g (s)	39.4	26.9		39.4	34.5			29.5	64.3			15.3
Actuated g/C Ratio	0.28	0.19		0.28	0.25			0.21	0.46			0.11
Clearance Time (s)	4.0	5.0		4.5	5.5			4.5	4.5			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	125	298		233	409			372	2278			189
v/s Ratio Prot	0.02	0.16		c0.08	c0.24			c0.20	0.34			0.09
v/s Ratio Perm	0.16			0.18								
v/c Ratio	0.63	0.82		0.92	0.99			0.95	0.73			0.82
Uniform Delay, d1	40.3	54.2		44.6	52.5			54.5	30.8			61.0
Progression Factor	1.00	1.00		1.00	1.00			0.39	0.23			0.64
Incremental Delay, d2	7.4	15.0		37.8	40.7			20.2	1.0			17.1
Delay (s)	47.7	69.2		82.4	93.3			41.5	8.1			56.4
Level of Service	D	E		F	F			D	A			E
Approach Delay (s)		64.6			89.6				14.0			
Approach LOS		E			F				B			

Intersection Summary			
HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



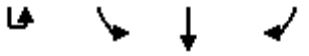
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1508	200
Future Volume (vph)	1508	200
Ideal Flow (vphpl)	1900	1900
Lane Width	12	12
Grade (%)	-2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	4965	
Flt Permitted	1.00	
Satd. Flow (perm)	4965	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1508	200
RTOR Reduction (vph)	12	0
Lane Group Flow (vph)	1696	0
Confl. Peds. (#/hr)		21
Heavy Vehicles (%)	2%	2%
Bus Blockages (#/hr)	4	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	50.1	
Effective Green, g (s)	50.1	
Actuated g/C Ratio	0.36	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1776	
v/s Ratio Prot	c0.34	
v/s Ratio Perm		
v/c Ratio	0.95	
Uniform Delay, d1	43.8	
Progression Factor	0.82	
Incremental Delay, d2	10.1	
Delay (s)	46.2	
Level of Service	D	
Approach Delay (s)	47.1	
Approach LOS	D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3050: Pacific Hwy S & S 320 St

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	47	285	1169	142	27	588	1581	393	33	331	1275	275
Future Volume (vph)	47	285	1169	142	27	588	1581	393	33	331	1275	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-6%				0%				2%	
Total Lost time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	6.0
Lane Util. Factor		0.97	0.91			0.97	0.91	1.00		0.97	0.91	1.00
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.98		1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00
Frt		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	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3536	5112			3433	5031	1548		3343	5034	1508
Flt Permitted		0.95	1.00			0.95	1.00	1.00		0.12	1.00	1.00
Satd. Flow (perm)		3536	5112			3433	5031	1548		407	5034	1508
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	285	1169	142	27	588	1581	393	33	331	1275	275
RTOR Reduction (vph)	0	0	10	0	0	0	0	175	0	0	0	149
Lane Group Flow (vph)	0	332	1301	0	0	615	1581	218	0	364	1275	126
Confl. Peds. (#/hr)	10	10		10	10	10		10	10	10		10
Bus Blockages (#/hr)	8	0	4	0	4	0	8	0	0	8	0	4
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	D.P+P	D.P+P	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2	4	4		8
Actuated Green, G (s)		13.5	35.5			25.0	46.5	46.5		59.0	36.2	36.2
Effective Green, g (s)		13.5	35.5			25.0	46.5	46.5		59.0	36.2	35.2
Actuated g/C Ratio		0.10	0.25			0.18	0.33	0.33		0.42	0.26	0.25
Clearance Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0			2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		340	1296			613	1671	514		607	1301	379
v/s Ratio Prot		0.09	0.25			c0.18	c0.31			0.09	c0.25	
v/s Ratio Perm								0.14		0.16		0.08
v/c Ratio		0.98	1.00			1.00	0.95	0.42		0.60	0.98	0.33
Uniform Delay, d1		63.1	52.2			57.5	45.5	36.3		46.3	51.5	42.8
Progression Factor		1.00	1.00			1.00	1.00	1.00		0.43	0.56	0.42
Incremental Delay, d2		41.9	25.8			37.2	12.5	2.6		0.3	9.4	0.7
Delay (s)		105.0	78.1			94.7	58.0	38.9		20.1	38.0	18.6
Level of Service		F	E			F	E	D		C	D	B
Approach Delay (s)			83.5				63.8				31.8	
Approach LOS			F				E				C	

Intersection Summary			
HCM 2000 Control Delay	52.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	116.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	590	1022	211
Future Volume (vph)	20	590	1022	211
Ideal Flow (vphpl)	1900	1900	1900	1900
Grade (%)			-2%	
Total Lost time (s)		5.0	5.0	5.0
Lane Util. Factor		0.97	0.91	1.00
Frpb, ped/bikes		1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		3439	5136	1510
Flt Permitted		0.11	1.00	1.00
Satd. Flow (perm)		400	5136	1510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	590	1022	211
RTOR Reduction (vph)	0	0	0	105
Lane Group Flow (vph)	0	610	1022	106
Confl. Peds. (#/hr)	10	10		10
Bus Blockages (#/hr)	0	4	0	8
Turn Type	D.P+P	D.P+P	NA	Perm
Protected Phases	7	7	4	
Permitted Phases	8	8		4
Actuated Green, G (s)		59.0	38.2	38.2
Effective Green, g (s)		59.0	38.2	38.2
Actuated g/C Ratio		0.42	0.27	0.27
Clearance Time (s)		5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0
Lane Grp Cap (vph)		663	1401	412
v/s Ratio Prot		c0.15	0.20	
v/s Ratio Perm		0.24		0.07
v/c Ratio		0.92	0.73	0.26
Uniform Delay, d1		53.8	46.2	39.8
Progression Factor		0.75	0.51	0.13
Incremental Delay, d2		7.6	1.2	0.5
Delay (s)		47.7	24.7	5.7
Level of Service		D	C	A
Approach Delay (s)			30.1	
Approach LOS			C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3055: 23 Av S & S 320 St

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
Future Volume (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			5%			-5%			1%			0%
Total Lost time (s)		4.5	4.5		5.5	5.5	6.5	5.0	6.0	5.5	5.0	6.0
Lane Util. Factor		0.97	0.91		0.97	0.91	1.00	1.00	1.00	0.88	0.97	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		3240	4870		3448	5185	1476	1733	1735	2675	3392	1788
Flt Permitted		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)		3240	4870		3448	5185	1476	1733	1735	2675	3392	1788
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
RTOR Reduction (vph)	0	0	5	0	0	0	270	0	0	136	0	0
Lane Group Flow (vph)	0	203	1782	0	309	1874	385	136	385	91	712	616
Confl. Peds. (#/hr)	10	10		10	10		10	10		10	10	
Bus Blockages (#/hr)	4	16	6	10	10	4	16	4	16	6	6	10
Turn Type	Prot	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases							8			2		
Actuated Green, G (s)		10.5	48.5		12.5	50.5	50.5	11.5	30.5	30.5	28.5	47.5
Effective Green, g (s)		10.5	48.5		12.5	50.5	49.5	11.0	30.0	30.5	28.0	47.0
Actuated g/C Ratio		0.08	0.35		0.09	0.36	0.35	0.08	0.21	0.22	0.20	0.34
Clearance Time (s)		4.5	4.5		5.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		243	1687		307	1870	521	136	371	582	678	600
v/s Ratio Prot		0.06	c0.37		c0.09	0.36		0.08	0.22		c0.21	c0.34
v/s Ratio Perm							0.26			0.03		
v/c Ratio		0.84	1.06		1.01	1.00	0.74	1.00	1.04	0.16	1.05	1.03
Uniform Delay, d1		63.9	45.8		63.8	44.8	39.6	64.5	55.0	44.3	56.0	46.5
Progression Factor		1.00	1.00		0.60	0.55	0.43	1.05	0.92	1.18	1.00	1.00
Incremental Delay, d2		20.4	38.6		35.3	14.2	4.1	76.3	56.3	0.0	48.5	43.7
Delay (s)		84.3	84.3		73.9	38.8	20.9	144.2	106.7	52.1	104.5	90.2
Level of Service		F	F		E	D	C	F	F	D	F	F
Approach Delay (s)			84.3			38.5			96.9			85.4
Approach LOS			F			D			F			F

Intersection Summary			
HCM 2000 Control Delay	68.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	360
Future Volume (vph)	360
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1522
Flt Permitted	1.00
Satd. Flow (perm)	1522
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	360
RTOR Reduction (vph)	72
Lane Group Flow (vph)	288
Confl. Peds. (#/hr)	10
Bus Blockages (#/hr)	4
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	47.5
Effective Green, g (s)	46.5
Actuated g/C Ratio	0.33
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	505
v/s Ratio Prot	
v/s Ratio Perm	0.19
v/c Ratio	0.57
Uniform Delay, d1	38.5
Progression Factor	1.00
Incremental Delay, d2	1.0
Delay (s)	39.5
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
Future Volume (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%				-1%			2%		
Total Lost time (s)		4.5	4.5			5.0	5.0	6.0	6.0	6.0		6.0
Lane Util. Factor		1.00	0.91			1.00	0.91	1.00	1.00	1.00		0.97
Frpb, ped/bikes		1.00	1.00			1.00	1.00	0.95	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00			1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00			1.00	1.00	0.85	1.00	0.87		1.00
Flt Protected		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		1752	4988			1778	5097	1517	1738	1568		3409
Flt Permitted		0.95	1.00			0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		1752	4988			1778	5097	1517	1738	1568		3409
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
RTOR Reduction (vph)	0	0	0	0	0	0	0	116	0	72	0	0
Lane Group Flow (vph)	0	163	2492	0	0	52	2664	283	32	33	0	418
Confl. Peds. (#/hr)	10	10		10	10	10		10	10		10	10
Bus Blockages (#/hr)	2	0	6	0	6	0	2	0	2	0	6	6
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6				
Actuated Green, G (s)		14.2	84.0			7.0	76.8	76.8	8.4	7.4		22.1
Effective Green, g (s)		14.2	84.0			7.0	76.8	75.8	7.4	6.4		21.1
Actuated g/C Ratio		0.10	0.60			0.05	0.55	0.54	0.05	0.05		0.15
Clearance Time (s)		4.5	4.5			5.0	5.0	5.0	5.0	5.0		5.0
Vehicle Extension (s)		2.0	2.0			2.0	2.0	2.0	2.0	2.0		2.0
Lane Grp Cap (vph)		177	2992			88	2796	821	91	71		513
v/s Ratio Prot		c0.09	0.50			0.03	c0.52		0.02	c0.02		c0.12
v/s Ratio Perm								0.19				
v/c Ratio		0.92	0.83			0.59	0.95	0.34	0.35	0.47		0.81
Uniform Delay, d1		62.3	22.4			65.1	29.9	18.1	64.0	65.1		57.6
Progression Factor		1.31	0.17			1.05	0.79	0.53	1.00	1.00		1.00
Incremental Delay, d2		17.8	0.8			4.3	6.2	0.7	0.9	1.8		9.2
Delay (s)		99.6	4.5			72.7	29.7	10.3	64.8	66.9		66.7
Level of Service		F	A			E	C	B	E	E		E
Approach Delay (s)			10.3				28.0			66.4		
Approach LOS			B				C			E		

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	4	142
Future Volume (vph)	4	142
Ideal Flow (vphpl)	1900	1900
Grade (%)	-1%	
Total Lost time (s)	6.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Frt	0.85	
Flt Protected	1.00	
Satd. Flow (prot)	1560	
Flt Permitted	1.00	
Satd. Flow (perm)	1560	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	4	142
RTOR Reduction (vph)	99	0
Lane Group Flow (vph)	47	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	0	2
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Actuated Green, G (s)	21.1	
Effective Green, g (s)	20.1	
Actuated g/C Ratio	0.14	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	223	
v/s Ratio Prot	0.03	
v/s Ratio Perm		
v/c Ratio	0.21	
Uniform Delay, d1	52.9	
Progression Factor	1.00	
Incremental Delay, d2	0.2	
Delay (s)	53.1	
Level of Service	D	
Approach Delay (s)	63.2	
Approach LOS	E	

Intersection Summary

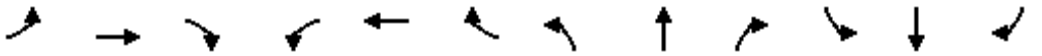
HCM Signalized Intersection Capacity Analysis
3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227
Future Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%		2%			2%	
Total Lost time (s)		5.0	5.0	5.0	5.0				5.0	5.0	5.0
Lane Util. Factor		0.91	0.88	1.00	0.91				0.95	0.95	0.76
Frpb, ped/bikes		1.00	0.94	1.00	1.00				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00				1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00				0.95	0.95	1.00
Satd. Flow (prot)		5046	2591	1741	5072				1651	1664	3564
Flt Permitted		1.00	1.00	0.95	1.00				0.95	0.95	1.00
Satd. Flow (perm)		5046	2591	1741	5072				1651	1664	3564
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227
RTOR Reduction (vph)	0	0	440	0	0	0	0	0	0	0	34
Lane Group Flow (vph)	0	1883	632	309	1964	0	0	0	369	372	1193
Confl. Peds. (#/hr)	10		10	10		10	10	10	10	10	10
Bus Blockages (#/hr)	0	2	4	4	2	0	2	0	2	0	2
Turn Type		NA	Perm	Prot	NA				Prot	Prot	custom
Protected Phases		2		1	6				4	4	4 5
Permitted Phases			2								
Actuated Green, G (s)		61.0	61.0	25.0	76.6				39.0	39.0	53.4
Effective Green, g (s)		61.0	61.0	25.0	76.6				39.0	39.0	53.4
Actuated g/C Ratio		0.44	0.44	0.18	0.55				0.28	0.28	0.38
Clearance Time (s)		5.0	5.0	5.0	5.0				5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0				2.0	2.0	
Lane Grp Cap (vph)		2198	1128	310	2775				459	463	1359
v/s Ratio Prot		c0.37		c0.18	0.39				0.22	0.22	c0.33
v/s Ratio Perm			0.24								
v/c Ratio		0.86	0.56	1.00	0.71				0.80	0.80	0.88
Uniform Delay, d1		35.6	29.5	57.5	23.4				46.9	46.9	40.3
Progression Factor		0.54	0.35	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		2.6	1.1	49.9	1.6				9.3	9.2	6.5
Delay (s)		21.7	11.4	107.3	25.0				56.3	56.1	46.8
Level of Service		C	B	F	C				E	E	D
Approach Delay (s)		18.0			36.2		0.0			50.3	
Approach LOS		B			D		A			D	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		
Description: All Traffic Data Services - 11/4/04			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3255: 23 Av S & S 322 St



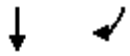
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1	93	39	16	90	136	558	19	46	686	54
Future Volume (vph)	96	1	93	39	16	90	136	558	19	46	686	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			-2%	
Total Lost time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1687	1542		1709	1610		1764	3445		1778	3465	
Flt Permitted	0.54	1.00		0.63	1.00		0.33	1.00		0.41	1.00	
Satd. Flow (perm)	951	1542		1135	1610		614	3445		770	3465	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	96	1	93	39	16	90	136	558	19	46	686	54
RTOR Reduction (vph)	0	81	0	0	82	0	0	1	0	0	3	0
Lane Group Flow (vph)	96	13	0	39	24	0	136	576	0	46	737	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		
Bus Blockages (#/hr)	10	0	10	10	0	10	0	10	0	0	10	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.3	19.2		25.3	14.2		96.2	91.5		96.2	88.2	
Effective Green, g (s)	23.3	18.2		23.3	13.2		95.2	91.0		95.2	87.7	
Actuated g/C Ratio	0.17	0.13		0.17	0.09		0.68	0.65		0.68	0.63	
Clearance Time (s)	5.0	4.0		5.0	4.0		5.0	4.5		5.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	211	200		209	151		479	2239		553	2170	
v/s Ratio Prot	c0.03	0.01		0.01	0.02		c0.02	c0.17		0.00	c0.21	
v/s Ratio Perm	c0.04			c0.02			0.18			0.05		
v/c Ratio	0.45	0.07		0.19	0.16		0.28	0.26		0.08	0.34	
Uniform Delay, d1	51.6	53.4		49.8	58.3		8.2	10.3		7.5	12.4	
Progression Factor	1.00	1.00		1.00	1.00		0.91	0.91		0.22	0.28	
Incremental Delay, d2	0.6	0.1		0.2	0.2		0.1	0.2		0.0	0.0	
Delay (s)	52.2	53.5		49.9	58.5		7.5	9.6		1.6	3.5	
Level of Service	D	D		D	E		A	A		A	A	
Approach Delay (s)		52.8			56.2			9.2			3.4	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3350: Pacific Hwy S & S 324 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
Future Volume (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			1%				0%			
Total Lost time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0	6.0		5.0
Lane Util. Factor	1.00	1.00	1.00	0.94	1.00			0.97	0.91	1.00		0.97
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00	0.97		1.00
Flpb, ped/bikes	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	0.99			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	1778	1812	1516	4926	1813			3419	5085	1488		3378
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	1778	1812	1516	4926	1813			3419	5085	1488		3378
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
RTOR Reduction (vph)	0	0	92	0	2	0	0	0	0	212	0	0
Lane Group Flow (vph)	98	345	30	968	748	0	0	318	1606	232	0	320
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	0	8	6	6	2	0	6	2	0	8	0	8
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Actuated Green, G (s)	10.0	35.0	35.0	29.5	54.5			13.0	42.5	42.5		13.0
Effective Green, g (s)	9.5	34.5	34.5	29.0	54.0			13.0	42.5	41.5		13.0
Actuated g/C Ratio	0.07	0.25	0.25	0.21	0.39			0.09	0.30	0.30		0.09
Clearance Time (s)	4.5	5.0	5.0	5.0	5.5			5.0	5.0	5.0		5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	120	446	373	1020	699			317	1543	441		313
v/s Ratio Prot	0.06	c0.19		0.20	c0.41			0.09	c0.32			0.09
v/s Ratio Perm			0.02							0.16		
v/c Ratio	0.82	0.77	0.08	0.95	1.07			1.00	1.04	0.52		1.02
Uniform Delay, d1	64.4	49.1	40.6	54.8	43.0			63.5	48.8	41.0		63.5
Progression Factor	1.00	1.00	1.00	0.85	0.91			1.00	1.00	1.00		0.67
Incremental Delay, d2	31.7	7.5	0.0	16.9	54.1			51.3	34.3	4.4		44.6
Delay (s)	96.1	56.6	40.6	63.6	93.1			114.8	83.1	45.5		87.2
Level of Service	F	E	D	E	F			F	F	D		F
Approach Delay (s)		60.0			76.5				80.3			
Approach LOS		E			E				F			

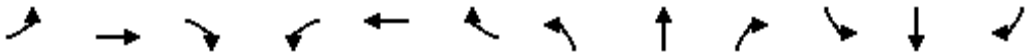
Intersection Summary			
HCM 2000 Control Delay	71.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1407	158
Future Volume (vph)	1407	158
Ideal Flow (vphpl)	1900	1900
Grade (%)	0%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	4944	
Flt Permitted	1.00	
Satd. Flow (perm)	4944	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1407	158
RTOR Reduction (vph)	10	0
Lane Group Flow (vph)	1555	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	6	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	42.5	
Effective Green, g (s)	42.5	
Actuated g/C Ratio	0.30	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1500	
v/s Ratio Prot	c0.31	
v/s Ratio Perm		
v/c Ratio	1.04	
Uniform Delay, d1	48.8	
Progression Factor	0.56	
Incremental Delay, d2	28.1	
Delay (s)	55.5	
Level of Service	E	
Approach Delay (s)	60.9	
Approach LOS	E	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3440: 1 Av S & SW 325 Pl



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
Future Volume (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			0%			1%			-1%	
Total Lost time (s)		5.5			5.5			4.5			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.89			0.92			1.00			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1642			1655			3513			3482	
Flt Permitted		0.96			0.74			1.00			0.82	
Satd. Flow (perm)		1586			1243			3513			2851	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
RTOR Reduction (vph)	0	69	0	0	23	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	20	0	0	16	0	0	1460	0	0	1859	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)		7.4			7.4			123.6			123.1	
Effective Green, g (s)		6.4			6.4			123.6			123.1	
Actuated g/C Ratio		0.05			0.05			0.88			0.88	
Clearance Time (s)		4.5			4.5			4.5			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		72			56			3101			2506	
v/s Ratio Prot								0.42				
v/s Ratio Perm		0.01			c0.01						c0.65	
v/c Ratio		0.28			0.29			0.47			0.74	
Uniform Delay, d1		64.6			64.6			1.6			2.9	
Progression Factor		1.00			1.00			0.22			2.41	
Incremental Delay, d2		0.8			1.0			0.4			2.0	
Delay (s)		65.4			65.6			0.8			9.1	
Level of Service		E			E			A			A	
Approach Delay (s)		65.4			65.6			0.8			9.1	
Approach LOS		E			E			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)	140.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		
Description:			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3540: 1 Av S & S 328 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
Future Volume (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			2%			-3%	
Total Lost time (s)	5.0			5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00			1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00			1.00	0.97		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00			0.96	1.00		1.00	1.00		1.00	1.00	
Frt	1.00			1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95			0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770			1694	1603		1752	3427		1796	3586	
Flt Permitted	0.74			1.00	1.00		0.08	1.00		0.11	1.00	
Satd. Flow (perm)	1383			1783	1603		147	3427		199	3586	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
RTOR Reduction (vph)	0	0	0	0	14	0	0	4	0	0	0	0
Lane Group Flow (vph)	11	0	0	199	9	0	22	1582	0	21	1739	0
Confl. Peds. (#/hr)				10		10			10	10		
Turn Type	D.P+P			D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	20.5			20.5	18.1		99.5	96.5		99.5	96.5	
Effective Green, g (s)	20.5			20.5	18.1		99.5	96.5		99.5	96.5	
Actuated g/C Ratio	0.15			0.15	0.13		0.71	0.69		0.71	0.69	
Clearance Time (s)	5.0			5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	209			249	207		138	2362		175	2471	
v/s Ratio Prot	0.00			c0.10	0.01		c0.00	0.46		0.00	c0.48	
v/s Ratio Perm	0.01			c0.01			0.11			0.08		
v/c Ratio	0.05			0.80	0.04		0.16	0.67		0.12	0.70	
Uniform Delay, d1	51.3			56.1	53.4		25.4	12.6		20.5	13.1	
Progression Factor	1.00			1.00	1.00		0.62	0.62		0.64	0.55	
Incremental Delay, d2	0.0			15.3	0.0		0.2	1.2		0.1	1.2	
Delay (s)	51.4			71.4	53.4		15.8	9.0		13.2	8.4	
Level of Service	D			E	D		B	A		B	A	
Approach Delay (s)		51.4			69.5			9.1			8.4	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3640: 1 Wy S/1 Av S & SW 330 St/S 330 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
Future Volume (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			3%			7%			-5%	
Total Lost time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	6.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1787	1594		1739	1705		1708	3388		1814	3628	1525
Flt Permitted	0.72	1.00		0.31	1.00		0.06	1.00		0.15	1.00	1.00
Satd. Flow (perm)	1354	1594		563	1705		113	3388		280	3628	1525
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
RTOR Reduction (vph)	0	161	0	0	18	0	0	2	0	0	0	227
Lane Group Flow (vph)	281	39	0	56	39	0	385	1335	0	14	1354	394
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		8
Actuated Green, G (s)	27.1	19.8		26.6	7.3		93.9	92.3		94.4	64.2	64.2
Effective Green, g (s)	25.1	18.8		24.6	6.3		93.9	92.3		94.4	64.2	63.2
Actuated g/C Ratio	0.18	0.13		0.18	0.04		0.67	0.66		0.67	0.46	0.45
Clearance Time (s)	5.0	4.5		5.0	4.0		4.5	4.5		5.0	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	300	214		147	76		414	2233		211	1663	688
v/s Ratio Prot	c0.13	0.02		0.02	0.02		c0.20	0.39		0.00	0.37	
v/s Ratio Perm	c0.04			0.05			c0.43			0.04		0.26
v/c Ratio	0.94	0.18		0.38	0.51		0.93	0.60		0.07	0.81	0.57
Uniform Delay, d1	56.0	53.8		49.5	65.3		44.6	13.4		10.0	32.7	28.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.62	0.69	0.40
Incremental Delay, d2	34.9	0.1		0.6	2.4		26.7	1.2		0.0	3.5	2.6
Delay (s)	90.9	53.9		50.1	67.7		71.4	14.6		6.2	26.0	14.1
Level of Service	F	D		D	E		E	B		A	C	B
Approach Delay (s)		75.5			59.0			27.3			22.1	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3650: Pacific Hwy S & S 330 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
Future Volume (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%				2%			
Total Lost time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00	1.00			1.00
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00	1.00			1.00
Frt	1.00	0.96		1.00	0.93			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1750	1820		1713	1712			1752	4971			1787
Flt Permitted	0.63	1.00		0.71	1.00			0.95	1.00			0.95
Satd. Flow (perm)	1163	1820		1274	1712			1752	4971			1787
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
RTOR Reduction (vph)	0	8	0	0	22	0	0	0	2	0	0	0
Lane Group Flow (vph)	60	70	0	52	89	0	0	164	2058	0	0	227
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	6	0	6	6	0	6	6	0	6	0	6	0
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Actuated Green, G (s)	20.1	12.3		20.6	16.2			15.4	66.1			25.2
Effective Green, g (s)	18.1	11.3		18.6	15.2			15.4	66.1			25.2
Actuated g/C Ratio	0.14	0.09		0.14	0.11			0.12	0.50			0.19
Clearance Time (s)	5.0	5.0		5.0	5.5			5.0	5.0			5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	171	155		203	196			203	2481			340
v/s Ratio Prot	0.01	0.04		c0.01	c0.05			0.09	c0.41			0.13
v/s Ratio Perm	0.04			0.02								
v/c Ratio	0.35	0.45		0.26	0.45			0.81	0.83			0.67
Uniform Delay, d1	52.9	57.6		51.0	54.7			57.1	28.3			49.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.03			1.00
Incremental Delay, d2	0.5	0.8		0.2	0.6			19.5	2.3			3.8
Delay (s)	53.3	58.4		51.2	55.3			76.5	31.5			53.5
Level of Service	D	E		D	E			E	C			D
Approach Delay (s)		56.2			54.0				34.8			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	132.4	Sum of lost time (s)	23.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2237	130
Future Volume (vph)	2237	130
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5036	
Flt Permitted	1.00	
Satd. Flow (perm)	5036	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	2237	130
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2363	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	6	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	75.9	
Effective Green, g (s)	75.9	
Actuated g/C Ratio	0.57	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	2886	
v/s Ratio Prot	c0.47	
v/s Ratio Perm		
v/c Ratio	0.82	
Uniform Delay, d1	22.7	
Progression Factor	1.00	
Incremental Delay, d2	1.8	
Delay (s)	24.5	
Level of Service	C	
Approach Delay (s)	27.1	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
3842: S 333 St & 1 Wy S

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	111	1422	15	5	1454	38	33	5	18	38	11	320
Future Volume (vph)	111	1422	15	5	1454	38	33	5	18	38	11	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-6%			1%	
Total Lost time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00			0.96		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.97		0.95	1.00	
Satd. Flow (prot)	1782	3570		1734	3450			1746		1721	1539	
Flt Permitted	0.11	1.00		0.15	1.00			0.16		0.73	1.00	
Satd. Flow (perm)	205	3570		266	3450			293		1326	1539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	111	1422	15	5	1454	38	33	5	18	38	11	320
RTOR Reduction (vph)	0	0	0	0	1	0	0	13	0	0	132	0
Lane Group Flow (vph)	111	1437	0	5	1491	0	0	43	0	38	199	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	2	0	0	0	2	0	2	2	2	0	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	103.9	102.9		103.9	90.3			22.1		22.1	22.1	
Effective Green, g (s)	103.9	102.9		103.9	90.3			22.1		22.1	22.1	
Actuated g/C Ratio	0.74	0.74		0.74	0.64			0.16		0.16	0.16	
Clearance Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	305	2623		207	2225			46		209	242	
v/s Ratio Prot	0.04	c0.40		0.00	c0.43						0.13	
v/s Ratio Perm	0.24			0.02				c0.15		0.03		
v/c Ratio	0.36	0.55		0.02	0.67			0.92		0.18	0.82	
Uniform Delay, d1	26.5	8.2		6.4	15.5			58.1		51.1	57.0	
Progression Factor	1.00	1.00		0.48	0.34			1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.8		0.0	1.2			102.3		0.2	18.8	
Delay (s)	26.8	9.1		3.1	6.5			160.4		51.3	75.8	
Level of Service	C	A		A	A			F		D	E	
Approach Delay (s)		10.3			6.5			160.4			73.3	
Approach LOS		B			A			F			E	

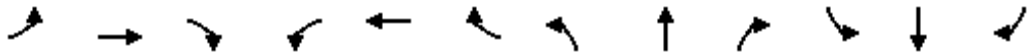
Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4043: 1 Wy S & S 336 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
Future Volume (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-6%			-1%			3%			-5%	
Total Lost time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		0.95	0.95	0.88	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1808	1844		1676	1709	2750	1743	3267		1813	3555	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.16	1.00		0.15	1.00	
Satd. Flow (perm)	1808	1844		1676	1709	2750	288	3267		278	3555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
RTOR Reduction (vph)	0	8	0	0	0	181	0	47	0	0	3	0
Lane Group Flow (vph)	144	172	0	332	336	511	12	792	0	672	1155	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6			2		
Actuated Green, G (s)	18.3	18.3		24.0	24.0	74.7	78.2	27.5		78.2	76.0	
Effective Green, g (s)	17.3	17.3		24.0	24.0	74.7	78.2	27.5		78.2	76.0	
Actuated g/C Ratio	0.12	0.12		0.17	0.17	0.53	0.56	0.20		0.56	0.54	
Clearance Time (s)	4.5	4.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	223	227		287	292	1467	183	641		711	1929	
v/s Ratio Prot	0.08	c0.09		c0.20	0.20	0.13	0.00	c0.24		c0.34	0.32	
v/s Ratio Perm						0.06	0.04			0.19		
v/c Ratio	0.65	0.76		1.16	1.15	0.35	0.07	1.24		0.95	0.60	
Uniform Delay, d1	58.4	59.3		58.0	58.0	18.7	16.5	56.2		40.0	21.7	
Progression Factor	1.00	1.00		0.75	0.75	1.30	0.64	0.71		0.86	0.72	
Incremental Delay, d2	4.7	12.1		95.4	92.8	0.0	0.1	119.2		20.1	1.3	
Delay (s)	63.2	71.4		138.7	136.0	24.4	10.5	159.2		54.4	17.0	
Level of Service	E	E		F	F	C	B	F		D	B	
Approach Delay (s)		67.8			79.9			157.1			30.7	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	73.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4046: 9 Av S & S 336 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	706	430	131	980	63	277	143	187	196	211	101
Future Volume (vph)	76	706	430	131	980	63	277	143	187	196	211	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			-4%	
Total Lost time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.99		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3257		1764	3511		1751	1661		1788	1777	
Flt Permitted	0.16	1.00		0.13	1.00		0.15	1.00		0.26	1.00	
Satd. Flow (perm)	306	3257		232	3511		285	1661		482	1777	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	76	706	430	131	980	63	277	143	187	196	211	101
RTOR Reduction (vph)	0	59	0	0	3	0	0	35	0	0	13	0
Lane Group Flow (vph)	76	1077	0	131	1040	0	277	295	0	196	299	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	2	2	0	0	0	0	2	2	2	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	73.9	64.8		73.9	67.0		47.1	34.9		47.1	26.4	
Effective Green, g (s)	72.9	64.3		72.9	66.5		46.1	34.4		46.1	25.9	
Actuated g/C Ratio	0.52	0.46		0.52	0.48		0.33	0.25		0.33	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	226	1495		214	1667		305	408		267	328	
v/s Ratio Prot	0.02	c0.33		c0.04	0.30		c0.13	0.18		0.06	c0.17	
v/s Ratio Perm	0.16			0.28			0.17			0.18		
v/c Ratio	0.34	0.72		0.61	0.62		0.91	0.72		0.73	0.91	
Uniform Delay, d1	19.8	30.6		22.5	27.4		39.1	48.4		36.9	55.9	
Progression Factor	0.38	0.55		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.4		3.6	1.8		28.4	5.3		8.7	27.9	
Delay (s)	7.7	18.4		26.1	29.2		67.5	53.7		45.6	83.8	
Level of Service	A	B		C	C		E	D		D	F	
Approach Delay (s)		17.7			28.8			60.0			69.0	
Approach LOS		B			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4050: Pacific Hwy S & S 336 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	413	762	372	311	785	145	14	244	1637	208	27	79
Future Volume (vph)	413	762	372	311	785	145	14	244	1637	208	27	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			1%				3%			
Total Lost time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	6.0		5.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95			0.97	0.91	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00			1.00	1.00	0.95		1.00
Flpb, ped/bikes	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	0.98			1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (prot)	3375	3522	1516	1733	3414			3368	4969	1480		1796
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00		0.95
Satd. Flow (perm)	3375	3522	1516	1733	3414			3368	4969	1480		1796
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	413	762	372	311	785	145	14	244	1637	208	27	79
RTOR Reduction (vph)	0	0	149	0	11	0	0	0	0	97	0	0
Lane Group Flow (vph)	413	762	223	311	919	0	0	258	1637	111	0	106
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	6	0	4	4	2	6	4	2	6	0	6	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Actuated Green, G (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.8	55.8		10.7
Effective Green, g (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.8	54.8		10.7
Actuated g/C Ratio	0.12	0.20	0.20	0.17	0.26			0.07	0.40	0.39		0.08
Clearance Time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	5.0		5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	397	716	308	290	890			240	1980	579		137
v/s Ratio Prot	0.12	0.22		c0.18	c0.27			c0.08	0.33			0.06
v/s Ratio Perm			0.15							0.07		
v/c Ratio	1.04	1.06	0.72	1.07	1.03			1.07	0.83	0.19		0.77
Uniform Delay, d1	61.8	55.8	52.1	58.2	51.8			65.0	37.8	28.0		63.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.89	0.81	0.47		1.00
Incremental Delay, d2	56.0	52.0	7.0	73.4	38.8			55.7	1.4	0.2		21.5
Delay (s)	117.8	107.8	59.1	131.6	90.6			113.6	32.2	13.5		85.2
Level of Service	F	F	E	F	F			F	C	B		F
Approach Delay (s)		98.7			100.9				40.3			
Approach LOS		F			F				D			

Intersection Summary			
HCM 2000 Control Delay	71.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2103	104
Future Volume (vph)	2103	104
Ideal Flow (vphpl)	1900	1900
Grade (%)	-3%	
Total Lost time (s)	5.5	4.5
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5134	1555
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5134	1555
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	2103	104
RTOR Reduction (vph)	0	48
Lane Group Flow (vph)	2103	56
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	4	2
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	56.5	73.0
Effective Green, g (s)	56.5	73.0
Actuated g/C Ratio	0.40	0.52
Clearance Time (s)	5.5	4.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	2071	860
v/s Ratio Prot	c0.41	0.01
v/s Ratio Perm		0.03
v/c Ratio	1.02	0.06
Uniform Delay, d1	41.8	16.6
Progression Factor	1.01	1.08
Incremental Delay, d2	23.7	0.0
Delay (s)	66.0	17.9
Level of Service	E	B
Approach Delay (s)	64.7	
Approach LOS	E	

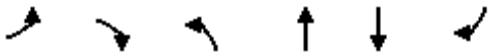
Intersection Summary

HCM Signalized Intersection Capacity Analysis
4250: Pacific Hwy S & S 340 Pl/16 Av S

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	22	43	74	10	1567	41	1123	25	1279	1584	2
Future Volume (vph)	64	22	43	74	10	1567	41	1123	25	1279	1584	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-5%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	0.88	1.00	0.91		0.94	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1678		1799	1909	2833	1752	4989		5027	5121	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.09	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1678		1799	1909	2833	157	4989		5027	5121	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	22	43	74	10	1567	41	1123	25	1279	1584	2
RTOR Reduction (vph)	0	40	0	0	0	72	0	2	0	0	0	0
Lane Group Flow (vph)	64	25	0	74	10	1495	41	1146	0	1279	1586	0
Confl. Peds. (#/hr)				10		10			10	10		
Bus Blockages (#/hr)	0	0	0	2	0	4	0	4	2	2	2	0
Turn Type	Prot	NA		Prot	NA	pt+ov	D.P+P	NA		Prot	NA	
Protected Phases	7	4		3	8	8 5	1	6		5	2	
Permitted Phases							2					
Actuated Green, G (s)	7.4	8.7		37.9	39.2	80.1	72.9	32.0		40.9	67.9	
Effective Green, g (s)	7.4	8.7		37.9	39.2	78.1	72.9	32.0		40.9	67.9	
Actuated g/C Ratio	0.05	0.06		0.27	0.28	0.56	0.52	0.23		0.29	0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	93	104		487	534	1580	138	1140		1468	2483	
v/s Ratio Prot	c0.04	0.01		0.04	0.01	c0.53	0.01	c0.23		0.25	0.31	
v/s Ratio Perm							0.14					
v/c Ratio	0.69	0.24		0.15	0.02	0.95	0.30	1.01		0.87	0.64	
Uniform Delay, d1	65.2	62.5		38.8	36.5	29.0	20.0	54.0		47.0	26.9	
Progression Factor	1.00	1.00		0.94	0.90	0.92	0.98	0.55		0.44	0.24	
Incremental Delay, d2	15.5	0.4		0.1	0.0	11.7	0.4	27.6		2.3	0.4	
Delay (s)	80.7	62.9		36.6	32.7	38.4	19.9	57.5		23.0	6.8	
Level of Service	F	E		D	C	D	B	E		C	A	
Approach Delay (s)		71.7			38.3			56.2			14.1	
Approach LOS		E			D			E			B	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4540: 1 Av S/1 Wy S & Winco Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	12	0	818	1759	123
Future Volume (vph)	78	12	0	818	1759	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			-3%	-1%	
Total Lost time (s)	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1729	1503		3578	3496	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1729	1503		3578	3496	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	78	12	0	818	1759	123
RTOR Reduction (vph)	0	11	0	0	2	0
Lane Group Flow (vph)	78	1	0	818	1880	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4		2		
Actuated Green, G (s)	15.5	15.5		115.5	115.5	
Effective Green, g (s)	14.5	14.5		115.5	115.5	
Actuated g/C Ratio	0.10	0.10		0.82	0.82	
Clearance Time (s)	4.0	4.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	179	155		2951	2884	
v/s Ratio Prot	c0.05			0.23	c0.54	
v/s Ratio Perm		0.00				
v/c Ratio	0.44	0.01		0.28	0.65	
Uniform Delay, d1	58.9	56.3		2.8	4.6	
Progression Factor	1.00	1.00		0.23	1.53	
Incremental Delay, d2	0.6	0.0		0.2	1.1	
Delay (s)	59.5	56.3		0.8	8.2	
Level of Service	E	E		A	A	
Approach Delay (s)	59.1			0.8	8.2	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4549: Pacific Hwy S & S 344 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	59	4	69	61	24	27	12	33	1056	89	12	34
Future Volume (vph)	59	4	69	61	24	27	12	33	1056	89	12	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-3%				2%			
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	0.91			1.00
Frpb, ped/bikes	1.00	0.95		1.00	0.97			1.00	0.99			1.00
Flpb, ped/bikes	0.97	1.00		0.98	1.00			1.00	1.00			1.00
Frt	1.00	0.86		1.00	0.92			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1694	1509		1743	1695			1752	4931			1781
Flt Permitted	0.72	1.00		0.67	1.00			0.12	1.00			0.22
Satd. Flow (perm)	1291	1509		1223	1695			218	4931			414
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	59	4	69	61	24	27	12	33	1056	89	12	34
RTOR Reduction (vph)	0	66	0	0	26	0	0	0	4	0	0	0
Lane Group Flow (vph)	59	7	0	61	25	0	0	45	1141	0	0	46
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	0	2	0	0	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4			6	6			2	2
Actuated Green, G (s)	13.6	6.0		13.6	6.0			106.4	102.0			106.4
Effective Green, g (s)	13.6	6.0		13.6	6.0			106.4	102.0			106.4
Actuated g/C Ratio	0.10	0.04		0.10	0.04			0.76	0.73			0.76
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0			2.0
Lane Grp Cap (vph)	147	64		147	72			213	3592			357
v/s Ratio Prot	0.02	0.00		c0.02	0.01			c0.01	0.23			0.00
v/s Ratio Perm	0.02			c0.02				0.15				0.09
v/c Ratio	0.40	0.11		0.41	0.35			0.21	0.32			0.13
Uniform Delay, d1	59.1	64.4		59.1	65.1			5.0	6.7			4.3
Progression Factor	0.95	0.92		0.78	0.67			1.51	0.50			0.20
Incremental Delay, d2	0.6	0.3		0.7	1.0			0.1	0.1			0.0
Delay (s)	56.9	59.6		46.9	44.5			7.7	3.5			0.9
Level of Service	E	E		D	D			A	A			A
Approach Delay (s)		58.4			45.8				3.6			
Approach LOS		E			D				A			

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1591	64
Future Volume (vph)	1591	64
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5077	
Flt Permitted	1.00	
Satd. Flow (perm)	5077	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1591	64
RTOR Reduction (vph)	2	0
Lane Group Flow (vph)	1653	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	102.0	
Effective Green, g (s)	102.0	
Actuated g/C Ratio	0.73	
Clearance Time (s)	5.0	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	3698	
v/s Ratio Prot	c0.33	
v/s Ratio Perm		
v/c Ratio	0.45	
Uniform Delay, d1	7.6	
Progression Factor	0.82	
Incremental Delay, d2	0.3	
Delay (s)	6.6	
Level of Service	A	
Approach Delay (s)	6.4	
Approach LOS	A	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4550: 16 Av S & S 344 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
Future Volume (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-5%			3%			-1%	
Total Lost time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1727	1722		1787	1685		1743	3431		1778	3532	
Flt Permitted	0.52	1.00		0.58	1.00		0.09	1.00		0.20	1.00	
Satd. Flow (perm)	946	1722		1088	1685		158	3431		366	3532	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
RTOR Reduction (vph)	0	16	0	0	50	0	0	3	0	0	1	0
Lane Group Flow (vph)	32	71	0	217	93	0	53	1051	0	136	1572	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	29.3	11.6		29.3	24.9		91.7	79.8		91.7	86.8	
Effective Green, g (s)	29.3	11.6		29.3	24.9		91.7	79.8		91.7	86.8	
Actuated g/C Ratio	0.21	0.08		0.21	0.18		0.66	0.57		0.66	0.62	
Clearance Time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	222	142		316	299		158	1955		359	2189	
v/s Ratio Prot	0.00	0.04		c0.09	0.06		0.01	c0.31		0.03	c0.45	
v/s Ratio Perm	0.03			c0.06			0.21			0.22		
v/c Ratio	0.14	0.50		0.69	0.31		0.34	0.54		0.38	0.72	
Uniform Delay, d1	44.7	61.4		49.8	50.1		15.7	18.7		24.3	18.2	
Progression Factor	0.87	0.83		1.00	1.00		2.39	2.15		0.42	0.78	
Incremental Delay, d2	0.1	1.0		4.9	0.2		0.0	0.1		0.2	1.6	
Delay (s)	39.2	52.3		54.7	50.3		37.5	40.2		10.5	15.8	
Level of Service	D	D		D	D		D	D		B	B	
Approach Delay (s)		48.8			53.0			40.1			15.3	
Approach LOS		D			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4840: 1 Av S & SW Campus Dr/S 348 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
Future Volume (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-1%			7%			-3%	
Total Lost time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	5.5	5.0	5.0	4.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	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	0.97		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)	3351	3312		3436	3543	1550	1694	3402	1476	1782	3578	1558
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3351	3312		3436	3543	1550	1694	3402	1476	1782	3578	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
RTOR Reduction (vph)	0	20	0	0	0	33	0	0	214	0	0	57
Lane Group Flow (vph)	171	948	0	417	1404	161	176	442	43	195	1153	315
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	9.9	46.5		19.0	55.6	86.8	13.0	24.3	24.3	31.2	42.0	51.9
Effective Green, g (s)	9.9	46.5		19.0	55.6	86.8	13.0	24.3	23.3	31.2	42.0	51.9
Actuated g/C Ratio	0.07	0.33		0.14	0.40	0.62	0.09	0.17	0.17	0.22	0.30	0.37
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	4.5	5.0	5.0	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	236	1100		466	1407	961	157	590	245	397	1073	577
v/s Ratio Prot	0.05	c0.29		0.12	c0.40	0.04	c0.10	0.13		0.11	c0.32	0.04
v/s Ratio Perm						0.07			0.03			0.16
v/c Ratio	0.72	0.86		0.89	1.00	0.17	1.12	0.75	0.17	0.49	1.07	0.55
Uniform Delay, d1	63.7	43.7		59.5	42.1	11.3	63.5	55.0	50.1	47.5	49.0	34.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.91	0.95	2.03	1.05	0.99	0.92
Incremental Delay, d2	9.0	8.9		18.9	23.5	0.0	83.6	2.0	0.1	0.3	46.7	0.4
Delay (s)	72.7	52.7		78.4	65.6	11.3	141.1	53.9	101.8	49.9	95.0	32.5
Level of Service	E	D		E	E	B	F	D	F	D	F	C
Approach Delay (s)		55.7			63.0			85.5			76.4	
Approach LOS		E			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	69.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4848: Pacific Hwy S & S 348 St

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
Future Volume (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			4%			1%				2%		
Total Lost time (s)		4.5	5.0	6.0	5.0	5.0			5.0	5.0	5.0	5.5
Lane Util. Factor		1.00	0.91	1.00	0.97	0.91			0.97	0.86	0.86	0.97
Frpb, ped/bikes		1.00	1.00	0.98	1.00	1.00			1.00	1.00	0.99	1.00
Flpb, ped/bikes		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			1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (prot)		1720	4984	1505	3402	5020			3385	4722	1328	3485
Flt Permitted		0.95	1.00	1.00	0.95	1.00			0.95	1.00	1.00	0.95
Satd. Flow (perm)		1720	4984	1505	3402	5020			3385	4722	1328	3485
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
RTOR Reduction (vph)	0	0	0	67	0	2	0	0	0	2	61	0
Lane Group Flow (vph)	0	219	1868	367	351	1962	0	0	216	1031	200	146
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	0	2	2	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4							2	
Actuated Green, G (s)		18.5	60.0	60.0	15.0	57.0			10.0	34.5	49.5	10.0
Effective Green, g (s)		18.5	60.0	59.0	15.0	57.0			10.0	34.5	49.5	10.0
Actuated g/C Ratio		0.13	0.43	0.42	0.11	0.41			0.07	0.25	0.35	0.07
Clearance Time (s)		4.5	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.5
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		227	2136	634	364	2043			241	1163	516	248
v/s Ratio Prot		0.13	c0.37		0.10	c0.39			c0.06	0.22	0.04	0.04
v/s Ratio Perm				0.24							0.11	
v/c Ratio		0.96	0.87	0.58	0.96	0.96			0.90	0.89	0.39	0.59
Uniform Delay, d1		60.4	36.6	31.0	62.2	40.4			64.5	50.9	33.9	63.0
Progression Factor		1.00	1.00	1.00	0.63	0.43			0.93	0.73	0.37	0.68
Incremental Delay, d2		49.1	5.4	3.8	24.2	7.3			29.8	7.8	0.2	2.1
Delay (s)		109.6	41.9	34.8	63.3	24.6			89.9	44.9	12.7	45.3
Level of Service		F	D	C	E	C			F	D	B	D
Approach Delay (s)			46.6			30.5				45.7		
Approach LOS			D			C				D		

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		
Description:			

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1278	145
Future Volume (vph)	1278	145
Ideal Flow (vphpl)	1900	1900
Grade (%)	-3%	
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5148	1558
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5148	1558
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1278	145
RTOR Reduction (vph)	0	99
Lane Group Flow (vph)	1278	46
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	34.5	34.5
Effective Green, g (s)	34.5	34.5
Actuated g/C Ratio	0.25	0.25
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	2.0	2.0
Lane Grp Cap (vph)	1268	383
v/s Ratio Prot	c0.25	
v/s Ratio Perm		0.03
v/c Ratio	1.01	0.12
Uniform Delay, d1	52.8	41.0
Progression Factor	0.46	0.30
Incremental Delay, d2	26.2	0.0
Delay (s)	50.3	12.2
Level of Service	D	B
Approach Delay (s)	46.3	
Approach LOS	D	

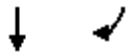
Intersection Summary

HCM Signalized Intersection Capacity Analysis
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
Future Volume (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			2%			-4%				2%		
Total Lost time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0	5.0	5.0
Lane Util. Factor		1.00	0.91	1.00	0.94	0.91	1.00		0.97	0.91	0.91	0.94
Frpb, ped/bikes		1.00	1.00	0.98	1.00	1.00	0.97		1.00	0.99	1.00	1.00
Flpb, ped/bikes		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	0.97	0.85	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (prot)		1738	5034	1519	5077	5173	1559		3385	3212	1426	5040
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00	0.95
Satd. Flow (perm)		1738	5034	1519	5077	5173	1559		3385	3212	1426	5040
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
RTOR Reduction (vph)	0	0	0	97	0	0	128	0	0	18	52	0
Lane Group Flow (vph)	0	145	1493	371	1144	1735	159	0	419	1025	406	752
Confl. Peds. (#/hr)	10	10		10	10		10	10	10		10	10
Bus Blockages (#/hr)	2	2	0	2	2	2	2	2	2	2	0	0
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pt+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	2 3	1
Permitted Phases				4			8					
Actuated Green, G (s)		12.5	40.5	40.5	27.0	55.0	55.0		18.0	36.0	63.0	17.0
Effective Green, g (s)		12.5	40.5	40.5	27.0	55.0	55.0		18.0	36.0	63.0	17.0
Actuated g/C Ratio		0.09	0.29	0.29	0.19	0.39	0.39		0.13	0.26	0.45	0.12
Clearance Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0		5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Lane Grp Cap (vph)		155	1456	439	979	2032	612		435	825	641	612
v/s Ratio Prot		0.08	c0.30		c0.23	0.34			0.12	c0.32	0.28	c0.15
v/s Ratio Perm				0.24			0.10					
v/c Ratio		0.94	1.03	0.85	1.17	0.85	0.26		0.96	1.24	0.63	1.23
Uniform Delay, d1		63.3	49.8	46.8	56.5	38.8	28.7		60.7	52.0	29.6	61.5
Progression Factor		0.60	0.49	0.27	0.95	1.14	1.38		0.76	0.86	1.81	0.79
Incremental Delay, d2		36.3	24.4	10.8	79.2	1.4	0.3		27.9	116.9	1.1	114.2
Delay (s)		74.2	48.6	23.3	133.1	45.8	40.0		74.0	161.4	54.8	162.9
Level of Service		E	D	C	F	D	D		E	F	D	F
Approach Delay (s)			44.7			76.8				116.9		
Approach LOS			D			E				F		

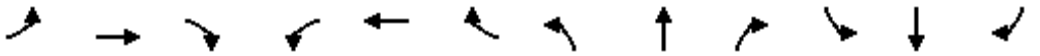
Intersection Summary			
HCM 2000 Control Delay	83.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		
Description:			

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1109	164
Future Volume (vph)	1109	164
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	5010	
Flt Permitted	1.00	
Satd. Flow (perm)	5010	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1109	164
RTOR Reduction (vph)	14	0
Lane Group Flow (vph)	1259	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	2
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	34.5	
Effective Green, g (s)	34.5	
Actuated g/C Ratio	0.25	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1234	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	1.02	
Uniform Delay, d1	52.8	
Progression Factor	0.75	
Incremental Delay, d2	28.0	
Delay (s)	67.5	
Level of Service	E	
Approach Delay (s)	102.9	
Approach LOS	F	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Future Volume (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0				5.0			5.0
Lane Util. Factor		0.95			0.95				1.00			0.76
Frpb, ped/bikes		1.00			1.00				0.99			1.00
Flpb, ped/bikes		1.00			1.00				1.00			1.00
Frt		1.00			1.00				0.86			0.85
Flt Protected		1.00			1.00				1.00			1.00
Satd. Flow (prot)		3539			3539				1587			3600
Flt Permitted		1.00			1.00				1.00			1.00
Satd. Flow (perm)		3539			3539				1587			3600
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	30
Lane Group Flow (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1607
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	2
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Actuated Green, G (s)		140.0			75.0				140.0			55.0
Effective Green, g (s)		140.0			75.0				140.0			55.0
Actuated g/C Ratio		1.00			0.54				1.00			0.39
Clearance Time (s)		5.0			5.0							5.0
Vehicle Extension (s)		2.0			2.0							2.0
Lane Grp Cap (vph)		3539			1895				1587			1414
v/s Ratio Prot		0.39			c0.43							c0.45
v/s Ratio Perm									0.72			
v/c Ratio		0.39			0.81				0.72			1.14
Uniform Delay, d1		0.0			26.6				0.0			42.5
Progression Factor		1.00			1.00				1.00			1.00
Incremental Delay, d2		0.0			3.8				2.9			70.7
Delay (s)		0.0			30.4				2.9			113.2
Level of Service		A			C				A			F
Approach Delay (s)		0.0			30.4			2.9			113.2	
Approach LOS		A			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

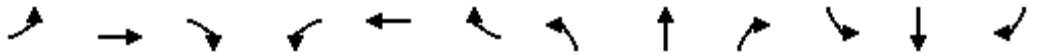
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5047: Pacific Hwy S & S 352 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	296	1124	246	20	2070
Future Volume (vph)	2	296	1124	246	20	2070
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		2%			-2%
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	4899		1787	5136
Flt Permitted	0.95	1.00	1.00		0.17	1.00
Satd. Flow (perm)	1770	1583	4899		319	5136
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	296	1124	246	20	2070
RTOR Reduction (vph)	0	166	14	0	0	0
Lane Group Flow (vph)	2	130	1356	0	20	2070
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	8		2		1	6
Permitted Phases		8			2	
Actuated Green, G (s)	15.5	15.5	103.5		109.5	114.5
Effective Green, g (s)	15.5	15.5	103.5		109.5	114.5
Actuated g/C Ratio	0.11	0.11	0.74		0.78	0.82
Clearance Time (s)	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	195	175	3621		312	4200
v/s Ratio Prot	0.00		0.28		0.00	c0.40
v/s Ratio Perm		c0.08			0.05	
v/c Ratio	0.01	0.74	0.37		0.06	0.49
Uniform Delay, d1	55.4	60.3	6.6		5.9	3.9
Progression Factor	0.91	1.04	0.09		2.18	3.09
Incremental Delay, d2	0.0	12.6	0.2		0.0	0.2
Delay (s)	50.2	75.3	0.8		13.0	12.2
Level of Service	D	E	A		B	B
Approach Delay (s)	75.1		0.8			12.2
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5050: Enchanted Pkwy S & S 352 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	108	123	197	108	296	18	1330	253	169	2079	172
Future Volume (vph)	15	108	123	197	108	296	18	1330	253	169	2079	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-11%			0%			1%	
Total Lost time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99	0.97	1.00	0.99		1.00	1.00	0.95
Flpb, ped/bikes	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	0.94	0.85	1.00	0.98		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)	1744	1853	1524	1751	1644	1520	1770	3416		1761	3507	1497
Flt Permitted	0.22	1.00	1.00	0.47	1.00	1.00	0.04	1.00		0.07	1.00	1.00
Satd. Flow (perm)	404	1853	1524	875	1644	1520	84	3416		121	3507	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	108	123	197	108	296	18	1330	253	169	2079	172
RTOR Reduction (vph)	0	0	115	0	18	177	0	11	0	0	0	41
Lane Group Flow (vph)	15	108	8	177	202	27	18	1572	0	169	2079	131
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3		4	4		3	6			2		6
Actuated Green, G (s)	29.4	10.2	10.2	29.4	19.2	19.2	91.1	79.7		91.1	89.1	89.1
Effective Green, g (s)	27.4	9.2	9.2	27.4	18.2	18.2	91.1	79.7		91.1	89.1	89.1
Actuated g/C Ratio	0.20	0.07	0.07	0.20	0.13	0.13	0.65	0.57		0.65	0.64	0.64
Clearance Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	167	121	100	285	213	197	78	1944		212	2231	952
v/s Ratio Prot	0.01	c0.06		0.08	c0.12		0.00	c0.46		0.06	c0.59	
v/s Ratio Perm	0.01		0.01	0.04		0.02	0.15			0.45		0.09
v/c Ratio	0.09	0.89	0.08	0.62	0.95	0.13	0.23	0.81		0.80	0.93	0.14
Uniform Delay, d1	56.9	64.9	61.4	50.4	60.4	53.9	55.9	24.1		34.3	22.7	10.1
Progression Factor	0.52	0.59	0.84	1.00	1.00	1.00	0.69	0.66		1.55	0.40	0.01
Incremental Delay, d2	0.1	47.7	0.1	3.0	46.0	0.1	0.5	3.5		1.8	1.0	0.0
Delay (s)	29.6	86.0	51.6	53.4	106.4	54.0	39.1	19.4		55.1	10.1	0.1
Level of Service	C	F	D	D	F	D	D	B		E	B	A
Approach Delay (s)		65.3			73.0			19.6			12.6	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

Description:

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5240: 1 Av S & SW 356 St/S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Future Volume (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			5%			3%			1%	
Total Lost time (s)	5.5	5.5	5.5	4.5	4.5	5.5	5.0	4.5	4.5	5.0	4.5	5.5
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.88
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98
Flpb, ped/bikes	1.00	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	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)	1791	1900	1564	1720	3437	1455	1726	1820	1489	1755	3522	2702
Flt Permitted	0.09	1.00	1.00	0.44	1.00	1.00	0.28	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	163	1900	1564	798	3437	1455	513	1820	1489	474	3522	2702
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
RTOR Reduction (vph)	0	0	19	0	0	106	0	0	46	0	0	90
Lane Group Flow (vph)	551	405	24	65	1119	108	43	195	6	350	468	873
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	0	0	2	2	2	2	0	0	0	2
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6		2	8		4	4		8
Actuated Green, G (s)	83.6	78.2	78.2	83.6	46.2	46.2	36.9	15.6	15.6	36.9	30.8	68.2
Effective Green, g (s)	83.6	78.2	78.2	83.6	46.2	45.2	36.9	15.6	15.6	36.9	30.8	68.2
Actuated g/C Ratio	0.60	0.56	0.56	0.60	0.33	0.32	0.26	0.11	0.11	0.26	0.22	0.49
Clearance Time (s)	5.5	5.5	5.5	4.5	4.5	4.5	5.0	4.5	4.5	5.0	4.5	5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	532	1061	873	512	1134	469	188	202	165	319	774	1316
v/s Ratio Prot	c0.28	0.21		0.00	0.33		0.01	0.11		c0.17	0.13	0.18
v/s Ratio Perm	c0.34		0.02	0.07		0.07	0.05		0.00	c0.12		0.15
v/c Ratio	1.04	0.38	0.03	0.13	0.99	0.23	0.23	0.97	0.04	1.10	0.60	0.66
Uniform Delay, d1	47.6	17.3	13.9	12.4	46.6	34.7	39.5	61.9	55.5	47.6	49.1	27.2
Progression Factor	1.00	1.00	1.00	0.82	0.45	0.24	1.00	1.00	1.00	1.04	0.66	0.78
Incremental Delay, d2	48.6	1.0	0.1	0.0	16.2	0.6	0.2	52.6	0.0	48.9	0.1	0.1
Delay (s)	96.1	18.4	13.9	10.2	36.9	9.0	39.8	114.6	55.5	98.4	32.5	21.2
Level of Service	F	B	B	B	D	A	D	F	E	F	C	C
Approach Delay (s)		61.1			31.4			92.9			39.4	
Approach LOS		E			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5246: Pacific Hwy S & S 356 St

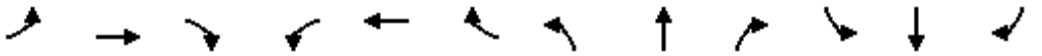
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
Future Volume (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-3%				2%			
Total Lost time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.97	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98		1.00	1.00			1.00
Flpb, ped/bikes	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	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1764	3557	1537	1781	3592	1555		3399	4986			1787
Flt Permitted	0.10	1.00	1.00	0.14	1.00	1.00		0.95	1.00			0.10
Satd. Flow (perm)	191	3557	1537	268	3592	1555		3399	4986			180
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
RTOR Reduction (vph)	0	0	142	0	0	37	0	0	3	0	0	0
Lane Group Flow (vph)	216	694	36	427	883	14	0	159	1247	0	0	155
Confl. Peds. (#/hr)	10		10	10		10	10	10		10	10	10
Bus Blockages (#/hr)	2	0	2	2	0	2	2	0	2	0	0	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4		8					2	2
Actuated Green, G (s)	57.0	28.0	28.0	58.0	38.9	38.9		9.5	48.3			60.0
Effective Green, g (s)	57.0	28.0	28.0	58.0	38.9	37.9		10.5	49.3			60.0
Actuated g/C Ratio	0.41	0.20	0.20	0.41	0.28	0.27		0.08	0.35			0.43
Clearance Time (s)	7.0	5.0	5.0	6.0	5.0	5.0		5.5	5.5			5.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0
Lane Grp Cap (vph)	281	711	307	435	998	420		254	1755			211
v/s Ratio Prot	0.10	0.20		c0.21	0.25			0.05	c0.25			0.06
v/s Ratio Perm	0.21		0.02	c0.20		0.01						0.25
v/c Ratio	0.77	0.98	0.12	0.98	0.88	0.03		0.63	0.71			0.73
Uniform Delay, d1	53.1	55.7	45.9	51.1	48.4	37.6		62.8	39.2			29.1
Progression Factor	1.19	0.98	1.73	1.50	1.22	1.00		1.00	1.00			1.75
Incremental Delay, d2	9.6	25.5	0.1	9.1	1.0	0.0		3.4	2.5			9.7
Delay (s)	72.6	80.0	79.5	85.7	59.8	37.6		66.3	41.7			60.7
Level of Service	E	E	E	F	E	D		E	D			E
Approach Delay (s)		78.4			67.1				44.4			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1234	447
Future Volume (vph)	1234	447
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Total Lost time (s)	5.5	
Lane Util. Factor	0.91	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	4879	
Flt Permitted	1.00	
Satd. Flow (perm)	4879	
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	1234	447
RTOR Reduction (vph)	47	0
Lane Group Flow (vph)	1634	0
Confl. Peds. (#/hr)		10
Bus Blockages (#/hr)	2	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	50.5	
Effective Green, g (s)	50.5	
Actuated g/C Ratio	0.36	
Clearance Time (s)	5.5	
Vehicle Extension (s)	2.0	
Lane Grp Cap (vph)	1759	
v/s Ratio Prot	c0.33	
v/s Ratio Perm		
v/c Ratio	0.93	
Uniform Delay, d1	43.0	
Progression Factor	0.64	
Incremental Delay, d2	9.2	
Delay (s)	36.8	
Level of Service	D	
Approach Delay (s)	38.8	
Approach LOS	D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
5250: 16 Av S & S 356 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	995	33	39	833	0	33	0	125	0	96	410
Future Volume (vph)	0	995	33	39	833	0	33	0	125	0	96	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		7%			-1%			3%			0%	
Total Lost time (s)		3.5			2.0			4.0	4.0		3.0	3.0
Lane Util. Factor		0.95			0.95			0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00			1.00			0.98	0.97		1.00	0.97
Flpb, ped/bikes		1.00			1.00			0.99	1.00		1.00	1.00
Frt		1.00			1.00			0.91	0.85		1.00	0.85
Flt Protected		1.00			1.00			0.98	1.00		1.00	1.00
Satd. Flow (prot)		3394			3548			1520	1436		1863	1535
Flt Permitted		1.00			0.58			0.88	1.00		1.00	1.00
Satd. Flow (perm)		3394			2061			1362	1436		1863	1535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	995	33	39	833	0	33	0	125	0	96	410
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	1026	0	0	872	0	0	79	79	0	96	226
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Turn Type		NA		Perm	NA		Perm	NA	Perm		NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2			6
Actuated Green, G (s)		26.5			27.0			94.8	94.8		75.0	75.0
Effective Green, g (s)		27.5			29.0			95.8	95.8		77.0	77.0
Actuated g/C Ratio		0.20			0.21			0.68	0.68		0.55	0.55
Clearance Time (s)		4.5			4.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)		2.0			2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		666			426			931	982		1024	844
v/s Ratio Prot		0.30									0.05	
v/s Ratio Perm					c0.42			c0.06	0.06			c0.15
v/c Ratio		1.54			2.05			0.08	0.08		0.09	0.27
Uniform Delay, d1		56.2			55.5			7.4	7.4		14.9	16.6
Progression Factor		0.87			0.53			1.00	1.00		0.96	0.94
Incremental Delay, d2		248.0			471.9			0.2	0.2		0.2	0.7
Delay (s)		296.7			501.2			7.6	7.5		14.5	16.4
Level of Service		F			F			A	A		B	B
Approach Delay (s)		296.7			501.2			7.6			16.0	
Approach LOS		F			F			A			B	

Intersection Summary			
HCM 2000 Control Delay	293.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5251: Enchanted Pkwy S & S 356 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	18	675	61	91	50	738	1374	77	20	1713	44
Future Volume (vph)	267	18	675	61	91	50	738	1374	77	20	1713	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			-1%			1%	
Total Lost time (s)		3.5	3.5	2.0	2.0		3.0	4.0		5.0	3.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		0.97	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected		0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752	1523	1744	1747		3450	3505		1761	3492	
Flt Permitted		0.47	1.00	0.23	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		858	1523	420	1747		3450	3505		1761	3492	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	267	18	675	61	91	50	738	1374	77	20	1713	44
RTOR Reduction (vph)	0	0	434	0	14	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	285	241	61	127	0	738	1449	0	20	1756	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Turn Type	pm+pt	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	3	4			8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)		26.5	26.5	27.0	27.0		24.0	94.8		4.2	75.0	
Effective Green, g (s)		27.5	27.5	29.0	29.0		26.0	95.8		4.2	77.0	
Actuated g/C Ratio		0.20	0.20	0.21	0.21		0.19	0.68		0.03	0.55	
Clearance Time (s)		4.5	4.5	4.0	4.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		168	299	87	361		640	2398		52	1920	
v/s Ratio Prot					0.07		c0.21	0.41		0.01	c0.50	
v/s Ratio Perm		c0.33	0.16	0.15								
v/c Ratio		1.70	0.81	0.70	0.35		1.15	0.60		0.38	0.91	
Uniform Delay, d1		56.2	53.7	51.5	47.5		57.0	11.9		66.6	28.5	
Progression Factor		0.28	2.94	1.00	1.00		1.25	1.73		1.17	0.74	
Incremental Delay, d2		315.7	1.4	18.7	0.2		85.4	1.1		1.3	6.6	
Delay (s)		331.6	159.5	70.2	47.7		156.8	21.7		79.0	27.8	
Level of Service		F	F	E	D		F	C		E	C	
Approach Delay (s)		210.6			54.5			67.3			28.3	
Approach LOS		F			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	80.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	114.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	894	0	0	1479	167	164
Future Volume (vph)	894	0	0	1479	167	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	0.93	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3543			3560	3250	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3543			3560	3250	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	894	0	0	1479	167	164
RTOR Reduction (vph)	0	0	0	0	105	0
Lane Group Flow (vph)	894	0	0	1479	226	0
Bus Blockages (#/hr)	2	0	0	2	2	2
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Actuated Green, G (s)	50.0			80.0	50.0	
Effective Green, g (s)	50.0			80.0	50.0	
Actuated g/C Ratio	0.36			0.57	0.36	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.0			2.0	2.0	
Lane Grp Cap (vph)	1265			2034	1160	
v/s Ratio Prot					0.07	
v/s Ratio Perm	c0.25			c0.42		
v/c Ratio	0.71			0.73	0.19	
Uniform Delay, d1	38.7			22.0	31.1	
Progression Factor	1.01			0.38	1.00	
Incremental Delay, d2	3.1			1.0	0.0	
Delay (s)	42.0			9.3	31.1	
Level of Service	D			A	C	
Approach Delay (s)	42.0			9.3	31.1	
Approach LOS	D			A	C	

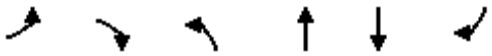
Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
Description: WSDOT 2013-03-19			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5652: Milton Rd S & Enchanted Pkwy S

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	538	26	101	1029	294	112	59	22	26	56	234
Future Volume (vph)	3	538	26	101	1029	294	112	59	22	26	56	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99			1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1743	3435		1787	3379		1712	1719			1815	1478
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (perm)	1743	3435		1787	3379		1712	1719			1815	1478
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	538	26	101	1029	294	112	59	22	26	56	234
RTOR Reduction (vph)	0	2	0	0	12	0	0	10	0	0	0	216
Lane Group Flow (vph)	3	562	0	101	1311	0	112	71	0	0	82	18
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	2.0	81.3		16.1	95.4		11.8	11.8			10.8	10.8
Effective Green, g (s)	2.0	81.3		16.1	95.4		11.8	11.8			10.8	10.8
Actuated g/C Ratio	0.01	0.58		0.12	0.68		0.08	0.08			0.08	0.08
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	24	1994		205	2302		144	144			140	114
v/s Ratio Prot	0.00	0.16		c0.06	c0.39		c0.07	0.04			c0.05	
v/s Ratio Perm												0.01
v/c Ratio	0.12	0.28		0.49	0.57		0.78	0.49			0.59	0.16
Uniform Delay, d1	68.1	14.7		58.1	11.6		62.8	61.2			62.4	60.4
Progression Factor	0.99	0.92		0.71	0.77		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.8	0.4		0.5	0.7		21.0	1.0			4.0	0.2
Delay (s)	68.3	13.8		41.9	9.7		83.8	62.2			66.4	60.6
Level of Service	E	B		D	A		F	E			E	E
Approach Delay (s)		14.1			12.0			74.7			62.1	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5954: Enchanted Pkwy S & 19 Wy S



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	41	60	602	1486	123
Future Volume (vph)	46	41	60	602	1486	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-1%	1%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	0.95	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1493	1772	3543	3445	
Flt Permitted	0.95	1.00	0.14	1.00	1.00	
Satd. Flow (perm)	1755	1493	265	3543	3445	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	41	60	602	1486	123
RTOR Reduction (vph)	0	39	0	0	3	0
Lane Group Flow (vph)	46	2	60	602	1606	0
Confl. Peds. (#/hr)	10	10	10			10
Bus Blockages (#/hr)	2	2	0	2	2	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	7.1	7.1	122.9	122.9	122.9	
Effective Green, g (s)	7.1	7.1	122.9	122.9	122.9	
Actuated g/C Ratio	0.05	0.05	0.88	0.88	0.88	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	89	75	232	3110	3024	
v/s Ratio Prot	c0.03			0.17	c0.47	
v/s Ratio Perm		0.00	0.23			
v/c Ratio	0.52	0.03	0.26	0.19	0.53	
Uniform Delay, d1	64.8	63.2	1.4	1.3	2.0	
Progression Factor	1.00	1.00	1.00	1.00	0.29	
Incremental Delay, d2	2.1	0.1	2.7	0.1	0.6	
Delay (s)	66.9	63.2	4.0	1.4	1.2	
Level of Service	E	E	A	A	A	
Approach Delay (s)	65.2			1.6	1.2	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
451: Pacific Hwy S & 16 Av S

Movement	NBU	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations							
Traffic Volume (veh/h)	82	155	954	2266	49	0	434
Future Volume (Veh/h)	82	155	954	2266	49	0	434
Sign Control			Free	Free		Stop	
Grade			-3%	2%		4%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	155	954	2266	49	0	434
Pedestrians			10	10		10	
Lane Width (ft)			12.0	12.0		12.0	
Walking Speed (ft/s)			4.0	4.0		4.0	
Percent Blockage			1	1		1	
Right turn flare (veh)							
Median type			None	None			
Median storage veh)							
Upstream signal (ft)				989			
pX, platoon unblocked	0.00	0.77				0.77	0.77
vC, conflicting volume	0	2325				2938	800
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	0	1662				2463	0
tC, single (s)	0.0	4.1				6.8	6.9
tC, 2 stage (s)							
tF (s)	0.0	2.2				3.5	3.3
p0 queue free %	0	47				100	47
cM capacity (veh/h)	0	291				9	817

Direction, Lane #	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SE 1
Volume Total	155	318	318	318	906	906	502	434
Volume Left	155	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	49	434
cSH	291	1700	1700	1700	1700	1700	1700	817
Volume to Capacity	0.53	0.19	0.19	0.19	0.53	0.53	0.30	0.53
Queue Length 95th (ft)	73	0	0	0	0	0	0	80
Control Delay (s)	30.6	0.0	0.0	0.0	0.0	0.0	0.0	14.3
Lane LOS	D							B
Approach Delay (s)	4.3				0.0			14.3
Approach LOS								B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
750: Pacific Hwy S & S 283 Pl

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	84	1065	62	7	109	2631
Future Volume (Veh/h)	0	84	1065	62	7	109	2631
Sign Control	Stop		Free				Free
Grade	-11%		-3%				3%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	84	1065	62	0	109	2631
Pedestrians	8		10				10
Lane Width (ft)	12.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	1		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	2209	404			0	1135	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2209	404			0	1135	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	86			0	82	
cM capacity (veh/h)	32	594			0	607	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	84	426	426	275	109	877	877	877
Volume Left	0	0	0	0	109	0	0	0
Volume Right	84	0	0	62	0	0	0	0
cSH	594	1700	1700	1700	607	1700	1700	1700
Volume to Capacity	0.14	0.25	0.25	0.16	0.18	0.52	0.52	0.52
Queue Length 95th (ft)	12	0	0	0	16	0	0	0
Control Delay (s)	12.1	0.0	0.0	0.0	12.2	0.0	0.0	0.0
Lane LOS	B				B			
Approach Delay (s)	12.1	0.0			0.5			
Approach LOS	B							

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1751: Pacific Hwy S & 18 Av S

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	294	1456	148	3	24	2157
Future Volume (Veh/h)	0	294	1456	148	3	24	2157
Sign Control	Stop		Free				Free
Grade	-10%		-4%				3%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	294	1456	148	0	24	2157
Pedestrians	2		10				10
Lane Width (ft)	10.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	0		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)							720
pX, platoon unblocked	0.54				0.00		
vC, conflicting volume	2309	571			0	1606	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	474	571			0	1606	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	37			0	94	
cM capacity (veh/h)	267	465			0	407	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	294	582	582	439	24	719	719	719
Volume Left	0	0	0	0	24	0	0	0
Volume Right	294	0	0	148	0	0	0	0
cSH	465	1700	1700	1700	407	1700	1700	1700
Volume to Capacity	0.63	0.34	0.34	0.26	0.06	0.42	0.42	0.42
Queue Length 95th (ft)	107	0	0	0	5	0	0	0
Control Delay (s)	25.1	0.0	0.0	0.0	14.4	0.0	0.0	0.0
Lane LOS	D				B			
Approach Delay (s)	25.1	0.0			0.2			
Approach LOS	D							

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

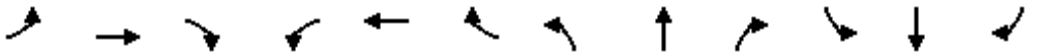
HCM Unsignalized Intersection Capacity Analysis
2350: Pacific Hwy S & S 310 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	154	1557	33	0	2352
Future Volume (Veh/h)	0	154	1557	33	0	2352
Sign Control	Stop		Free			Free
Grade	0%		1%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	154	1557	33	0	2352
Pedestrians	16		16			12
Lane Width (ft)	10.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)			660			662
pX, platoon unblocked	0.77	0.81			0.81	
vC, conflicting volume	2390	564			1606	
vC1, stage 1 conf vol	1590					
vC2, stage 2 conf vol	800					
vCu, unblocked vol	62	0			908	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	82			100	
cM capacity (veh/h)	710	860			594	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	154	623	623	344	784	784	784
Volume Left	0	0	0	0	0	0	0
Volume Right	154	0	0	33	0	0	0
cSH	860	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.18	0.37	0.37	0.20	0.46	0.46	0.46
Queue Length 95th (ft)	16	0	0	0	0	0	0
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	10.1	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3451: 17 Av S & S 324 St

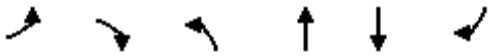


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	894	147	456	1622	5	0	0	257	0	0	89
Future Volume (Veh/h)	0	894	147	456	1622	5	0	0	257	0	0	89
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			-1%			-1%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	894	147	456	1622	5	0	0	257	0	0	89
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		383										
pX, platoon unblocked												
vC, conflicting volume	1637			1051			2456	3453	467	3260	3598	563
vC1, stage 1 conf vol							904	904		2546	2546	
vC2, stage 2 conf vol							1552	2549		714	1051	
vCu, unblocked vol	1637			1051			2456	3453	467	3260	3598	563
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			30			100	100	52	100	100	81
cM capacity (veh/h)	389			652			28	16	534	1	2	462

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	447	447	147	862	811	410	257	89
Volume Left	0	0	0	456	0	0	0	0
Volume Right	0	0	147	0	0	5	257	89
cSH	1700	1700	1700	652	1700	1700	534	462
Volume to Capacity	0.26	0.26	0.09	0.70	0.48	0.24	0.48	0.19
Queue Length 95th (ft)	0	0	0	141	0	0	65	18
Control Delay (s)	0.0	0.0	0.0	21.4	0.0	0.0	17.9	14.6
Lane LOS				C			C	B
Approach Delay (s)	0.0			8.9			17.9	14.6
Approach LOS							C	B

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	73.8%	ICU Level of Service		D
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3550: Pacific Hwy S & S 328 St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	120	0	2236	2475	143
Future Volume (Veh/h)	0	120	0	2236	2475	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	-2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	120	0	2236	2475	143
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				641		
pX, platoon unblocked	0.65					
vC, conflicting volume	3312	916	2628			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2662	916	2628			
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	56	100			
cM capacity (veh/h)	12	270	158			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	120	745	745	745	990	990	638
Volume Left	0	0	0	0	0	0	0
Volume Right	120	0	0	0	0	0	143
cSH	270	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.44	0.44	0.44	0.44	0.58	0.58	0.38
Queue Length 95th (ft)	54	0	0	0	0	0	0
Control Delay (s)	28.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D						
Approach Delay (s)	28.6	0.0			0.0		
Approach LOS	D						

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	69.2%	ICU Level of Service		C
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3750: Pacific Hwy S & S 332 St

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	0	45	50	40	2276	2397	4
Future Volume (Veh/h)	0	45	50	40	2276	2397	4
Sign Control	Stop				Free	Free	
Grade	0%				2%	-2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	45	0	40	2276	2397	4
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None	None	
Median storage veh)							
Upstream signal (ft)						680	
pX, platoon unblocked	0.62	0.62	0.00	0.62			
vC, conflicting volume	3238	801	0	2401			
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2452	0	0	1095			
tC, single (s)	6.8	6.9	0.0	4.1			
tC, 2 stage (s)							
tF (s)	3.5	3.3	0.0	2.2			
p0 queue free %	100	93	0	90			
cM capacity (veh/h)	14	668	0	390			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	45	40	759	759	759	959	959	483
Volume Left	0	40	0	0	0	0	0	0
Volume Right	45	0	0	0	0	0	0	4
cSH	668	390	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.10	0.45	0.45	0.45	0.56	0.56	0.28
Queue Length 95th (ft)	5	8	0	0	0	0	0	0
Control Delay (s)	10.8	15.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	C						
Approach Delay (s)	10.8	0.3				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3850: Pacific Hwy S & S 333 St

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	72	2112	37	90	67	2256
Future Volume (Veh/h)	0	72	2112	37	90	67	2256
Sign Control	Stop		Free				Free
Grade	-2%		2%				-2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	72	2112	37	0	67	2256
Pedestrians	10		10				10
Lane Width (ft)	12.0		12.0				12.0
Walking Speed (ft/s)	4.0		4.0				4.0
Percent Blockage	1		1				1
Right turn flare (veh)							
Median type			None				None
Median storage veh)							
Upstream signal (ft)			890				1110
pX, platoon unblocked	0.78	0.71			0.00	0.71	
vC, conflicting volume	3036	742			0	2159	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	116	0			0	1200	
tC, single (s)	6.8	6.9			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	90			0	83	
cM capacity (veh/h)	557	757			0	406	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	72	845	845	459	67	752	752	752
Volume Left	0	0	0	0	67	0	0	0
Volume Right	72	0	0	37	0	0	0	0
cSH	757	1700	1700	1700	406	1700	1700	1700
Volume to Capacity	0.10	0.50	0.50	0.27	0.17	0.44	0.44	0.44
Queue Length 95th (ft)	8	0	0	0	15	0	0	0
Control Delay (s)	10.3	0.0	0.0	0.0	15.6	0.0	0.0	0.0
Lane LOS	B				C			
Approach Delay (s)	10.3	0.0			0.5			
Approach LOS	B							

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3942: S 334 St & 1 Wy S

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	13	1719	53	12	1430	3	53	0	44	4	0	23
Future Volume (Veh/h)	13	1719	53	12	1430	3	53	0	44	4	0	23
Sign Control		Free			Free			Stop			Stop	
Grade		-1%			0%			-8%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	1719	53	12	1430	3	53	0	44	4	0	23
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		358			764							
pX, platoon unblocked	0.83			0.81			0.90	0.90	0.81	0.90	0.90	0.83
vC, conflicting volume	1443			1782			2554	3248	906	2405	3274	736
vC1, stage 1 conf vol							1782	1782		1466	1466	
vC2, stage 2 conf vol							772	1467		940	1808	
vCu, unblocked vol	1129			1504			1662	2436	427	1496	2463	280
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			46	100	90	97	100	96
cM capacity (veh/h)	507			356			98	117	461	155	108	587

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NW 3	NE 1	NE 2	SW 1
Volume Total	872	912	12	953	480	53	44	27
Volume Left	13	0	12	0	0	53	0	4
Volume Right	0	53	0	0	3	0	44	23
cSH	507	1700	356	1700	1700	98	461	416
Volume to Capacity	0.03	0.54	0.03	0.56	0.28	0.54	0.10	0.06
Queue Length 95th (ft)	2	0	3	0	0	62	8	5
Control Delay (s)	0.8	0.0	15.5	0.0	0.0	78.7	13.6	14.3
Lane LOS	A		C			F	B	B
Approach Delay (s)	0.4		0.1			49.2		14.3
Approach LOS						E		B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	77.4%	ICU Level of Service		D
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4242: 1 Wy S & S 340 St

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	33	852	1758	39	22	46
Future Volume (Veh/h)	33	852	1758	39	22	46
Sign Control		Free	Free		Stop	
Grade		3%	-1%		-1%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	852	1758	39	22	46
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			1146			
pX, platoon unblocked	0.78				0.78	0.78
vC, conflicting volume	1807				2290	918
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1476				2092	341
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				30	91
cM capacity (veh/h)	351				31	504

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SE 1
Volume Total	33	426	426	1172	625	68
Volume Left	33	0	0	0	0	22
Volume Right	0	0	0	0	39	46
cSH	351	1700	1700	1700	1700	94
Volume to Capacity	0.09	0.25	0.25	0.69	0.37	0.73
Queue Length 95th (ft)	8	0	0	0	0	92
Control Delay (s)	16.3	0.0	0.0	0.0	0.0	109.8
Lane LOS	C					F
Approach Delay (s)	0.6			0.0		109.8
Approach LOS						F

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4341: S 342 St & 1 Wy S

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	806	71	52	1723	137	82
Future Volume (Veh/h)	806	71	52	1723	137	82
Sign Control	Free			Free	Stop	
Grade	3%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	806	71	52	1723	137	82
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh)	2					
Upstream signal (ft)	1264					
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			887		1827	458
vC1, stage 1 conf vol					852	
vC2, stage 2 conf vol					976	
vCu, unblocked vol			857		1810	422
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			93		43	85
cM capacity (veh/h)			762		238	563

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NW 1	NW 2
Volume Total	537	340	52	862	862	137	82
Volume Left	0	0	52	0	0	137	0
Volume Right	0	71	0	0	0	0	82
cSH	1700	1700	762	1700	1700	238	563
Volume to Capacity	0.32	0.20	0.07	0.51	0.51	0.57	0.15
Queue Length 95th (ft)	0	0	5	0	0	81	13
Control Delay (s)	0.0	0.0	10.1	0.0	0.0	38.7	12.5
Lane LOS			B			E	B
Approach Delay (s)	0.0		0.3			28.9	
Approach LOS						D	

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

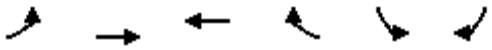
HCM Unsignalized Intersection Capacity Analysis
4350: 16 Av S & S 341 Pl

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	270	36	1005	94	54	1332
Future Volume (Veh/h)	270	36	1005	94	54	1332
Sign Control	Stop		Free			Free
Grade	0%		-5%			-1%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	270	36	1005	94	54	1332
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			805			701
pX, platoon unblocked	0.82	0.82			0.82	
vC, conflicting volume	1846	570			1109	
vC1, stage 1 conf vol	1062					
vC2, stage 2 conf vol	784					
vCu, unblocked vol	1588	25			686	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	2	96			93	
cM capacity (veh/h)	276	840			732	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	270	36	670	429	54	666	666
Volume Left	270	0	0	0	54	0	0
Volume Right	0	36	0	94	0	0	0
cSH	276	840	1700	1700	732	1700	1700
Volume to Capacity	0.98	0.04	0.39	0.25	0.07	0.39	0.39
Queue Length 95th (ft)	242	3	0	0	6	0	0
Control Delay (s)	88.6	9.5	0.0	0.0	10.3	0.0	0.0
Lane LOS	F	A			B		
Approach Delay (s)	79.3		0.0		0.4		
Approach LOS	F						

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4441: 1 Wy S & 1 Pl S



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	866	841	19	10	47
Future Volume (Veh/h)	59	866	841	19	10	47
Sign Control		Free	Free		Stop	
Grade		0%	0%		-7%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	59	866	841	19	10	47
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)		926				
pX, platoon unblocked					0.97	
vC, conflicting volume	870				1422	450
vC1, stage 1 conf vol					860	
vC2, stage 2 conf vol					561	
vCu, unblocked vol	870				1370	450
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				97	91
cM capacity (veh/h)	764				316	548

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	59	433	433	561	299	57
Volume Left	59	0	0	0	0	10
Volume Right	0	0	0	0	19	47
cSH	764	1700	1700	1700	1700	485
Volume to Capacity	0.08	0.25	0.25	0.33	0.18	0.12
Queue Length 95th (ft)	6	0	0	0	0	10
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	13.4
Lane LOS	B					B
Approach Delay (s)	0.6			0.0		13.4
Approach LOS						B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

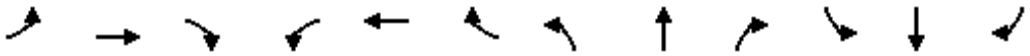
HCM Unsignalized Intersection Capacity Analysis
5345: Pacific Hwy S & S 359 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	40	1066	27	72	1825
Future Volume (Veh/h)	29	40	1066	27	72	1825
Sign Control	Stop		Free			Free
Grade	2%		3%			-3%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	29	40	1066	27	72	1825
Pedestrians			10			10
Lane Width (ft)			12.0			12.0
Walking Speed (ft/s)			4.0			4.0
Percent Blockage			1			1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						755
pX, platoon unblocked	0.70					
vC, conflicting volume	1842	556			1093	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	729	556			1093	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	92			88	
cM capacity (veh/h)	224	475			623	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3	SB 4
Volume Total	69	711	382	72	608	608	608
Volume Left	29	0	0	72	0	0	0
Volume Right	40	0	27	0	0	0	0
cSH	323	1700	1700	623	1700	1700	1700
Volume to Capacity	0.21	0.42	0.22	0.12	0.36	0.36	0.36
Queue Length 95th (ft)	20	0	0	10	0	0	0
Control Delay (s)	19.2	0.0	0.0	11.5	0.0	0.0	0.0
Lane LOS	C			B			
Approach Delay (s)	19.2	0.0		0.4			
Approach LOS	C						

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

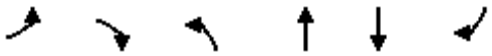
HCM Unsignalized Intersection Capacity Analysis
5450: 16 Av S & S 359 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	37	4	88	2	1	2	14	64	2	5	449	26
Future Volume (veh/h)	37	4	88	2	1	2	14	64	2	5	449	26
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	37	4	88	2	1	2	14	64	2	5	449	26
Approach Volume (veh/h)		129			5			80			480	
Crossing Volume (veh/h)		456			115			46			17	
High Capacity (veh/h)		967			1266			1336			1366	
High v/c (veh/h)		0.13			0.00			0.06			0.35	
Low Capacity (veh/h)		784			1053			1117			1145	
Low v/c (veh/h)		0.16			0.00			0.07			0.42	

Intersection Summary					
Maximum v/c High	0.35				
Maximum v/c Low	0.42				
Intersection Capacity Utilization	43.8%	ICU Level of Service		A	

HCM Unsignalized Intersection Capacity Analysis
5650: 16 Av S & Beamer HS Dwy



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	8	2	2	25	71	27
Future Volume (veh/h)	8	2	2	25	71	27
Peak Hour Factor	0.63	0.63	0.56	0.56	0.88	0.88
Hourly flow rate (vph)	13	3	4	45	81	31
Approach Volume (veh/h)	16			49	112	
Crossing Volume (veh/h)	81			13	4	
High Capacity (veh/h)	1300			1371	1380	
High v/c (veh/h)	0.01			0.04	0.08	
Low Capacity (veh/h)	1084			1149	1157	
Low v/c (veh/h)	0.01			0.04	0.10	

Intersection Summary			
Maximum v/c High	0.08		
Maximum v/c Low	0.10		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A

HCM Unsignalized Intersection Capacity Analysis
6150: Milton Rd S & S 369 St

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	12	271	51	138	364
Future Volume (Veh/h)	36	12	271	51	138	364
Sign Control	Stop		Free			Free
Grade	-2%		1%			2%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	12	271	51	138	364
Pedestrians	2		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	0		1			1
Right turn flare (veh)						
Median type			None			TWLTL
Median storage veh)						2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	948	308			324	
vC1, stage 1 conf vol	298					
vC2, stage 2 conf vol	650					
vCu, unblocked vol	948	308			324	
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 %	92	98			89	
cM capacity (veh/h)	429	729			1239	

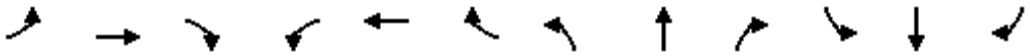
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	322	502
Volume Left	36	0	138
Volume Right	12	51	0
cSH	478	1700	1239
Volume to Capacity	0.10	0.19	0.11
Queue Length 95th (ft)	8	0	9
Control Delay (s)	13.4	0.0	3.1
Lane LOS	B		A
Approach Delay (s)	13.4	0.0	3.1
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Right Turn Channelized						
Traffic Volume (veh/h)	38	25	1152	35	26	1769
Future Volume (veh/h)	38	25	1152	35	26	1769
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	38	25	1152	35	26	1769
Approach Volume (veh/h)	63		1187			1795
Crossing Volume (veh/h)	1152		26			38
High Capacity (veh/h)	549		1357			1344
High v/c (veh/h)	0.11		0.87			1.34
Low Capacity (veh/h)	420		1136			1124
Low v/c (veh/h)	0.15		1.04			1.60

Intersection Summary			
Maximum v/c High	1.34		
Maximum v/c Low	1.60		
Intersection Capacity Utilization	79.6%	ICU Level of Service	D

HCM Unsignalized Intersection Capacity Analysis
6345: 8 Av S & S 373 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	18	66	49	19	0	55	5	24	0	5	4
Future Volume (Veh/h)	2	18	66	49	19	0	55	5	24	0	5	4
Sign Control		Free			Free			Stop			Stop	
Grade		10%			-5%			-5%			3%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	18	66	49	19	0	55	5	24	0	5	4
Pedestrians		10			10			10			10	
Lane Width (ft)		10.0			10.0			10.0			10.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	29			94			198	192	71	218	225	39
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	29			94			198	192	71	218	225	39
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			92	99	98	100	99	100
cM capacity (veh/h)	1586			1502			720	674	983	684	645	1024

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	86	68	84	9
Volume Left	2	49	55	0
Volume Right	66	0	24	4
cSH	1586	1502	776	772
Volume to Capacity	0.00	0.03	0.11	0.01
Queue Length 95th (ft)	0	3	9	1
Control Delay (s)	0.2	5.5	10.2	9.7
Lane LOS	A	A	B	A
Approach Delay (s)	0.2	5.5	10.2	9.7
Approach LOS			B	A

Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	30.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6547: Milton Rd S & S 376 St/S 375 St

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	41	271	4	0	291	64	27	67	15	4	21	2
Future Volume (Veh/h)	41	271	4	0	291	64	27	67	15	4	21	2
Sign Control		Free			Free			Stop			Stop	
Grade		2%			-1%			2%			2%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	271	4	0	291	64	27	67	15	4	21	2
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	365			285			710	700	343	746	730	293
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	365			285			710	700	343	746	730	293
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 %	96			100			91	80	98	98	94	100
cM capacity (veh/h)	1167			1267			310	342	683	261	333	738

Direction, Lane #	NB 1	SB 1	SE 1	NW 1
Volume Total	316	355	109	27
Volume Left	41	0	27	4
Volume Right	4	64	15	2
cSH	1167	1267	358	333
Volume to Capacity	0.04	0.00	0.30	0.08
Queue Length 95th (ft)	3	0	32	7
Control Delay (s)	1.4	0.0	19.4	16.8
Lane LOS	A		C	C
Approach Delay (s)	1.4	0.0	19.4	16.8
Approach LOS			C	C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

HCS7 Roundabouts Report

General Information

Analyst	SC
Agency or Co.	City of Federal Way
Date Performed	10/8/2018
Analysis Year	2018
Time Analyzed	
Project Description	Milton Rezone

Site Information

Intersection	6340 Pac Hwy S_S 373rd St
E/W Street Name	S 373 rd St
N/S Street Name	Pacific Hwy S
Analysis Time Period (hrs)	1.00
Peak Hour Factor	1.00
Jurisdiction	

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	0	0	0	2	0	0	0	2	0
Lane Assignment							LR		T		TR		LT		T	
Volume (V), veh/h					0	38		25	0		1152	35	0	26	1769	
Percent Heavy Vehicles, %					2	2		2	2		2	2	2	2	2	
Flow Rate (v_{PCE}), pc/h					0	39		26	0		1175	36	0	27	1804	
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes					1				1				1			
Pedestrians Crossing, p/h					0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)					4.9763		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway (s)					2.6087		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h					65.00		569.17	641.83		860.57	970.43	
Entry Volume veh/h					63.73		558.01	629.25		843.70	951.40	
Circulating Flow (v_c), pc/h	1870			1175			27			39		
Exiting Flow (v_{ex}), pc/h	63			0			1201			1843		
Capacity (c_{pce}), pc/h					416.28		1385.54	1385.54		1370.49	1370.49	
Capacity (c), veh/h					408.12		1358.37	1358.37		1343.62	1343.62	
v/c Ratio (x)					0.16		0.41	0.46		0.63	0.71	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					11.2		6.5	7.2		10.3	12.6	
Lane LOS					B		A	A		B	B	
95% Queue, veh					0.6		2.1	2.6		5.0	7.0	
Approach Delay, s/veh				11.2			6.9			11.5		
Approach LOS				B			A			B		
Intersection Delay, s/veh | LOS	9.7						A					

SYNCHRO ANALYSIS FILES FOR AM QUEUE STORAGE

2018 EXISTING

Queues
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

10/22/2018

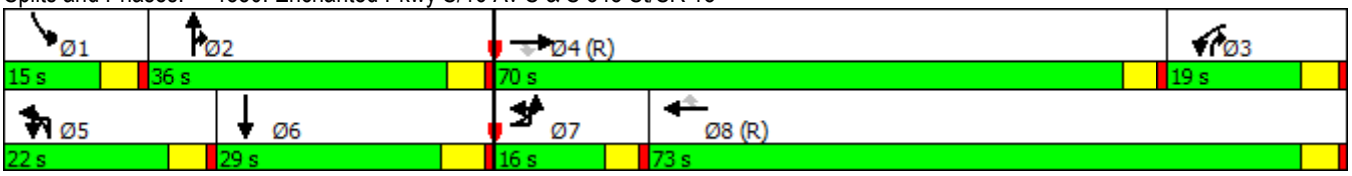
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1014	244	325	1286	839	339	470	535	308	651	99
Future Volume (vph)	122	1014	244	325	1286	839	339	470	535	308	651	99
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	2	0	2	2	2	2	2	2	0	0	2	2
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)									42%			
Lane Group Flow (vph)	122	1014	244	325	1286	839	339	695	310	308	750	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases			4			8						
Detector Phase	7	4	4	3	8	8	5	2	2 3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	16.0	70.0	70.0	19.0	73.0	73.0	22.0	36.0		15.0	29.0	
Total Split (%)	11.4%	50.0%	50.0%	13.6%	52.1%	52.1%	15.7%	25.7%		10.7%	20.7%	
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0		4.0	4.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)	11.2	65.5	65.5	14.0	68.3	68.3	16.3	31.0	45.0	10.0	24.2	
Actuated g/C Ratio	0.08	0.47	0.47	0.10	0.49	0.49	0.12	0.22	0.32	0.07	0.17	
v/c Ratio	0.88	0.43	0.29	0.64	0.51	0.92	0.86	0.95	0.60	0.86	0.85	
Control Delay	113.1	25.5	4.3	66.9	25.4	38.5	81.2	75.7	31.2	86.2	65.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	113.1	25.5	4.3	66.9	25.4	38.5	81.2	75.7	31.2	86.2	65.5	
LOS	F	C	A	E	C	D	F	E	C	F	E	
Approach Delay		29.5			35.4			66.8			71.5	
Approach LOS		C			D			E			E	
Queue Length 50th (ft)	112	221	8	102	287	521	165	350	212	100	242	
Queue Length 95th (ft)	#230	260	56	138	330	#840	#237	#467	335	#153	#308	
Internal Link Dist (ft)		1022			444			1187			1310	
Turn Bay Length (ft)	500		550	450		250	400		300	500		
Base Capacity (vph)	142	2356	832	507	2524	908	411	735	516	360	878	
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	0.86	0.43	0.29	0.64	0.51	0.92	0.82	0.95	0.60	0.86	0.85	

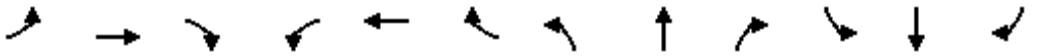
Intersection Summary

Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 47.0	Intersection LOS: D
Intersection Capacity Utilization 93.7%	ICU Level of Service F
Analysis Period (min) 15	
Description:	

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

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



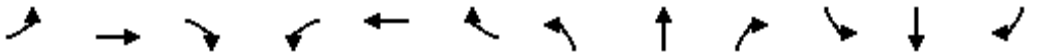


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	35	11	27	32	123	98	1328	44	32	326	114
Future Volume (vph)	46	35	11	27	32	123	98	1328	44	32	326	114
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	2	0	2	2	0	2	0	2	0	0	2	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)				10%		38%						
Lane Group Flow (vph)	46	35	11	24	82	76	98	1372	0	32	326	114
Turn Type	Split	NA	Perm	Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3	1	5	2		1	6	
Permitted Phases			4			3	6			2		6
Detector Phase	4	4	4	3	3	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	10.0	10.0	15.0		10.0	15.0	15.0
Total Split (s)	17.0	17.0	17.0	21.0	21.0	14.0	12.0	88.0		14.0	90.0	90.0
Total Split (%)	12.1%	12.1%	12.1%	15.0%	15.0%	10.0%	8.6%	62.9%		10.0%	64.3%	64.3%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	7.9	7.9	7.9	7.6	7.6	11.9	104.9	99.6		104.9	97.9	97.9
Actuated g/C Ratio	0.06	0.06	0.06	0.05	0.05	0.08	0.75	0.71		0.75	0.70	0.70
v/c Ratio	0.47	0.34	0.05	0.25	0.67	0.36	0.12	0.55		0.12	0.13	0.11
Control Delay	78.0	70.6	0.5	68.2	61.1	11.5	4.0	7.8		6.9	11.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	78.0	70.6	0.5	68.2	61.1	11.5	4.0	7.8		6.9	11.6	5.8
LOS	E	E	A	E	E	B	A	A		A	B	A
Approach Delay		65.9			41.3			7.6			9.9	
Approach LOS		E			D			A			A	
Queue Length 50th (ft)	42	31	0	22	42	0	17	194		4	54	9
Queue Length 95th (ft)	84	67	0	54	103	36	m15	128		m9	m95	m21
Internal Link Dist (ft)		1538			420			954			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	143	152	246	188	205	252	797	2493		313	2452	1081
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	0.32	0.23	0.04	0.13	0.40	0.30	0.12	0.55		0.10	0.13	0.11

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 69.4% ICU Level of Service C
Analysis Period (min) 15
Description:
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	345	28	68	129	0	37	0	141	8	107	111
Future Volume (vph)	0	345	28	68	129	0	37	0	141	8	107	111
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)									37%			
Lane Group Flow (vph)	0	373	0	0	197	0	0	89	89	0	115	111
Turn Type		NA		custom	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3	6		6
Detector Phase		4		5	5 8		3	3	3	6	6	6
Switch Phase												
Minimum Initial (s)		5.0		5.0			5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)		15.0		17.0			27.0	27.0	27.0	15.0	15.0	15.0
Total Split (s)		26.0		17.0			27.0	27.0	27.0	70.0	70.0	70.0
Total Split (%)		18.6%		12.1%			19.3%	19.3%	19.3%	50.0%	50.0%	50.0%
Yellow Time (s)		3.5		4.0			4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)		1.0		1.0			1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-2.0	-2.0
Total Lost Time (s)		3.5						4.0	4.0		3.0	3.0
Lead/Lag				Lead						Lag	Lag	Lag
Lead-Lag Optimize?				Yes						Yes	Yes	Yes
Recall Mode		None		None			None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)		20.8			34.2			14.8	14.8		78.0	78.0
Actuated g/C Ratio		0.15			0.24			0.11	0.11		0.56	0.56
v/c Ratio		0.74			0.30			0.66	0.59		0.18	0.12
Control Delay		65.5			3.4			82.0	74.1		9.1	0.5
Queue Delay		1.2			0.0			0.9	0.7		0.1	0.0
Total Delay		66.7			3.4			82.9	74.8		9.2	0.5
LOS		E			A			F	E		A	A
Approach Delay		66.7			3.4			78.8			4.9	
Approach LOS		E			A			E			A	
Queue Length 50th (ft)		168			2			83	83		28	0
Queue Length 95th (ft)		226			2			141	138		49	0
Internal Link Dist (ft)		386			19			910			219	
Turn Bay Length (ft)									100			50
Base Capacity (vph)		545			705			209	236		629	904
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		52			0			28	32		92	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.76			0.28			0.49	0.44		0.21	0.12

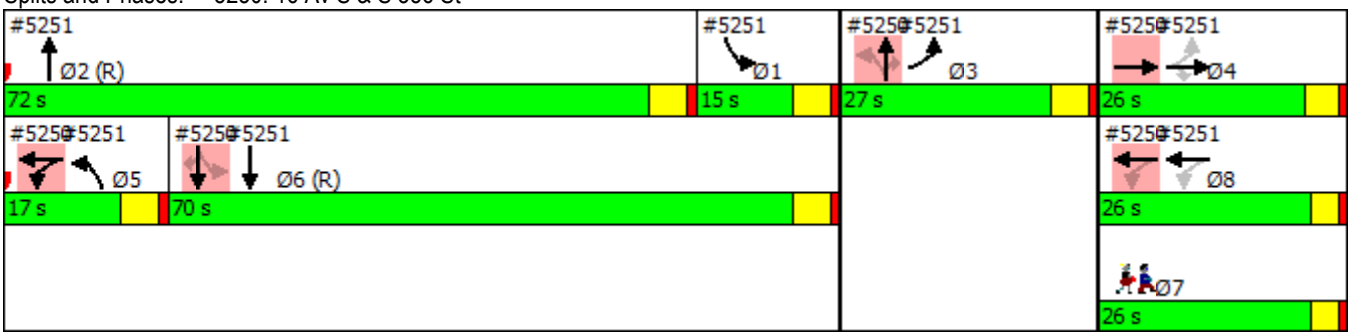
Intersection Summary

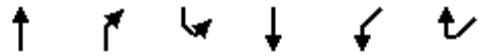
Lane Group	Ø1	Ø2	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Confl. Peds. (#/hr)				
Confl. Bikes (#/hr)				
Peak Hour Factor				
Growth Factor				
Heavy Vehicles (%)				
Bus Blockages (#/hr)				
Parking (#/hr)				
Mid-Block Traffic (%)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	7	8
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	15.0	15.0	26.0	15.0
Total Split (s)	15.0	72.0	26.0	26.0
Total Split (%)	11%	51%	19%	19%
Yellow Time (s)	4.0	4.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	C-Max	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 41.8 Intersection LOS: D
Intersection Capacity Utilization 50.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5250: 16 Av S & S 356 St



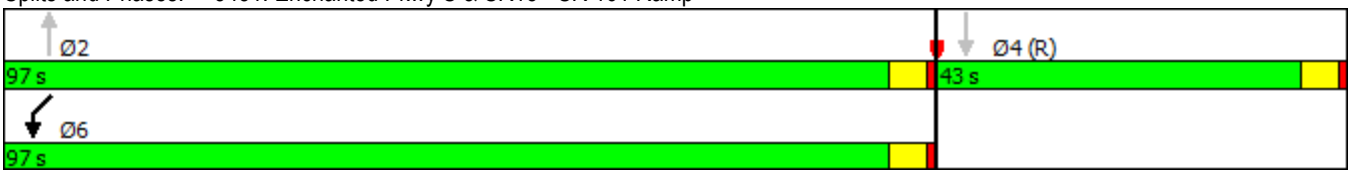


Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1444	0	0	499	46	63
Future Volume (vph)	1444	0	0	499	46	63
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	2	0	0	2	2	2
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1444	0	0	499	109	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Detector Phase	2			4	6	
Switch Phase						
Minimum Initial (s)	5.0			5.0	5.0	
Minimum Split (s)	16.0			16.0	16.0	
Total Split (s)	97.0			43.0	97.0	
Total Split (%)	69.3%			30.7%	69.3%	
Yellow Time (s)	4.0			4.0	4.0	
All-Red Time (s)	1.0			1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max			C-Max	None	
Act Effct Green (s)	92.0			38.0	92.0	
Actuated g/C Ratio	0.66			0.27	0.66	
v/c Ratio	0.62			0.52	0.05	
Control Delay	30.3			39.2	4.0	
Queue Delay	0.8			0.0	0.0	
Total Delay	31.1			39.2	4.0	
LOS	C			D	A	
Approach Delay	31.1			39.2	4.0	
Approach LOS	C			D	A	
Queue Length 50th (ft)	660			173	7	
Queue Length 95th (ft)	721			262	17	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	2328			966	2135	
Starvation Cap Reductn	514			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.80			0.52	0.05	

Intersection Summary

Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:SBT, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 31.6	Intersection LOS: C
Intersection Capacity Utilization 52.4%	ICU Level of Service A
Analysis Period (min) 15	
Description: WSDOT 2013-03-19	

Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp



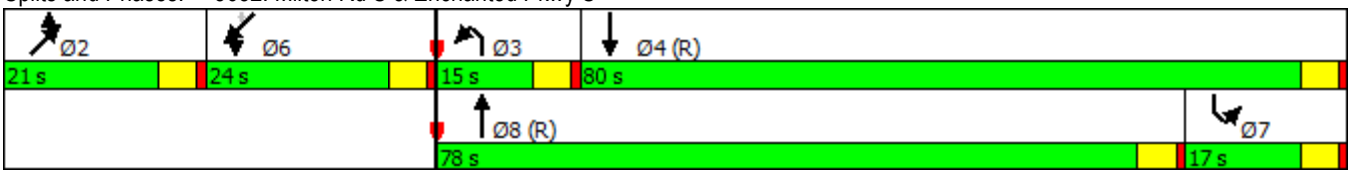
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	4	1146	16	43	333	51	81	43	5	6	11	129
Future Volume (vph)	4	1146	16	43	333	51	81	43	5	6	11	129
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)												
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	2	0	0	2	0	2	0	2	2	0	2
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1162	0	43	384	0	81	48	0	0	17	129
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	15.0
Total Split (s)	15.0	78.0		17.0	80.0		21.0	21.0		24.0	24.0	24.0
Total Split (%)	10.7%	55.7%		12.1%	57.1%		15.0%	15.0%		17.1%	17.1%	17.1%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	None
Act Effct Green (s)	5.2	93.5		10.6	104.9		11.0	11.0			6.9	6.9
Actuated g/C Ratio	0.04	0.67		0.08	0.75		0.08	0.08			0.05	0.05
v/c Ratio	0.06	0.50		0.32	0.15		0.60	0.34			0.19	0.65
Control Delay	67.0	14.2		58.2	0.3		80.4	62.3			67.1	24.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	67.0	14.2		58.2	0.3		80.4	62.3			67.1	24.9
LOS	E	B		E	A		F	E			E	C
Approach Delay		14.4			6.2			73.6			29.8	
Approach LOS		B			A			E			C	
Queue Length 50th (ft)	4	272		42	1		73	39			15	0
Queue Length 95th (ft)	17	407		m80	4		125	80			40	63
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	124	2311		153	2590		195	205			246	314
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	0.03	0.50		0.28	0.15		0.42	0.23			0.07	0.41

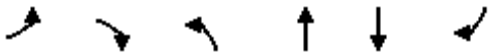
Intersection Summary

Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	15	14	1113	331	13
Future Volume (vph)	46	15	14	1113	331	13
Confl. Peds. (#/hr)	10	10	10			10
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	2	2	0	2	2	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	15	14	1113	344	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	
Total Split (s)	19.0	19.0	51.0	51.0	51.0	
Total Split (%)	27.1%	27.1%	72.9%	72.9%	72.9%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	
Act Effct Green (s)	7.1	7.1	20.6	20.6	20.6	
Actuated g/C Ratio	0.28	0.28	0.81	0.81	0.81	
v/c Ratio	0.09	0.03	0.02	0.39	0.12	
Control Delay	11.8	7.6	4.1	4.0	3.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.8	7.6	4.1	4.0	3.0	
LOS	B	A	A	A	A	
Approach Delay	10.8			4.0	3.0	
Approach LOS	B			A	A	
Queue Length 50th (ft)	3	0	0	0	0	
Queue Length 95th (ft)	28	10	7	133	35	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100	200			
Base Capacity (vph)	1186	1034	1000	3543	3480	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.01	0.01	0.31	0.10	

Intersection Summary

Cycle Length: 70	
Actuated Cycle Length: 25.3	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 4.0	Intersection LOS: A
Intersection Capacity Utilization 44.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S

2040 NO BUILD

Queues
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

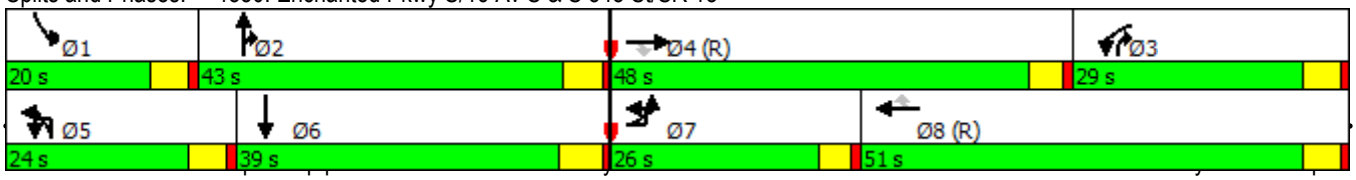
11/01/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1328	319	738	1131	286	363	503	573	438	925	141
Future Volume (vph)	160	1328	319	738	1131	286	363	503	573	438	925	141
Satd. Flow (prot)	1738	5034	1555	5077	5173	1602	3385	3155	1426	5040	5006	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1732	5034	1519	5061	5173	1559	3378	3155	1426	5004	5006	0
Satd. Flow (RTOR)			190			286		51	86		19	
Lane Group Flow (vph)	160	1328	319	738	1131	286	363	744	332	438	1066	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases			4			8						
Total Split (s)	26.0	48.0	48.0	29.0	51.0	51.0	24.0	43.0		20.0	39.0	
Total Lost Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.5	
Act Effct Green (s)	16.7	45.0	45.0	24.0	52.3	52.3	17.8	36.9	60.9	14.6	33.2	
Actuated g/C Ratio	0.12	0.32	0.32	0.17	0.37	0.37	0.13	0.26	0.44	0.10	0.24	
v/c Ratio	0.78	0.82	0.52	0.85	0.59	0.38	0.85	0.86	0.50	0.83	0.89	
Control Delay	83.5	49.2	18.6	66.5	37.6	5.1	61.3	53.6	10.6	75.6	63.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	83.5	49.2	18.6	66.5	37.6	5.1	61.3	53.6	10.6	75.6	63.5	
LOS	F	D	B	E	D	A	E	D	B	E	E	
Approach Delay		46.9			43.2			45.6			67.0	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)	143	415	93	234	307	0	175	358	127	141	339	
Queue Length 95th (ft)	217	477	190	284	377	64	#222	432	161	#189	401	
Internal Link Dist (ft)		1022			444			1187			1310	
Turn Bay Length (ft)	500		550	450		250	400		300	500		
Base Capacity (vph)	266	1618	616	870	1933	761	459	893	679	540	1218	
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	0.60	0.82	0.52	0.85	0.59	0.38	0.79	0.83	0.49	0.81	0.88	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 49.8 Intersection LOS: D
Intersection Capacity Utilization 96.6% ICU Level of Service F
Analysis Period (min) 15
Description:
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	56	17	28	33	128	114	1539	51	44	452	158
Future Volume (vph)	73	56	17	28	33	128	114	1539	51	44	452	158
Satd. Flow (prot)	1747	1853	1563	1759	1590	1574	1770	3502	0	1761	3507	1575
Flt Permitted	0.950			0.950	0.998		0.482			0.103		
Satd. Flow (perm)	1726	1853	1524	1738	1590	1523	884	3502	0	191	3507	1497
Satd. Flow (RTOR)			132		39	90		4				158
Lane Group Flow (vph)	73	56	17	25	85	79	114	1590	0	44	452	158
Turn Type	Split	NA	Perm	Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3	1	5	2		1	6	
Permitted Phases			4			3	6			2		6
Total Split (s)	18.0	18.0	18.0	19.0	19.0	13.0	11.0	90.0		13.0	92.0	92.0
Total Lost Time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	9.2	9.2	9.2	7.8	7.8	12.3	101.4	95.9		101.4	95.4	95.4
Actuated g/C Ratio	0.07	0.07	0.07	0.06	0.06	0.09	0.72	0.68		0.72	0.68	0.68
v/c Ratio	0.64	0.46	0.08	0.26	0.68	0.36	0.17	0.66		0.22	0.19	0.15
Control Delay	87.2	74.0	0.6	67.8	62.0	12.2	4.1	9.8		4.0	5.9	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	87.2	74.0	0.6	67.8	62.0	12.2	4.1	9.8		4.0	5.9	1.5
LOS	F	E	A	E	E	B	A	A		A	A	A
Approach Delay		72.1			41.9			9.5			4.7	
Approach LOS		E			D			A			A	
Queue Length 50th (ft)	66	50	0	23	46	0	14	222		3	40	4
Queue Length 95th (ft)	119	95	0	54	106	40	m31	467		m10	m109	m20
Internal Link Dist (ft)		1538			420			954			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	155	165	256	163	183	244	678	2401		231	2391	1070
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	0.34	0.07	0.15	0.46	0.32	0.17	0.66		0.19	0.19	0.15

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 14.0 Intersection LOS: B
Intersection Capacity Utilization 76.5% ICU Level of Service D
Analysis Period (min) 15
Description:
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St

Queues
5250: 16 Av S & S 356 St

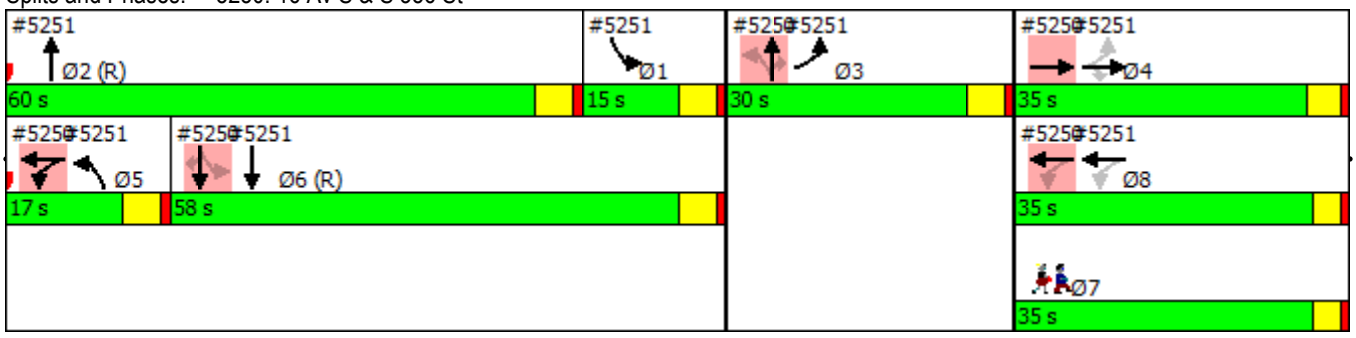
11/01/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	614	50	113	214	0	73	0	277	7	93	97
Future Volume (vph)	0	614	50	113	214	0	73	0	277	7	93	97
Satd. Flow (prot)	0	3367	0	0	3496	0	0	1534	1482	0	1857	1583
Flt Permitted					0.540			0.820			0.611	
Satd. Flow (perm)	0	3367	0	0	1917	0	0	1275	1440	0	1138	1535
Satd. Flow (RTOR)		6										97
Lane Group Flow (vph)	0	664	0	0	327	0	0	175	175	0	100	97
Turn Type		NA		custom	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3	6		6
Total Split (s)		35.0		17.0			30.0	30.0	30.0	58.0	58.0	58.0
Total Lost Time (s)		3.5						4.0	4.0		3.0	3.0
Act Effct Green (s)		31.0			44.6			22.8	22.8		59.7	59.7
Actuated g/C Ratio		0.22			0.32			0.16	0.16		0.43	0.43
v/c Ratio		0.89			0.43			0.85	0.75		0.21	0.14
Control Delay		66.9			17.9			89.2	75.2		26.2	4.2
Queue Delay		0.0			0.0			5.9	2.6		0.0	0.0
Total Delay		66.9			17.9			95.1	77.7		26.2	4.2
LOS		E			B			F	E		C	A
Approach Delay		66.9			17.9			86.4			15.4	
Approach LOS		E			B			F			B	
Queue Length 50th (ft)		306			47			162	158		57	4
Queue Length 95th (ft)		#405			56			#275	247		89	26
Internal Link Dist (ft)		386			19			910			219	
Turn Bay Length (ft)									100			50
Base Capacity (vph)		762			787			236	267		485	709
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		0			0			29	32		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		0.87			0.42			0.85	0.74		0.21	0.14

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 54.3 Intersection LOS: D
Intersection Capacity Utilization 61.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5250: 16 Av S & S 356 St



Lane Group	Ø1	Ø2	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	7	8
Permitted Phases				
Total Split (s)	15.0	60.0	35.0	35.0
Total Lost Time (s)				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1332	0	0	521	15	20
Future Volume (vph)	1332	0	0	521	15	20
Satd. Flow (prot)	3543	0	0	3560	3221	0
Flt Permitted					0.979	
Satd. Flow (perm)	3543	0	0	3560	3221	0
Satd. Flow (RTOR)					20	
Lane Group Flow (vph)	1332	0	0	521	35	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Total Split (s)	94.0			46.0	94.0	
Total Lost Time (s)	5.0			5.0	5.0	
Act Effct Green (s)	89.0			41.0	89.0	
Actuated g/C Ratio	0.64			0.29	0.64	
v/c Ratio	0.59			0.50	0.02	
Control Delay	26.7			35.4	5.2	
Queue Delay	0.4			0.0	0.0	
Total Delay	27.1			35.4	5.2	
LOS	C			D	A	
Approach Delay	27.1			35.4	5.2	
Approach LOS	C			D	A	
Queue Length 50th (ft)	511			176	2	
Queue Length 95th (ft)	641			259	9	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	2252			1042	2054	
Starvation Cap Reductn	402			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.72			0.50	0.02	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 49.3% ICU Level of Service A
Analysis Period (min) 15
Description: WSDOT 2013-03-19

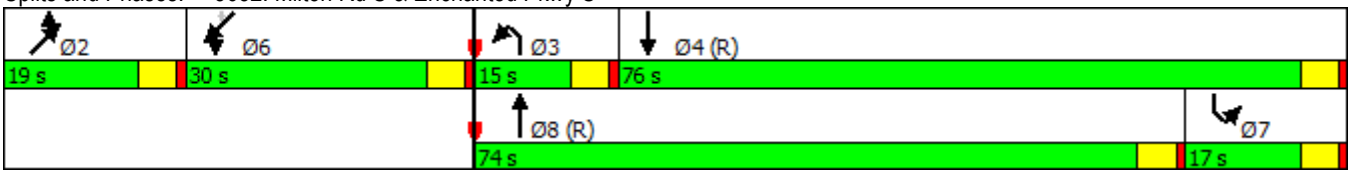
Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	929	13	34	262	40	49	26	3	7	12	142
Future Volume (vph)	3	929	13	34	262	40	49	26	3	7	12	142
Satd. Flow (prot)	1743	3461	0	1787	3451	0	1712	1778	0	0	1811	1555
Flt Permitted	0.950			0.950			0.950				0.982	
Satd. Flow (perm)	1670	3461	0	1757	3451	0	1648	1778	0	0	1786	1478
Satd. Flow (RTOR)		1			18			3				142
Lane Group Flow (vph)	3	942	0	34	302	0	49	29	0	0	19	142
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Total Split (s)	15.0	74.0		17.0	76.0		19.0	19.0		30.0	30.0	30.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Act Effct Green (s)	5.1	101.1		9.3	109.2		8.5	8.5			7.2	7.2
Actuated g/C Ratio	0.04	0.72		0.07	0.78		0.06	0.06			0.05	0.05
v/c Ratio	0.05	0.38		0.29	0.11		0.48	0.26			0.20	0.67
Control Delay	66.7	10.2		51.7	0.1		77.8	62.4			67.0	25.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	66.7	10.2		51.7	0.1		77.8	62.4			67.0	25.5
LOS	E	B		D	A		E	E			E	C
Approach Delay		10.3			5.3			72.1			30.4	
Approach LOS		B			A			E			C	
Queue Length 50th (ft)	3	190		33	0		44	23			17	0
Queue Length 95th (ft)	14	288		m66	0		86	56			43	67
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	124	2499		153	2695		171	180			323	380
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	0.02	0.38		0.22	0.11		0.29	0.16			0.06	0.37

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 54.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	19	18	1411	415	16
Future Volume (vph)	58	19	18	1411	415	16
Satd. Flow (prot)	1755	1571	1778	3543	3480	0
Flt Permitted	0.950		0.501			
Satd. Flow (perm)	1722	1522	922	3543	3480	0
Satd. Flow (RTOR)		19			12	
Lane Group Flow (vph)	58	19	18	1411	431	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	17.0	17.0	53.0	53.0	53.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	7.5	7.5	25.0	25.0	25.0	
Actuated g/C Ratio	0.23	0.23	0.76	0.76	0.76	
v/c Ratio	0.15	0.05	0.03	0.53	0.16	
Control Delay	16.7	9.4	3.9	5.3	3.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.7	9.4	3.9	5.3	3.3	
LOS	B	A	A	A	A	
Approach Delay	14.9			5.3	3.3	
Approach LOS	B			A	A	
Queue Length 50th (ft)	10	0	1	82	16	
Queue Length 95th (ft)	41	13	8	184	42	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100	200			
Base Capacity (vph)	817	719	900	3458	3397	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.03	0.02	0.41	0.13	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 33	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 5.3	Intersection LOS: A
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S

2040 BUILD

Queues
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

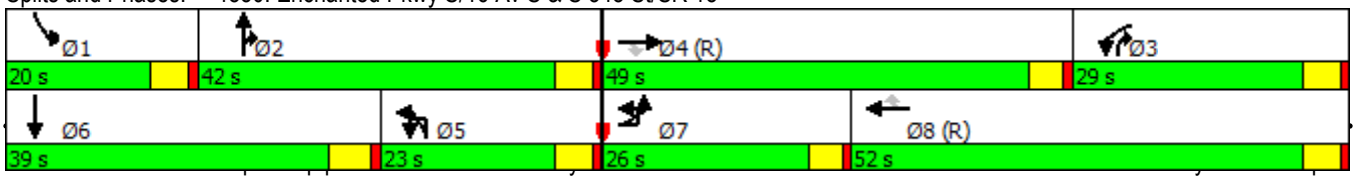
11/01/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1333	320	763	1131	286	369	528	604	444	950	141
Future Volume (vph)	160	1333	320	763	1131	286	369	528	604	444	950	141
Satd. Flow (prot)	1738	5034	1555	5077	5173	1602	3385	3155	1426	5040	5011	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1732	5034	1519	5061	5173	1559	3378	3155	1426	5006	5011	0
Satd. Flow (RTOR)			231			286		50	86		18	
Lane Group Flow (vph)	160	1333	320	763	1131	286	369	782	350	444	1091	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	2 3	1	6	
Permitted Phases			4			8						
Total Split (s)	26.0	49.0	49.0	29.0	52.0	52.0	23.0	42.0		20.0	39.0	
Total Lost Time (s)	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0		5.0	5.5	
Act Effct Green (s)	16.7	45.4	45.4	24.0	52.7	52.7	17.4	36.5	60.5	14.6	33.2	
Actuated g/C Ratio	0.12	0.32	0.32	0.17	0.38	0.38	0.12	0.26	0.43	0.10	0.24	
v/c Ratio	0.78	0.82	0.49	0.88	0.58	0.37	0.88	0.91	0.53	0.84	0.91	
Control Delay	83.5	48.6	13.6	68.7	37.1	5.0	82.2	62.4	15.4	76.7	62.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	83.5	48.6	13.6	68.7	37.1	5.0	82.2	62.4	15.4	76.7	62.6	
LOS	F	D	B	E	D	A	F	E	B	E	E	
Approach Delay		45.5			44.0			56.3			66.7	
Approach LOS		D			D			E			E	
Queue Length 50th (ft)	143	412	59	243	304	0	172	358	123	142	350	
Queue Length 95th (ft)	217	474	151	#307	372	63	#251	#478	193	#192	#418	
Internal Link Dist (ft)		1022			444			1187			1310	
Turn Bay Length (ft)	500		550	450		250	400		300	500		
Base Capacity (vph)	266	1632	648	870	1947	765	435	870	669	540	1212	
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	0.60	0.82	0.49	0.88	0.58	0.37	0.85	0.90	0.52	0.82	0.90	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 52.0 Intersection LOS: D
Intersection Capacity Utilization 97.6% ICU Level of Service F
Analysis Period (min) 15
Description:
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	56	17	28	33	128	114	1601	51	44	504	158
Future Volume (vph)	75	56	17	28	33	128	114	1601	51	44	504	158
Satd. Flow (prot)	1747	1853	1563	1759	1585	1574	1770	3503	0	1761	3507	1575
Flt Permitted	0.950			0.950	0.998		0.449			0.081		
Satd. Flow (perm)	1726	1853	1524	1738	1584	1530	825	3503	0	150	3507	1497
Satd. Flow (RTOR)			132		38	90		4				158
Lane Group Flow (vph)	75	56	17	25	85	79	114	1652	0	44	504	158
Turn Type	Split	NA	Perm	Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3	1	5	2		1	6	
Permitted Phases			4			3	6			2		6
Total Split (s)	16.0	16.0	16.0	17.0	17.0	21.0	10.0	86.0		21.0	97.0	97.0
Total Lost Time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	15.6	15.6	15.6	7.5	7.5	12.2	98.0	92.2		98.0	93.0	93.0
Actuated g/C Ratio	0.11	0.11	0.11	0.05	0.05	0.09	0.69	0.65		0.69	0.65	0.65
v/c Ratio	0.39	0.28	0.06	0.27	0.72	0.37	0.19	0.73		0.26	0.22	0.15
Control Delay	63.7	60.1	0.4	75.9	72.1	13.3	10.0	22.3		12.6	12.2	2.4
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	63.7	60.1	0.4	75.9	72.1	13.3	10.0	22.3		12.6	12.2	2.4
LOS	E	E	A	E	E	B	B	C		B	B	A
Approach Delay		55.1			48.0			21.5			10.1	
Approach LOS		E			D			C			B	
Queue Length 50th (ft)	65	48	0	22	45	0	23	424		9	79	0
Queue Length 95th (ft)	118	94	0	63	121	42	72	848		33	168	33
Internal Link Dist (ft)		1538			420			954			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	219	232	306	136	158	322	599	2264		290	2283	1029
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	0.34	0.24	0.06	0.18	0.54	0.25	0.19	0.73		0.15	0.22	0.15

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 142.8	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 22.2	Intersection LOS: C
Intersection Capacity Utilization 78.3%	ICU Level of Service D
Analysis Period (min) 15	
Description:	

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St

Queues
5250: 16 Av S & S 356 St

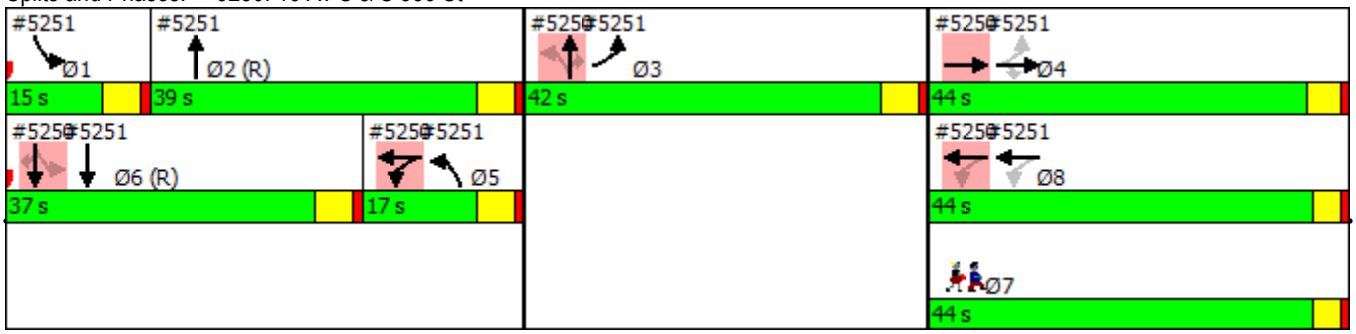
11/01/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	614	57	113	214	0	89	32	277	7	104	97
Future Volume (vph)	0	614	57	113	214	0	89	32	277	7	104	97
Satd. Flow (prot)	0	3359	0	0	3496	0	0	1588	1482	0	1857	1583
Flt Permitted					0.528			0.805			0.599	
Satd. Flow (perm)	0	3359	0	0	1874	0	0	1298	1448	0	1116	1535
Satd. Flow (RTOR)		7										90
Lane Group Flow (vph)	0	671	0	0	327	0	0	201	197	0	111	97
Turn Type		NA		custom	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3	6		6
Total Split (s)		44.0		17.0			42.0	42.0	42.0	37.0	37.0	37.0
Total Lost Time (s)		3.5						4.0	4.0		3.0	3.0
Act Effct Green (s)		34.5			49.0			27.0	27.0		51.1	51.1
Actuated g/C Ratio		0.25			0.35			0.19	0.19		0.36	0.36
v/c Ratio		0.81			0.40			0.81	0.71		0.27	0.16
Control Delay		57.0			19.4			76.5	65.8		38.0	9.3
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		57.0			19.4			76.5	65.8		38.0	9.3
LOS		E			B			E	E		D	A
Approach Delay		57.0			19.4			71.2			24.6	
Approach LOS		E			B			E			C	
Queue Length 50th (ft)		301			67			186	178		71	4
Queue Length 95th (ft)		354			68			261	249		147	51
Internal Link Dist (ft)		386			19			910			219	
Turn Bay Length (ft)									100			50
Base Capacity (vph)		976			898			352	393		407	617
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		0.69			0.36			0.57	0.50		0.27	0.16

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 48.6 — Intersection LOS: D
Intersection Capacity Utilization 61.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5250: 16 Av S & S 356 St



Lane Group	Ø1	Ø2	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	7	8
Permitted Phases				
Total Split (s)	15.0	39.0	44.0	44.0
Total Lost Time (s)				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	1368	24	0	562	15	20
Future Volume (vph)	1368	24	0	562	15	20
Satd. Flow (prot)	3532	0	0	3560	3221	0
Flt Permitted					0.979	
Satd. Flow (perm)	3532	0	0	3560	3221	0
Satd. Flow (RTOR)	2				20	
Lane Group Flow (vph)	1392	0	0	562	35	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Total Split (s)	92.0			48.0	92.0	
Total Lost Time (s)	5.0			5.0	5.0	
Act Effct Green (s)	87.0			43.0	87.0	
Actuated g/C Ratio	0.62			0.31	0.62	
v/c Ratio	0.63			0.51	0.02	
Control Delay	14.4			41.9	5.7	
Queue Delay	0.0			0.0	0.0	
Total Delay	14.4			41.9	5.7	
LOS	B			D	A	
Approach Delay	14.4			41.9	5.7	
Approach LOS	B			D	A	
Queue Length 50th (ft)	427			222	2	
Queue Length 95th (ft)	175			281	9	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	2195			1093	2009	
Starvation Cap Reductn	42			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.65			0.51	0.02	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 138 (99%), Referenced to phase 4:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 51.1% ICU Level of Service A
Analysis Period (min) 15
Description: WSDOT 2013-03-19

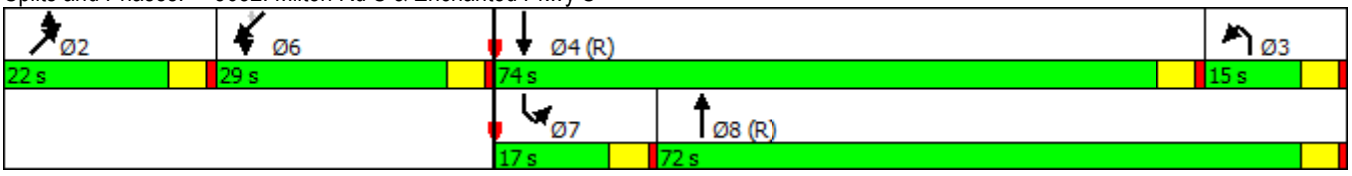
Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	946	19	34	262	81	90	28	3	10	20	142
Future Volume (vph)	3	946	19	34	262	81	90	28	3	10	20	142
Satd. Flow (prot)	1743	3456	0	1787	3369	0	1712	1780	0	0	1815	1555
Flt Permitted	0.950			0.950			0.950				0.984	
Satd. Flow (perm)	1674	3456	0	1758	3369	0	1649	1780	0	0	1792	1478
Satd. Flow (RTOR)		2			41			3				142
Lane Group Flow (vph)	3	965	0	34	343	0	90	31	0	0	30	142
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Total Split (s)	15.0	72.0		17.0	74.0		22.0	22.0		29.0	29.0	29.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Act Effct Green (s)	6.0	97.8		7.2	102.8		11.7	11.7			7.5	7.5
Actuated g/C Ratio	0.04	0.70		0.05	0.73		0.08	0.08			0.05	0.05
v/c Ratio	0.04	0.40		0.37	0.14		0.63	0.21			0.31	0.67
Control Delay	63.7	11.1		52.2	3.8		80.6	56.7			70.8	24.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	63.7	11.1		52.2	3.8		80.6	56.7			70.8	24.9
LOS	E	B		D	A		F	E			E	C
Approach Delay		11.3			8.2			74.5			32.9	
Approach LOS		B			A			E			C	
Queue Length 50th (ft)	3	192		16	0		81	24			27	0
Queue Length 95th (ft)	13	312		m37	192		136	56			60	67
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	124	2413		153	2484		207	218			311	371
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	0.02	0.40		0.22	0.14		0.43	0.14			0.10	0.38

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 40 (29%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 55.3% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	81	28	25	1411	415	19
Future Volume (vph)	81	28	25	1411	415	19
Satd. Flow (prot)	1755	1571	1778	3543	3475	0
Flt Permitted	0.950		0.500			
Satd. Flow (perm)	1722	1522	920	3543	3475	0
Satd. Flow (RTOR)		28			15	
Lane Group Flow (vph)	81	28	25	1411	434	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	17.0	17.0	53.0	53.0	53.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	7.6	7.6	26.3	26.3	26.3	
Actuated g/C Ratio	0.22	0.22	0.76	0.76	0.76	
v/c Ratio	0.21	0.08	0.04	0.53	0.16	
Control Delay	17.4	8.7	4.1	5.4	3.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.4	8.7	4.1	5.4	3.4	
LOS	B	A	A	A	A	
Approach Delay	15.2			5.4	3.4	
Approach LOS	B			A	A	
Queue Length 50th (ft)	15	0	2	87	17	
Queue Length 95th (ft)	53	17	10	184	42	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100	200			
Base Capacity (vph)	750	666	898	3458	3392	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.04	0.03	0.41	0.13	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 34.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 5.5	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S

SYNCHRO ANALYSIS FILES FOR PM QUEUE STORAGE

2018 EXISTING

Queues
251: Pacific Hwy S & S 276 St

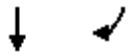
10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	42	0	85	39	3	15	39	54	1160	7	68	17
Future Volume (vph)	42	0	85	39	3	15	39	54	1160	7	68	17
Satd. Flow (prot)	1727	1546	0	1596	1580	0	0	1805	5135	0	0	1748
Flt Permitted	0.739			0.591				0.950				0.202
Satd. Flow (perm)	1330	1546	0	956	1580	0	0	1802	5135	0	0	370
Satd. Flow (RTOR)		109			23				1			
Lane Group Flow (vph)	49	99	0	60	28	0	0	97	1215	0	0	94
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	37.0	37.0		37.0	37.0		15.0	15.0	88.0		15.0	15.0
Total Lost Time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Act Effct Green (s)	18.8	18.8		17.3	17.3			9.0	99.3			106.7
Actuated g/C Ratio	0.13	0.13		0.12	0.12			0.06	0.71			0.76
v/c Ratio	0.28	0.33		0.51	0.13			0.84	0.33			0.27
Control Delay	53.4	9.0		68.1	20.5			91.2	2.6			6.7
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	53.4	9.0		68.1	20.5			91.2	2.6			6.7
LOS	D	A		E	C			F	A			A
Approach Delay		23.7			53.0				9.1			
Approach LOS		C			D				A			
Queue Length 50th (ft)	43	0		55	4			93	32			11
Queue Length 95th (ft)	70	35		63	17			m#169	m68			43
Internal Link Dist (ft)		107			863				909			
Turn Bay Length (ft)	25			200				175				275
Base Capacity (vph)	308	442		211	367			116	3642			388
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.16	0.22		0.28	0.08			0.84	0.33			0.24

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 124 (89%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 16.3 Intersection LOS: B
Intersection Capacity Utilization 88.0% ICU Level of Service E
Analysis Period (min) 15
Description:
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.

Splits and Phases: 251: Pacific Hwy S & S 276 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2328	81
Future Volume (vph)	2328	81
Satd. Flow (prot)	4978	0
Flt Permitted		
Satd. Flow (perm)	4978	0
Satd. Flow (RTOR)	6	
Lane Group Flow (vph)	2647	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	88.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	96.7	
Actuated g/C Ratio	0.69	
v/c Ratio	0.77	
Control Delay	18.5	
Queue Delay	0.0	
Total Delay	18.5	
LOS	B	
Approach Delay	18.1	
Approach LOS	B	
Queue Length 50th (ft)	449	
Queue Length 95th (ft)	807	
Internal Link Dist (ft)	1335	
Turn Bay Length (ft)		
Base Capacity (vph)	3440	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.77	

Intersection Summary

Queues
1050: Pacific Hwy S & S 288 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	35	22	14	428	31	204	69	19	1033	299	19	366
Future Volume (vph)	35	22	14	428	31	204	69	19	1033	299	19	366
Satd. Flow (prot)	0	1776	0	1711	1732	1631	0	1787	4867	0	0	3318
Flt Permitted		0.976		0.950	0.959			0.950				0.950
Satd. Flow (perm)	0	1776	0	1711	1732	1585	0	1787	4867	0	0	3318
Satd. Flow (RTOR)						222			48			
Lane Group Flow (vph)	0	81	0	246	253	222	0	98	1480	0	0	405
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA		Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8						
Total Split (s)	47.0	47.0		40.5	40.5	40.5	15.0	15.0	36.5		16.0	16.0
Total Lost Time (s)		6.0		5.5	5.5	5.5		5.5	5.5			5.0
Act Effct Green (s)		20.9		26.3	26.3	26.3		9.5	59.7			11.0
Actuated g/C Ratio		0.15		0.19	0.19	0.19		0.07	0.43			0.08
v/c Ratio		0.31		0.77	0.78	0.46		0.81	0.70			1.56
Control Delay		51.1		63.4	64.1	5.7		86.4	24.1			302.0
Queue Delay		0.0		0.3	0.3	0.1		0.0	0.0			0.0
Total Delay		51.1		63.7	64.4	5.8		86.4	24.1			302.0
LOS		D		E	E	A		F	C			F
Approach Delay		51.1			46.1				28.0			
Approach LOS		D			D				C			
Queue Length 50th (ft)		73		178	185	0		75	86			~265
Queue Length 95th (ft)		96		309	315	26		#185	#702			m#373
Internal Link Dist (ft)		420			339				2705			
Turn Bay Length (ft)				225				325				450
Base Capacity (vph)		520		427	433	562		121	2104			260
Starvation Cap Reductn		0		17	18	31		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.16		0.60	0.61	0.42		0.81	0.70			1.56

Intersection Summary

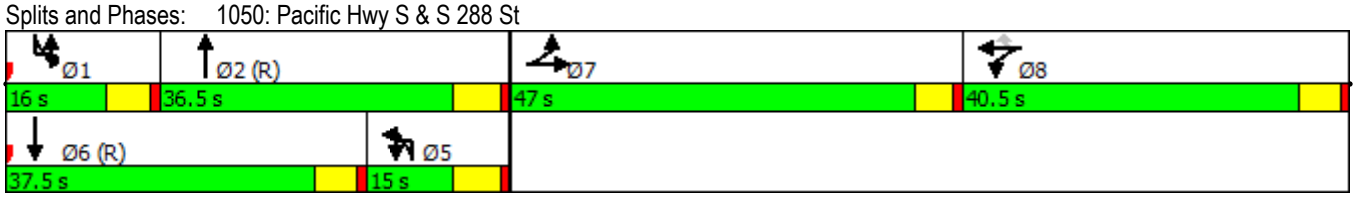
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 95 (68%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.56
Intersection Signal Delay: 76.6 Intersection LOS: E
Intersection Capacity Utilization 98.7% ICU Level of Service F
Analysis Period (min) 15

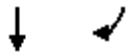
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1050: Pacific Hwy S & S 288 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2237	50
Future Volume (vph)	2237	50
Satd. Flow (prot)	4999	0
Flt Permitted		
Satd. Flow (perm)	4999	0
Satd. Flow (RTOR)	2	
Lane Group Flow (vph)	2408	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	37.5	
Total Lost Time (s)	5.0	
Act Effct Green (s)	61.2	
Actuated g/C Ratio	0.44	
v/c Ratio	1.10	
Control Delay	80.5	
Queue Delay	0.0	
Total Delay	80.5	
LOS	F	
Approach Delay	112.4	
Approach LOS	F	
Queue Length 50th (ft)	741	
Queue Length 95th (ft)	#1353	
Internal Link Dist (ft)	1437	
Turn Bay Length (ft)		
Base Capacity (vph)	2187	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.10	

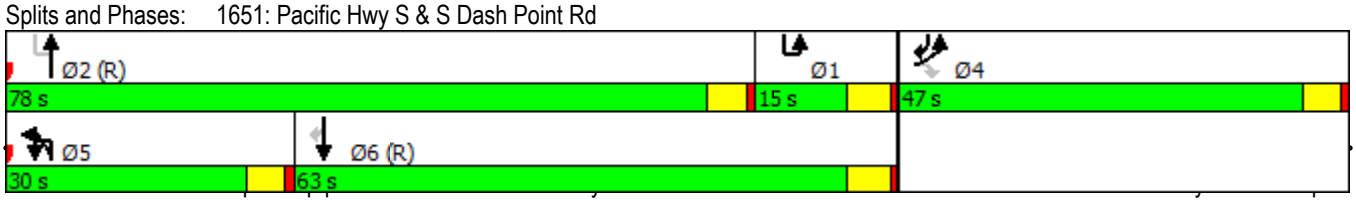
Intersection Summary

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	377	150	11	235	1058	22	1829	972
Future Volume (vph)	377	150	11	235	1058	22	1829	972
Satd. Flow (prot)	3311	1541	0	1787	5095	1753	5099	1607
Flt Permitted	0.950			0.950		0.205		
Satd. Flow (perm)	3311	1482	0	1785	5095	378	5099	1570
Satd. Flow (RTOR)		167						149
Lane Group Flow (vph)	419	167	0	262	1126	23	1946	1034
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Total Split (s)	47.0	47.0	30.0	30.0	78.0	15.0	63.0	47.0
Total Lost Time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Act Effct Green (s)	35.7	35.7		23.0	85.8	90.5	66.3	102.0
Actuated g/C Ratio	0.26	0.26		0.16	0.61	0.65	0.47	0.73
v/c Ratio	0.50	0.33		0.89	0.36	0.07	0.81	0.87
Control Delay	35.1	10.6		75.1	15.0	7.9	23.8	23.4
Queue Delay	1.7	0.9		56.7	0.0	0.0	0.0	1.3
Total Delay	36.8	11.5		131.8	15.0	7.9	23.8	24.7
LOS	D	B		F	B	A	C	C
Approach Delay	29.6				37.1		24.0	
Approach LOS	C				D		C	
Queue Length 50th (ft)	158	30		173	224	2	497	874
Queue Length 95th (ft)	180	100		#359	233	m5	m294	m498
Internal Link Dist (ft)	244				640		2705	
Turn Bay Length (ft)	75			400		250		650
Base Capacity (vph)	993	561		319	3123	337	2416	1259
Starvation Cap Reductn	398	202		0	0	0	0	0
Spillback Cap Reductn	0	0		97	0	0	0	84
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	0.70	0.47		1.18	0.36	0.07	0.81	0.88

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 76 (54%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 83.6% ICU Level of Service E
Analysis Period (min) 15
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.

Splits and Phases: 1651: Pacific Hwy S & S Dash Point Rd

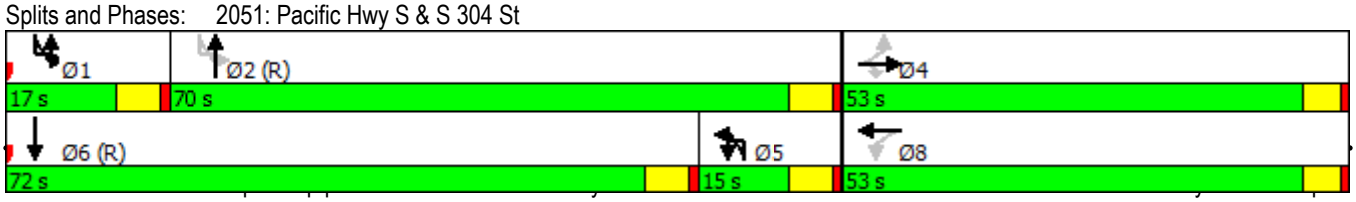


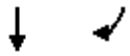
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	23	28	45	158	46	78	20	56	1195	127	24	86
Future Volume (vph)	23	28	45	158	46	78	20	56	1195	127	24	86
Satd. Flow (prot)	0	1796	1505	0	1652	0	0	1778	4983	0	0	1752
Flt Permitted		0.778			0.785			0.950				0.150
Satd. Flow (perm)	0	1428	1471	0	1333	0	0	1775	4983	0	0	277
Satd. Flow (RTOR)			105		15				17			
Lane Group Flow (vph)	0	75	66	0	307	0	0	77	1349	0	0	119
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4		4	8							2	2
Total Split (s)	53.0	53.0	53.0	53.0	53.0		15.0	15.0	70.0		17.0	17.0
Total Lost Time (s)		6.0	6.0		6.0			5.5	5.5			5.5
Act Effct Green (s)		34.7	34.7		34.7			9.5	80.3			88.3
Actuated g/C Ratio		0.25	0.25		0.25			0.07	0.57			0.63
v/c Ratio		0.21	0.15		0.90			0.64	0.47			0.46
Control Delay		40.6	2.1		83.5			71.9	14.8			15.0
Queue Delay		0.0	0.0		0.0			0.0	0.0			0.0
Total Delay		40.6	2.1		83.5			71.9	14.8			15.0
LOS		D	A		F			E	B			B
Approach Delay		22.5			83.5				17.9			
Approach LOS		C			F				B			
Queue Length 50th (ft)		55	0		270			71	180			5
Queue Length 95th (ft)		66	0		315			m#128	241			m29
Internal Link Dist (ft)		218			1954				1274			
Turn Bay Length (ft)			100					300				275
Base Capacity (vph)		479	563		457			120	2864			302
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		0.16	0.12		0.67			0.64	0.47			0.39

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 137 (98%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 87.1% ICU Level of Service E
Analysis Period (min) 15
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.

Splits and Phases: 2051: Pacific Hwy S & S 304 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1835	44
Future Volume (vph)	1835	44
Satd. Flow (prot)	4946	0
Flt Permitted		
Satd. Flow (perm)	4946	0
Satd. Flow (RTOR)	3	
Lane Group Flow (vph)	2043	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	72.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	78.8	
Actuated g/C Ratio	0.56	
v/c Ratio	0.73	
Control Delay	5.1	
Queue Delay	0.0	
Total Delay	5.1	
LOS	A	
Approach Delay	5.6	
Approach LOS	A	
Queue Length 50th (ft)	54	
Queue Length 95th (ft)	83	
Internal Link Dist (ft)	1451	
Turn Bay Length (ft)		
Base Capacity (vph)	2785	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.73	

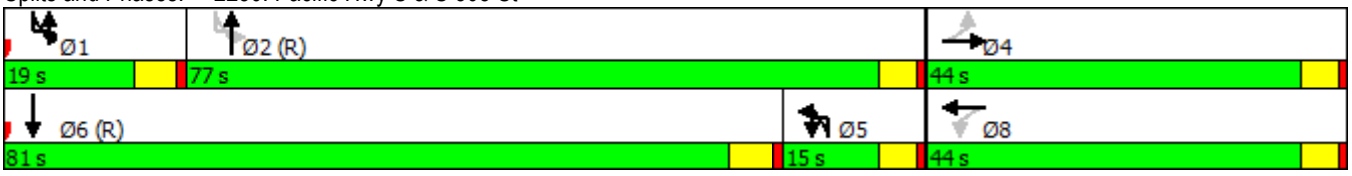
Intersection Summary

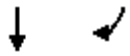
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	122	28	49	32	29	79	11	53	1267	22	11	88
Future Volume (vph)	122	28	49	32	29	79	11	53	1267	22	11	88
Satd. Flow (prot)	0	1814	0	0	1819	0	0	1761	5004	0	0	1796
Flt Permitted		0.637			0.875			0.950				0.150
Satd. Flow (perm)	0	1190	0	0	1606	0	0	1761	5004	0	0	284
Satd. Flow (RTOR)		12			45				3			
Lane Group Flow (vph)	0	284	0	0	169	0	0	68	1357	0	0	108
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	44.0	44.0		44.0	44.0		15.0	15.0	77.0		19.0	19.0
Total Lost Time (s)		6.0			6.0			5.0	5.0			5.5
Act Effct Green (s)		33.4			33.4			9.1	82.7			89.6
Actuated g/C Ratio		0.24			0.24			0.06	0.59			0.64
v/c Ratio		0.97			0.41			0.60	0.46			0.41
Control Delay		95.6			34.4			85.0	17.5			9.0
Queue Delay		0.0			0.0			0.0	0.0			0.0
Total Delay		95.6			34.4			85.0	17.5			9.0
LOS		F			C			F	B			A
Approach Delay		95.6			34.4				20.7			
Approach LOS		F			C				C			
Queue Length 50th (ft)		242			92			61	255			9
Queue Length 95th (ft)		254			142			114	315			m12
Internal Link Dist (ft)		309			353				582			
Turn Bay Length (ft)								300				275
Base Capacity (vph)		331			468			125	2957			337
Starvation Cap Reductn		0			0			0	0			0
Spillback Cap Reductn		0			0			0	0			0
Storage Cap Reductn		0			0			0	0			0
Reduced v/c Ratio		0.86			0.36			0.54	0.46			0.32

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 12 (9%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2250: Pacific Hwy S & S 308 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1829	159
Future Volume (vph)	1829	159
Satd. Flow (prot)	5025	0
Flt Permitted		
Satd. Flow (perm)	5025	0
Satd. Flow (RTOR)	16	
Lane Group Flow (vph)	2161	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	81.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	83.1	
Actuated g/C Ratio	0.59	
v/c Ratio	0.72	
Control Delay	4.4	
Queue Delay	0.0	
Total Delay	4.4	
LOS	A	
Approach Delay	4.6	
Approach LOS	A	
Queue Length 50th (ft)	124	
Queue Length 95th (ft)	75	
Internal Link Dist (ft)	1274	
Turn Bay Length (ft)		
Base Capacity (vph)	2989	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.72	

Intersection Summary

Queues
2550: Pacific Hwy S & S 312 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	311	373	150	173	441	160	44	261	857	114	71	171
Future Volume (vph)	311	373	150	173	441	160	44	261	857	114	71	171
Satd. Flow (prot)	1736	3228	0	1759	3205	0	0	1759	4928	0	0	1773
Flt Permitted	0.128			0.292				0.950				0.950
Satd. Flow (perm)	231	3228	0	536	3205	0	0	1753	4928	0	0	1739
Satd. Flow (RTOR)		40			31				15			
Lane Group Flow (vph)	338	568	0	190	661	0	0	314	1002	0	0	263
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	32.0	47.5		23.0	38.5		30.0	30.0	41.5		38.0	38.0
Total Lost Time (s)	5.5	6.0		5.5	6.5			5.0	5.0			5.0
Act Effct Green (s)	58.7	44.7		58.7	32.0			25.0	37.3			33.0
Actuated g/C Ratio	0.39	0.30		0.39	0.21			0.17	0.25			0.22
v/c Ratio	0.97	0.57		0.60	0.93			1.07	0.81			0.67
Control Delay	85.2	44.3		35.7	76.0			130.3	58.5			63.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	85.2	44.3		35.7	76.0			130.3	58.5			63.3
LOS	F	D		D	E			F	E			E
Approach Delay		59.5			67.0				75.7			
Approach LOS		E			E				E			
Queue Length 50th (ft)	277	230		117	324			~340	338			238
Queue Length 95th (ft)	#473	305		176	#443			#536	395			342
Internal Link Dist (ft)		596			551				1258			
Turn Bay Length (ft)	225			275				450				225
Base Capacity (vph)	357	990		364	708			293	1236			390
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.95	0.57		0.52	0.93			1.07	0.81			0.67

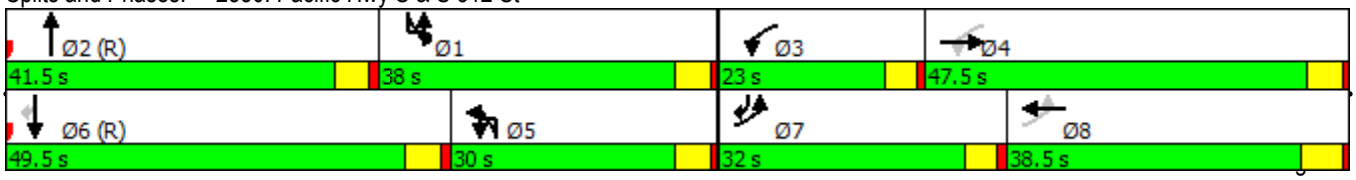
Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 67.7 Intersection LOS: E
Intersection Capacity Utilization 106.8% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 2550: Pacific Hwy S & S 312 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1444	314
Future Volume (vph)	1444	314
Satd. Flow (prot)	5108	1573
Flt Permitted		
Satd. Flow (perm)	5108	1424
Satd. Flow (RTOR)		60
Lane Group Flow (vph)	1570	341
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Total Split (s)	49.5	32.0
Total Lost Time (s)	5.0	5.5
Act Effct Green (s)	45.3	70.5
Actuated g/C Ratio	0.30	0.47
v/c Ratio	1.02	0.47
Control Delay	78.7	13.4
Queue Delay	0.0	0.0
Total Delay	78.7	13.4
LOS	E	B
Approach Delay	66.6	
Approach LOS	E	
Queue Length 50th (ft)	~603	92
Queue Length 95th (ft)	#700	137
Internal Link Dist (ft)	580	
Turn Bay Length (ft)		225
Base Capacity (vph)	1542	734
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.02	0.46

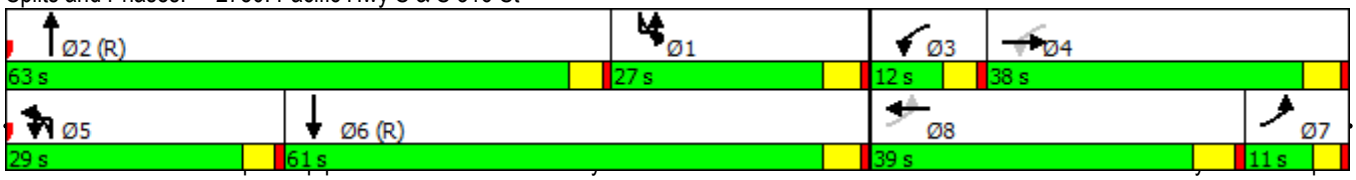
Intersection Summary

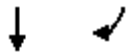
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	94	73	74	128	80	90	65	174	1184	112	64	99
Future Volume (vph)	94	73	74	128	80	90	65	174	1184	112	64	99
Satd. Flow (prot)	1762	1607	0	1708	1598	0	0	1769	4926	0	0	1737
Flt Permitted	0.380			0.426				0.950				0.950
Satd. Flow (perm)	701	1607	0	753	1598	0	0	1762	4926	0	0	1729
Satd. Flow (RTOR)		34			38				14			
Lane Group Flow (vph)	112	175	0	142	189	0	0	272	1472	0	0	173
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	11.0	38.0		12.0	39.0		29.0	29.0	63.0		27.0	27.0
Total Lost Time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Act Effct Green (s)	28.2	20.2		27.2	19.0			23.4	70.3			22.0
Actuated g/C Ratio	0.20	0.14		0.19	0.14			0.17	0.50			0.16
v/c Ratio	0.56	0.67		0.75	0.76			0.92	0.59			0.64
Control Delay	57.9	56.4		54.9	46.0			83.3	15.0			66.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	57.9	56.4		54.9	46.0			83.3	15.0			66.8
LOS	E	E		D	D			F	B			E
Approach Delay		57.0			49.8				25.6			
Approach LOS		E			D				C			
Queue Length 50th (ft)	87	128		119	147			200	113			149
Queue Length 95th (ft)	115	169		m170	m214			m#359	m413			233
Internal Link Dist (ft)		283			1233				1221			
Turn Bay Length (ft)	150			300				450				250
Base Capacity (vph)	207	393		190	400			309	2481			272
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.54	0.45		0.75	0.47			0.88	0.59			0.64

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 55 (39%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 92.9% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2750: Pacific Hwy S & S 316 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1660	58
Future Volume (vph)	1660	58
Satd. Flow (prot)	5067	0
Flt Permitted		
Satd. Flow (perm)	5067	0
Satd. Flow (RTOR)	4	
Lane Group Flow (vph)	1828	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	61.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	68.9	
Actuated g/C Ratio	0.49	
v/c Ratio	0.73	
Control Delay	32.4	
Queue Delay	0.0	
Total Delay	32.4	
LOS	C	
Approach Delay	35.3	
Approach LOS	D	
Queue Length 50th (ft)	449	
Queue Length 95th (ft)	636	
Internal Link Dist (ft)	1258	
Turn Bay Length (ft)		
Base Capacity (vph)	2496	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.73	

Intersection Summary

Queues
3050: Pacific Hwy S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	64	348	974	140	56	383	1350	286	51	257	853	229
Future Volume (vph)	64	348	974	140	56	383	1350	286	51	257	853	229
Satd. Flow (prot)	0	3536	5096	0	0	3433	5031	1583	0	3344	4850	0
Flt Permitted		0.950				0.950				0.950		
Satd. Flow (perm)	0	3525	5096	0	0	3416	5031	1548	0	3327	4850	0
Satd. Flow (RTOR)			20					136			49	
Lane Group Flow (vph)	0	412	1114	0	0	439	1350	286	0	308	1082	0
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2				
Total Split (s)	24.0	24.0	50.0		24.0	24.0	50.0	50.0	17.0	17.0	46.0	
Total Lost Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	
Act Effct Green (s)		18.1	44.5			19.0	44.9	44.9		12.0	41.0	
Actuated g/C Ratio		0.13	0.32			0.14	0.32	0.32		0.09	0.29	
v/c Ratio		0.90	0.68			0.94	0.84	0.49		1.08	0.74	
Control Delay		64.7	34.1			59.9	24.8	7.1		104.3	18.9	
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0	0.0	
Total Delay		64.7	34.1			59.9	24.8	7.1		104.3	18.9	
LOS		E	C			E	C	A		F	B	
Approach Delay			42.4				29.8				37.8	
Approach LOS			D				C				D	
Queue Length 50th (ft)		194	352			196	349	91		~161	275	
Queue Length 95th (ft)		#277	382			m#305	389	m88		#250	69	
Internal Link Dist (ft)			550				1139				1190	
Turn Bay Length (ft)		425				300		250		275		
Base Capacity (vph)		467	1633			465	1614	588		286	1456	
Starvation Cap Reductn		0	0			0	0	0		0	0	
Spillback Cap Reductn		0	0			0	0	0		0	0	
Storage Cap Reductn		0	0			0	0	0		0	0	
Reduced v/c Ratio		0.88	0.68			0.94	0.84	0.49		1.08	0.74	

Intersection Summary

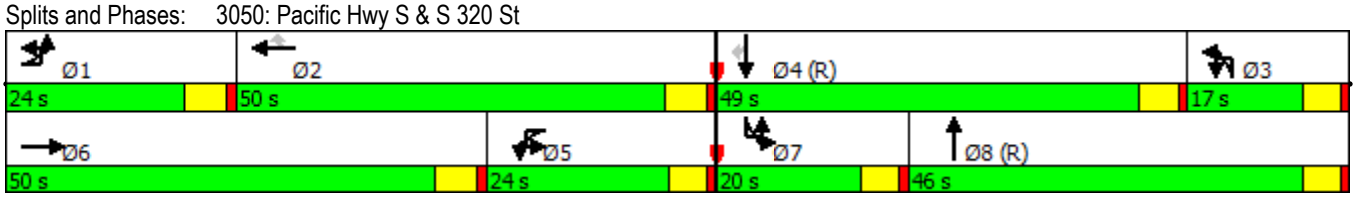
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 38.1 Intersection LOS: D
Intersection Capacity Utilization 105.8% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 3050: Pacific Hwy S & S 320 St



Lane Group	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	68	306	1137	350
Future Volume (vph)	68	306	1137	350
Satd. Flow (prot)	0	3440	5136	1548
Flt Permitted		0.950		
Satd. Flow (perm)	0	3423	5136	1510
Satd. Flow (RTOR)				144
Lane Group Flow (vph)	0	374	1137	350
Turn Type	Prot	Prot	NA	Perm
Protected Phases	7	7	4	
Permitted Phases				4
Total Split (s)	20.0	20.0	49.0	49.0
Total Lost Time (s)		5.0	5.0	5.0
Act Effct Green (s)		15.0	44.0	44.0
Actuated g/C Ratio		0.11	0.31	0.31
v/c Ratio		1.02	0.70	0.61
Control Delay		87.4	36.2	23.2
Queue Delay		0.0	0.0	0.0
Total Delay		87.4	36.2	23.2
LOS		F	D	C
Approach Delay			44.0	
Approach LOS			D	
Queue Length 50th (ft)		~185	378	228
Queue Length 95th (ft)		m#281	435	m342
Internal Link Dist (ft)			1221	
Turn Bay Length (ft)		325		225
Base Capacity (vph)		368	1615	573
Starvation Cap Reductn		0	0	0
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		1.02	0.70	0.61

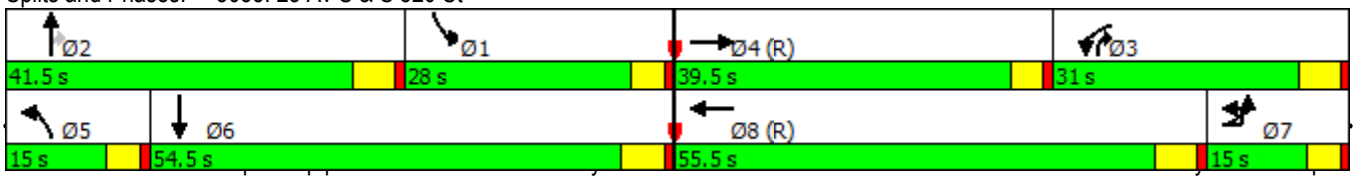
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	172	1120	25	404	1828	263	79	214	378	570	290
Future Volume (vph)	18	172	1120	25	404	1828	263	79	214	378	570	290
Satd. Flow (prot)	0	3240	4901	0	3448	5068	0	1733	1735	1538	3392	1682
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3230	4901	0	3428	5068	0	1722	1735	1502	3362	1682
Satd. Flow (RTOR)			2			21				55		21
Lane Group Flow (vph)	0	190	1145	0	404	2091	0	79	214	378	570	442
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7	4		3	8		5	2	3	1	6
Permitted Phases										2		
Total Split (s)	15.0	15.0	39.5		31.0	55.5		15.0	41.5	31.0	28.0	54.5
Total Lost Time (s)		4.5	4.5		5.5	5.5		5.0	6.0	5.5	5.0	6.0
Act Effct Green (s)		10.2	44.4		25.2	59.4		8.9	24.7	50.4	24.7	40.6
Actuated g/C Ratio		0.07	0.32		0.18	0.42		0.06	0.18	0.36	0.18	0.29
v/c Ratio		0.81	0.74		0.65	0.97		0.72	0.70	0.65	0.95	0.88
Control Delay		84.7	51.7		41.1	32.7		96.3	54.1	26.6	71.3	50.2
Queue Delay		0.0	0.0		0.0	11.7		0.0	0.0	0.0	0.0	0.0
Total Delay		84.7	51.7		41.1	44.4		96.3	54.1	26.6	71.3	50.2
LOS		F	D		D	D		F	D	C	E	D
Approach Delay			56.4			43.9			43.6			62.1
Approach LOS			E			D			D			E
Queue Length 50th (ft)		81	289		193	420		70	197	148	269	388
Queue Length 95th (ft)		m#147	#443		229	#890		#134	169	120	#407	203
Internal Link Dist (ft)			487			460			680			915
Turn Bay Length (ft)		225			300			275			300	
Base Capacity (vph)		243	1554		628	2160		123	439	585	599	596
Starvation Cap Reductn		0	0		0	115		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		0.78	0.74		0.64	1.02		0.64	0.49	0.65	0.95	0.74

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 61 (44%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 50.2 Intersection LOS: D
Intersection Capacity Utilization 97.1% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 3055: 23 Av S & S 320 St



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	152
Future Volume (vph)	152
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Satd. Flow (RTOR)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

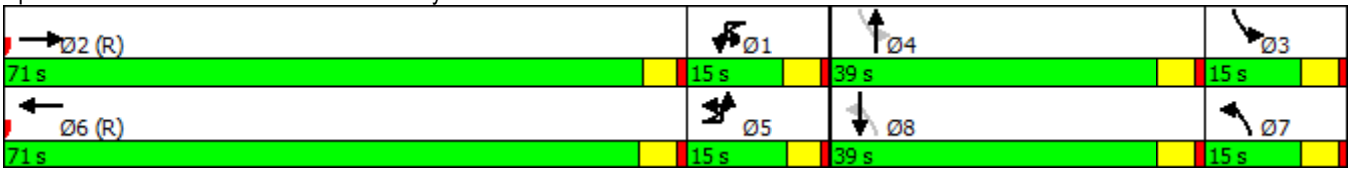
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	80	2013	16	7	36	2106	203	32	11	97	152
Future Volume (vph)	5	80	2013	16	7	36	2106	203	32	11	97	152
Satd. Flow (prot)	0	1752	4987	0	0	1778	5010	0	1738	1561	0	1736
Flt Permitted		0.950				0.950			0.698			0.603
Satd. Flow (perm)	0	1748	4987	0	0	1770	5010	0	1262	1561	0	1090
Satd. Flow (RTOR)			1				15			97		
Lane Group Flow (vph)	0	85	2029	0	0	43	2309	0	32	108	0	152
Turn Type	Prot	Prot	NA		Prot	Prot	NA		D.P+P	NA		D.P+P
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases									8			4
Total Split (s)	15.0	15.0	71.0		15.0	15.0	71.0		15.0	39.0		15.0
Total Lost Time (s)		4.5	4.5			5.0	5.0		6.0	6.0		6.0
Act Effct Green (s)		9.5	88.4			8.8	85.7		25.7	15.7		23.3
Actuated g/C Ratio		0.07	0.63			0.06	0.61		0.18	0.11		0.17
v/c Ratio		0.72	0.64			0.39	0.75		0.13	0.41		0.70
Control Delay		73.6	6.8			65.1	13.8		40.8	15.5		69.4
Queue Delay		0.0	0.2			0.0	0.6		0.0	0.0		0.0
Total Delay		73.6	7.0			65.1	14.4		40.8	15.5		69.4
LOS		E	A			E	B		D	B		E
Approach Delay			9.6				15.3			21.3		
Approach LOS			A				B			C		
Queue Length 50th (ft)		78	121			40	343		25	10		129
Queue Length 95th (ft)		m107	m194			m70	661		47	58		171
Internal Link Dist (ft)			460				380			431		
Turn Bay Length (ft)		100				200			125			
Base Capacity (vph)		131	3149			127	3072		280	442		246
Starvation Cap Reductn		0	346			0	226		0	0		0
Spillback Cap Reductn		0	126			0	364		0	2		0
Storage Cap Reductn		0	0			0	0		0	0		0
Reduced v/c Ratio		0.65	0.72			0.34	0.85		0.11	0.25		0.62

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 45 (32%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 14.7 Intersection LOS: B
Intersection Capacity Utilization 81.3% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	5	82
Future Volume (vph)	5	82
Satd. Flow (prot)	1570	0
Flt Permitted		
Satd. Flow (perm)	1570	0
Satd. Flow (RTOR)	82	
Lane Group Flow (vph)	87	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Total Split (s)	39.0	
Total Lost Time (s)	6.0	
Act Effct Green (s)	20.6	
Actuated g/C Ratio	0.15	
v/c Ratio	0.29	
Control Delay	14.1	
Queue Delay	0.0	
Total Delay	14.1	
LOS	B	
Approach Delay	49.3	
Approach LOS	D	
Queue Length 50th (ft)	5	
Queue Length 95th (ft)	53	
Internal Link Dist (ft)	200	
Turn Bay Length (ft)		
Base Capacity (vph)	432	
Starvation Cap Reductn	0	
Spillback Cap Reductn	5	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.20	

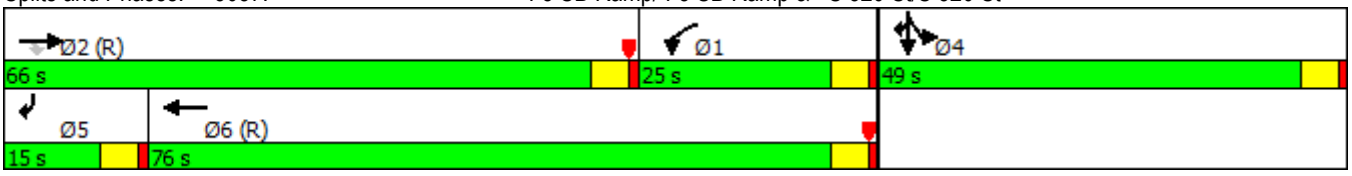
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1843	412	147	1331	0	0	0	0	592	6	1029
Future Volume (vph)	0	1843	412	147	1331	0	0	0	0	592	6	1029
Satd. Flow (prot)	0	5046	1550	1741	5072	0	0	0	0	1651	1670	3564
Flt Permitted				0.950						0.950	0.953	
Satd. Flow (perm)	0	5046	1460	1736	5072	0	0	0	0	1610	1629	3564
Satd. Flow (RTOR)			306									68
Lane Group Flow (vph)	0	1843	412	147	1331	0	0	0	0	296	302	1029
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					4	4	4 5
Permitted Phases			2									
Total Split (s)		66.0	66.0	25.0	76.0					49.0	49.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	
Act Effct Green (s)		63.5	63.5	20.0	76.5					41.5	41.5	53.5
Actuated g/C Ratio		0.45	0.45	0.14	0.55					0.30	0.30	0.38
v/c Ratio		0.80	0.50	0.59	0.48					0.61	0.61	0.73
Control Delay		16.6	3.0	64.0	16.8					47.7	47.9	37.7
Queue Delay		0.9	0.6	0.0	0.0					0.0	0.0	1.3
Total Delay		17.5	3.6	64.0	16.8					47.7	47.9	39.0
LOS		B	A	E	B					D	D	D
Approach Delay		15.0			21.5						42.2	
Approach LOS		B			C						D	
Queue Length 50th (ft)		341	70	135	209					237	243	319
Queue Length 95th (ft)		280	0	210	170					343	348	382
Internal Link Dist (ft)		380			931			1129			892	
Turn Bay Length (ft)				150						600		600
Base Capacity (vph)		2290	829	248	2770					518	524	1446
Starvation Cap Reductn		199	155	0	0					0	0	0
Spillback Cap Reductn		0	0	0	20					0	0	219
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.88	0.61	0.59	0.48					0.57	0.58	0.84

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 115 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Red
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 79.5% ICU Level of Service D
Analysis Period (min) 15
Description: All Traffic Data Services - 11/4/04

Splits and Phases: 3057: I-5 SB Ramp/ I-5 SB Ramp & S 320 St/S 320 St



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	15.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

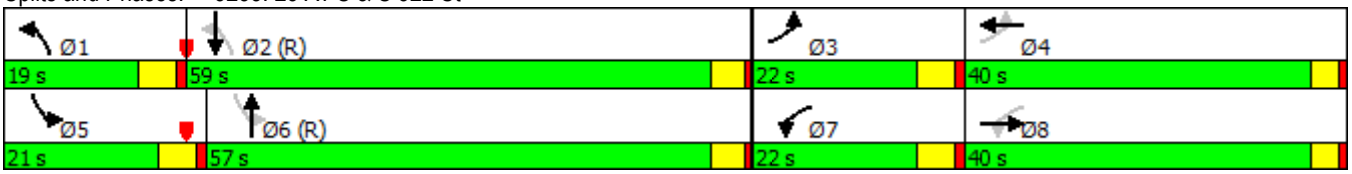
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	5	47	51	19	99	37	527	21	33	437	17
Future Volume (vph)	53	5	47	51	19	99	37	527	21	33	437	17
Satd. Flow (prot)	1733	1599	0	1724	1613	0	1787	3475	0	1805	3517	0
Flt Permitted	0.460			0.723			0.481			0.433		
Satd. Flow (perm)	828	1599	0	1292	1613	0	890	3475	0	813	3517	0
Satd. Flow (RTOR)		47			99			3			3	
Lane Group Flow (vph)	53	52	0	51	118	0	37	548	0	33	454	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Total Split (s)	22.0	40.0		22.0	40.0		19.0	57.0		21.0	59.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Act Effct Green (s)	17.7	12.3		17.7	12.2		101.8	100.3		102.9	98.2	
Actuated g/C Ratio	0.13	0.09		0.13	0.09		0.73	0.72		0.74	0.70	
v/c Ratio	0.35	0.28		0.28	0.51		0.05	0.22		0.05	0.18	
Control Delay	51.8	19.5		48.8	21.8		8.4	10.9		4.8	4.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.8	19.5		48.8	21.8		8.4	10.9		4.8	4.6	
LOS	D	B		D	C		A	B		A	A	
Approach Delay		35.8			30.0			10.7			4.6	
Approach LOS		D			C			B			A	
Queue Length 50th (ft)	44	5		43	17		7	85		3	21	
Queue Length 95th (ft)	73	43		70	72		m24	191		m9	53	
Internal Link Dist (ft)		309			203			301			680	
Turn Bay Length (ft)	100			75			250			225		
Base Capacity (vph)	252	435		281	477		761	2489		726	2467	
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	0.21	0.12		0.18	0.25		0.05	0.22		0.05	0.18	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 139 (99%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 47.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3255: 23 Av S & S 322 St



Queues
3350: Pacific Hwy S & S 324 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	132	213	145	404	221	60	153	159	1228	278	47	114
Future Volume (vph)	132	213	145	404	221	60	153	159	1228	278	47	114
Satd. Flow (prot)	1778	1812	1553	3375	1770	0	0	1755	4899	0	0	1713
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1763	1812	1516	3344	1770	0	0	1742	4899	0	0	1701
Satd. Flow (RTOR)			175		10				38			
Lane Group Flow (vph)	132	213	145	404	281	0	0	312	1506	0	0	161
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4									
Total Split (s)	22.0	39.0	39.0	29.0	46.0		28.0	28.0	48.0		24.0	24.0
Total Lost Time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0			5.0
Act Effct Green (s)	15.9	21.5	21.5	20.0	25.5			23.0	58.6			19.0
Actuated g/C Ratio	0.11	0.15	0.15	0.14	0.18			0.16	0.42			0.14
v/c Ratio	0.65	0.77	0.38	0.84	0.85			1.08	0.73			0.69
Control Delay	68.4	65.1	4.3	71.0	74.9			127.8	15.7			41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	68.4	65.1	4.3	71.0	74.9			127.8	15.7			41.6
LOS	E	E	A	E	E			F	B			D
Approach Delay		48.0			72.6				34.9			
Approach LOS		D			E				C			
Queue Length 50th (ft)	119	173	0	182	245			~309	216			153
Queue Length 95th (ft)	189	219	3	239	327			m#499	#597			m197
Internal Link Dist (ft)		1081			303				1289			
Turn Bay Length (ft)	200		275	500				275				275
Base Capacity (vph)	230	433	495	566	512			288	2071			232
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	0.57	0.49	0.29	0.71	0.55			1.08	0.73			0.69

Intersection Summary

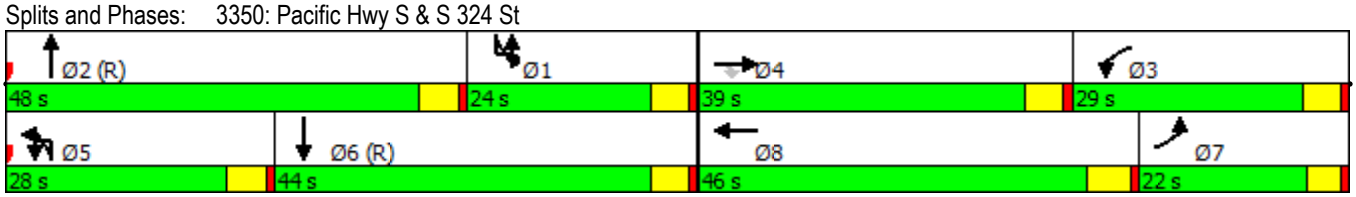
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 137 (98%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 90.8% ICU Level of Service E
Analysis Period (min) 15

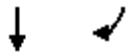
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 3350: Pacific Hwy S & S 324 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1358	95
Future Volume (vph)	1358	95
Satd. Flow (prot)	4978	0
Flt Permitted		
Satd. Flow (perm)	4978	0
Satd. Flow (RTOR)	8	
Lane Group Flow (vph)	1453	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	44.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	54.6	
Actuated g/C Ratio	0.39	
v/c Ratio	0.75	
Control Delay	15.3	
Queue Delay	0.0	
Total Delay	15.3	
LOS	B	
Approach Delay	17.9	
Approach LOS	B	
Queue Length 50th (ft)	174	
Queue Length 95th (ft)	m#619	
Internal Link Dist (ft)	1190	
Turn Bay Length (ft)		
Base Capacity (vph)	1945	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.75	

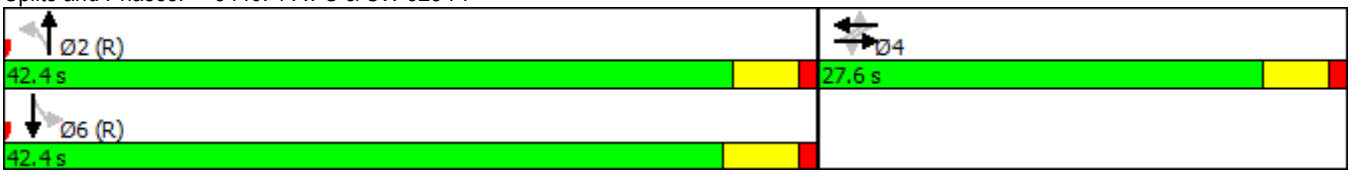
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	0	24	10	0	19	68	621	30	17	800	37
Future Volume (vph)	38	0	24	10	0	19	68	621	30	17	800	37
Satd. Flow (prot)	0	1741	0	0	1647	0	0	3477	0	0	3526	0
Flt Permitted		0.796			0.871			0.811			0.938	
Satd. Flow (perm)	0	1421	0	0	1455	0	0	2833	0	0	3310	0
Satd. Flow (RTOR)		31			31			10			10	
Lane Group Flow (vph)	0	62	0	0	29	0	0	719	0	0	854	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Total Split (s)	27.6	27.6		27.6	27.6		42.4	42.4		42.4	42.4	
Total Lost Time (s)		5.5			5.5			4.5			5.0	
Act Effct Green (s)		8.2			8.2			54.6			54.2	
Actuated g/C Ratio		0.12			0.12			0.78			0.77	
v/c Ratio		0.32			0.15			0.33			0.33	
Control Delay		18.9			9.7			3.0			4.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.9			9.7			3.0			4.7	
LOS		B			A			A			A	
Approach Delay		18.9			9.7			3.0			4.7	
Approach LOS		B			A			A			A	
Queue Length 50th (ft)		13			0			23			38	
Queue Length 95th (ft)		34			16			82			153	
Internal Link Dist (ft)		496			430			674			1045	
Turn Bay Length (ft)												
Base Capacity (vph)		469			480			2212			2565	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.13			0.06			0.33			0.33	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 20 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.33
Intersection Signal Delay: 4.6 Intersection LOS: A
Intersection Capacity Utilization 66.6% ICU Level of Service C
Analysis Period (min) 15
Description:

Splits and Phases: 3440: 1 Av S & SW 325 Pl

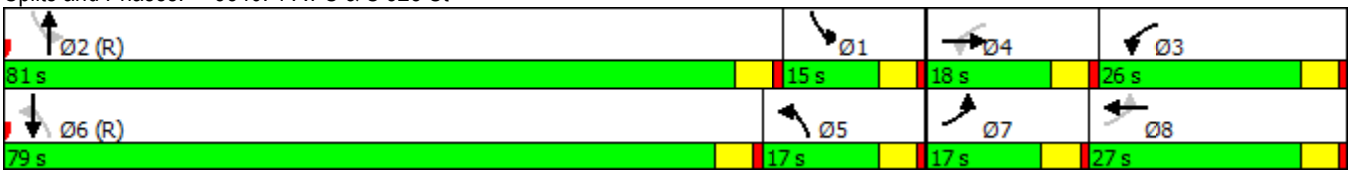


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	13	8	73	6	15	13	706	162	7	843	32
Future Volume (vph)	35	13	8	73	6	15	13	706	162	7	843	32
Satd. Flow (prot)	1770	1757	0	1761	1597	0	1752	3353	0	1796	3574	0
Flt Permitted	0.833			0.870			0.303			0.309		
Satd. Flow (perm)	1552	1757	0	1553	1597	0	559	3353	0	584	3574	0
Satd. Flow (RTOR)		8			15			31			4	
Lane Group Flow (vph)	35	21	0	73	21	0	13	868	0	7	875	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Total Split (s)	17.0	18.0		26.0	27.0		17.0	81.0		15.0	79.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	12.2	6.6		12.3	6.8		117.2	115.8		118.2	113.4	
Actuated g/C Ratio	0.09	0.05		0.09	0.05		0.84	0.83		0.84	0.81	
v/c Ratio	0.24	0.23		0.49	0.23		0.03	0.31		0.01	0.30	
Control Delay	56.4	51.2		67.1	38.2		1.5	2.9		6.6	7.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	56.4	51.2		67.1	38.2		1.5	2.9		6.6	7.1	
LOS	E	D		E	D		A	A		A	A	
Approach Delay		54.4			60.6			2.9			7.1	
Approach LOS		D			E			A			A	
Queue Length 50th (ft)	29	12		62	5		1	55		1	86	
Queue Length 95th (ft)	59	39		104	33		m3	71		m0	254	
Internal Link Dist (ft)		157			277			638			674	
Turn Bay Length (ft)	100			100			100			100		
Base Capacity (vph)	203	170		315	263		591	2778		596	2895	
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	0.17	0.12		0.23	0.08		0.02	0.31		0.01	0.30	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 23 (16%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 9.2 Intersection LOS: A
Intersection Capacity Utilization 43.9% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3540: 1 Av S & S 328 St

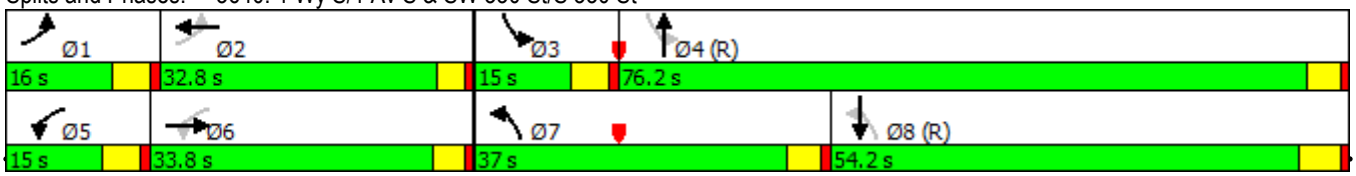


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	8	164	8	5	20	415	798	18	21	689	212
Future Volume (vph)	141	8	164	8	5	20	415	798	18	21	689	212
Satd. Flow (prot)	1805	1587	0	1743	1580	0	1537	3401	0	1814	3451	0
Flt Permitted	0.741			0.450			0.209			0.306		
Satd. Flow (perm)	1388	1587	0	817	1580	0	338	3401	0	580	3451	0
Satd. Flow (RTOR)		164			20			2			32	
Lane Group Flow (vph)	141	172	0	8	25	0	415	816	0	21	901	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		
Total Split (s)	16.0	33.8		15.0	32.8		37.0	76.2		15.0	54.2	
Total Lost Time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	
Act Effct Green (s)	20.7	22.6		23.1	13.2		100.7	99.0		101.7	68.1	
Actuated g/C Ratio	0.15	0.16		0.16	0.09		0.72	0.71		0.73	0.49	
v/c Ratio	0.61	0.44		0.05	0.15		0.81	0.34		0.04	0.53	
Control Delay	60.2	10.6		38.2	24.0		33.1	11.6		4.3	20.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	60.2	10.6		38.2	24.0		33.1	11.6		4.3	20.4	
LOS	E	B		D	C		C	B		A	C	
Approach Delay		32.9			27.5			18.8			20.1	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	122	6		6	5		165	131		2	200	
Queue Length 95th (ft)	157	67		19	31		#426	275		4	76	
Internal Link Dist (ft)		960			420			1194			638	
Turn Bay Length (ft)	100			100			200			100		
Base Capacity (vph)	237	487		199	329		523	2405		521	1694	
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	0.59	0.35		0.04	0.08		0.79	0.34		0.04	0.53	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 7 (5%), Referenced to phase 4:NBSB and 8:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3640: 1 Wy S/1 Av S & SW 330 St/S 330 St

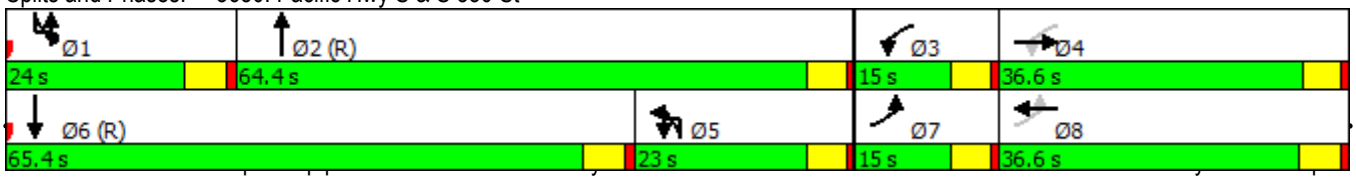


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	43	18	105	51	31	40	38	57	1574	51	149	42
Future Volume (vph)	43	18	105	51	31	40	38	57	1574	51	149	42
Satd. Flow (prot)	1762	1621	0	1727	1680	0	0	1752	4960	0	0	1787
Flt Permitted	0.711			0.534				0.950				0.950
Satd. Flow (perm)	1302	1621	0	960	1680	0	0	1742	4960	0	0	1773
Satd. Flow (RTOR)		105			40				4			
Lane Group Flow (vph)	43	123	0	51	71	0	0	95	1625	0	0	191
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	15.0	36.6		15.0	36.6		23.0	23.0	64.4		24.0	24.0
Total Lost Time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Act Effct Green (s)	20.9	14.9		20.9	14.9			18.0	80.6			17.2
Actuated g/C Ratio	0.15	0.11		0.15	0.11			0.13	0.58			0.12
v/c Ratio	0.20	0.46		0.28	0.33			0.42	0.57			0.87
Control Delay	41.3	17.9		45.5	29.1			39.6	10.1			87.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	41.3	17.9		45.5	29.1			39.6	10.1			87.1
LOS	D	B		D	C			D	B			F
Approach Delay		24.0			35.9				11.8			
Approach LOS		C			D				B			
Queue Length 50th (ft)	34	19		42	28			70	69			154
Queue Length 95th (ft)	57	72		66	66			m98	m245			m#252
Internal Link Dist (ft)		616			365				600			
Turn Bay Length (ft)	100			100				200				250
Base Capacity (vph)	248	436		206	393			225	2857			236
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.17	0.28		0.25	0.18			0.42	0.57			0.81

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 62 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 21.9 Intersection LOS: C
Intersection Capacity Utilization 79.5% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 3650: Pacific Hwy S & S 330 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1902	59
Future Volume (vph)	1902	59
Satd. Flow (prot)	5060	0
Flt Permitted		
Satd. Flow (perm)	5060	0
Satd. Flow (RTOR)	4	
Lane Group Flow (vph)	1961	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	65.4	
Total Lost Time (s)	5.5	
Act Effct Green (s)	79.8	
Actuated g/C Ratio	0.57	
v/c Ratio	0.68	
Control Delay	23.3	
Queue Delay	0.0	
Total Delay	23.3	
LOS	C	
Approach Delay	29.0	
Approach LOS	C	
Queue Length 50th (ft)	452	
Queue Length 95th (ft)	m731	
Internal Link Dist (ft)	561	
Turn Bay Length (ft)		
Base Capacity (vph)	2885	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.68	

Intersection Summary

Queues
3842: S 333 St & 1 Wy S

10/29/2018

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	94	683	7	11	1016	44	33	14	27	74	3	222
Future Volume (vph)	94	683	7	11	1016	44	33	14	27	74	3	222
Satd. Flow (prot)	1782	3569	0	1734	3440	0	0	1752	0	1747	1533	0
Flt Permitted	0.240			0.375				0.196		0.661		
Satd. Flow (perm)	450	3569	0	678	3440	0	0	349	0	1198	1533	0
Satd. Flow (RTOR)		1			5			20			222	
Lane Group Flow (vph)	94	690	0	11	1060	0	0	74	0	74	225	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Total Split (s)	21.0	81.0		17.0	77.0		42.0	42.0		42.0	42.0	
Total Lost Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Act Effct Green (s)	109.8	108.0		113.5	104.2			15.7		15.7	15.7	
Actuated g/C Ratio	0.78	0.77		0.81	0.74			0.11		0.11	0.11	
v/c Ratio	0.23	0.25		0.02	0.41			1.32		0.55	0.61	
Control Delay	4.8	6.8		3.5	7.5			257.8		71.8	13.9	
Queue Delay	0.0	1.3		0.0	0.0			0.0		0.0	0.0	
Total Delay	4.8	8.1		3.5	7.5			257.8		71.8	13.9	
LOS	A	A		A	A			F		E	B	
Approach Delay		7.7			7.5			257.8			28.3	
Approach LOS		A			A			F			C	
Queue Length 50th (ft)	11	50		2	149			~76		67	3	
Queue Length 95th (ft)	34	176		m4	244			#159		111	77	
Internal Link Dist (ft)		270			278			237			1502	
Turn Bay Length (ft)	75			75						100		
Base Capacity (vph)	521	2752		643	2562			108		320	573	
Starvation Cap Reductn	0	1782		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.18	0.71		0.02	0.41			0.69		0.23	0.39	

Intersection Summary

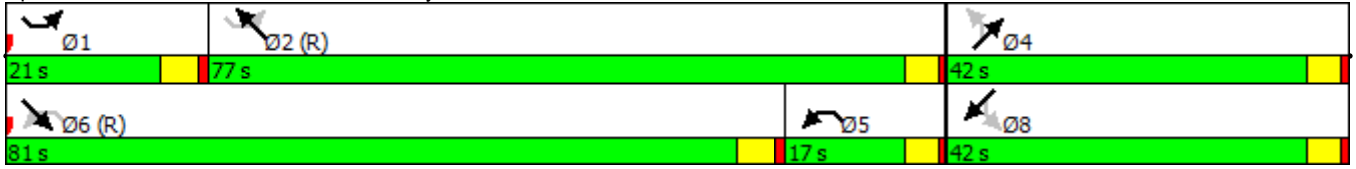
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 99 (71%), Referenced to phase 2:NWSE and 6:NWSE, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.32
Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15

~ 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.

Splits and Phases: 3842: S 333 St & 1 Wy S

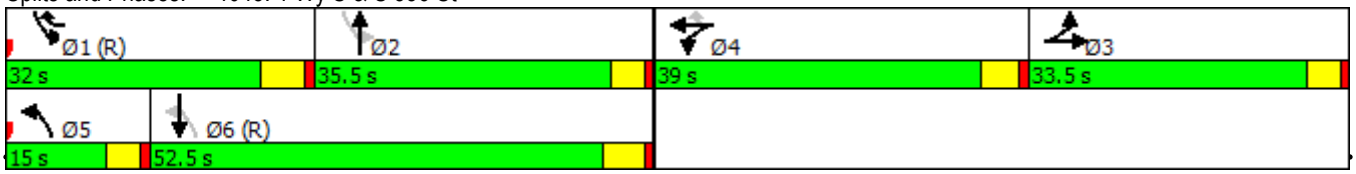


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	71	52	659	35	649	15	348	159	328	518	14
Future Volume (vph)	66	71	52	659	35	649	15	348	159	328	518	14
Satd. Flow (prot)	1808	1778	0	1676	1702	2789	1743	3283	0	1814	3593	0
Flt Permitted	0.950			0.950	0.957		0.405			0.271		
Satd. Flow (perm)	1791	1778	0	1656	1683	2665	733	3283	0	515	3593	0
Satd. Flow (RTOR)		24				649		49			2	
Lane Group Flow (vph)	66	123	0	349	345	649	15	507	0	328	532	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6			2		
Total Split (s)	33.5	33.5		39.0	39.0	32.0	15.0	35.5		32.0	52.5	
Total Lost Time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Act Effct Green (s)	16.3	16.3		31.8	31.8	71.7	75.1	31.0		70.4	71.7	
Actuated g/C Ratio	0.12	0.12		0.23	0.23	0.51	0.54	0.22		0.50	0.51	
v/c Ratio	0.31	0.54		0.92	0.89	0.38	0.03	0.66		0.52	0.29	
Control Delay	57.0	53.0		80.4	76.5	4.1	19.7	49.5		19.8	19.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	57.0	53.0		80.4	76.5	4.1	19.7	49.5		19.8	19.2	
LOS	E	D		F	E	A	B	D		B	B	
Approach Delay		54.4			42.5			48.7			19.4	
Approach LOS		D			D			D			B	
Queue Length 50th (ft)	58	90		348	344	60	6	202		173	142	
Queue Length 95th (ft)	96	139		#491	#474	76	21	266		302	252	
Internal Link Dist (ft)		300			1418			1066			684	
Turn Bay Length (ft)				200		160	175			300		
Base Capacity (vph)	361	374		407	413	1717	477	765		633	1841	
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	0.18	0.33		0.86	0.84	0.38	0.03	0.66		0.52	0.29	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 113 (81%), Referenced to phase 1:SBL and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 37.6 Intersection LOS: D
Intersection Capacity Utilization 93.6% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4043: 1 Wy S & S 336 St

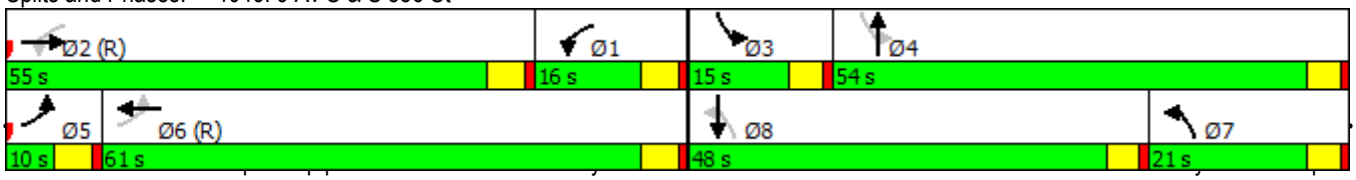


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	555	87	126	1123	56	118	88	113	189	147	127
Future Volume (vph)	58	555	87	126	1123	56	118	88	113	189	147	127
Satd. Flow (prot)	1770	3429	0	1764	3521	0	1752	1663	0	1791	1731	0
Flt Permitted	0.178			0.363			0.203			0.283		
Satd. Flow (perm)	332	3429	0	668	3521	0	371	1663	0	528	1731	0
Satd. Flow (RTOR)		14			4			51			32	
Lane Group Flow (vph)	58	642	0	126	1179	0	118	201	0	189	274	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Total Split (s)	10.0	55.0		16.0	61.0		21.0	54.0		15.0	48.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Act Effct Green (s)	91.5	79.9		90.4	87.9		28.6	18.6		28.6	24.1	
Actuated g/C Ratio	0.65	0.57		0.65	0.63		0.20	0.13		0.20	0.17	
v/c Ratio	0.22	0.33		0.25	0.53		0.98	0.76		0.95	0.85	
Control Delay	5.3	5.4		7.7	8.2		141.4	68.0		100.8	71.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.3	5.4		7.7	8.2		141.4	68.0		100.8	71.6	
LOS	A	A		A	A		F	E		F	E	
Approach Delay		5.4			8.1			95.2			83.5	
Approach LOS		A			A			F			F	
Queue Length 50th (ft)	8	57		16	84		87	129		147	218	
Queue Length 95th (ft)	m17	76		40	150		#132	200		#199	301	
Internal Link Dist (ft)		1418			1473			2541			568	
Turn Bay Length (ft)	200			125			100			100		
Base Capacity (vph)	263	1963		513	2212		263	615		198	553	
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	0.22	0.33		0.25	0.53		0.45	0.33		0.95	0.50	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 15 (11%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 29.9 Intersection LOS: C
Intersection Capacity Utilization 79.8% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 4046: 9 Av S & S 336 St



Queues
4050: Pacific Hwy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	354	451	309	270	649	146	30	249	1143	101	31	85
Future Volume (vph)	354	451	309	270	649	146	30	249	1143	101	31	85
Satd. Flow (prot)	1719	1853	1550	1733	3396	0	0	3368	4889	0	0	1796
Flt Permitted	0.114			0.173				0.950				0.950
Satd. Flow (perm)	206	1853	1516	314	3396	0	0	3344	4889	0	0	1776
Satd. Flow (RTOR)			132		20				11			
Lane Group Flow (vph)	354	451	309	270	795	0	0	279	1244	0	0	116
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4								
Total Split (s)	19.0	51.5	51.5	15.0	47.5		18.0	18.0	52.5		21.0	21.0
Total Lost Time (s)	4.5	5.5	5.5	4.5	5.5			5.0	5.0			5.5
Act Effct Green (s)	53.2	41.7	41.7	53.2	37.7			12.9	51.8			15.5
Actuated g/C Ratio	0.38	0.30	0.30	0.38	0.27			0.09	0.37			0.11
v/c Ratio	1.51	0.82	0.57	1.20	0.86			0.90	0.69			0.59
Control Delay	283.3	49.5	18.7	152.9	65.2			87.8	32.1			53.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	283.3	49.5	18.7	152.9	65.2			87.8	32.1			53.5
LOS	F	D	B	F	E			F	C			D
Approach Delay		115.2			87.4				42.3			
Approach LOS		F			F				D			
Queue Length 50th (ft)	~421	415	119	~208	347			104	424			108
Queue Length 95th (ft)	#595	487	197	m#337	462			#220	289			m143
Internal Link Dist (ft)		735			466				780			
Turn Bay Length (ft)	650			100				350				500
Base Capacity (vph)	235	608	586	225	1032			312	1815			198
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	1.51	0.74	0.53	1.20	0.77			0.89	0.69			0.59

Intersection Summary

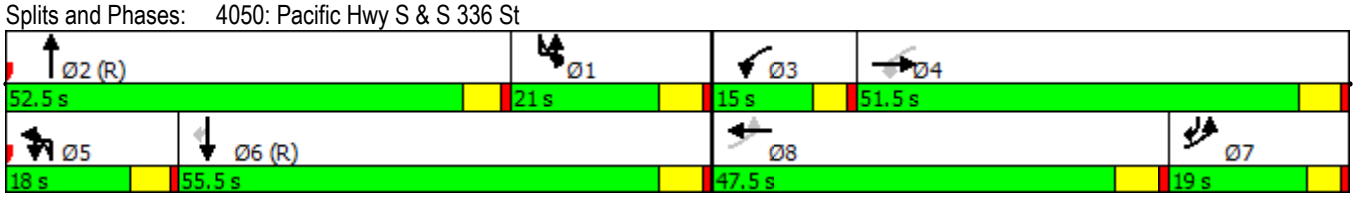
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 75 (54%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.51
Intersection Signal Delay: 58.2 Intersection LOS: E
Intersection Capacity Utilization 101.9% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 4050: Pacific Hwy S & S 336 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1606	359
Future Volume (vph)	1606	359
Satd. Flow (prot)	5134	1594
Flt Permitted		
Satd. Flow (perm)	5134	1544
Satd. Flow (RTOR)		94
Lane Group Flow (vph)	1606	359
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Total Split (s)	55.5	19.0
Total Lost Time (s)	5.5	4.5
Act Effct Green (s)	54.4	69.9
Actuated g/C Ratio	0.39	0.50
v/c Ratio	0.81	0.44
Control Delay	26.1	7.5
Queue Delay	0.0	0.0
Total Delay	26.1	7.5
LOS	C	A
Approach Delay	24.5	
Approach LOS	C	
Queue Length 50th (ft)	543	129
Queue Length 95th (ft)	382	79
Internal Link Dist (ft)	810	
Turn Bay Length (ft)		250
Base Capacity (vph)	1994	822
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.81	0.44

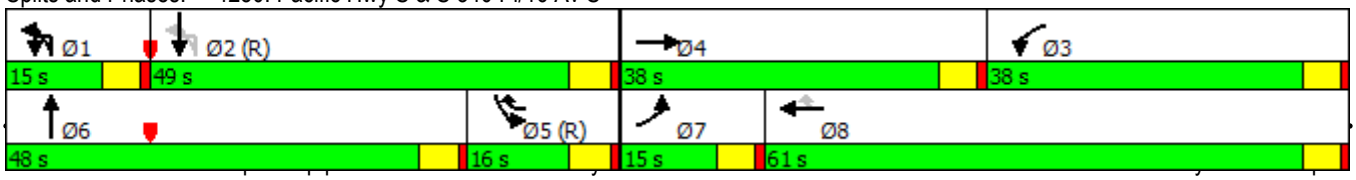
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	3	0	16	39	88	861	1	86	629	33	1004	1267
Future Volume (vph)	3	0	16	39	88	861	1	86	629	33	1004	1267
Satd. Flow (prot)	1770	1583	0	1799	1909	2833	0	1752	4967	0	3454	5122
Flt Permitted	0.950			0.950				0.173			0.950	
Satd. Flow (perm)	1770	1583	0	1777	1909	2693	0	319	4967	0	3431	5122
Satd. Flow (RTOR)		492				469			6			
Lane Group Flow (vph)	3	16	0	39	88	861	0	87	662	0	1004	1271
Turn Type	Prot	NA		Prot	NA	pm+ov	D.P+P	D.P+P	NA		Prot	NA
Protected Phases	7	4		3	8	5	1	1	6		5	2
Permitted Phases						8	2	2				
Total Split (s)	15.0	38.0		38.0	61.0	16.0	15.0	15.0	48.0		16.0	49.0
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.5		5.0	5.0		5.5	5.5
Act Effct Green (s)	5.1	16.2		10.8	25.9	89.3		97.0	30.6		65.9	89.0
Actuated g/C Ratio	0.04	0.12		0.08	0.18	0.64		0.69	0.22		0.47	0.64
v/c Ratio	0.05	0.03		0.28	0.25	0.44		0.29	0.61		0.62	0.39
Control Delay	66.7	0.1		54.6	32.8	2.7		26.1	50.2		23.4	8.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	66.7	0.1		54.6	32.8	2.7		26.1	50.2		23.4	8.8
LOS	E	A		D	C	A		C	D		C	A
Approach Delay		10.6			7.4				47.4			15.2
Approach LOS		B			A				D			B
Queue Length 50th (ft)	3	0		35	72	11		46	221		120	90
Queue Length 95th (ft)	14	0		m72	125	176		105	260		m#668	m152
Internal Link Dist (ft)		294			48				107			314
Turn Bay Length (ft)	100			50		100		100			400	
Base Capacity (vph)	126	749		424	763	2357		333	1529		1626	3255
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	0.02	0.02		0.09	0.12	0.37		0.26	0.43		0.62	0.39

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 117 (84%), Referenced to phase 2:NBSB and 5:SBL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15
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.

Splits and Phases: 4250: Pacific Hwy S & S 340 Pl/16 Av S



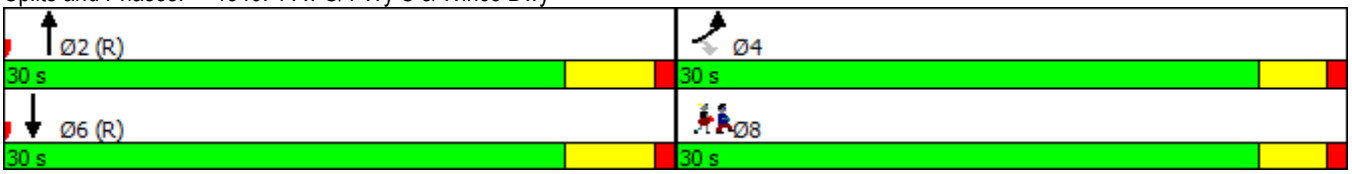
Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Satd. Flow (RTOR)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	102	6	0	402	970	144	
Future Volume (vph)	102	6	0	402	970	144	
Satd. Flow (prot)	1729	1547	0	3578	3460	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1717	1518	0	3578	3460	0	
Satd. Flow (RTOR)		6			34		
Lane Group Flow (vph)	102	6	0	402	1114	0	
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		8
Permitted Phases		4		2			
Total Split (s)	30.0	30.0		30.0	30.0		30.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		
Act Effct Green (s)	9.9	9.9		42.9	42.9		
Actuated g/C Ratio	0.16	0.16		0.72	0.72		
v/c Ratio	0.36	0.02		0.16	0.45		
Control Delay	23.0	9.2		5.5	7.1		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	23.0	9.2		5.5	7.1		
LOS	C	A		A	A		
Approach Delay	22.2			5.5	7.1		
Approach LOS	C			A	A		
Queue Length 50th (ft)	36	0		17	62		
Queue Length 95th (ft)	48	6		75	237		
Internal Link Dist (ft)	244			982	846		
Turn Bay Length (ft)		100					
Base Capacity (vph)	720	636		2557	2482		
Starvation Cap Reductn	0	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.14	0.01		0.16	0.45		

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 26.5 (44%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 49.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4540: 1 Av S/1 Wy S & Winco Dwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	19	42	68	94	45	30	9	27	677	67	49	1306
Future Volume (vph)	19	42	68	94	45	30	9	27	677	67	49	1306
Satd. Flow (prot)	1738	1622	0	1782	1742	0	0	1752	4914	0	1787	5106
Flt Permitted	0.698			0.494				0.169			0.344	
Satd. Flow (perm)	1233	1622	0	900	1742	0	0	312	4914	0	638	5106
Satd. Flow (RTOR)		50			21				16			2
Lane Group Flow (vph)	19	110	0	94	75	0	0	36	744	0	49	1324
Turn Type	D.P+P	NA		D.P+P	NA		custom	D.P+P	NA		D.P+P	NA
Protected Phases	7	4		3	8			5	2		1	6
Permitted Phases	8			4			5	6			2	
Total Split (s)	17.0	29.0		20.0	32.0		18.0	18.0	73.0		18.0	73.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Act Effct Green (s)	22.7	9.9		20.7	18.8			100.3	95.6		100.3	95.9
Actuated g/C Ratio	0.16	0.07		0.15	0.13			0.72	0.68		0.72	0.68
v/c Ratio	0.09	0.68		0.47	0.30			0.13	0.22		0.10	0.38
Control Delay	47.2	57.9		64.4	52.6			4.1	5.0		2.1	4.4
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	47.2	57.9		64.4	52.6			4.1	5.0		2.1	4.4
LOS	D	E		E	D			A	A		A	A
Approach Delay		56.4			59.2				5.0			4.4
Approach LOS		E			E				A			A
Queue Length 50th (ft)	15	53		84	47			4	56		10	115
Queue Length 95th (ft)	m34	111		130	100			m11	73		4	24
Internal Link Dist (ft)		1727			456				1382			1196
Turn Bay Length (ft)	100			100				100			100	
Base Capacity (vph)	268	319		249	352			366	3362		581	3496
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	0.07	0.34		0.38	0.21			0.10	0.22		0.08	0.38

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 54.2%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 4549: Pacific Hwy S & S 344 St

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	18
Future Volume (vph)	18
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Satd. Flow (RTOR)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

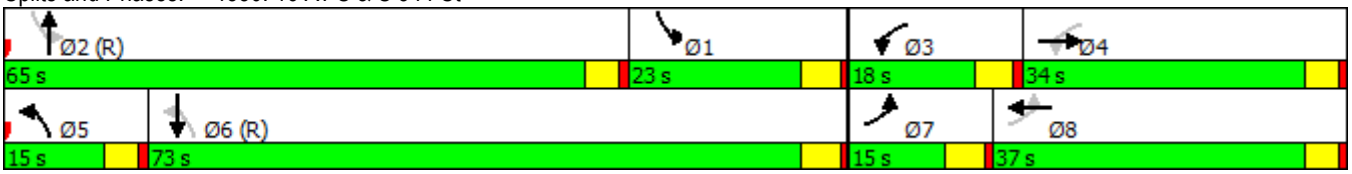
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	42	76	169	42	99	102	913	53	172	1000	34
Future Volume (vph)	7	42	76	169	42	99	102	913	53	172	1000	34
Satd. Flow (prot)	1738	1637	0	1799	1673	0	1743	3434	0	1778	3517	0
Flt Permitted	0.563			0.542			0.209			0.202		
Satd. Flow (perm)	1016	1637	0	1014	1673	0	383	3434	0	378	3517	0
Satd. Flow (RTOR)		59			79			5			3	
Lane Group Flow (vph)	7	118	0	169	141	0	102	966	0	172	1034	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Total Split (s)	15.0	34.0		18.0	37.0		15.0	65.0		23.0	73.0	
Total Lost Time (s)	5.0	4.5		5.0	4.5		4.5	4.5		5.0	5.0	
Act Effct Green (s)	31.5	15.5		27.5	30.8		93.5	75.0		92.5	85.8	
Actuated g/C Ratio	0.22	0.11		0.20	0.22		0.67	0.54		0.66	0.61	
v/c Ratio	0.03	0.51		0.63	0.33		0.31	0.52		0.40	0.48	
Control Delay	46.1	50.6		54.5	21.1		11.3	24.0		6.2	7.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.1	50.6		54.5	21.1		11.3	24.0		6.2	7.1	
LOS	D	D		D	C		B	C		A	A	
Approach Delay		50.4			39.3			22.8			6.9	
Approach LOS		D			D			C			A	
Queue Length 50th (ft)	6	62		139	48		23	261		7	40	
Queue Length 95th (ft)	m21	136		178	104		63	425		78	120	
Internal Link Dist (ft)		456			370			1310			725	
Turn Bay Length (ft)	50			150			150			150		
Base Capacity (vph)	286	391		275	486		366	1842		429	2155	
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	0.02	0.30		0.61	0.29		0.28	0.52		0.40	0.48	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 109 (78%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 65.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4550: 16 Av S & S 344 St



Queues
4840: 1 Av S & SW Campus Dr/S 348 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	848	124	472	1351	152	96	186	95	248	557	393
Future Volume (vph)	137	848	124	472	1351	152	96	186	95	248	557	393
Satd. Flow (prot)	3351	3376	0	3436	3543	1579	1694	3200	0	1782	3578	1594
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3337	3376	0	3408	3543	1534	1681	3200	0	1764	3578	1549
Satd. Flow (RTOR)		14				142		58				94
Lane Group Flow (vph)	137	972	0	472	1351	152	96	281	0	248	557	393
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Total Split (s)	16.0	61.5		24.0	69.5	21.0	15.0	33.5		21.0	39.5	16.0
Total Lost Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5		5.0	5.0	4.5
Act Effct Green (s)	11.5	63.7		19.0	71.2	90.7	9.6	18.8		19.5	28.2	40.2
Actuated g/C Ratio	0.08	0.46		0.14	0.51	0.65	0.07	0.13		0.14	0.20	0.29
v/c Ratio	0.50	0.63		1.01	0.75	0.14	0.83	0.59		1.00	0.77	0.76
Control Delay	68.2	32.0		113.4	13.3	0.3	118.8	61.2		116.1	60.3	37.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	68.2	32.0		113.4	13.3	0.3	118.8	61.2		116.1	60.3	37.9
LOS	E	C		F	B	A	F	E		F	E	D
Approach Delay		36.5			36.2			75.9			64.5	
Approach LOS		D			D			E			E	
Queue Length 50th (ft)	62	341		~225	228	0	91	106		221	257	203
Queue Length 95th (ft)	99	458		#340	265	1	#192	167		#452	304	276
Internal Link Dist (ft)		752			2822			1475			982	
Turn Bay Length (ft)	175			225		250	150			400		225
Base Capacity (vph)	275	1543		466	1802	1050	121	708		248	881	515
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	0.50	0.63		1.01	0.75	0.14	0.79	0.40		1.00	0.63	0.76

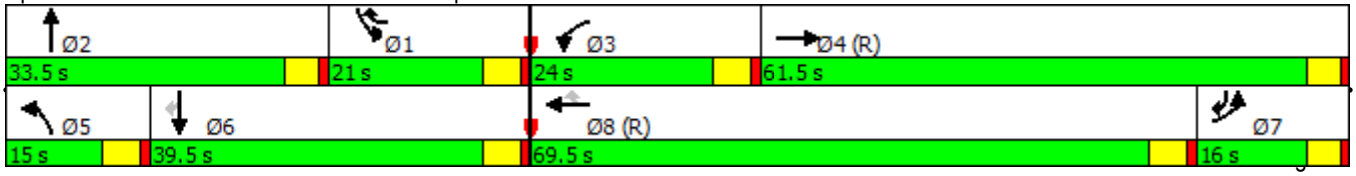
Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 69 (49%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 46.8 Intersection LOS: D
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15

~ 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.

Splits and Phases: 4840: 1 Av S & SW Campus Dr/S 348 St



Queues
4848: Pacific Hwy S & S 348 St

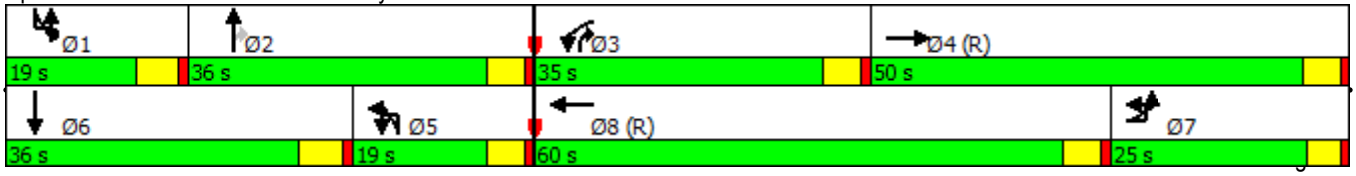
10/29/2018

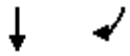
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	42	119	1096	253	586	1457	119	12	260	488	341	244
Future Volume (vph)	42	119	1096	253	586	1457	119	12	260	488	341	244
Satd. Flow (prot)	0	1720	4824	0	3402	4982	0	0	3385	4551	1348	3485
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1716	4824	0	3397	4982	0	0	3368	4551	1320	3471
Satd. Flow (RTOR)			40			11				52	97	
Lane Group Flow (vph)	0	161	1349	0	586	1576	0	0	272	641	188	244
Turn Type	Prot	Prot	NA		Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases											2	
Total Split (s)	25.0	25.0	50.0		35.0	60.0		19.0	19.0	36.0	35.0	19.0
Total Lost Time (s)		4.5	5.0		5.0	5.0			5.0	5.0	5.0	5.5
Act Effct Green (s)		20.5	48.2		27.3	55.5			13.5	31.4	58.6	12.6
Actuated g/C Ratio		0.15	0.34		0.20	0.40			0.10	0.22	0.42	0.09
v/c Ratio		0.64	0.80		0.89	0.80			0.83	0.60	0.31	0.78
Control Delay		55.6	34.9		70.6	40.8			103.2	67.4	20.8	79.4
Queue Delay		0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0
Total Delay		55.6	34.9		70.6	40.8			103.2	67.4	20.8	79.4
LOS		E	C		E	D			F	E	C	E
Approach Delay			37.1			48.9				68.3		
Approach LOS			D			D				E		
Queue Length 50th (ft)		148	436		268	460			135	213	77	114
Queue Length 95th (ft)		m207	m437		333	522			#198	261	134	#163
Internal Link Dist (ft)			1161			1022				1351		
Turn Bay Length (ft)		200			350				350		350	250
Base Capacity (vph)		251	1688		729	1981			338	1060	638	336
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		0.64	0.80		0.80	0.80			0.80	0.60	0.29	0.73

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 7 (5%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 56.7 Intersection LOS: E
Intersection Capacity Utilization 99.3% ICU Level of Service F
Analysis Period (min) 15
Description:
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.

Splits and Phases: 4848: Pacific Hwy S & S 348 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	866	207
Future Volume (vph)	866	207
Satd. Flow (prot)	4977	0
Flt Permitted		
Satd. Flow (perm)	4977	0
Satd. Flow (RTOR)	37	
Lane Group Flow (vph)	1073	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	36.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	30.5	
Actuated g/C Ratio	0.22	
v/c Ratio	0.96	
Control Delay	83.2	
Queue Delay	0.0	
Total Delay	83.2	
LOS	F	
Approach Delay	82.5	
Approach LOS	F	
Queue Length 50th (ft)	363	
Queue Length 95th (ft)	#450	
Internal Link Dist (ft)	1382	
Turn Bay Length (ft)		
Base Capacity (vph)	1113	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.96	

Intersection Summary

Queues
4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	18	111	1213	262	984	1965	609	217	120	796	613	467
Future Volume (vph)	18	111	1213	262	984	1965	609	217	120	796	613	467
Satd. Flow (prot)	0	1738	5034	1555	5077	5173	1602	0	3385	3234	1426	3467
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1734	5034	1516	5056	5173	1556	0	3365	3234	1390	3455
Satd. Flow (RTOR)				150			276			17	48	
Lane Group Flow (vph)	0	129	1213	262	984	1965	609	0	337	980	429	467
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4			8				2	
Total Split (s)	18.0	18.0	54.0	54.0	34.0	70.0	70.0	33.0	33.0	52.0	34.0	20.0
Total Lost Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0	5.0	5.0
Act Effct Green (s)		13.2	49.5	49.5	29.0	65.3	65.3		28.5	47.0	76.0	15.0
Actuated g/C Ratio		0.08	0.31	0.31	0.18	0.41	0.41		0.18	0.29	0.48	0.09
v/c Ratio		0.90	0.78	0.46	1.07	0.93	0.76		0.56	1.02	0.62	1.44
Control Delay		124.6	54.5	21.0	110.5	54.2	28.5		64.2	87.9	20.5	261.2
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		124.6	54.5	21.0	110.5	54.2	28.5		64.2	87.9	20.5	261.2
LOS		F	D	C	F	D	C		E	F	C	F
Approach Delay			54.6			65.4				66.8		
Approach LOS			D			E				E		
Queue Length 50th (ft)		136	424	91	~402	717	320		169	~587	217	~340
Queue Length 95th (ft)		#266	484	180	#496	787	494		223	#734	308	#457
Internal Link Dist (ft)			1022			444				1187		
Turn Bay Length (ft)		500		550	450		250		400		300	500
Base Capacity (vph)		146	1557	572	920	2111	798		603	961	691	325
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		0.88	0.78	0.46	1.07	0.93	0.76		0.56	1.02	0.62	1.44

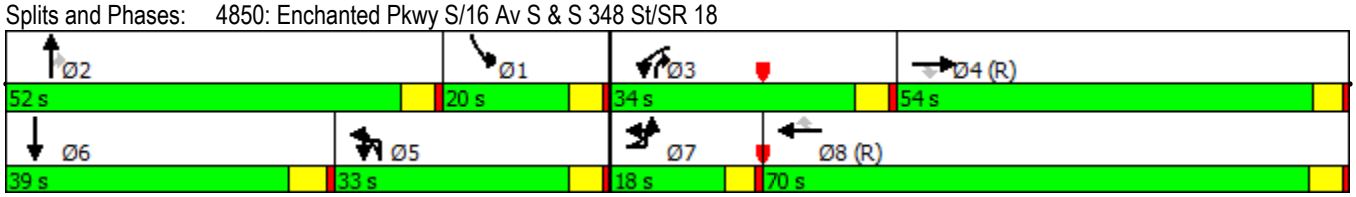
Intersection Summary

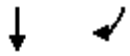
Cycle Length: 160
Actuated Cycle Length: 160
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 75.5 Intersection LOS: E
Intersection Capacity Utilization 107.1% ICU Level of Service G
Analysis Period (min) 15
Description:

~ 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.

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	834	107
Future Volume (vph)	834	107
Satd. Flow (prot)	5022	0
Flt Permitted		
Satd. Flow (perm)	5022	0
Satd. Flow (RTOR)	13	
Lane Group Flow (vph)	941	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	39.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	33.0	
Actuated g/C Ratio	0.21	
v/c Ratio	0.90	
Control Delay	73.2	
Queue Delay	0.0	
Total Delay	73.2	
LOS	E	
Approach Delay	135.5	
Approach LOS	F	
Queue Length 50th (ft)	349	
Queue Length 95th (ft)	#407	
Internal Link Dist (ft)	1310	
Turn Bay Length (ft)		
Base Capacity (vph)	1061	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.89	

Intersection Summary

Queues

4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

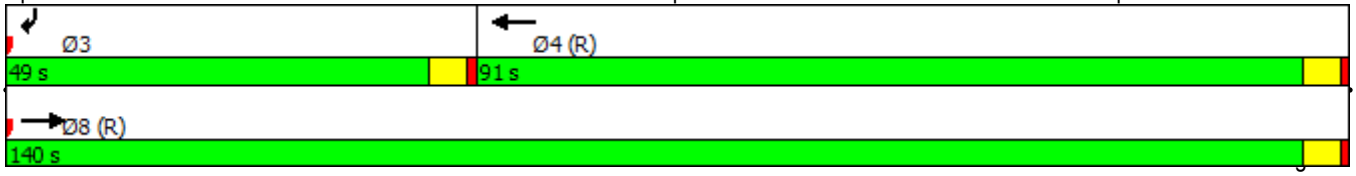
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1291
Future Volume (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1291
Satd. Flow (prot)	0	3539	0	0	3539	0	0	0	1611	0	0	3600
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	3539	0	0	0	1587	0	0	3472
Satd. Flow (RTOR)									260			16
Lane Group Flow (vph)	0	1080	0	0	2267	0	0	0	1150	0	0	1291
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Total Split (s)		140.0			91.0							49.0
Total Lost Time (s)		5.0			5.0							5.0
Act Effct Green (s)		140.0			86.0				140.0			44.0
Actuated g/C Ratio		1.00			0.61				1.00			0.31
v/c Ratio		0.31			1.04				0.72			1.13
Control Delay		0.2			58.9				2.9			113.2
Queue Delay		0.0			0.0				0.0			0.0
Total Delay		0.2			58.9				2.9			113.2
LOS		A			E				A			F
Approach Delay		0.2			58.9			2.9			113.2	
Approach LOS		A			E			A			F	
Queue Length 50th (ft)		0			~1173				0			~593
Queue Length 95th (ft)		0			#1303				0			#712
Internal Link Dist (ft)		517			1126			463			420	
Turn Bay Length (ft)												
Base Capacity (vph)		3539			2173				1587			1142
Starvation Cap Reductn		0			0				0			0
Spillback Cap Reductn		0			0				0			0
Storage Cap Reductn		0			0				0			0
Reduced v/c Ratio		0.31			1.04				0.72			1.13

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:WBT and 8:EBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 48.9	Intersection LOS: D
Intersection Capacity Utilization 102.1%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.

Splits and Phases: 4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

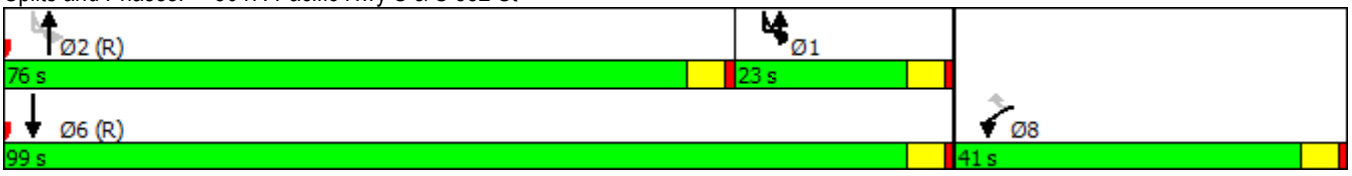


Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	148	90	872	44	13	82	1594
Future Volume (vph)	148	90	872	44	13	82	1594
Satd. Flow (prot)	1770	1583	4999	0	0	1787	5136
Flt Permitted	0.950					0.279	
Satd. Flow (perm)	1770	1583	4999	0	0	525	5136
Satd. Flow (RTOR)		90	8				
Lane Group Flow (vph)	148	90	916	0	0	95	1594
Turn Type	Prot	Perm	NA		D.P+P	D.P+P	NA
Protected Phases	8		2		1	1	6
Permitted Phases		8			2	2	
Total Split (s)	41.0	41.0	76.0		23.0	23.0	99.0
Total Lost Time (s)	5.0	5.0	5.0			5.0	5.0
Act Effct Green (s)	16.1	16.1	90.9			108.9	113.9
Actuated g/C Ratio	0.12	0.12	0.65			0.78	0.81
v/c Ratio	0.73	0.34	0.28			0.17	0.38
Control Delay	63.4	11.2	11.3			2.9	2.9
Queue Delay	0.0	0.0	0.0			0.0	0.0
Total Delay	63.4	11.2	11.3			2.9	2.9
LOS	E	B	B			A	A
Approach Delay	43.7		11.3				2.9
Approach LOS	D		B				A
Queue Length 50th (ft)	139	3	122			4	21
Queue Length 95th (ft)	215	m30	m126			m16	m302
Internal Link Dist (ft)	1538		1299				1351
Turn Bay Length (ft)	100					250	
Base Capacity (vph)	455	473	3249			570	4179
Starvation Cap Reductn	0	0	0			0	0
Spillback Cap Reductn	0	0	0			0	0
Storage Cap Reductn	0	0	0			0	0
Reduced v/c Ratio	0.33	0.19	0.28			0.17	0.38

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 9.0 Intersection LOS: A
Intersection Capacity Utilization 47.3% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5047: Pacific Hwy S & S 352 St



Queues
5050: Enchanted Pkwy S & S 352 St

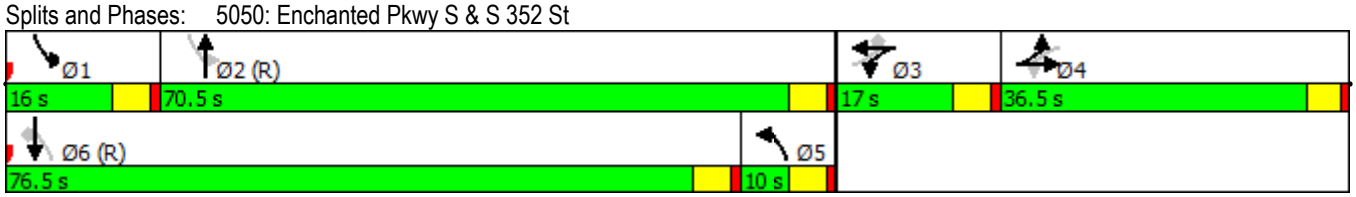
10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	46	54	231	97	248	57	1069	211	176	1416	108
Future Volume (vph)	55	46	54	231	97	248	57	1069	211	176	1416	108
Satd. Flow (prot)	1747	1680	0	1852	1965	1657	1770	3411	0	1761	3507	1575
Flt Permitted	0.609			0.615			0.119			0.136		
Satd. Flow (perm)	1107	1680	0	1185	1965	1575	222	3411	0	252	3507	1497
Satd. Flow (RTOR)		39				248		22				90
Lane Group Flow (vph)	55	100	0	231	97	248	57	1280	0	176	1416	108
Turn Type	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases	3			4		3	6			2		6
Total Split (s)	36.5	36.5		17.0	17.0	17.0	10.0	70.5		16.0	76.5	76.5
Total Lost Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	27.6	16.1		26.6	11.0	11.0	92.4	81.1		91.4	88.4	88.4
Actuated g/C Ratio	0.20	0.12		0.19	0.08	0.08	0.66	0.58		0.65	0.63	0.63
v/c Ratio	0.19	0.44		0.83	0.63	0.70	0.28	0.64		0.64	0.64	0.11
Control Delay	30.2	27.9		71.7	81.0	18.6	19.3	23.9		22.9	20.7	4.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.2	27.9		71.7	81.0	18.6	19.3	23.9		22.9	20.7	4.8
LOS	C	C		E	F	B	B	C		C	C	A
Approach Delay		28.7			50.4			23.7			19.9	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)	38	52		~219	87	0	12	337		41	347	5
Queue Length 95th (ft)	59	82		234	#158	88	42	599		#126	640	40
Internal Link Dist (ft)		1538			420			848			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	477	402		277	154	352	201	1985		284	2213	977
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	0.12	0.25		0.83	0.63	0.70	0.28	0.64		0.62	0.64	0.11

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 119 (85%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15
Description:
~ 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.

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St

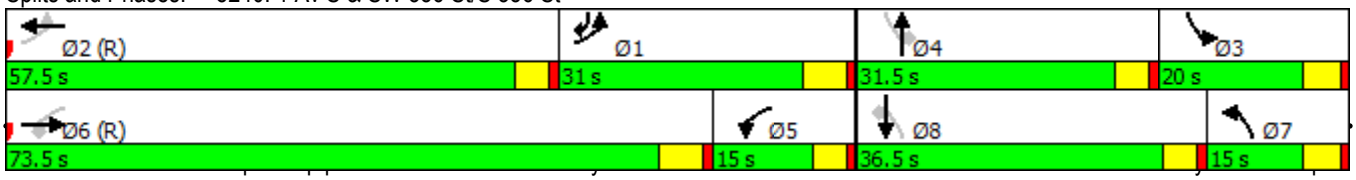


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	508	33	52	768	133	18	39	21	300	50	671
Future Volume (vph)	164	508	33	52	768	133	18	39	21	300	50	671
Satd. Flow (prot)	1791	1900	1615	1725	3337	0	1729	1820	1560	1761	1853	1563
Flt Permitted	0.196			0.322			0.724			0.732		
Satd. Flow (perm)	369	1900	1530	585	3337	0	1297	1820	1489	1323	1853	1518
Satd. Flow (RTOR)			129		16				171			174
Lane Group Flow (vph)	164	508	33	52	901	0	18	39	21	300	50	671
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6			8		4	4		8
Total Split (s)	31.0	73.5	73.5	15.0	57.5		15.0	31.5	31.5	20.0	36.5	31.0
Total Lost Time (s)	5.5	5.5	5.5	4.5	4.5		5.0	4.5	4.5	5.0	4.5	5.5
Act Effct Green (s)	90.2	73.0	73.0	93.1	65.7		31.8	14.5	14.5	29.8	27.0	51.5
Actuated g/C Ratio	0.64	0.52	0.52	0.66	0.47		0.23	0.10	0.10	0.21	0.19	0.37
v/c Ratio	0.33	0.51	0.04	0.09	0.57		0.06	0.21	0.07	0.90	0.14	0.99
Control Delay	19.8	28.3	0.1	7.6	22.7		36.5	55.2	0.4	71.1	49.2	68.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	28.3	0.1	7.6	22.7		36.5	55.2	0.4	71.1	49.2	68.3
LOS	B	C	A	A	C		D	E	A	E	D	E
Approach Delay		25.0			21.8			36.1			68.2	
Approach LOS		C			C			D			E	
Queue Length 50th (ft)	48	326	0	6	231		13	35	0	151	25	310
Queue Length 95th (ft)	100	494	0	m29	497		30	64	0	m158	m40	m#698
Internal Link Dist (ft)		2555			297			560			529	
Turn Bay Length (ft)	150			125			150		150	150		200
Base Capacity (vph)	496	1038	895	561	1575		330	351	425	352	429	676
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	0.33	0.49	0.04	0.09	0.57		0.05	0.11	0.05	0.85	0.12	0.99

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 40.2 Intersection LOS: D
Intersection Capacity Utilization 84.9% ICU Level of Service E
Analysis Period (min) 15
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.

Splits and Phases: 5240: 1 Av S & SW 356 St/S 356 St



Queues
5246: Pacific Hwy S & S 356 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	258	288	303	244	446	40	2	199	675	81	2	80
Future Volume (vph)	258	288	303	244	446	40	2	199	675	81	2	80
Satd. Flow (prot)	1764	3557	1579	1782	3592	1594	0	3399	4924	0	0	1787
Flt Permitted	0.950			0.950				0.950				0.296
Satd. Flow (perm)	1752	3557	1537	1764	3592	1555	0	3380	4924	0	0	552
Satd. Flow (RTOR)			152			160			16			
Lane Group Flow (vph)	258	288	303	244	446	40	0	201	756	0	0	82
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA		custom	Prot
Protected Phases	7	4		3	8		5	5	2			1
Permitted Phases			4			8					1	
Total Split (s)	21.0	47.0	47.0	22.0	48.0	48.0	15.0	15.0	52.0		19.0	19.0
Total Lost Time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Act Effct Green (s)	14.0	21.5	21.5	17.6	24.2	23.2		10.5	66.3			13.5
Actuated g/C Ratio	0.10	0.15	0.15	0.13	0.17	0.17		0.08	0.47			0.10
v/c Ratio	1.47	0.53	0.83	1.09	0.72	0.10		0.79	0.32			1.55
Control Delay	271.2	43.7	39.6	141.9	61.0	0.5		85.4	23.7			362.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
Total Delay	271.2	43.7	39.6	141.9	61.0	0.5		85.4	23.7			362.4
LOS	F	D	D	F	E	A		F	C			F
Approach Delay		111.4			84.7				36.7			
Approach LOS		F			F				D			
Queue Length 50th (ft)	~325	136	187	~254	207	0		94	147			~106
Queue Length 95th (ft)	m#463	m116	m174	#444	241	0		#155	210			#223
Internal Link Dist (ft)		1184			2007				675			
Turn Bay Length (ft)	400		175	100		50		225				250
Base Capacity (vph)	176	1067	567	224	1103	578		254	2341			53
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	1.47	0.27	0.53	1.09	0.40	0.07		0.79	0.32			1.55

Intersection Summary

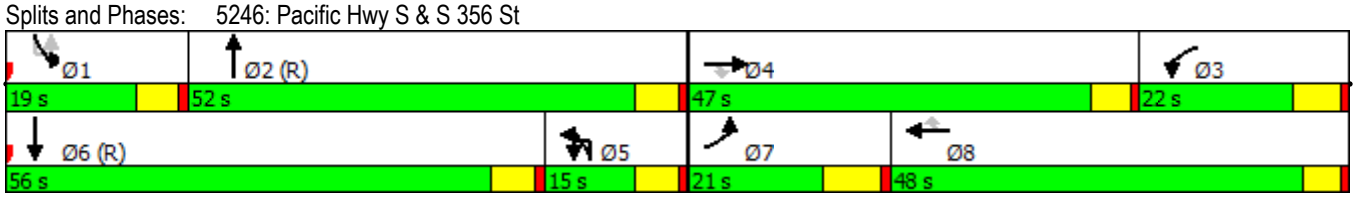
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.55
Intersection Signal Delay: 62.1 Intersection LOS: E
Intersection Capacity Utilization 91.9% ICU Level of Service F
Analysis Period (min) 15

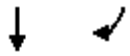
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 5246: Pacific Hwy S & S 356 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1445	270
Future Volume (vph)	1445	270
Satd. Flow (prot)	4976	0
Flt Permitted		
Satd. Flow (perm)	4976	0
Satd. Flow (RTOR)	30	
Lane Group Flow (vph)	1715	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	56.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	69.3	
Actuated g/C Ratio	0.50	
v/c Ratio	0.69	
Control Delay	27.9	
Queue Delay	0.0	
Total Delay	27.9	
LOS	C	
Approach Delay	43.1	
Approach LOS	D	
Queue Length 50th (ft)	308	
Queue Length 95th (ft)	517	
Internal Link Dist (ft)	1299	
Turn Bay Length (ft)		
Base Capacity (vph)	2479	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.69	

Intersection Summary

Queues
5250: S 356 St

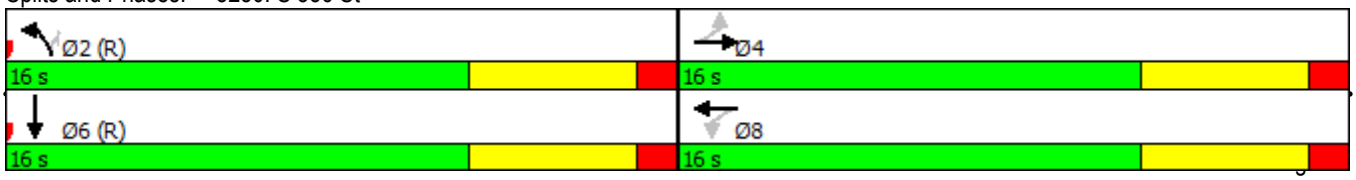
10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	489	20	56	469	0	20	0	57	0	126	419
Future Volume (vph)	0	489	20	56	469	0	20	0	57	0	126	419
Satd. Flow (prot)	0	3518	0	0	3522	0	1770	0	1583	0	1669	0
Flt Permitted					0.843		0.950					
Satd. Flow (perm)	0	3518	0	0	2984	0	1770	0	1583	0	1669	0
Satd. Flow (RTOR)		14							68		182	
Lane Group Flow (vph)	0	509	0	0	525	0	20	0	57	0	545	0
Turn Type		NA		Perm	NA		Prot		Perm		NA	
Protected Phases		4			8		2!				6!	
Permitted Phases	4			8					2			
Total Split (s)	16.0	16.0		16.0	16.0		16.0		16.0		16.0	
Total Lost Time (s)		5.0			5.0		5.0		5.0		5.0	
Act Effct Green (s)		9.4			9.4		12.6		12.6		12.6	
Actuated g/C Ratio		0.29			0.29		0.39		0.39		0.39	
v/c Ratio		0.49			0.60		0.03		0.09		0.71	
Control Delay		10.4			12.4		7.0		2.7		14.1	
Queue Delay		0.0			0.7		0.0		0.0		0.0	
Total Delay		10.4			13.1		7.0		2.7		14.1	
LOS		B			B		A		A		B	
Approach Delay		10.4			13.1			3.8			14.1	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)		34			37		2		0		44	
Queue Length 95th (ft)		53			60		9		10		#161	
Internal Link Dist (ft)		2007			91			918			335	
Turn Bay Length (ft)									250			
Base Capacity (vph)		1218			1025		694		662		765	
Starvation Cap Reductn		0			214		0		0		0	
Spillback Cap Reductn		0			0		0		0		0	
Storage Cap Reductn		0			0		0		0		0	
Reduced v/c Ratio		0.42			0.65		0.03		0.09		0.71	

Intersection Summary

Cycle Length: 32
Actuated Cycle Length: 32
Offset: 0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 73.7% ICU Level of Service D
Analysis Period (min) 15
Description: Analyze as ROUNDABOUT
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 5250: S 356 St

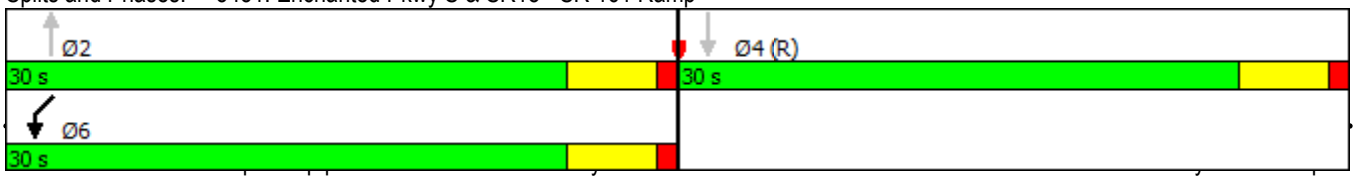


Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	925	0	0	1383	411	555
Future Volume (vph)	925	0	0	1383	411	555
Satd. Flow (prot)	3543	0	0	3560	3221	0
Flt Permitted					0.979	
Satd. Flow (perm)	3543	0	0	3560	3221	0
Satd. Flow (RTOR)					555	
Lane Group Flow (vph)	925	0	0	1383	966	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Total Split (s)	30.0			30.0	30.0	
Total Lost Time (s)	5.0			5.0	5.0	
Act Effct Green (s)	25.0			25.0	25.0	
Actuated g/C Ratio	0.42			0.42	0.42	
v/c Ratio	0.63			0.93	0.58	
Control Delay	16.2			30.5	6.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	16.2			30.5	6.9	
LOS	B			C	A	
Approach Delay	16.2			30.5	6.9	
Approach LOS	B			C	A	
Queue Length 50th (ft)	132			240	48	
Queue Length 95th (ft)	188			#380	93	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	1476			1483	1665	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.63			0.93	0.58	

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 47.5 (79%), Referenced to phase 4:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15
Description: WSDOT 2013-03-19
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

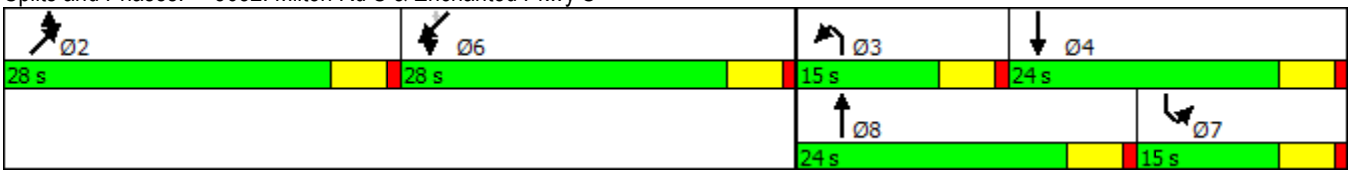


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	18	660	18	141	1168	430	150	47	42	21	96	163
Future Volume (vph)	18	660	18	141	1168	430	150	47	42	21	96	163
Satd. Flow (prot)	1743	3453	0	1787	3361	0	1712	1657	0	0	1828	1555
Flt Permitted	0.950			0.950			0.950				0.991	
Satd. Flow (perm)	1735	3453	0	1757	3361	0	1674	1657	0	0	1820	1497
Satd. Flow (RTOR)		3			50			42				195
Lane Group Flow (vph)	18	678	0	141	1598	0	150	89	0	0	117	163
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Total Split (s)	15.0	24.0		15.0	24.0		28.0	28.0		28.0	28.0	28.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Act Effct Green (s)	5.6	18.5		9.0	30.5		10.3	10.3			8.8	8.8
Actuated g/C Ratio	0.08	0.28		0.13	0.46		0.15	0.15			0.13	0.13
v/c Ratio	0.12	0.71		0.59	1.02		0.57	0.31			0.49	0.45
Control Delay	33.6	28.1		40.3	50.6		36.2	18.8			35.5	7.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	33.6	28.1		40.3	50.6		36.2	18.8			35.5	7.3
LOS	C	C		D	D		D	B			D	A
Approach Delay		28.3			49.8			29.7			19.1	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)	7	132		55	301		59	17			46	0
Queue Length 95th (ft)	27	#232		#134	#721		118	57			98	34
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	264	998		271	1560		597	605			638	649
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	0.07	0.68		0.52	1.02		0.25	0.15			0.18	0.25

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 66.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 40.2	Intersection LOS: D
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S

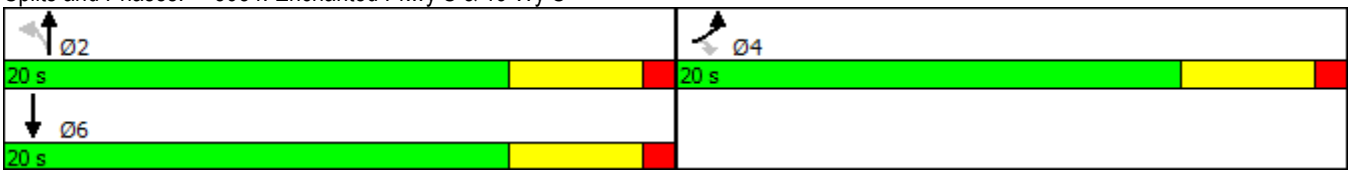


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	27	43	630	1189	75
Future Volume (vph)	34	27	43	630	1189	75
Satd. Flow (prot)	1755	1571	1778	3543	3468	0
Flt Permitted	0.950		0.263			
Satd. Flow (perm)	1736	1535	491	3543	3468	0
Satd. Flow (RTOR)		13			18	
Lane Group Flow (vph)	34	27	43	630	1264	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	6.3	6.3	19.2	19.2	19.2	
Actuated g/C Ratio	0.26	0.26	0.78	0.78	0.78	
v/c Ratio	0.08	0.07	0.11	0.23	0.47	
Control Delay	9.3	7.3	6.0	3.8	6.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.3	7.3	6.0	3.8	6.7	
LOS	A	A	A	A	A	
Approach Delay	8.4			4.0	6.7	
Approach LOS	A			A	A	
Queue Length 50th (ft)	2	1	0	0	0	
Queue Length 95th (ft)	16	12	19	67	#214	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100	200			
Base Capacity (vph)	1258	1104	352	2539	2491	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.03	0.02	0.12	0.25	0.51	

Intersection Summary	
Cycle Length: 40	
Actuated Cycle Length: 24.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 5.9	Intersection LOS: A
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S



2040 NO BUILD

Queues
251: Pacific Hwy S & S 276 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	51	1	75	39	5	118	23	42	955	9	77	17
Future Volume (vph)	51	1	75	39	5	118	23	42	955	9	77	17
Satd. Flow (prot)	1727	1551	0	1596	1534	0	0	1805	5131	0	0	1748
Flt Permitted	0.484			0.633				0.950				0.276
Satd. Flow (perm)	873	1551	0	1022	1534	0	0	1801	5131	0	0	503
Satd. Flow (RTOR)		55			118				2			
Lane Group Flow (vph)	51	76	0	39	123	0	0	65	964	0	0	94
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	22.0	22.0		22.0	22.0		19.0	19.0	103.0		15.0	15.0
Total Lost Time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Act Effct Green (s)	12.2	12.2		10.7	10.7			9.5	105.8			113.3
Actuated g/C Ratio	0.09	0.09		0.08	0.08			0.07	0.76			0.81
v/c Ratio	0.68	0.41		0.51	0.55			0.54	0.25			0.20
Control Delay	100.0	28.0		81.8	20.2			78.0	16.2			3.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	100.0	28.0		81.8	20.2			78.0	16.2			3.8
LOS	F	C		F	C			E	B			A
Approach Delay		56.9			35.0				20.1			
Approach LOS		E			D				C			
Queue Length 50th (ft)	46	18		35	4			50	210			10
Queue Length 95th (ft)	91	67		73	66			m62	m226			25
Internal Link Dist (ft)		107			863				909			
Turn Bay Length (ft)	25			200				175				275
Base Capacity (vph)	109	242		116	279			167	3876			506
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.47	0.31		0.34	0.44			0.39	0.25			0.19

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 15.7 Intersection LOS: B
Intersection Capacity Utilization 95.2% ICU Level of Service F
Analysis Period (min) 15
Description:
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: Pacific Hwy S & S 276 St

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2297	67
Future Volume (vph)	2297	67
Satd. Flow (prot)	4986	0
Flt Permitted		
Satd. Flow (perm)	4986	0
Satd. Flow (RTOR)	7	
Lane Group Flow (vph)	2364	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	99.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	105.2	
Actuated g/C Ratio	0.75	
v/c Ratio	0.63	
Control Delay	10.7	
Queue Delay	0.0	
Total Delay	10.7	
LOS	B	
Approach Delay	10.5	
Approach LOS	B	
Queue Length 50th (ft)	347	
Queue Length 95th (ft)	506	
Internal Link Dist (ft)	1335	
Turn Bay Length (ft)		
Base Capacity (vph)	3747	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.63	

Intersection Summary

Queues
1050: Pacific Hwy S & S 288 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
Future Volume (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
Satd. Flow (prot)	0	3426	0	1711	1728	1631	0	1787	4492	1375	0	3318
Flt Permitted		0.990		0.950	0.957			0.950				0.950
Satd. Flow (perm)	0	3426	0	1711	1728	1585	0	1787	4492	1307	0	3318
Satd. Flow (RTOR)						182			91	435		
Lane Group Flow (vph)	0	188	0	620	632	271	0	48	1271	435	0	637
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8				2		
Total Split (s)	15.0	15.0		52.0	52.0	52.0	15.0	15.0	42.0	42.0	31.0	31.0
Total Lost Time (s)		6.0		5.5	5.5	5.5		5.5	5.5	7.0		5.0
Act Effct Green (s)		8.8		46.5	46.5	46.5		8.1	36.7	35.2		26.0
Actuated g/C Ratio		0.06		0.33	0.33	0.33		0.06	0.26	0.25		0.19
v/c Ratio		0.87		1.09	1.10	0.42		0.47	1.02	0.67		1.03
Control Delay		99.6		108.8	112.3	13.9		46.9	67.6	18.3		93.1
Queue Delay		0.0		5.7	2.4	0.7		0.0	0.0	0.0		0.0
Total Delay		99.6		114.5	114.7	14.6		46.9	67.6	18.3		93.1
LOS		F		F	F	B		D	E	B		F
Approach Delay		99.6			96.8				54.8			
Approach LOS		F			F				D			
Queue Length 50th (ft)		91		~668	~686	57		36	~286	255		~321
Queue Length 95th (ft)		#161		#916	#936	137		m68	#536	m83		m#437
Internal Link Dist (ft)		420			339				2705			
Turn Bay Length (ft)				225				325				450
Base Capacity (vph)		220		568	573	647		121	1243	654		616
Starvation Cap Reductn		0		141	144	155		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		0.85		1.45	1.47	0.55		0.40	1.02	0.67		1.03

Intersection Summary

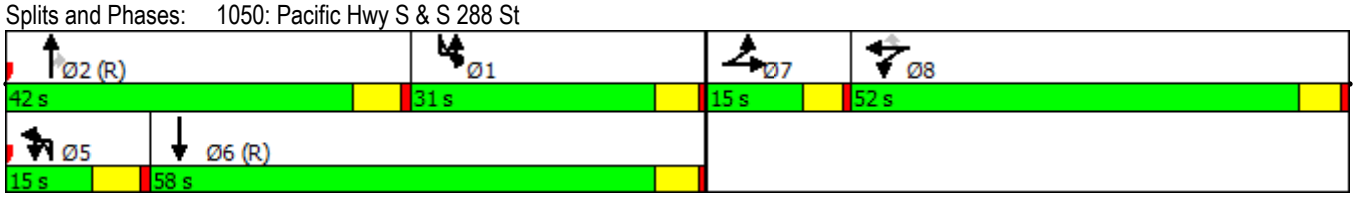
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 34 (24%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 73.1 Intersection LOS: E
Intersection Capacity Utilization 103.2% ICU Level of Service G
Analysis Period (min) 15

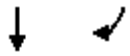
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1050: Pacific Hwy S & S 288 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1874	185
Future Volume (vph)	1874	185
Satd. Flow (prot)	4921	0
Flt Permitted		
Satd. Flow (perm)	4921	0
Satd. Flow (RTOR)	13	
Lane Group Flow (vph)	2059	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	58.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	56.8	
Actuated g/C Ratio	0.41	
v/c Ratio	1.03	
Control Delay	62.6	
Queue Delay	0.0	
Total Delay	62.6	
LOS	E	
Approach Delay	69.8	
Approach LOS	E	
Queue Length 50th (ft)	~768	
Queue Length 95th (ft)	m#856	
Internal Link Dist (ft)	1437	
Turn Bay Length (ft)		
Base Capacity (vph)	2003	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.03	

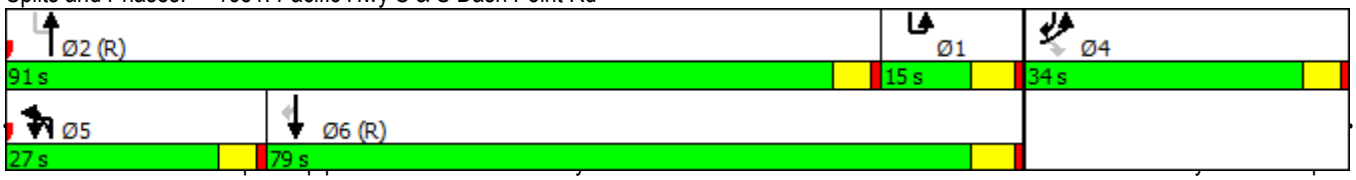
Intersection Summary

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	562	90	90	431	1253	42	1955	1138
Future Volume (vph)	562	90	90	431	1253	42	1955	1138
Satd. Flow (prot)	3311	1541	0	3467	5095	1753	4666	1382
Flt Permitted	0.950			0.950		0.181		
Satd. Flow (perm)	3311	1482	0	3464	5095	334	4666	1350
Satd. Flow (RTOR)		90					48	22
Lane Group Flow (vph)	562	90	0	521	1253	42	2387	706
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Total Split (s)	34.0	34.0	27.0	27.0	91.0	15.0	79.0	34.0
Total Lost Time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Act Effct Green (s)	27.2	27.2		22.0	91.3	97.9	75.8	103.0
Actuated g/C Ratio	0.19	0.19		0.16	0.65	0.70	0.54	0.74
v/c Ratio	0.87	0.25		0.96	0.38	0.13	0.94	0.70
Control Delay	69.9	10.5		64.7	14.5	3.7	29.7	13.4
Queue Delay	51.2	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	121.1	10.5		64.7	14.5	3.7	29.7	13.4
LOS	F	B		E	B	A	C	B
Approach Delay	105.9				29.3		25.7	
Approach LOS	F				C		C	
Queue Length 50th (ft)	254	0		210	381	7	733	344
Queue Length 95th (ft)	324	47		m#346	300	m6	m648	m333
Internal Link Dist (ft)	244				640		2705	
Turn Bay Length (ft)	75			400		250		650
Base Capacity (vph)	685	378		544	3321	329	2547	1022
Starvation Cap Reductn	181	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	1.12	0.24		0.96	0.38	0.13	0.94	0.69

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 97.9% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 1651: Pacific Hwy S & S Dash Point Rd

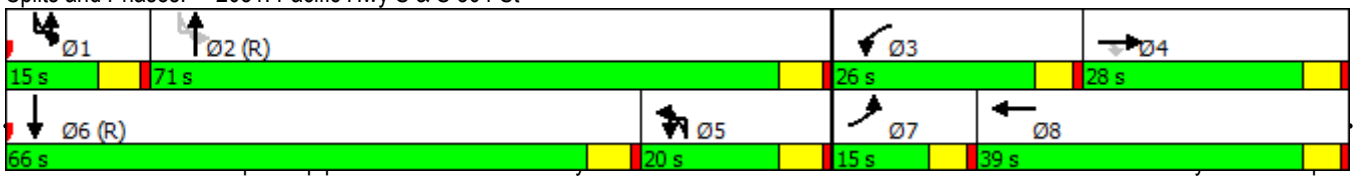


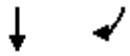
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	29	77	282	408	303	65	82	79	1475	167	5	32
Future Volume (vph)	29	77	282	408	303	65	82	79	1475	167	5	32
Satd. Flow (prot)	1762	1837	1505	3320	1721	0	0	1778	4984	0	0	1752
Flt Permitted	0.950			0.950				0.950				0.091
Satd. Flow (perm)	1757	1837	1471	3320	1721	0	0	1774	4984	0	0	168
Satd. Flow (RTOR)			183		7				19			
Lane Group Flow (vph)	29	77	282	408	368	0	0	161	1642	0	0	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4								2	2
Total Split (s)	15.0	28.0	28.0	26.0	39.0		20.0	20.0	71.0		15.0	15.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			5.5	5.5			5.5
Act Effct Green (s)	5.9	14.9	14.9	18.9	32.1			14.5	79.5			84.2
Actuated g/C Ratio	0.04	0.11	0.11	0.14	0.23			0.10	0.57			0.60
v/c Ratio	0.39	0.39	0.88	0.91	0.92			0.88	0.58			0.22
Control Delay	79.8	61.9	48.5	84.3	80.5			112.7	34.9			4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	79.8	61.9	48.5	84.3	80.5			112.7	34.9			4.6
LOS	E	E	D	F	F			F	C			A
Approach Delay		53.5			82.5				41.9			
Approach LOS		D			F				D			
Queue Length 50th (ft)	26	64	89	189	322			156	564			4
Queue Length 95th (ft)	61	113	196	#273	#500			m#288	615			m6
Internal Link Dist (ft)		218			1954				1274			
Turn Bay Length (ft)	100			100				300				275
Base Capacity (vph)	113	288	385	474	415			184	2837			212
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	0.26	0.27	0.73	0.86	0.89			0.88	0.58			0.17

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 46 (33%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 36.1 Intersection LOS: D
Intersection Capacity Utilization 99.1% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2051: Pacific Hwy S & S 304 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1921	87
Future Volume (vph)	1921	87
Satd. Flow (prot)	4929	0
Flt Permitted		
Satd. Flow (perm)	4929	0
Satd. Flow (RTOR)	6	
Lane Group Flow (vph)	2008	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	66.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	68.6	
Actuated g/C Ratio	0.49	
v/c Ratio	0.83	
Control Delay	10.3	
Queue Delay	0.0	
Total Delay	10.3	
LOS	B	
Approach Delay	10.2	
Approach LOS	B	
Queue Length 50th (ft)	336	
Queue Length 95th (ft)	m#563	
Internal Link Dist (ft)	1451	
Turn Bay Length (ft)		
Base Capacity (vph)	2418	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.83	

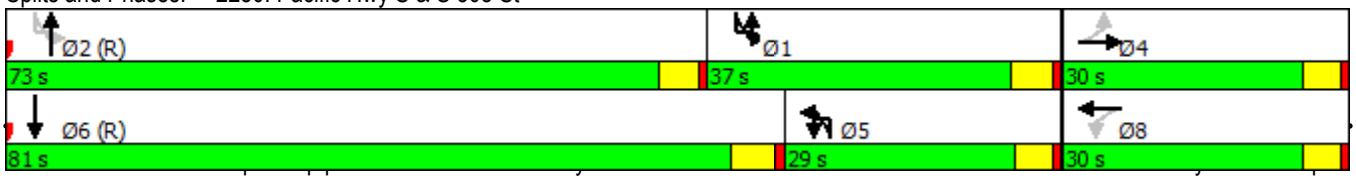
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
Future Volume (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
Satd. Flow (prot)	1693	1723	0	1708	1786	0	0	1761	5009	0	0	1796
Flt Permitted	0.528			0.580				0.950				0.104
Satd. Flow (perm)	939	1723	0	1028	1786	0	0	1761	5009	0	0	197
Satd. Flow (RTOR)		59			63				2			
Lane Group Flow (vph)	112	119	0	32	134	0	0	204	1576	0	0	330
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	30.0	30.0		30.0	30.0		29.0	29.0	73.0		37.0	37.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	5.0			5.5
Act Effct Green (s)	17.9	17.9		17.9	17.9			19.7	78.5			105.1
Actuated g/C Ratio	0.13	0.13		0.13	0.13			0.14	0.56			0.75
v/c Ratio	0.94	0.44		0.24	0.48			0.83	0.56			0.72
Control Delay	126.8	32.8		57.0	34.3			71.5	33.8			34.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	126.8	32.8		57.0	34.3			71.5	33.8			34.0
LOS	F	C		E	C			E	C			C
Approach Delay		78.4			38.7				38.1			
Approach LOS		E			D				D			
Queue Length 50th (ft)	102	50		26	59			150	484			114
Queue Length 95th (ft)	#188	109		58	122			m157	m517			m192
Internal Link Dist (ft)		309			353				582			
Turn Bay Length (ft)								300				275
Base Capacity (vph)	160	344		176	358			301	2808			514
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.70	0.35		0.18	0.37			0.68	0.56			0.64

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 37.9 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2250: Pacific Hwy S & S 308 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1989	406
Future Volume (vph)	1989	406
Satd. Flow (prot)	4958	0
Flt Permitted		
Satd. Flow (perm)	4958	0
Satd. Flow (RTOR)	48	
Lane Group Flow (vph)	2395	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	81.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	86.0	
Actuated g/C Ratio	0.61	
v/c Ratio	0.78	
Control Delay	34.2	
Queue Delay	0.0	
Total Delay	34.2	
LOS	C	
Approach Delay	34.2	
Approach LOS	C	
Queue Length 50th (ft)	696	
Queue Length 95th (ft)	806	
Internal Link Dist (ft)	1274	
Turn Bay Length (ft)		
Base Capacity (vph)	3063	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.78	

Intersection Summary

Queues
2550: Pacific Hwy S & S 312 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
Future Volume (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
Satd. Flow (prot)	3408	3424	1566	1759	3357	0	0	3439	5005	0	0	1773
Flt Permitted	0.082			0.301				0.950				0.950
Satd. Flow (perm)	294	3424	1488	553	3357	0	0	3429	5005	0	0	1750
Satd. Flow (RTOR)			199		8				7			
Lane Group Flow (vph)	404	590	230	220	1339	0	0	454	1231	0	0	256
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4								
Total Split (s)	16.0	48.0	48.0	23.0	55.0		22.0	22.0	43.0		26.0	26.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.5			5.0	5.0			5.0
Act Effct Green (s)	60.0	45.8	45.8	60.0	48.5			17.0	38.0			21.0
Actuated g/C Ratio	0.43	0.33	0.33	0.43	0.35			0.12	0.27			0.15
v/c Ratio	1.13	0.53	0.37	0.62	1.15			1.09	0.90			0.97
Control Delay	118.8	41.0	9.1	31.1	117.5			97.1	40.2			96.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	118.8	41.0	9.1	31.1	117.5			97.1	40.2			96.5
LOS	F	D	A	C	F			F	D			F
Approach Delay		60.6			105.3				55.5			
Approach LOS		E			F				E			
Queue Length 50th (ft)	~167	230	20	120	~750			~230	430			245
Queue Length 95th (ft)	#276	303	89	179	#892			m#337	m#479			m#380
Internal Link Dist (ft)		596			551				1258			
Turn Bay Length (ft)	225			275				450				225
Base Capacity (vph)	359	1119	620	400	1168			417	1363			265
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	1.13	0.53	0.37	0.55	1.15			1.09	0.90			0.97

Intersection Summary

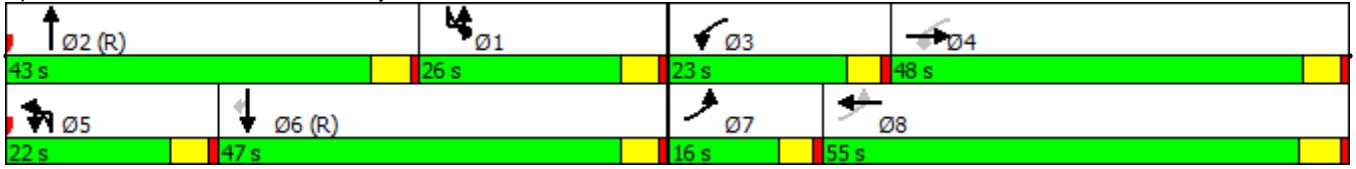
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 60 (43%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 79.9 Intersection LOS: E
Intersection Capacity Utilization 111.6% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 2550: Pacific Hwy S & S 312 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1294	719
Future Volume (vph)	1294	719
Satd. Flow (prot)	4631	1353
Flt Permitted		
Satd. Flow (perm)	4631	1232
Satd. Flow (RTOR)	29	175
Lane Group Flow (vph)	1560	453
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Total Split (s)	47.0	47.0
Total Lost Time (s)	5.0	6.0
Act Effct Green (s)	42.0	41.0
Actuated g/C Ratio	0.30	0.29
v/c Ratio	1.11	0.94
Control Delay	100.8	54.6
Queue Delay	0.0	0.0
Total Delay	100.8	54.6
LOS	F	D
Approach Delay	91.1	
Approach LOS	F	
Queue Length 50th (ft)	~633	367
Queue Length 95th (ft)	#734	#590
Internal Link Dist (ft)	580	
Turn Bay Length (ft)		225
Base Capacity (vph)	1409	484
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.11	0.94

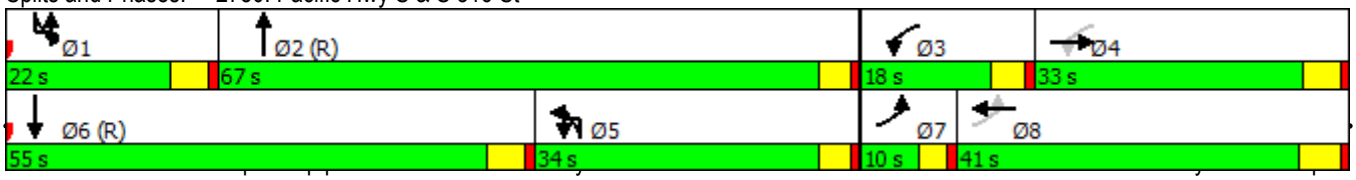
Intersection Summary

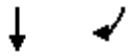
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	79	101	191	215	281	132	87	266	1569	102	46	109
Future Volume (vph)	79	101	191	215	281	132	87	266	1569	102	46	109
Satd. Flow (prot)	1762	1554	0	1708	1664	0	0	1769	4961	0	0	1737
Flt Permitted	0.143			0.236				0.950				0.950
Satd. Flow (perm)	264	1554	0	419	1664	0	0	1761	4961	0	0	1731
Satd. Flow (RTOR)		60			16				9			
Lane Group Flow (vph)	79	292	0	215	413	0	0	353	1671	0	0	155
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	10.0	33.0		18.0	41.0		34.0	34.0	67.0		22.0	22.0
Total Lost Time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Act Effct Green (s)	40.8	26.8		39.8	34.3			29.5	64.5			15.3
Actuated g/C Ratio	0.29	0.19		0.28	0.24			0.21	0.46			0.11
v/c Ratio	0.61	0.85		0.92	0.98			0.95	0.73			0.82
Control Delay	56.0	65.2		81.4	90.1			44.5	8.2			76.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	56.0	65.2		81.4	90.1			44.5	8.2			76.0
LOS	E	E		F	F			D	A			E
Approach Delay		63.2			87.1				14.5			
Approach LOS		E			F				B			
Queue Length 50th (ft)	51	209		151	364			237	100			115
Queue Length 95th (ft)	#99	#366		#271	#584			m#285	m110			m128
Internal Link Dist (ft)		283			1233				1221			
Turn Bay Length (ft)	150			300				450				250
Base Capacity (vph)	130	348		233	422			372	2288			210
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.61	0.84		0.92	0.98			0.95	0.73			0.74

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 112 (80%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 107.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 2750: Pacific Hwy S & S 316 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1508	200
Future Volume (vph)	1508	200
Satd. Flow (prot)	4963	0
Flt Permitted		
Satd. Flow (perm)	4963	0
Satd. Flow (RTOR)	19	
Lane Group Flow (vph)	1708	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	55.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	50.2	
Actuated g/C Ratio	0.36	
v/c Ratio	0.95	
Control Delay	27.2	
Queue Delay	0.0	
Total Delay	27.2	
LOS	C	
Approach Delay	31.2	
Approach LOS	C	
Queue Length 50th (ft)	553	
Queue Length 95th (ft)	m541	
Internal Link Dist (ft)	1258	
Turn Bay Length (ft)		
Base Capacity (vph)	1793	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.95	

Intersection Summary

Queues
3050: Pacific Hwy S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	47	282	1169	142	27	578	1581	393	33	331	1275	275
Future Volume (vph)	47	282	1169	142	27	578	1581	393	33	331	1275	275
Satd. Flow (prot)	0	3536	5114	0	0	3433	5031	1583	0	3344	5034	1542
Flt Permitted		0.950				0.950				0.950		
Satd. Flow (perm)	0	3528	5114	0	0	3420	5031	1548	0	3324	5034	1508
Satd. Flow (RTOR)			14					256				197
Lane Group Flow (vph)	0	329	1311	0	0	605	1581	393	0	364	1275	275
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2				8
Total Split (s)	19.0	19.0	41.0		30.0	30.0	52.0	52.0	27.0	27.0	40.0	40.0
Total Lost Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	6.0
Act Effct Green (s)		13.5	35.5			25.0	46.5	46.5		22.0	35.0	34.0
Actuated g/C Ratio		0.10	0.25			0.18	0.33	0.33		0.16	0.25	0.24
v/c Ratio		0.97	1.00			0.99	0.95	0.57		0.69	1.01	0.53
Control Delay		103.7	76.8			90.2	58.1	16.3		32.9	47.1	6.8
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		103.7	76.8			90.2	58.1	16.3		32.9	47.1	6.8
LOS		F	E			F	E	B		C	D	A
Approach Delay			82.2				59.2				38.6	
Approach LOS			F				E				D	
Queue Length 50th (ft)		156	~438			286	513	97		176	~293	38
Queue Length 95th (ft)		#254	#550			#411	#613	206		m176	m250	m38
Internal Link Dist (ft)			550				1139				1190	
Turn Bay Length (ft)		425				300		250		275		
Base Capacity (vph)		340	1307			613	1671	685		525	1258	515
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		0.97	1.00			0.99	0.95	0.57		0.69	1.01	0.53

Intersection Summary

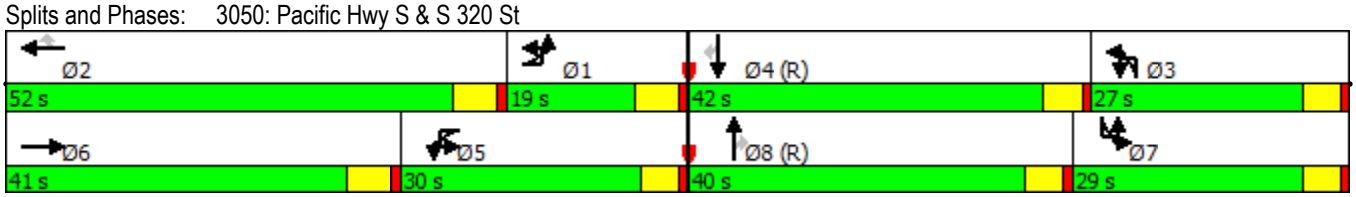
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 54.5 Intersection LOS: D
Intersection Capacity Utilization 115.9% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 3050: Pacific Hwy S & S 320 St



Lane Group	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	590	1022	211
Future Volume (vph)	20	590	1022	211
Satd. Flow (prot)	0	3440	5136	1548
Flt Permitted		0.950		
Satd. Flow (perm)	0	3427	5136	1510
Satd. Flow (RTOR)				144
Lane Group Flow (vph)	0	610	1022	211
Turn Type	Prot	Prot	NA	Perm
Protected Phases	7	7	4	
Permitted Phases				4
Total Split (s)	29.0	29.0	42.0	42.0
Total Lost Time (s)		5.0	5.0	5.0
Act Effct Green (s)		24.0	37.0	37.0
Actuated g/C Ratio		0.17	0.26	0.26
v/c Ratio		1.04	0.75	0.42
Control Delay		76.6	25.4	2.7
Queue Delay		0.0	0.0	0.0
Total Delay		76.6	25.4	2.7
LOS		E	C	A
Approach Delay			39.8	
Approach LOS			D	
Queue Length 50th (ft)		~313	209	4
Queue Length 95th (ft)		m#355	m245	m3
Internal Link Dist (ft)			1221	
Turn Bay Length (ft)		325		225
Base Capacity (vph)		589	1357	505
Starvation Cap Reductn		0	0	0
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		1.04	0.75	0.42

Intersection Summary

Queues
3055: 23 Av S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
Future Volume (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
Satd. Flow (prot)	0	3240	4871	0	3448	5185	1519	1733	1735	2739	3392	1788
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3227	4871	0	3440	5185	1476	1724	1735	2675	3369	1788
Satd. Flow (RTOR)			7				418			174		
Lane Group Flow (vph)	0	203	1787	0	309	1874	655	136	385	227	712	616
Turn Type	Prot	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases							8			2		
Total Split (s)	15.0	15.0	53.0		18.0	56.0	56.0	16.0	36.0	36.0	33.0	53.0
Total Lost Time (s)		4.5	4.5		5.5	5.5	6.5	5.0	6.0	5.5	5.0	6.0
Act Effct Green (s)		10.5	48.5		12.5	50.5	49.5	11.0	30.0	30.5	28.0	47.0
Actuated g/C Ratio		0.08	0.35		0.09	0.36	0.35	0.08	0.21	0.22	0.20	0.34
v/c Ratio		0.84	1.06		1.01	1.00	0.83	1.00	1.04	0.32	1.05	1.03
Control Delay		91.2	82.1		75.7	39.8	11.0	142.4	105.1	15.5	101.6	89.1
Queue Delay		0.0	0.0		0.0	34.9	22.5	0.0	0.0	0.0	0.0	0.0
Total Delay		91.2	82.1		75.7	74.6	33.5	142.4	105.1	15.5	101.6	89.1
LOS		F	F		E	E	C	F	F	B	F	F
Approach Delay			83.1			65.3			84.7			82.3
Approach LOS			F			E			F			F
Queue Length 50th (ft)		95	~650		~147	~523	69	~131	~383	11	~362	~597
Queue Length 95th (ft)		#163	#748		m#177	#732	m102	#274	#553	61	#489	#833
Internal Link Dist (ft)			487			460			680			931
Turn Bay Length (ft)		225			300			275			300	
Base Capacity (vph)		243	1692		307	1870	792	136	371	718	678	600
Starvation Cap Reductn		0	0		0	161	152	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		0.84	1.06		1.01	1.10	1.02	1.00	1.04	0.32	1.05	1.03

Intersection Summary

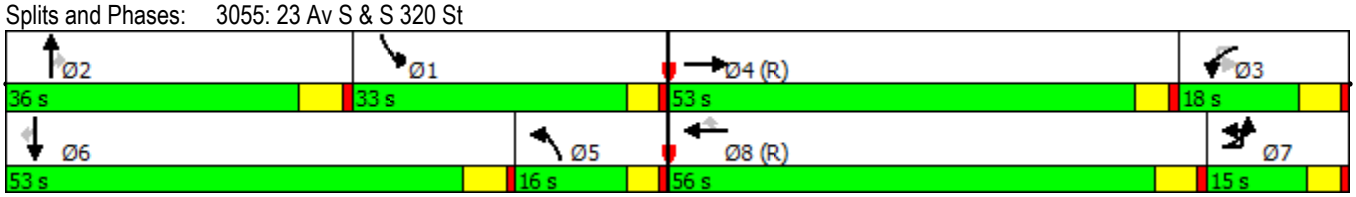
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 26 (19%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 76.1 Intersection LOS: E
Intersection Capacity Utilization 104.5% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 3055: 23 Av S & S 320 St



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	360
Future Volume (vph)	360
Satd. Flow (prot)	1558
Flt Permitted	
Satd. Flow (perm)	1522
Satd. Flow (RTOR)	108
Lane Group Flow (vph)	360
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Total Split (s)	53.0
Total Lost Time (s)	6.5
Act Effct Green (s)	46.5
Actuated g/C Ratio	0.33
v/c Ratio	0.62
Control Delay	32.4
Queue Delay	0.0
Total Delay	32.4
LOS	C
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	195
Queue Length 95th (ft)	307
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	577
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.62

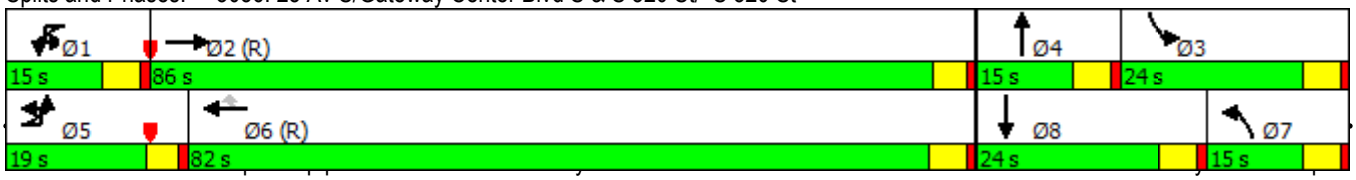
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
Future Volume (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
Satd. Flow (prot)	0	1752	4987	0	0	1778	5097	1591	1738	1569	0	3409
Flt Permitted		0.950				0.950			0.950			0.950
Satd. Flow (perm)	0	1750	4987	0	0	1774	5097	1517	1719	1569	0	3372
Satd. Flow (RTOR)			1					253		75		
Lane Group Flow (vph)	0	163	2492	0	0	52	2664	399	32	105	0	418
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6				
Total Split (s)	19.0	19.0	86.0		15.0	15.0	82.0	82.0	15.0	15.0		24.0
Total Lost Time (s)		4.5	4.5			5.0	5.0	6.0	6.0	6.0		6.0
Act Effct Green (s)		14.2	87.0			8.0	78.8	77.8	9.5	6.4		19.0
Actuated g/C Ratio		0.10	0.62			0.06	0.56	0.56	0.07	0.05		0.14
v/c Ratio		0.92	0.80			0.51	0.93	0.42	0.27	0.73		0.90
Control Delay		98.5	4.2			77.8	27.2	4.2	67.1	51.1		82.7
Queue Delay		0.0	0.3			0.0	14.9	0.6	0.0	0.2		0.0
Total Delay		98.5	4.5			77.8	42.1	4.8	67.1	51.3		82.7
LOS		F	A			E	D	A	E	D		F
Approach Delay			10.3				37.9			55.0		
Approach LOS			B				D			E		
Queue Length 50th (ft)		158	68			46	886	54	26	27		192
Queue Length 95th (ft)		m158	m70			m61	906	m64	64	90		#302
Internal Link Dist (ft)			460				380			431		
Turn Bay Length (ft)		100				200			125			
Base Capacity (vph)		181	3100			127	2869	955	140	171		465
Starvation Cap Reductn		0	178			0	272	252	0	0		0
Spillback Cap Reductn		0	175			0	267	0	0	2		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.90	0.85			0.41	1.03	0.57	0.23	0.62		0.90

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 2 (1%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 100.5% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	4	142
Future Volume (vph)	4	142
Satd. Flow (prot)	1560	0
Flt Permitted		
Satd. Flow (perm)	1560	0
Satd. Flow (RTOR)	116	
Lane Group Flow (vph)	146	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Total Split (s)	24.0	
Total Lost Time (s)	6.0	
Act Effct Green (s)	20.1	
Actuated g/C Ratio	0.14	
v/c Ratio	0.45	
Control Delay	20.5	
Queue Delay	0.0	
Total Delay	20.6	
LOS	C	
Approach Delay	66.6	
Approach LOS	E	
Queue Length 50th (ft)	27	
Queue Length 95th (ft)	94	
Internal Link Dist (ft)	200	
Turn Bay Length (ft)		
Base Capacity (vph)	347	
Starvation Cap Reductn	0	
Spillback Cap Reductn	5	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	

Intersection Summary

Queues

3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp 10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	Ø5
Lane Configurations												
Traffic Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227	
Future Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227	
Satd. Flow (prot)	0	5046	2751	1741	5072	0	0	0	1651	1664	3564	
Flt Permitted				0.063					0.950	0.950		
Satd. Flow (perm)	0	5046	2591	115	5072	0	0	0	1610	1527	3564	
Satd. Flow (RTOR)			779								55	
Lane Group Flow (vph)	0	1883	1072	309	1964	0	0	0	369	372	1227	
Turn Type		NA	Perm	D.P+P	NA				Prot	Prot	custom	
Protected Phases		2		1	6				4	4	4 5	5
Permitted Phases			2	2								
Total Split (s)		66.0	66.0	30.0	81.0				44.0	44.0		15.0
Total Lost Time (s)		5.0	5.0	5.0	5.0				5.0	5.0		
Act Effct Green (s)		63.1	63.1	86.0	76.6				39.0	39.0	53.4	
Actuated g/C Ratio		0.45	0.45	0.61	0.55				0.28	0.28	0.38	
v/c Ratio		0.83	0.67	0.92	0.71				0.80	0.80	0.88	
Control Delay		20.4	3.8	74.0	25.3				61.5	61.4	47.0	
Queue Delay		9.5	1.1	0.0	0.5				0.0	0.0	6.3	
Total Delay		29.9	5.0	74.0	25.8				61.5	61.4	53.3	
LOS		C	A	E	C				E	E	D	
Approach Delay		20.8			32.4					56.3		
Approach LOS		C			C					E		
Queue Length 50th (ft)		390	64	225	473				330	332	434	
Queue Length 95th (ft)		516	m108	#386	529				#489	#493	517	
Internal Link Dist (ft)		380			931		1129			888		
Turn Bay Length (ft)				150					600	600	600	
Base Capacity (vph)		2274	1595	362	2775				459	463	1408	
Starvation Cap Reductn		385	285	0	0				0	0	0	
Spillback Cap Reductn		0	0	0	374				0	0	146	
Storage Cap Reductn		0	0	0	0				0	0	0	
Reduced v/c Ratio		1.00	0.82	0.85	0.82				0.80	0.80	0.97	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 96 (69%), Referenced to phase 2:EBWB and 6:WBT, Start of Red

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 34.2 Intersection LOS: C

Intersection Capacity Utilization 96.0% ICU Level of Service F

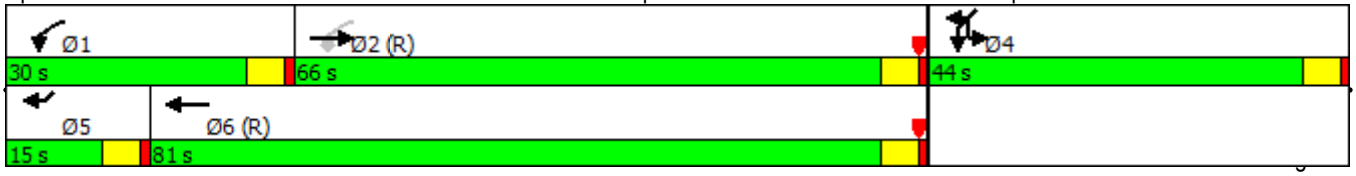
Analysis Period (min) 15

Description: All Traffic Data Services - 11/4/04

\# 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.

Splits and Phases: 3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1	93	39	16	90	136	558	19	46	686	54
Future Volume (vph)	96	1	93	39	16	90	136	558	19	46	686	54
Satd. Flow (prot)	1699	1542	0	1724	1611	0	1770	3445	0	1787	3465	0
Flt Permitted	0.536			0.631			0.331			0.411		
Satd. Flow (perm)	945	1542	0	1129	1611	0	612	3445	0	765	3465	0
Satd. Flow (RTOR)		93			90			3			7	
Lane Group Flow (vph)	96	94	0	39	106	0	136	577	0	46	740	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Total Split (s)	19.0	37.0		17.0	35.0		24.0	69.0		17.0	62.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Act Effct Green (s)	21.3	18.2		22.5	12.2		95.7	93.0		96.8	88.7	
Actuated g/C Ratio	0.15	0.13		0.16	0.09		0.68	0.66		0.69	0.63	
v/c Ratio	0.48	0.33		0.19	0.48		0.28	0.25		0.08	0.34	
Control Delay	53.3	12.2		43.3	21.2		8.4	10.9		1.8	3.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.3	12.2		43.3	21.2		8.4	10.9		1.8	3.9	
LOS	D	B		D	C		A	B		A	A	
Approach Delay		33.0			27.1			10.5			3.8	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	80	1		32	15		24	68		2	23	
Queue Length 95th (ft)	113	50		55	67		m61	m206		m4	m146	
Internal Link Dist (ft)		309			203			301			680	
Turn Bay Length (ft)	100			75			250			225		
Base Capacity (vph)	231	424		256	415		595	2289		636	2198	
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	0.42	0.22		0.15	0.26		0.23	0.25		0.07	0.34	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 112 (80%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 55.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3255: 23 Av S & S 322 St

Queues
3350: Pacific Hwy S & S 324 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
Future Volume (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
Satd. Flow (prot)	1778	1812	1553	4926	1813	0	0	3419	5085	1533	0	3378
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1812	1516	4863	1813	0	0	3397	5085	1488	0	3357
Satd. Flow (RTOR)			132		4					302		
Lane Group Flow (vph)	98	345	122	968	750	0	0	318	1606	444	0	320
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Total Split (s)	15.0	40.0	40.0	35.0	60.0		18.0	18.0	47.0	47.0	18.0	18.0
Total Lost Time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0	6.0		5.0
Act Effct Green (s)	9.5	34.5	34.5	29.0	54.0			13.0	42.5	41.5		13.0
Actuated g/C Ratio	0.07	0.25	0.25	0.21	0.39			0.09	0.30	0.30		0.09
v/c Ratio	0.82	0.77	0.26	0.95	1.07			1.00	1.04	0.68		1.02
Control Delay	107.7	62.1	6.8	65.5	91.8			113.8	81.0	19.2		87.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0
Total Delay	107.7	62.1	6.8	65.5	91.8			113.8	81.0	19.2		87.5
LOS	F	E	A	E	F			F	F	B		F
Approach Delay		58.1			77.0				73.8			
Approach LOS		E			E				E			
Queue Length 50th (ft)	89	295	0	303	~761			~152	~583	113		~140
Queue Length 95th (ft)	#188	#418	44	#391	#1010			#254	#680	244		m#214
Internal Link Dist (ft)		1081			303				1289			
Turn Bay Length (ft)	200		275	500				275				275
Base Capacity (vph)	127	446	473	1037	701			317	1545	654		313
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	0.77	0.77	0.26	0.93	1.07			1.00	1.04	0.68		1.02

Intersection Summary

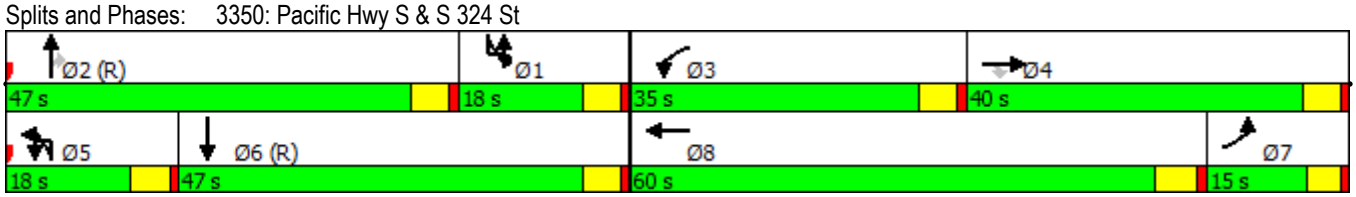
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 122 (87%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 69.6 Intersection LOS: E
Intersection Capacity Utilization 103.1% ICU Level of Service G
Analysis Period (min) 15

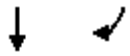
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 3350: Pacific Hwy S & S 324 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1407	158
Future Volume (vph)	1407	158
Satd. Flow (prot)	4945	0
Flt Permitted		
Satd. Flow (perm)	4945	0
Satd. Flow (RTOR)	14	
Lane Group Flow (vph)	1565	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	47.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	42.5	
Actuated g/C Ratio	0.30	
v/c Ratio	1.04	
Control Delay	55.6	
Queue Delay	0.0	
Total Delay	55.6	
LOS	E	
Approach Delay	61.0	
Approach LOS	E	
Queue Length 50th (ft)	~535	
Queue Length 95th (ft)	m#607	
Internal Link Dist (ft)	1190	
Turn Bay Length (ft)		
Base Capacity (vph)	1512	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.04	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
Future Volume (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
Satd. Flow (prot)	0	1647	0	0	1660	0	0	3512	0	0	3484	0
Flt Permitted		0.958			0.744						0.818	
Satd. Flow (perm)	0	1586	0	0	1244	0	0	3512	0	0	2852	0
Satd. Flow (RTOR)		72			24			4			39	
Lane Group Flow (vph)	0	89	0	0	39	0	0	1460	0	0	1864	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Total Split (s)	15.0	15.0		15.0	15.0		125.0	125.0		125.0	125.0	
Total Lost Time (s)		5.5			5.5			4.5			5.0	
Act Effct Green (s)		6.4			6.4			123.6			123.1	
Actuated g/C Ratio		0.05			0.05			0.88			0.88	
v/c Ratio		0.64			0.49			0.47			0.74	
Control Delay		39.5			53.8			0.8			10.1	
Queue Delay		0.0			0.0			0.1			0.0	
Total Delay		39.5			53.8			0.9			10.1	
LOS		D			D			A			B	
Approach Delay		39.5			53.8			0.9			10.1	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)		15			14			1			295	
Queue Length 95th (ft)		72			53			6			702	
Internal Link Dist (ft)		496			430			674			1045	
Turn Bay Length (ft)												
Base Capacity (vph)		174			106			3101			2512	
Starvation Cap Reductn		0			0			546			0	
Spillback Cap Reductn		0			0			0			22	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.51			0.37			0.57			0.75	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 134 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 107.0%	ICU Level of Service G
Analysis Period (min) 15	
Description:	

Splits and Phases: 3440: 1 Av S & SW 325 Pl

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
Future Volume (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
Satd. Flow (prot)	1770	1863	0	1761	1604	0	1752	3428	0	1796	3585	0
Flt Permitted	0.742						0.080			0.105		
Satd. Flow (perm)	1382	1863	0	1783	1604	0	148	3428	0	199	3585	0
Satd. Flow (RTOR)					16			13			1	
Lane Group Flow (vph)	11	0	0	199	23	0	22	1586	0	21	1739	0
Turn Type	D.P+P			D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Total Split (s)	15.0	15.0		25.0	25.0		15.0	85.0		15.0	85.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	19.5			20.5	17.1		107.5	102.5		107.5	102.5	
Actuated g/C Ratio	0.14			0.15	0.12		0.77	0.73		0.77	0.73	
v/c Ratio	0.05			0.77	0.11		0.13	0.63		0.10	0.66	
Control Delay	46.0			75.6	29.0		5.6	8.1		4.8	7.6	
Queue Delay	0.0			0.0	0.0		0.0	0.0		0.0	0.3	
Total Delay	46.0			75.6	29.0		5.6	8.2		4.8	7.9	
LOS	D			E	C		A	A		A	A	
Approach Delay		46.0			70.8			8.1			7.8	
Approach LOS		D			E			A			A	
Queue Length 50th (ft)	9			178	6		3	220		3	251	
Queue Length 95th (ft)	25			234	32		m7	m241		m6	472	
Internal Link Dist (ft)		157			277			638			674	
Turn Bay Length (ft)	100			100			100			100		
Base Capacity (vph)	235			286	250		233	2513		273	2625	
Starvation Cap Reductn	0			0	0		0	60		0	307	
Spillback Cap Reductn	0			0	0		0	0		0	59	
Storage Cap Reductn	0			0	0		0	0		0	0	
Reduced v/c Ratio	0.05			0.70	0.09		0.09	0.65		0.08	0.75	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 4 (3%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 12.0 Intersection LOS: B
Intersection Capacity Utilization 74.2% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

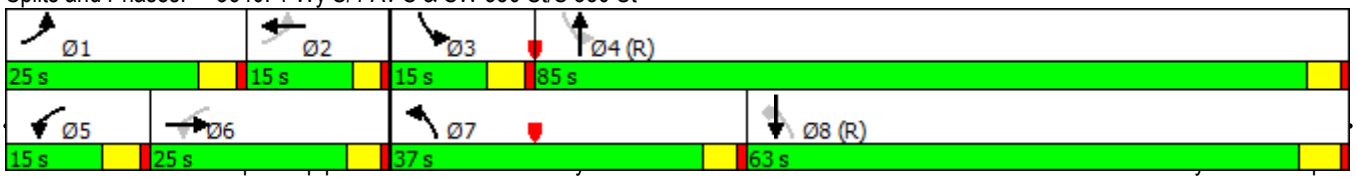
Splits and Phases: 3540: 1 Av S & S 328 St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
Future Volume (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
Satd. Flow (prot)	1805	1593	0	1743	1704	0	1708	3387	0	1814	3628	1623
Flt Permitted	0.720			0.308			0.063			0.147		
Satd. Flow (perm)	1349	1593	0	560	1704	0	113	3387	0	281	3628	1525
Satd. Flow (RTOR)		186			19			5				413
Lane Group Flow (vph)	281	200	0	56	57	0	385	1337	0	14	1354	621
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		8
Total Split (s)	25.0	25.0		15.0	15.0		37.0	85.0		15.0	63.0	63.0
Total Lost Time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	6.5
Act Effct Green (s)	24.3	18.8		24.3	7.1		95.9	96.4		97.9	65.2	64.2
Actuated g/C Ratio	0.17	0.13		0.17	0.05		0.68	0.69		0.70	0.47	0.46
v/c Ratio	0.95	0.53		0.36	0.55		0.93	0.57		0.06	0.80	0.67
Control Delay	94.0	14.8		50.0	64.4		70.7	13.9		4.7	26.8	7.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	0.4
Total Delay	94.0	14.8		50.0	64.4		70.7	13.9		4.7	27.3	7.6
LOS	F	B		D	E		E	B		A	C	A
Approach Delay		61.1			57.3			26.6			21.0	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	239	11		42	34		288	282		1	540	125
Queue Length 95th (ft)	#320	88		78	81		#470	465		m3	#700	100
Internal Link Dist (ft)		960			420			1194			638	
Turn Bay Length (ft)	100			100			200			100		
Base Capacity (vph)	297	383		178	139		449	2332		310	1689	922
Starvation Cap Reductn	0	0		0	0		0	0		0	84	61
Spillback Cap Reductn	0	0		0	0		0	30		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	0.52		0.31	0.41		0.86	0.58		0.05	0.84	0.72

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 4 (3%), Referenced to phase 4:NBSB and 8:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 101.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 3640: 1 Wy S/1 Av S & SW 330 St/S 330 St



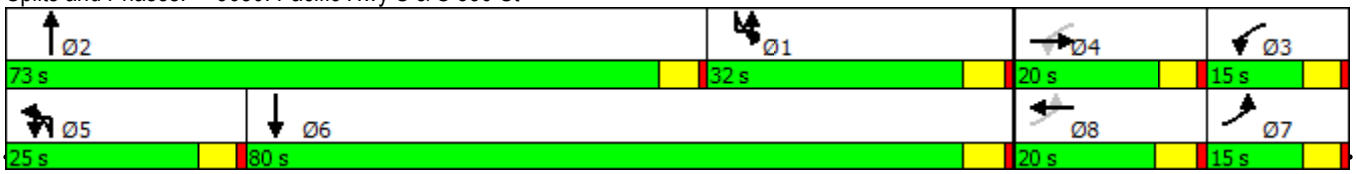
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
Future Volume (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
Satd. Flow (prot)	1762	1818	0	1727	1712	0	0	1752	4973	0	0	1787
Flt Permitted	0.631			0.706				0.950				0.950
Satd. Flow (perm)	1157	1818	0	1268	1712	0	0	1746	4973	0	0	1779
Satd. Flow (RTOR)		9			25				3			
Lane Group Flow (vph)	60	78	0	52	111	0	0	164	2060	0	0	227
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	15.0	20.0		15.0	20.0		25.0	25.0	73.0		32.0	32.0
Total Lost Time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Act Effct Green (s)	19.8	11.3		18.8	15.2			15.4	66.1			25.2
Actuated g/C Ratio	0.15	0.09		0.14	0.12			0.12	0.50			0.19
v/c Ratio	0.31	0.48		0.25	0.51			0.80	0.82			0.66
Control Delay	49.5	61.4		47.4	49.7			85.9	34.0			63.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	49.5	61.4		47.4	49.7			85.9	34.0			63.3
LOS	D	E		D	D			F	C			E
Approach Delay		56.2			49.0				37.8			
Approach LOS		E			D				D			
Queue Length 50th (ft)	44	56		38	70			132	482			178
Queue Length 95th (ft)	86	108		77	134			m#254	765			#314
Internal Link Dist (ft)		616			365				600			
Turn Bay Length (ft)	100			100				200				250
Base Capacity (vph)	261	243		252	275			271	2624			372
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.23	0.32		0.21	0.40			0.61	0.79			0.61

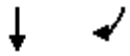
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 131.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

\# 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.

Splits and Phases: 3650: Pacific Hwy S & S 330 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2237	130
Future Volume (vph)	2237	130
Satd. Flow (prot)	5037	0
Flt Permitted		
Satd. Flow (perm)	5037	0
Satd. Flow (RTOR)	10	
Lane Group Flow (vph)	2367	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	80.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	75.9	
Actuated g/C Ratio	0.58	
v/c Ratio	0.81	
Control Delay	28.4	
Queue Delay	0.0	
Total Delay	28.4	
LOS	C	
Approach Delay	31.4	
Approach LOS	C	
Queue Length 50th (ft)	530	
Queue Length 95th (ft)	879	
Internal Link Dist (ft)	561	
Turn Bay Length (ft)		
Base Capacity (vph)	2915	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.81	

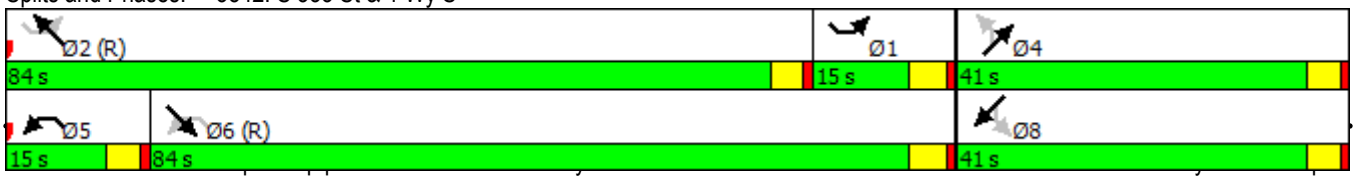
Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	111	1427	15	5	1454	38	33	5	18	38	11	320
Future Volume (vph)	111	1427	15	5	1454	38	33	5	18	38	11	320
Satd. Flow (prot)	1782	3569	0	1734	3450	0	0	1752	0	1747	1539	0
Flt Permitted	0.109			0.144				0.163		0.732		
Satd. Flow (perm)	204	3569	0	263	3450	0	0	293	0	1326	1539	0
Satd. Flow (RTOR)		1			3			16			157	
Lane Group Flow (vph)	111	1442	0	5	1492	0	0	56	0	38	331	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Total Split (s)	15.0	84.0		15.0	84.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Act Effct Green (s)	103.4	106.5		108.0	93.9			22.1		22.1	22.1	
Actuated g/C Ratio	0.74	0.76		0.77	0.67			0.16		0.16	0.16	
v/c Ratio	0.42	0.53		0.02	0.64			0.95		0.18	0.88	
Control Delay	21.0	9.4		2.8	6.2			144.2		48.8	53.5	
Queue Delay	0.0	4.9		0.0	0.0			0.0		0.0	0.0	
Total Delay	21.0	14.3		2.8	6.2			144.2		48.8	53.5	
LOS	C	B		A	A			F		D	D	
Approach Delay		14.8			6.2			144.2			53.0	
Approach LOS		B			A			F			D	
Queue Length 50th (ft)	21	226		1	155			38		30	164	
Queue Length 95th (ft)	53	493		m1	m172			#110		59	259	
Internal Link Dist (ft)		270			278			237			1502	
Turn Bay Length (ft)	75			75						100		
Base Capacity (vph)	263	2714		314	2314			88		345	517	
Starvation Cap Reductn	0	1190		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.42	0.95		0.02	0.64			0.64		0.11	0.64	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 86 (61%), Referenced to phase 2:NWSE and 6:NWSE, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 17.2 Intersection LOS: B
Intersection Capacity Utilization 91.7% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 3842: S 333 St & 1 Wy S



Queues
4043: 1 Wy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
Future Volume (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
Satd. Flow (prot)	1808	1845	0	1676	1709	2789	1743	3267	0	1814	3553	0
Flt Permitted	0.950			0.950	0.961		0.157			0.145		
Satd. Flow (perm)	1791	1845	0	1657	1693	2665	288	3267	0	276	3553	0
Satd. Flow (RTOR)		9				388		58			7	
Lane Group Flow (vph)	144	180	0	332	336	692	12	839	0	672	1158	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6			2		
Total Split (s)	33.5	33.5		29.0	29.0	45.5	15.0	32.0		45.5	62.5	
Total Lost Time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Act Effct Green (s)	17.3	17.3		24.0	24.0	74.2	81.9	27.5		77.2	78.7	
Actuated g/C Ratio	0.12	0.12		0.17	0.17	0.53	0.58	0.20		0.55	0.56	
v/c Ratio	0.65	0.76		1.16	1.15	0.42	0.05	1.22		0.95	0.58	
Control Delay	70.5	75.6		135.2	132.7	6.4	9.4	145.0		57.9	17.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	70.5	75.6		135.2	132.7	6.4	9.4	145.0		57.9	17.0	
LOS	E	E		F	F	A	A	F		E	B	
Approach Delay		73.3			69.0			143.1			32.0	
Approach LOS		E			E			F			C	
Queue Length 50th (ft)	128	155		~376	~382	83	2	~468		532	208	
Queue Length 95th (ft)	185	218		m#563	m#565	175	16	#615		#978	334	
Internal Link Dist (ft)		300			1418			1066			684	
Turn Bay Length (ft)				200		160	175			300		
Base Capacity (vph)	361	376		287	292	1639	281	688		708	2000	
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	0.40	0.48		1.16	1.15	0.42	0.04	1.22		0.95	0.58	

Intersection Summary

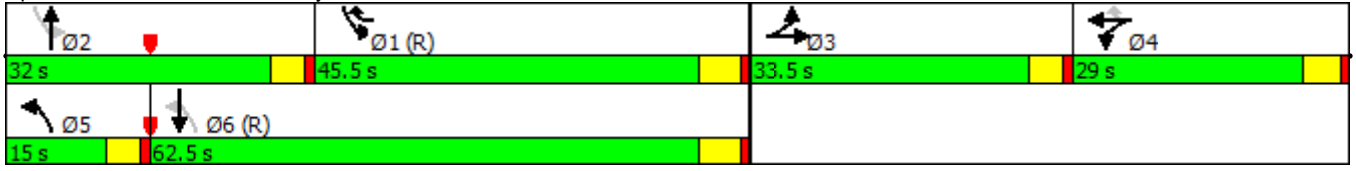
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 115 (82%), Referenced to phase 1:SBL and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 68.3 Intersection LOS: E
Intersection Capacity Utilization 114.0% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4043: 1 Wy S & S 336 St

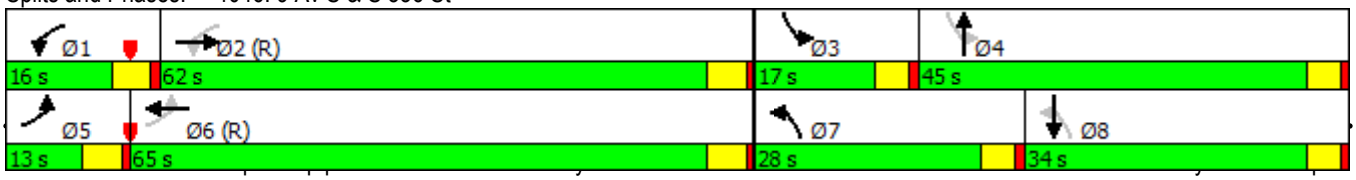


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	706	430	131	980	63	277	143	187	196	211	101
Future Volume (vph)	76	706	430	131	980	63	277	143	187	196	211	101
Satd. Flow (prot)	1770	3256	0	1764	3511	0	1752	1661	0	1791	1777	0
Flt Permitted	0.164			0.125			0.154			0.256		
Satd. Flow (perm)	305	3256	0	232	3511	0	282	1661	0	479	1777	0
Satd. Flow (RTOR)		110			6			47			16	
Lane Group Flow (vph)	76	1136	0	131	1043	0	277	330	0	196	312	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Total Split (s)	13.0	62.0		16.0	65.0		28.0	45.0		17.0	34.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Act Effct Green (s)	72.9	64.3		72.9	66.5		46.1	34.4		46.1	25.9	
Actuated g/C Ratio	0.52	0.46		0.52	0.48		0.33	0.25		0.33	0.18	
v/c Ratio	0.34	0.73		0.61	0.62		0.91	0.74		0.73	0.91	
Control Delay	8.1	17.8		28.9	30.6		71.4	51.6		48.5	83.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.1	17.8		28.9	30.6		71.4	51.6		48.5	83.5	
LOS	A	B		C	C		E	D		D	F	
Approach Delay		17.1			30.4			60.7			70.0	
Approach LOS		B			C			E			E	
Queue Length 50th (ft)	19	400		57	380		193	236		123	263	
Queue Length 95th (ft)	m19	m462		98	482		#324	339		179	#409	
Internal Link Dist (ft)		1418			1473			2541			568	
Turn Bay Length (ft)	200			125			100			100		
Base Capacity (vph)	239	1553		238	1671		339	508		271	380	
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	0.32	0.73		0.55	0.62		0.82	0.65		0.72	0.82	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 20 (14%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 36.8 Intersection LOS: D
Intersection Capacity Utilization 92.8% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 4046: 9 Av S & S 336 St



Queues
4050: Pacific Hwy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	413	762	372	311	785	145	14	244	1637	208	27	115
Future Volume (vph)	413	762	372	311	785	145	14	244	1637	208	27	115
Satd. Flow (prot)	3375	3522	1550	1733	3415	0	0	3368	4969	1560	0	1796
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	3366	3522	1516	1726	3415	0	0	3356	4969	1480	0	1784
Satd. Flow (RTOR)			187		15					160		
Lane Group Flow (vph)	413	762	372	311	930	0	0	258	1637	208	0	142
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Total Split (s)	21.0	34.0	34.0	29.0	42.0		15.0	15.0	60.0	60.0	17.0	17.0
Total Lost Time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	6.0		5.5
Act Effct Green (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.0	54.0		11.5
Actuated g/C Ratio	0.12	0.20	0.20	0.17	0.26			0.07	0.39	0.39		0.08
v/c Ratio	1.04	1.06	0.81	1.07	1.03			1.07	0.84	0.31		0.97
Control Delay	114.7	104.4	41.1	127.3	87.8			108.9	32.4	4.1		129.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0
Total Delay	114.7	104.4	41.1	127.3	87.8			108.9	32.4	4.1		129.0
LOS	F	F	D	F	F			F	C	A		F
Approach Delay		91.9			97.7				39.0			
Approach LOS		F			F				D			
Queue Length 50th (ft)	~208	~401	169	~313	~471			~134	480	10		131
Queue Length 95th (ft)	#317	#531	#331	#504	#608			m#148	m549	m13		m#270
Internal Link Dist (ft)		735			466				780			
Turn Bay Length (ft)	650			100				350				500
Base Capacity (vph)	397	716	457	290	901			240	1952	669		147
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	1.04	1.06	0.81	1.07	1.03			1.07	0.84	0.31		0.97

Intersection Summary

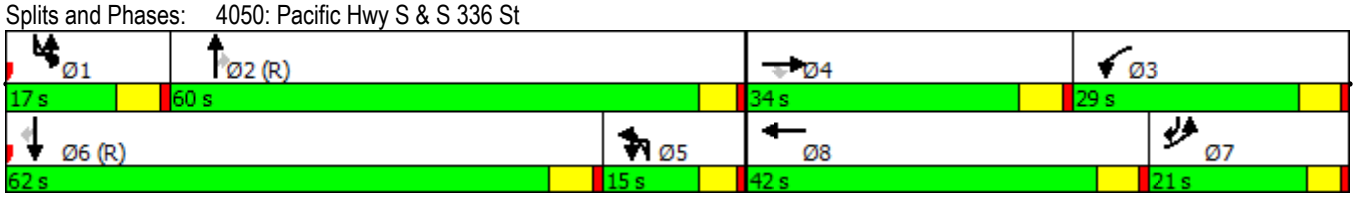
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 118 (84%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 69.3 Intersection LOS: E
Intersection Capacity Utilization 110.1% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4050: Pacific Hwy S & S 336 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2103	104
Future Volume (vph)	2103	104
Satd. Flow (prot)	5134	1594
Flt Permitted		
Satd. Flow (perm)	5134	1544
Satd. Flow (RTOR)		101
Lane Group Flow (vph)	2103	104
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Total Split (s)	62.0	21.0
Total Lost Time (s)	5.5	4.5
Act Effct Green (s)	56.5	74.0
Actuated g/C Ratio	0.40	0.53
v/c Ratio	1.02	0.12
Control Delay	65.4	3.3
Queue Delay	0.0	0.0
Total Delay	65.4	3.3
LOS	E	A
Approach Delay	66.5	
Approach LOS	E	
Queue Length 50th (ft)	~738	2
Queue Length 95th (ft)	#833	m29
Internal Link Dist (ft)	810	
Turn Bay Length (ft)		250
Base Capacity (vph)	2071	869
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.02	0.12

Intersection Summary

Queues
4250: Pacific Hwy S & S 340 Pl/16 Av S

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	22	43	74	10	1567	41	1123	25	1288	1573	2
Future Volume (vph)	64	22	43	74	10	1567	41	1123	25	1288	1573	2
Satd. Flow (prot)	1770	1678	0	1799	1909	2833	1752	4990	0	5027	5122	0
Flt Permitted	0.950			0.950			0.087			0.950		
Satd. Flow (perm)	1770	1678	0	1778	1909	2833	160	4990	0	5010	5122	0
Satd. Flow (RTOR)		43				163		2				
Lane Group Flow (vph)	64	65	0	74	10	1567	41	1148	0	1288	1575	0
Turn Type	Prot	NA		Prot	NA	pt+ov	D.P+P	NA		Prot	NA	
Protected Phases	7	4		3	8	8 5	1	6		5	2	
Permitted Phases							2					
Total Split (s)	15.0	21.0		38.0	44.0		15.0	37.0		44.0	66.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.5	5.5	
Act Effct Green (s)	8.5	9.7		37.9	39.2	80.8	75.4	32.0		41.9	69.9	
Actuated g/C Ratio	0.06	0.07		0.27	0.28	0.58	0.54	0.23		0.30	0.50	
v/c Ratio	0.60	0.42		0.15	0.02	0.92	0.27	1.01		0.86	0.62	
Control Delay	86.5	33.2		43.5	39.4	30.8	19.0	58.4		23.5	6.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	86.5	33.2		43.5	39.4	30.8	19.0	58.4		23.5	6.8	
LOS	F	C		D	D	C	B	E		C	A	
Approach Delay		59.7			31.4			57.0			14.3	
Approach LOS		E			C			E			B	
Queue Length 50th (ft)	58	20		52	7	412	5	~172		349	126	
Queue Length 95th (ft)	109	65		100	m16	#518	23	#472		m349	m129	
Internal Link Dist (ft)		294			48			107			314	
Turn Bay Length (ft)	100			50		100	100			400		
Base Capacity (vph)	126	229		487	539	1712	203	1142		1506	2558	
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	0.51	0.28		0.15	0.02	0.92	0.20	1.01		0.86	0.62	

Intersection Summary

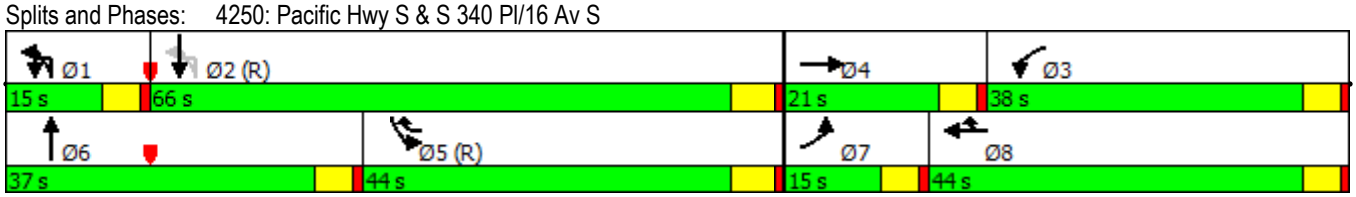
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 136 (97%), Referenced to phase 2:NBSB and 5:SBL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 109.2% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4250: Pacific Hwy S & S 340 Pl/16 Av S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	78	12	0	818	1759	123	
Future Volume (vph)	78	12	0	818	1759	123	
Satd. Flow (prot)	1729	1547	0	3578	3496	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1700	1503	0	3578	3496	0	
Satd. Flow (RTOR)		12			14		
Lane Group Flow (vph)	78	12	0	818	1882	0	
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		8
Permitted Phases		4		2			
Total Split (s)	32.0	32.0		108.0	108.0		32.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		
Act Effct Green (s)	14.5	14.5		115.5	115.5		
Actuated g/C Ratio	0.10	0.10		0.82	0.82		
v/c Ratio	0.44	0.07		0.28	0.65		
Control Delay	63.7	22.4		1.0	10.3		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	63.7	22.4		1.0	10.3		
LOS	E	C		A	B		
Approach Delay	58.2			1.0	10.3		
Approach LOS	E			A	B		
Queue Length 50th (ft)	71	0		11	409		
Queue Length 95th (ft)	113	19		27	m596		
Internal Link Dist (ft)	244			982	846		
Turn Bay Length (ft)		100					
Base Capacity (vph)	333	299		2952	2887		
Starvation Cap Reductn	0	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.23	0.04		0.28	0.65		

Intersection Summary		
Cycle Length: 140		
Actuated Cycle Length: 140		
Offset: 20 (14%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.65		
Intersection Signal Delay: 9.1	Intersection LOS: A	
Intersection Capacity Utilization 69.9%	ICU Level of Service C	
Analysis Period (min) 15		

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

Splits and Phases: 4540: 1 Av S/1 Wy S & Winco Dwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	59	4	69	61	24	27	12	33	1056	89	12	64
Future Volume (vph)	59	4	69	61	24	27	12	33	1056	89	12	64
Satd. Flow (prot)	1738	1508	0	1782	1696	0	0	1752	4929	0	0	1787
Flt Permitted	0.724			0.667				0.123				0.219
Satd. Flow (perm)	1277	1508	0	1208	1696	0	0	227	4929	0	0	412
Satd. Flow (RTOR)		69			27				16			
Lane Group Flow (vph)	59	73	0	61	51	0	0	45	1145	0	0	76
Turn Type	D.P+P	NA		D.P+P	NA		custom	D.P+P	NA		custom	D.P+P
Protected Phases	7	4		3	8			5	2			1
Permitted Phases	8			4			5	6			1	2
Total Split (s)	19.0	19.0		19.0	19.0		19.0	19.0	83.0		19.0	19.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Act Effct Green (s)	14.7	7.0		14.7	7.0			109.3	102.4			108.3
Actuated g/C Ratio	0.10	0.05		0.10	0.05			0.78	0.73			0.77
v/c Ratio	0.36	0.52		0.38	0.46			0.19	0.32			0.20
Control Delay	54.9	27.0		49.2	38.8			6.9	3.9			2.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	54.9	27.0		49.2	38.8			6.9	3.9			2.1
LOS	D	C		D	D			A	A			A
Approach Delay		39.4			44.4				4.0			
Approach LOS		D			D				A			
Queue Length 50th (ft)	45	5		48	21			1	45			0
Queue Length 95th (ft)	m73	m42		m74	m50			m8	m111			m5
Internal Link Dist (ft)		1727			456				1382			
Turn Bay Length (ft)	100			100				100				100
Base Capacity (vph)	225	212		226	193			336	3610			471
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.26	0.34		0.27	0.26			0.13	0.32			0.16

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 50 (36%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 58.2%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 4549: Pacific Hwy S & S 344 St

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1591	34
Future Volume (vph)	1591	34
Satd. Flow (prot)	5098	0
Flt Permitted		
Satd. Flow (perm)	5098	0
Satd. Flow (RTOR)	4	
Lane Group Flow (vph)	1625	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	83.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	105.9	
Actuated g/C Ratio	0.76	
v/c Ratio	0.42	
Control Delay	7.1	
Queue Delay	0.0	
Total Delay	7.1	
LOS	A	
Approach Delay	6.8	
Approach LOS	A	
Queue Length 50th (ft)	259	
Queue Length 95th (ft)	505	
Internal Link Dist (ft)	1196	
Turn Bay Length (ft)		
Base Capacity (vph)	3857	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.42	

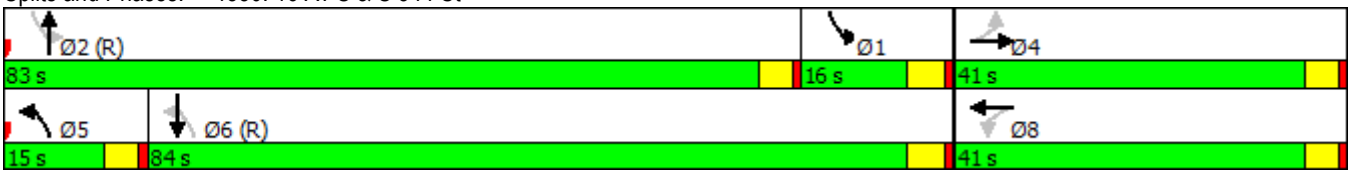
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
Future Volume (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
Satd. Flow (prot)	1738	1721	0	1799	1684	0	1743	3430	0	1778	3532	0
Flt Permitted	0.541			0.670			0.102			0.211		
Satd. Flow (perm)	976	1721	0	1252	1684	0	187	3430	0	395	3532	0
Satd. Flow (RTOR)		21			69			7			2	
Lane Group Flow (vph)	32	87	0	217	143	0	53	1054	0	136	1573	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Total Split (s)	41.0	41.0		41.0	41.0		15.0	83.0		16.0	84.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		5.0	5.0	
Act Effct Green (s)	27.7	27.7		27.7	27.7		99.7	87.3		97.8	94.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.62		0.70	0.68	
v/c Ratio	0.17	0.24		0.88	0.37		0.27	0.49		0.35	0.66	
Control Delay	51.3	40.8		86.7	26.0		7.0	19.1		7.7	12.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.3	40.8		86.7	26.0		7.0	19.1		7.7	12.1	
LOS	D	D		F	C		A	B		A	B	
Approach Delay		43.6			62.6			18.5			11.7	
Approach LOS		D			E			B			B	
Queue Length 50th (ft)	28	61		193	57		4	237		9	211	
Queue Length 95th (ft)	66	126		274	113		m6	m217		m24	m838	
Internal Link Dist (ft)		456			370			1310			725	
Turn Bay Length (ft)	50			150			150			150		
Base Capacity (vph)	254	464		326	490		254	2142		384	2384	
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	0.13	0.19		0.67	0.29		0.21	0.49		0.35	0.66	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 38 (27%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 85.6% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4550: 16 Av S & S 344 St



Queues
4840: 1 Av S & SW Campus Dr/S 348 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
Future Volume (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
Satd. Flow (prot)	3351	3314	0	3436	3543	1579	1694	3402	1516	1782	3578	1594
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3338	3314	0	3408	3543	1534	1688	3402	1476	1768	3578	1549
Satd. Flow (RTOR)		30				86			257			90
Lane Group Flow (vph)	171	968	0	417	1404	194	176	442	257	195	1153	372
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8			2			6
Total Split (s)	15.0	51.0		24.0	60.0	30.0	18.0	35.0	35.0	30.0	47.0	15.0
Total Lost Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	5.5	5.0	5.0	4.5
Act Effct Green (s)	9.9	46.5		19.0	55.6	86.8	13.0	24.3	23.3	31.2	42.0	52.4
Actuated g/C Ratio	0.07	0.33		0.14	0.40	0.62	0.09	0.17	0.17	0.22	0.30	0.37
v/c Ratio	0.72	0.86		0.89	1.00	0.20	1.12	0.75	0.56	0.49	1.07	0.58
Control Delay	81.3	51.7		81.8	65.5	4.3	135.0	55.1	13.2	55.1	92.2	24.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	51.7		81.8	65.5	4.3	135.0	55.1	13.2	55.1	92.2	24.8
LOS	F	D		F	E	A	F	E	B	E	F	C
Approach Delay		56.1			63.0			58.9			73.5	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	79	423		195	~681	22	~181	201	67	120	~600	95
Queue Length 95th (ft)	#121	515		#287	#844	52	m#203	m195	m72	235	#743	221
Internal Link Dist (ft)		752			2822			1475			982	
Turn Bay Length (ft)	175			225		250	150			400		225
Base Capacity (vph)	251	1120		466	1407	993	157	741	513	396	1073	645
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	0.68	0.86		0.89	1.00	0.20	1.12	0.60	0.50	0.49	1.07	0.58

Intersection Summary

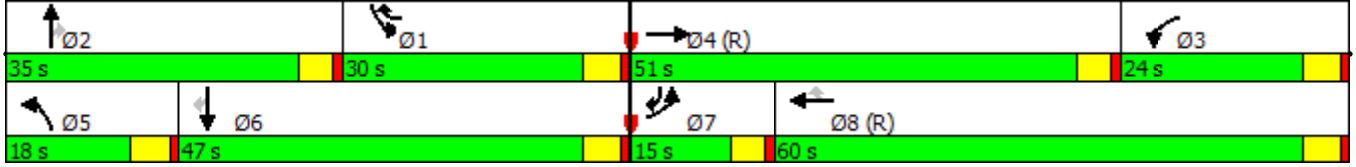
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 66 (47%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 64.1 Intersection LOS: E
Intersection Capacity Utilization 101.6% ICU Level of Service G
Analysis Period (min) 15

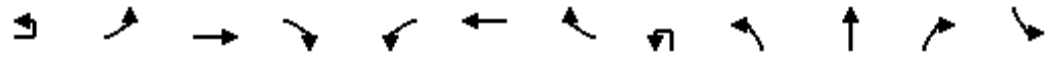
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 4840: 1 Av S & SW Campus Dr/S 348 St





Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
Future Volume (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
Satd. Flow (prot)	0	1720	4984	1539	3402	5018	0	0	3385	4723	1348	3485
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1718	4984	1505	3400	5018	0	0	3372	4723	1320	3477
Satd. Flow (RTOR)				115		4				3	94	
Lane Group Flow (vph)	0	219	1868	434	351	1964	0	0	216	1033	261	146
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4							2	
Total Split (s)	23.0	23.0	65.0	65.0	20.0	62.0		15.0	15.0	40.0	20.0	15.0
Total Lost Time (s)		4.5	5.0	6.0	5.0	5.0			5.0	5.0	5.0	5.5
Act Effct Green (s)		18.5	60.0	59.0	15.0	57.0			10.0	34.5	49.5	10.0
Actuated g/C Ratio		0.13	0.43	0.42	0.11	0.41			0.07	0.25	0.35	0.07
v/c Ratio		0.96	0.87	0.62	0.96	0.96			0.90	0.89	0.49	0.59
Control Delay		111.1	42.3	27.2	66.0	25.5			94.6	47.0	10.4	52.9
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0
Total Delay		111.1	42.3	27.2	66.0	25.5			94.6	47.0	10.4	52.9
LOS		F	D	C	E	C			F	D	B	D
Approach Delay			45.7			31.6				47.5		
Approach LOS			D			C				D		
Queue Length 50th (ft)		201	562	227	173	621			104	374	32	72
Queue Length 95th (ft)		#367	631	346	m#209	m#552			#180	436	73	111
Internal Link Dist (ft)			1161			1022				1351		
Turn Bay Length (ft)		200		200	350				350		350	250
Base Capacity (vph)		227	2136	700	364	2045			241	1183	529	249
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		0.96	0.87	0.62	0.96	0.96			0.90	0.87	0.49	0.59

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 128 (91%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 99.8%	ICU Level of Service F
Analysis Period (min) 15	

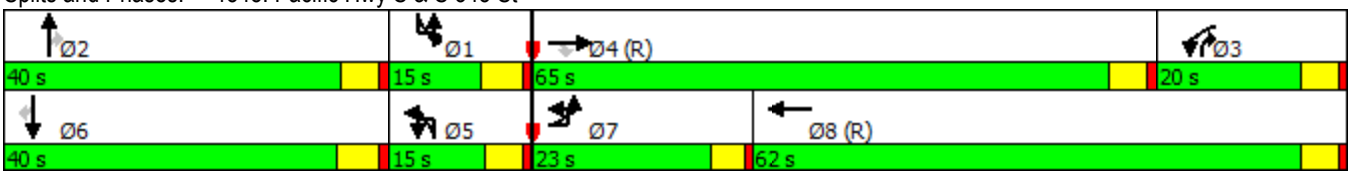
Description:

~ 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.

Splits and Phases: 4848: Pacific Hwy S & S 348 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1278	145
Future Volume (vph)	1278	145
Satd. Flow (prot)	5148	1594
Flt Permitted		
Satd. Flow (perm)	5148	1558
Satd. Flow (RTOR)		132
Lane Group Flow (vph)	1278	145
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Total Split (s)	40.0	40.0
Total Lost Time (s)	5.5	5.5
Act Effct Green (s)	34.5	34.5
Actuated g/C Ratio	0.25	0.25
v/c Ratio	1.01	0.30
Control Delay	51.7	4.0
Queue Delay	0.0	0.0
Total Delay	51.7	4.0
LOS	D	A
Approach Delay	47.4	
Approach LOS	D	
Queue Length 50th (ft)	~423	35
Queue Length 95th (ft)	#522	19
Internal Link Dist (ft)	1382	
Turn Bay Length (ft)		
Base Capacity (vph)	1268	483
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.01	0.30

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
Future Volume (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
Satd. Flow (prot)	0	1738	5034	1555	5077	5173	1602	0	3385	3212	1426	5040
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1733	5034	1519	5064	5173	1559	0	3374	3212	1426	5017
Satd. Flow (RTOR)				136			210			24	94	
Lane Group Flow (vph)	0	145	1493	468	1144	1735	286	0	419	1043	458	752
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pt+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	2 3	1
Permitted Phases				4			8					
Total Split (s)	17.0	17.0	45.0	45.0	32.0	60.0	60.0	23.0	23.0	41.0		22.0
Total Lost Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0		5.0
Act Effct Green (s)		12.5	40.5	40.5	27.0	55.0	55.0		18.0	36.0	63.0	17.0
Actuated g/C Ratio		0.09	0.29	0.29	0.19	0.39	0.39		0.13	0.26	0.45	0.12
v/c Ratio		0.94	1.03	0.87	1.17	0.85	0.39		0.96	1.24	0.66	1.23
Control Delay		80.0	49.8	21.2	126.0	46.2	11.9		76.4	150.4	26.2	153.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		80.0	49.8	21.2	126.0	46.2	11.9		76.4	150.4	26.2	153.8
LOS		E	D	C	F	D	B		E	F	C	F
Approach Delay			45.5			71.9				104.6		
Approach LOS			D			E				F		
Queue Length 50th (ft)		134	~532	201	~439	587	73		195	~645	317	~297
Queue Length 95th (ft)		m#180	#615	m#340	m#438	m510	m68		m#285	m#782	m438	#384
Internal Link Dist (ft)			1022			444				1187		
Turn Bay Length (ft)		500		550	450		250		400		300	500
Base Capacity (vph)		155	1456	536	979	2032	739		435	843	693	612
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		0.94	1.03	0.87	1.17	0.85	0.39		0.96	1.24	0.66	1.23

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 78.3	Intersection LOS: E
Intersection Capacity Utilization 112.2%	ICU Level of Service H
Analysis Period (min) 15	

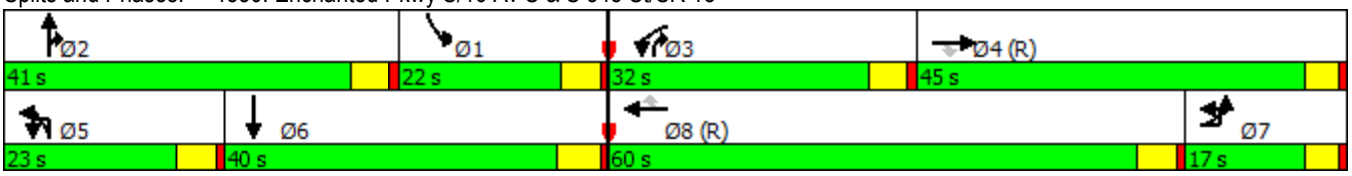
Description:

~ 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.

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1109	164
Future Volume (vph)	1109	164
Satd. Flow (prot)	5011	0
Flt Permitted		
Satd. Flow (perm)	5011	0
Satd. Flow (RTOR)	19	
Lane Group Flow (vph)	1273	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	40.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	34.5	
Actuated g/C Ratio	0.25	
v/c Ratio	1.02	
Control Delay	63.9	
Queue Delay	0.0	
Total Delay	63.9	
LOS	E	
Approach Delay	97.3	
Approach LOS	F	
Queue Length 50th (ft)	~412	
Queue Length 95th (ft)	#534	
Internal Link Dist (ft)	1310	
Turn Bay Length (ft)		
Base Capacity (vph)	1249	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.02	

Intersection Summary

Queues

4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↱			↱↱↱
Traffic Volume (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Future Volume (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Satd. Flow (prot)	0	3539	0	0	3539	0	0	0	1611	0	0	3600
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	3539	0	0	0	1587	0	0	3483
Satd. Flow (RTOR)									175			49
Lane Group Flow (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Total Split (s)		140.0			80.0							60.0
Total Lost Time (s)		5.0			5.0							5.0
Act Effct Green (s)		140.0			75.0				140.0			55.0
Actuated g/C Ratio		1.00			0.54				1.00			0.39
v/c Ratio		0.39			0.81				0.72			1.13
Control Delay		0.0			30.8				2.9			107.4
Queue Delay		0.0			0.0				0.0			0.0
Total Delay		0.0			30.8				2.9			107.4
LOS		A			C				A			F
Approach Delay					30.8			2.9			107.4	
Approach LOS					C			A			F	
Queue Length 50th (ft)		0			580				0			~747
Queue Length 95th (ft)		m0			681				0			#866
Internal Link Dist (ft)		517			1126			463			420	
Turn Bay Length (ft)												
Base Capacity (vph)		3539			1895				1587			1444
Starvation Cap Reductn		0			0				0			0
Spillback Cap Reductn		0			0				0			0
Storage Cap Reductn		0			0				0			0
Reduced v/c Ratio		0.39			0.81				0.72			1.13

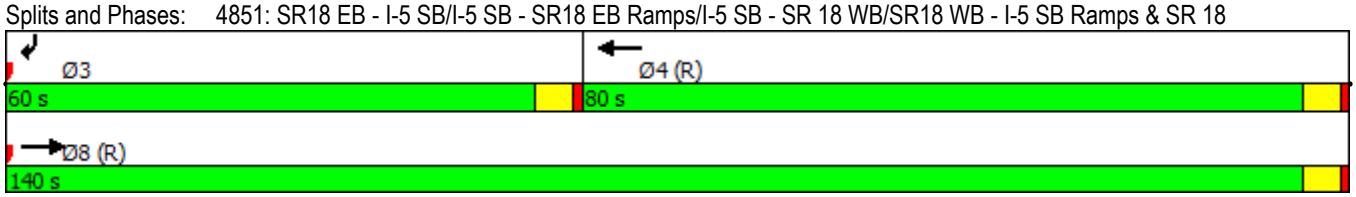
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 106 (76%), Referenced to phase 4:WBT and 8:EBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 39.8	Intersection LOS: D
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

~ 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.

Splits and Phases: 4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

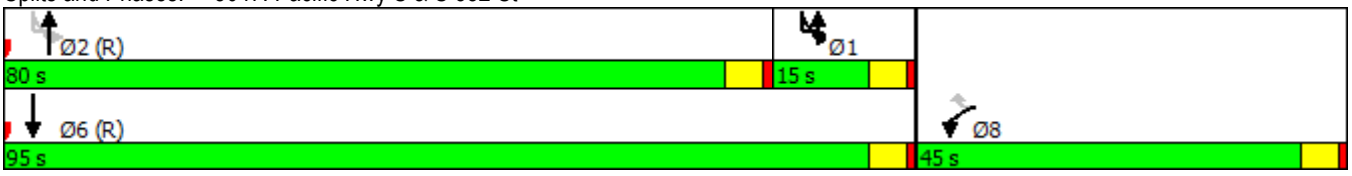


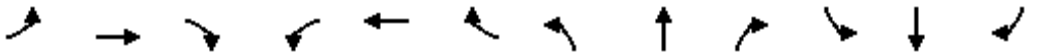
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	296	1124	246	0	2070
Future Volume (vph)	2	296	1124	246	0	2070
Satd. Flow (prot)	1770	1583	4899	0	1881	5136
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	4899	0	1881	5136
Satd. Flow (RTOR)		187	53			
Lane Group Flow (vph)	2	296	1370	0	0	2070
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	8		2		1	6
Permitted Phases		8			2	
Total Split (s)	45.0	45.0	80.0		15.0	95.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)	15.5	15.5	114.5			114.5
Actuated g/C Ratio	0.11	0.11	0.82			0.82
v/c Ratio	0.01	0.87	0.34			0.49
Control Delay	44.5	44.9	0.5			14.7
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	44.5	44.9	0.5			14.7
LOS	D	D	A			B
Approach Delay	44.9		0.5			14.7
Approach LOS	D		A			B
Queue Length 50th (ft)	1	98	8			488
Queue Length 95th (ft)	m5	m108	9			m522
Internal Link Dist (ft)	1538		1299			1351
Turn Bay Length (ft)	100					
Base Capacity (vph)	505	585	4014			4198
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.00	0.51	0.34			0.49

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 5047: Pacific Hwy S & S 352 St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	108	123	197	108	296	18	1330	253	231	2079	172
Future Volume (vph)	15	108	123	197	108	296	18	1330	253	231	2079	172
Satd. Flow (prot)	1747	1853	1563	1759	1644	1574	1770	3415	0	1761	3507	1575
Flt Permitted	0.950			0.950	0.995		0.045			0.061		
Satd. Flow (perm)	1730	1853	1524	1740	1642	1534	84	3415	0	113	3507	1497
Satd. Flow (RTOR)			132		21	109		25				113
Lane Group Flow (vph)	15	108	123	177	220	204	18	1583	0	231	2079	172
Turn Type	Split	NA	Perm	Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3	1	5	2		1	6	
Permitted Phases			4			3	6			2		6
Total Split (s)	15.0	15.0	15.0	25.0	25.0	18.0	10.0	82.0		18.0	90.0	90.0
Total Lost Time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	9.2	9.2	9.2	18.2	18.2	30.2	94.1	78.1		91.1	92.1	92.1
Actuated g/C Ratio	0.07	0.07	0.07	0.13	0.13	0.22	0.67	0.56		0.65	0.66	0.66
v/c Ratio	0.13	0.89	0.55	0.78	0.95	0.49	0.16	0.83		1.02	0.90	0.17
Control Delay	37.5	94.5	16.4	81.2	100.9	19.1	18.8	26.6		75.5	10.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	37.5	94.5	16.4	81.2	100.9	19.1	18.8	26.6		75.5	10.5	0.1
LOS	D	F	B	F	F	B	B	C		E	B	A
Approach Delay		52.0			67.3			26.6			15.8	
Approach LOS		D			E			C			B	
Queue Length 50th (ft)	11	94	46	165	201	61	5	451		~152	415	0
Queue Length 95th (ft)	30	#207	67	#277	#375	128	m13	616		m134	m964	m0
Internal Link Dist (ft)		1538			420			954			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	118	125	226	238	241	419	116	1915		226	2306	1023
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	0.13	0.86	0.54	0.74	0.91	0.49	0.16	0.83		1.02	0.90	0.17

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 112 (80%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	

Description:

~ 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.

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St

Queues
5240: 1 Av S & SW 356 St/S 356 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Future Volume (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Satd. Flow (prot)	1791	1900	1615	1725	3437	1531	1729	1820	1560	1761	3522	2762
Flt Permitted	0.087			0.441			0.282			0.256		
Satd. Flow (perm)	164	1900	1564	795	3437	1455	510	1820	1489	467	3522	2631
Satd. Flow (RTOR)			125			156			168			176
Lane Group Flow (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6		2	8		4	4		8
Total Split (s)	42.0	80.0	80.0	15.0	53.0	53.0	15.0	19.0	19.0	26.0	30.0	42.0
Total Lost Time (s)	5.5	5.5	5.5	4.5	4.5	5.5	5.0	4.5	4.5	5.0	4.5	5.5
Act Effct Green (s)	83.7	80.2	80.2	86.6	48.2	47.2	36.3	14.5	14.5	35.3	30.8	66.3
Actuated g/C Ratio	0.60	0.57	0.57	0.62	0.34	0.34	0.26	0.10	0.10	0.25	0.22	0.47
v/c Ratio	1.06	0.37	0.05	0.12	0.95	0.36	0.22	1.04	0.17	1.11	0.60	0.70
Control Delay	99.8	18.0	0.1	7.8	30.7	3.3	39.8	135.3	1.2	98.1	33.7	12.6
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	99.8	18.0	0.1	7.8	30.7	3.3	39.8	135.3	1.2	98.1	33.7	12.6
LOS	F	B	A	A	C	A	D	F	A	F	C	B
Approach Delay		62.3			25.4			97.1			34.9	
Approach LOS		E			C			F			C	
Queue Length 50th (ft)	~494	198	0	16	458	6	29	~190	0	~313	157	89
Queue Length 95th (ft)	#726	280	0	m18	m#624	m16	61	#351	0	m#315	m172	m102
Internal Link Dist (ft)		2555			297			560			529	
Turn Bay Length (ft)	150			125			150		150	150		200
Base Capacity (vph)	522	1088	949	578	1190	596	226	188	304	314	774	1372
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	1.06	0.37	0.05	0.11	0.94	0.36	0.19	1.04	0.17	1.11	0.60	0.70

Intersection Summary

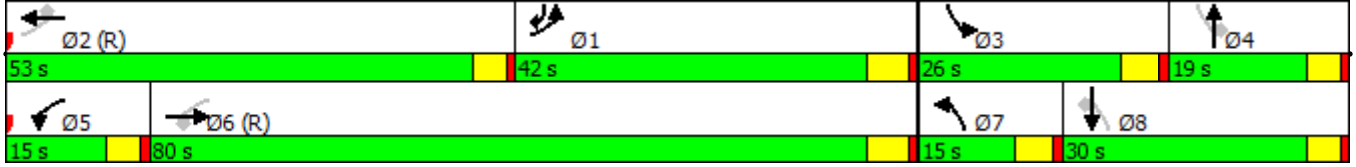
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 42.1 Intersection LOS: D
Intersection Capacity Utilization 110.8% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 5240: 1 Av S & SW 356 St/S 356 St

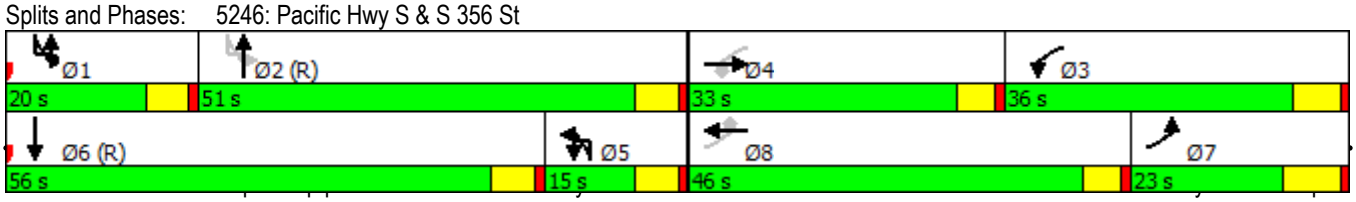


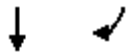
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
Future Volume (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
Satd. Flow (prot)	1764	3557	1579	1782	3592	1594	0	3399	4985	0	0	1787
Flt Permitted	0.103			0.143				0.950				0.096
Satd. Flow (perm)	191	3557	1537	267	3592	1555	0	3387	4985	0	0	181
Satd. Flow (RTOR)			199			160			5			
Lane Group Flow (vph)	216	694	178	427	883	51	0	159	1250	0	0	155
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4		8					2	2
Total Split (s)	23.0	33.0	33.0	36.0	46.0	46.0	15.0	15.0	51.0		20.0	20.0
Total Lost Time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Act Effct Green (s)	55.0	28.0	28.0	57.0	38.9	37.9		10.5	49.3			60.0
Actuated g/C Ratio	0.39	0.20	0.20	0.41	0.28	0.27		0.08	0.35			0.43
v/c Ratio	0.78	0.98	0.38	0.99	0.89	0.09		0.63	0.71			0.73
Control Delay	78.0	80.6	9.4	83.7	76.8	1.1		74.3	42.1			67.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
Total Delay	78.0	80.6	9.4	83.7	76.8	1.1		74.3	42.1			67.1
LOS	E	F	A	F	E	A		E	D			E
Approach Delay		68.4			76.1				45.8			
Approach LOS		E			E				D			
Queue Length 50th (ft)	153	342	21	249	431	0		73	359			90
Queue Length 95th (ft)	m#215	m#405	m37	m#543	507	m2		113	427			175
Internal Link Dist (ft)		1184			1704				675			
Turn Bay Length (ft)	400		175	100				225				250
Base Capacity (vph)	278	711	466	433	1051	558		254	1758			247
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	0.78	0.98	0.38	0.99	0.84	0.09		0.63	0.71			0.63

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 126 (90%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 55.0 Intersection LOS: E
Intersection Capacity Utilization 100.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 5246: Pacific Hwy S & S 356 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1234	447
Future Volume (vph)	1234	447
Satd. Flow (prot)	4878	0
Flt Permitted		
Satd. Flow (perm)	4878	0
Satd. Flow (RTOR)	73	
Lane Group Flow (vph)	1681	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	56.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	50.5	
Actuated g/C Ratio	0.36	
v/c Ratio	0.93	
Control Delay	35.9	
Queue Delay	0.0	
Total Delay	35.9	
LOS	D	
Approach Delay	38.5	
Approach LOS	D	
Queue Length 50th (ft)	184	
Queue Length 95th (ft)	#375	
Internal Link Dist (ft)	1299	
Turn Bay Length (ft)		
Base Capacity (vph)	1806	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.93	

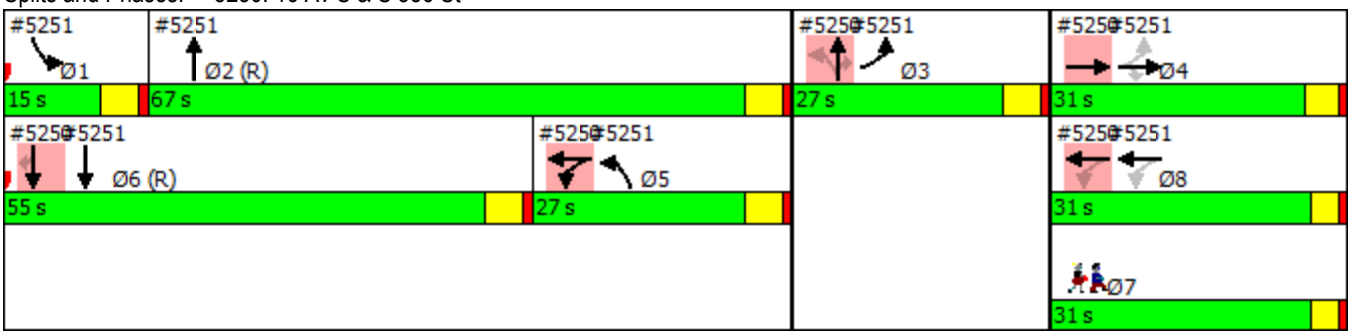
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	995	33	39	833	0	33	11	125	0	96	410
Future Volume (vph)	0	995	33	39	833	0	33	11	125	0	96	410
Satd. Flow (prot)	0	3394	0	0	3550	0	0	1564	1482	0	1863	1583
Flt Permitted					0.690			0.840				
Satd. Flow (perm)	0	3394	0	0	2454	0	0	1330	1437	0	1863	1535
Satd. Flow (RTOR)		2										264
Lane Group Flow (vph)	0	1028	0	0	872	0	0	85	84	0	96	410
Turn Type		NA		custom	NA		Perm	NA	Perm		NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3			6
Total Split (s)		31.0		27.0			27.0	27.0	27.0		55.0	55.0
Total Lost Time (s)		3.5						4.0	4.0		3.0	3.0
Act Effct Green (s)		27.5			52.0			14.0	14.0		61.0	61.0
Actuated g/C Ratio		0.20			0.37			0.10	0.10		0.44	0.44
v/c Ratio		1.54			0.79			0.64	0.59		0.12	0.50
Control Delay		270.9			11.4			81.0	75.5		22.5	8.9
Queue Delay		2.2			0.0			0.7	0.5		0.0	0.0
Total Delay		273.1			11.4			81.7	76.0		22.5	8.9
LOS		F			B			F	E		C	A
Approach Delay		273.1			11.4			78.8			11.5	
Approach LOS		F			B			E			B	
Queue Length 50th (ft)		~708			94			80	77		39	31
Queue Length 95th (ft)		m#770			m32			136	133		m61	m90
Internal Link Dist (ft)		386			19			910			219	
Turn Bay Length (ft)									100			50
Base Capacity (vph)		668			1099			218	236		811	817
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		170			0			27	30		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		2.06			0.79			0.45	0.41		0.12	0.50

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.54	
Intersection Signal Delay: 120.3	Intersection LOS: F
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

~ 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.

Splits and Phases: 5250: 16 Av S & S 356 St



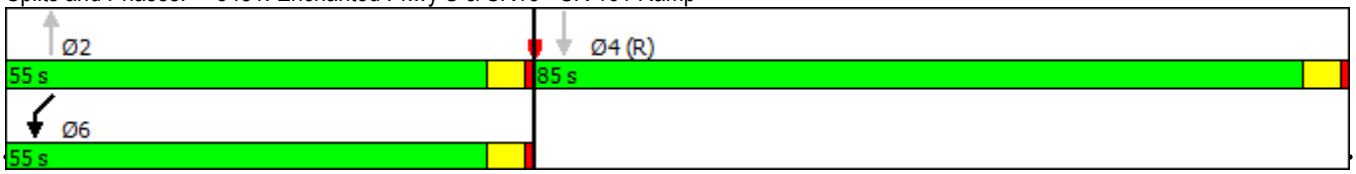
Lane Group	Ø1	Ø2	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	7	8
Permitted Phases				
Total Split (s)	15.0	67.0	31.0	31.0
Total Lost Time (s)				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	894	0	0	1479	167	164
Future Volume (vph)	894	0	0	1479	167	164
Satd. Flow (prot)	3543	0	0	3560	3250	0
Flt Permitted					0.975	
Satd. Flow (perm)	3543	0	0	3560	3250	0
Satd. Flow (RTOR)					164	
Lane Group Flow (vph)	894	0	0	1479	331	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Total Split (s)	55.0			85.0	55.0	
Total Lost Time (s)	5.0			5.0	5.0	
Act Effct Green (s)	50.0			80.0	50.0	
Actuated g/C Ratio	0.36			0.57	0.36	
v/c Ratio	0.71			0.73	0.26	
Control Delay	42.9			3.7	16.1	
Queue Delay	0.0			0.0	0.0	
Total Delay	42.9			3.7	16.1	
LOS	D			A	B	
Approach Delay	42.9			3.7	16.1	
Approach LOS	D			A	B	
Queue Length 50th (ft)	304			117	53	
Queue Length 95th (ft)	467			m99	90	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	1265			2034	1266	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.71			0.73	0.26	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	
Description: WSDOT 2013-03-19	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

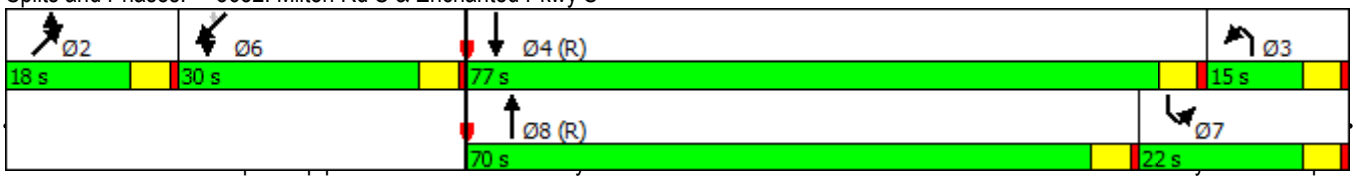


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	538	26	101	1029	296	112	59	22	34	56	234
Future Volume (vph)	3	538	26	101	1029	296	112	59	22	34	56	234
Satd. Flow (prot)	1743	3435	0	1787	3376	0	1712	1718	0	0	1809	1555
Flt Permitted	0.950			0.950			0.950				0.981	
Satd. Flow (perm)	1725	3435	0	1735	3376	0	1654	1718	0	0	1786	1478
Satd. Flow (RTOR)		5			39			11				234
Lane Group Flow (vph)	3	564	0	101	1325	0	112	81	0	0	90	234
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Total Split (s)	15.0	70.0		22.0	77.0		18.0	18.0		30.0	30.0	30.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Act Effct Green (s)	6.0	84.7		12.1	98.8		11.8	11.8			11.4	11.4
Actuated g/C Ratio	0.04	0.60		0.09	0.71		0.08	0.08			0.08	0.08
v/c Ratio	0.04	0.27		0.66	0.55		0.78	0.52			0.62	0.70
Control Delay	64.3	13.6		63.1	13.0		95.6	65.0			79.2	18.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	64.3	13.6		63.1	13.0		95.6	65.0			79.2	18.6
LOS	E	B		E	B		F	E			E	B
Approach Delay		13.9			16.6			82.8			35.5	
Approach LOS		B			B			F			D	
Queue Length 50th (ft)	3	116		85	198		101	61			81	0
Queue Length 95th (ft)	m10	175		m113	347		#190	118			136	84
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	124	2079		216	2394		158	169			323	456
Starvation Cap Reductn	0	0		0	94		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	0.02	0.27		0.47	0.58		0.71	0.48			0.28	0.51

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 128 (91%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15
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.

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	34	9	853	1586	23
Future Volume (vph)	46	34	9	853	1586	23
Satd. Flow (prot)	1755	1571	1778	3543	3496	0
Flt Permitted	0.950		0.142			
Satd. Flow (perm)	1688	1493	266	3543	3496	0
Satd. Flow (RTOR)		34			4	
Lane Group Flow (vph)	46	34	9	853	1609	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	21.0	21.0	119.0	119.0	119.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	8.1	8.1	124.9	124.9	124.9	
Actuated g/C Ratio	0.06	0.06	0.89	0.89	0.89	
v/c Ratio	0.46	0.29	0.04	0.27	0.52	
Control Delay	77.4	25.0	1.9	1.7	1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	77.4	25.0	1.9	1.7	1.2	
LOS	E	C	A	A	A	
Approach Delay	55.1			1.7	1.2	
Approach LOS	E			A	A	
Queue Length 50th (ft)	41	0	1	49	41	
Queue Length 95th (ft)	84	36	4	76	60	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100	200			
Base Capacity (vph)	200	200	237	3161	3120	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.17	0.04	0.27	0.52	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 3.1 Intersection LOS: A
Intersection Capacity Utilization 58.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S

Queues
251: Pacific Hwy S & S 276 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	51	1	75	39	5	118	23	42	942	9	77	17
Future Volume (vph)	51	1	75	39	5	118	23	42	942	9	77	17
Satd. Flow (prot)	1727	1551	0	1596	1534	0	0	1805	5131	0	0	1748
Flt Permitted	0.484			0.633				0.950				0.280
Satd. Flow (perm)	873	1551	0	1022	1534	0	0	1800	5131	0	0	510
Satd. Flow (RTOR)		56			118				2			
Lane Group Flow (vph)	51	76	0	39	123	0	0	65	951	0	0	94
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	22.0	22.0		22.0	22.0		19.0	19.0	103.0		15.0	15.0
Total Lost Time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Act Effct Green (s)	12.2	12.2		10.7	10.7			9.5	105.8			113.3
Actuated g/C Ratio	0.09	0.09		0.08	0.08			0.07	0.76			0.81
v/c Ratio	0.68	0.41		0.51	0.55			0.54	0.25			0.20
Control Delay	100.0	27.4		81.8	20.2			62.1	2.2			3.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	100.0	27.4		81.8	20.2			62.1	2.2			3.8
LOS	F	C		F	C			E	A			A
Approach Delay		56.6			35.0				6.0			
Approach LOS		E			D				A			
Queue Length 50th (ft)	46	17		35	4			61	28			10
Queue Length 95th (ft)	91	67		73	66			m79	m42			25
Internal Link Dist (ft)		107			863				909			
Turn Bay Length (ft)	25			200				175				275
Base Capacity (vph)	109	242		116	279			167	3876			511
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.47	0.31		0.34	0.44			0.39	0.25			0.18

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 48 (34%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15
Description:
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: Pacific Hwy S & S 276 St

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2282	67
Future Volume (vph)	2282	67
Satd. Flow (prot)	4986	0
Flt Permitted		
Satd. Flow (perm)	4986	0
Satd. Flow (RTOR)	7	
Lane Group Flow (vph)	2349	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	99.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	105.2	
Actuated g/C Ratio	0.75	
v/c Ratio	0.63	
Control Delay	10.7	
Queue Delay	0.0	
Total Delay	10.7	
LOS	B	
Approach Delay	10.4	
Approach LOS	B	
Queue Length 50th (ft)	342	
Queue Length 95th (ft)	500	
Internal Link Dist (ft)	1335	
Turn Bay Length (ft)		
Base Capacity (vph)	3747	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.63	

Intersection Summary

Queues
1050: Pacific Hwy S & S 288 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	37	129	22	1193	59	269	34	14	822	867	25	612
Future Volume (vph)	37	129	22	1193	59	269	34	14	822	867	25	612
Satd. Flow (prot)	0	3426	0	1711	1728	1631	0	1787	4486	1375	0	3318
Flt Permitted		0.990		0.950	0.957			0.950				0.950
Satd. Flow (perm)	0	3426	0	1711	1728	1585	0	1787	4486	1307	0	3318
Satd. Flow (RTOR)						180			92	433		
Lane Group Flow (vph)	0	188	0	620	632	269	0	48	1256	433	0	637
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8				2		
Total Split (s)	15.0	15.0		52.0	52.0	52.0	15.0	15.0	42.0	42.0	31.0	31.0
Total Lost Time (s)		6.0		5.5	5.5	5.5		5.5	5.5	7.0		5.0
Act Effct Green (s)		8.8		46.5	46.5	46.5		8.7	36.7	35.2		26.0
Actuated g/C Ratio		0.06		0.33	0.33	0.33		0.06	0.26	0.25		0.19
v/c Ratio		0.87		1.09	1.10	0.42		0.43	1.01	0.66		1.03
Control Delay		99.6		108.8	112.3	13.9		55.8	57.3	8.5		90.9
Queue Delay		0.0		5.7	2.4	0.7		0.0	0.0	0.0		0.0
Total Delay		99.6		114.5	114.7	14.7		55.8	57.3	8.5		90.9
LOS		F		F	F	B		E	E	A		F
Approach Delay		99.6			96.9				45.1			
Approach LOS		F			F				D			
Queue Length 50th (ft)		91		~668	~686	57		38	~228	63		~322
Queue Length 95th (ft)		#161		#916	#936	136		m68	#528	m84		m#441
Internal Link Dist (ft)		420			339				2705			
Turn Bay Length (ft)				225				325				450
Base Capacity (vph)		220		568	573	646		121	1242	652		616
Starvation Cap Reductn		0		141	144	155		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		0.85		1.45	1.47	0.55		0.40	1.01	0.66		1.03

Intersection Summary

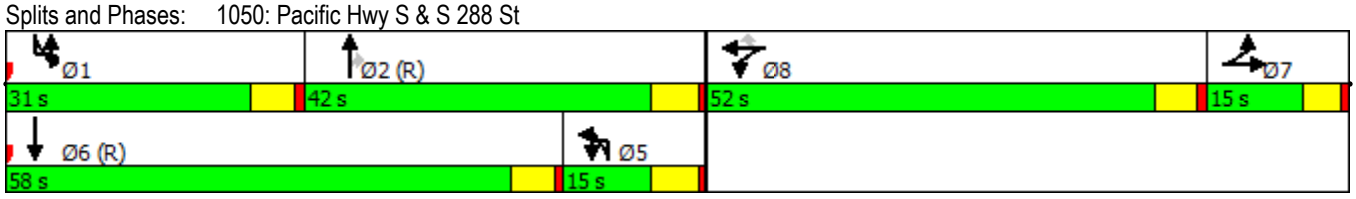
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 138 (99%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 69.9 Intersection LOS: E
Intersection Capacity Utilization 102.8% ICU Level of Service G
Analysis Period (min) 15

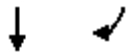
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1050: Pacific Hwy S & S 288 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1857	180
Future Volume (vph)	1857	180
Satd. Flow (prot)	4922	0
Flt Permitted		
Satd. Flow (perm)	4922	0
Satd. Flow (RTOR)	13	
Lane Group Flow (vph)	2037	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	58.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	56.2	
Actuated g/C Ratio	0.40	
v/c Ratio	1.03	
Control Delay	61.4	
Queue Delay	0.0	
Total Delay	61.4	
LOS	E	
Approach Delay	68.5	
Approach LOS	E	
Queue Length 50th (ft)	~763	
Queue Length 95th (ft)	m#855	
Internal Link Dist (ft)	1437	
Turn Bay Length (ft)		
Base Capacity (vph)	1982	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.03	

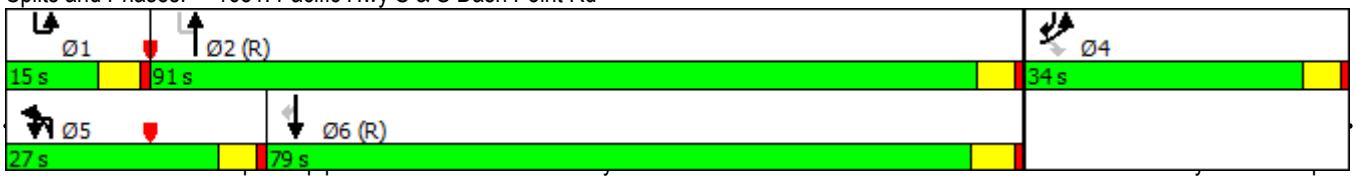
Intersection Summary

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	560	87	90	428	1238	42	1939	1138
Future Volume (vph)	560	87	90	428	1238	42	1939	1138
Satd. Flow (prot)	3311	1541	0	3467	5095	1753	4661	1382
Flt Permitted	0.950			0.950		0.188		
Satd. Flow (perm)	3311	1482	0	3464	5095	347	4661	1350
Satd. Flow (RTOR)		86					50	23
Lane Group Flow (vph)	560	87	0	518	1238	42	2383	694
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Total Split (s)	34.0	34.0	27.0	27.0	91.0	15.0	79.0	34.0
Total Lost Time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Act Effct Green (s)	27.0	27.0		22.0	94.6	98.1	76.1	103.0
Actuated g/C Ratio	0.19	0.19		0.16	0.68	0.70	0.54	0.74
v/c Ratio	0.88	0.25		0.95	0.36	0.14	0.93	0.69
Control Delay	70.6	11.0		86.4	10.9	4.3	21.5	9.1
Queue Delay	51.3	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	121.9	11.0		86.4	10.9	4.3	21.5	9.1
LOS	F	B		F	B	A	C	A
Approach Delay	107.0				33.2		18.5	
Approach LOS	F				C		B	
Queue Length 50th (ft)	253	1		246	212	6	426	255
Queue Length 95th (ft)	322	48		m#346	305	m6	m404	m243
Internal Link Dist (ft)	244				640		2705	
Turn Bay Length (ft)	75			400		250		650
Base Capacity (vph)	685	375		544	3442	346	2555	1025
Starvation Cap Reductn	179	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	1.11	0.23		0.95	0.36	0.12	0.93	0.68

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 97.5% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 1651: Pacific Hwy S & S Dash Point Rd

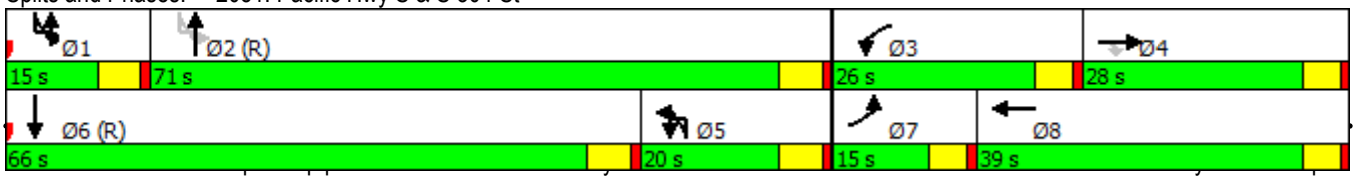


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	29	77	279	408	303	65	82	77	1457	167	5	32
Future Volume (vph)	29	77	279	408	303	65	82	77	1457	167	5	32
Satd. Flow (prot)	1762	1837	1505	3320	1721	0	0	1778	4983	0	0	1752
Flt Permitted	0.950			0.950				0.950				0.094
Satd. Flow (perm)	1757	1837	1471	3320	1721	0	0	1774	4983	0	0	173
Satd. Flow (RTOR)			183		7				19			
Lane Group Flow (vph)	29	77	279	408	368	0	0	159	1624	0	0	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4								2	2
Total Split (s)	15.0	28.0	28.0	26.0	39.0		20.0	20.0	71.0		15.0	15.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			5.5	5.5			5.5
Act Effct Green (s)	5.9	14.9	14.9	18.9	32.0			14.5	79.5			84.3
Actuated g/C Ratio	0.04	0.11	0.11	0.14	0.23			0.10	0.57			0.60
v/c Ratio	0.39	0.39	0.87	0.91	0.92			0.86	0.57			0.22
Control Delay	79.8	62.0	47.2	84.3	80.8			70.2	6.1			4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	79.8	62.0	47.2	84.3	80.8			70.2	6.1			4.6
LOS	E	E	D	F	F			E	A			A
Approach Delay		52.6			82.7				11.8			
Approach LOS		D			F				B			
Queue Length 50th (ft)	26	64	85	189	322			131	82			4
Queue Length 95th (ft)	61	113	192	#273	#500			m#270	126			m7
Internal Link Dist (ft)		218			1954				1274			
Turn Bay Length (ft)	100			100				300				275
Base Capacity (vph)	113	288	385	474	414			184	2838			214
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	0.26	0.27	0.72	0.86	0.89			0.86	0.57			0.17

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 62 (44%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 25.3 Intersection LOS: C
Intersection Capacity Utilization 98.5% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2051: Pacific Hwy S & S 304 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1902	87
Future Volume (vph)	1902	87
Satd. Flow (prot)	4924	0
Flt Permitted		
Satd. Flow (perm)	4924	0
Satd. Flow (RTOR)	6	
Lane Group Flow (vph)	1989	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	66.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	68.7	
Actuated g/C Ratio	0.49	
v/c Ratio	0.82	
Control Delay	10.0	
Queue Delay	0.0	
Total Delay	10.0	
LOS	B	
Approach Delay	9.9	
Approach LOS	A	
Queue Length 50th (ft)	354	
Queue Length 95th (ft)	m531	
Internal Link Dist (ft)	1451	
Turn Bay Length (ft)		
Base Capacity (vph)	2418	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.82	

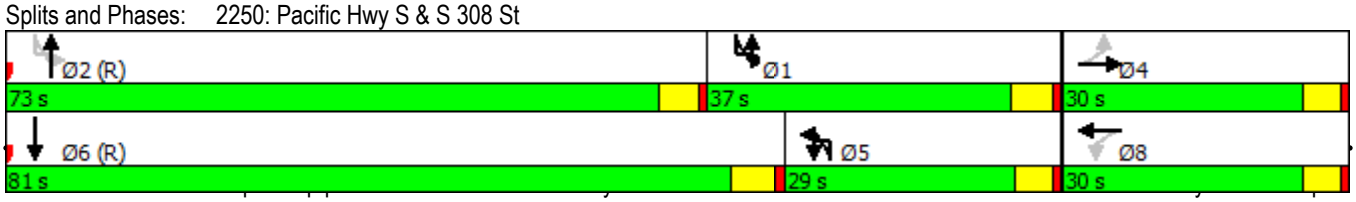
Intersection Summary

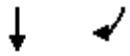
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	112	41	78	32	44	90	150	54	1530	26	67	263
Future Volume (vph)	112	41	78	32	44	90	150	54	1530	26	67	263
Satd. Flow (prot)	1693	1723	0	1708	1786	0	0	1761	5004	0	0	1796
Flt Permitted	0.528			0.580				0.950				0.107
Satd. Flow (perm)	939	1723	0	1028	1786	0	0	1761	5004	0	0	202
Satd. Flow (RTOR)		59			63				2			
Lane Group Flow (vph)	112	119	0	32	134	0	0	204	1556	0	0	330
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	30.0	30.0		30.0	30.0		29.0	29.0	73.0		37.0	37.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	5.0			5.5
Act Effct Green (s)	17.9	17.9		17.9	17.9			19.7	78.5			105.1
Actuated g/C Ratio	0.13	0.13		0.13	0.13			0.14	0.56			0.75
v/c Ratio	0.94	0.44		0.24	0.48			0.83	0.55			0.72
Control Delay	126.8	32.8		57.0	34.3			76.2	7.4			39.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	126.8	32.8		57.0	34.3			76.2	7.4			39.9
LOS	F	C		E	C			E	A			D
Approach Delay		78.4			38.7				15.3			
Approach LOS		E			D				B			
Queue Length 50th (ft)	102	50		26	59			192	109			202
Queue Length 95th (ft)	#188	109		58	122			m208	m187			m279
Internal Link Dist (ft)		309			353				582			
Turn Bay Length (ft)								300				275
Base Capacity (vph)	160	344		176	358			301	2806			516
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.70	0.35		0.18	0.37			0.68	0.55			0.64

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 70 (50%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 95.7% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2250: Pacific Hwy S & S 308 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1970	403
Future Volume (vph)	1970	403
Satd. Flow (prot)	4958	0
Flt Permitted		
Satd. Flow (perm)	4958	0
Satd. Flow (RTOR)	48	
Lane Group Flow (vph)	2373	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	81.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	86.0	
Actuated g/C Ratio	0.61	
v/c Ratio	0.77	
Control Delay	8.8	
Queue Delay	0.0	
Total Delay	8.8	
LOS	A	
Approach Delay	12.6	
Approach LOS	B	
Queue Length 50th (ft)	209	
Queue Length 95th (ft)	233	
Internal Link Dist (ft)	1274	
Turn Bay Length (ft)		
Base Capacity (vph)	3063	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.77	

Intersection Summary

Queues
2550: Pacific Hwy S & S 312 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	404	590	230	218	1226	113	29	425	1132	79	80	176
Future Volume (vph)	404	590	230	218	1226	113	29	425	1132	79	80	176
Satd. Flow (prot)	3408	3424	1566	1759	3357	0	0	3439	5004	0	0	1773
Flt Permitted	0.082			0.302				0.950				0.950
Satd. Flow (perm)	294	3424	1488	555	3357	0	0	3429	5004	0	0	1749
Satd. Flow (RTOR)			201		8				8			
Lane Group Flow (vph)	404	590	230	218	1339	0	0	454	1211	0	0	256
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4								
Total Split (s)	16.0	48.0	48.0	23.0	55.0		22.0	22.0	43.0		26.0	26.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.5			5.0	5.0			5.0
Act Effct Green (s)	60.0	45.9	45.9	60.0	48.5			17.0	38.0			21.0
Actuated g/C Ratio	0.43	0.33	0.33	0.43	0.35			0.12	0.27			0.15
v/c Ratio	1.13	0.53	0.37	0.61	1.15			1.09	0.89			0.97
Control Delay	134.5	40.9	8.9	30.9	117.5			94.1	39.4			94.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	134.5	40.9	8.9	30.9	117.5			94.1	39.4			94.0
LOS	F	D	A	C	F			F	D			F
Approach Delay		65.8			105.3				54.3			
Approach LOS		E			F				D			
Queue Length 50th (ft)	~167	230	18	118	~750			~235	415			223
Queue Length 95th (ft)	#276	303	87	177	#892			m#337	m465			m#378
Internal Link Dist (ft)		596			551				1258			
Turn Bay Length (ft)	225			275				450				225
Base Capacity (vph)	359	1121	622	401	1168			417	1364			265
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	1.13	0.53	0.37	0.54	1.15			1.09	0.89			0.97

Intersection Summary

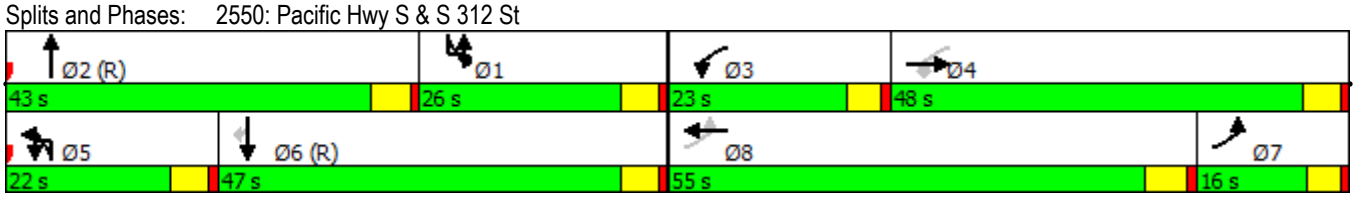
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 64 (46%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 78.4 Intersection LOS: E
Intersection Capacity Utilization 111.3% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 2550: Pacific Hwy S & S 312 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1276	719
Future Volume (vph)	1276	719
Satd. Flow (prot)	4630	1353
Flt Permitted		
Satd. Flow (perm)	4630	1232
Satd. Flow (RTOR)	29	169
Lane Group Flow (vph)	1542	453
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Total Split (s)	47.0	47.0
Total Lost Time (s)	5.0	6.0
Act Effct Green (s)	42.0	41.0
Actuated g/C Ratio	0.30	0.29
v/c Ratio	1.09	0.94
Control Delay	92.9	50.8
Queue Delay	0.0	0.0
Total Delay	92.9	50.8
LOS	F	D
Approach Delay	84.5	
Approach LOS	F	
Queue Length 50th (ft)	~598	248
Queue Length 95th (ft)	#701	#596
Internal Link Dist (ft)	580	
Turn Bay Length (ft)		225
Base Capacity (vph)	1409	480
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.09	0.94

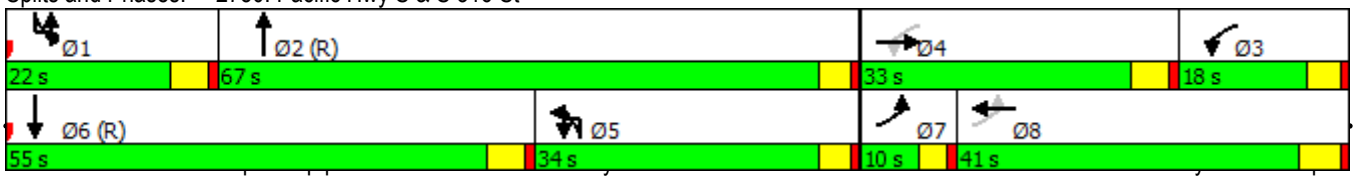
Intersection Summary

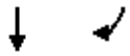
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	79	98	188	215	281	132	87	265	1549	102	46	109
Future Volume (vph)	79	98	188	215	281	132	87	265	1549	102	46	109
Satd. Flow (prot)	1762	1552	0	1708	1664	0	0	1769	4961	0	0	1737
Flt Permitted	0.143			0.252				0.950				0.950
Satd. Flow (perm)	264	1552	0	448	1664	0	0	1760	4961	0	0	1731
Satd. Flow (RTOR)		61			16				9			
Lane Group Flow (vph)	79	286	0	215	413	0	0	352	1651	0	0	155
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	10.0	33.0		18.0	41.0		34.0	34.0	67.0		22.0	22.0
Total Lost Time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Act Effct Green (s)	40.8	27.0		39.8	34.3			29.5	64.5			15.3
Actuated g/C Ratio	0.29	0.19		0.28	0.24			0.21	0.46			0.11
v/c Ratio	0.61	0.82		0.91	0.98			0.95	0.72			0.82
Control Delay	56.0	62.0		91.3	90.1			52.4	8.4			65.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	56.0	62.0		91.3	90.1			52.4	8.4			65.3
LOS	E	E		F	F			D	A			E
Approach Delay		60.7			90.5				16.2			
Approach LOS		E			F				B			
Queue Length 50th (ft)	51	202		151	364			339	146			115
Queue Length 95th (ft)	#99	#349		#296	#584			m#373	m169			m128
Internal Link Dist (ft)		283			1233				1221			
Turn Bay Length (ft)	150			300				450				250
Base Capacity (vph)	130	348		240	422			372	2288			210
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.61	0.82		0.90	0.98			0.95	0.72			0.74

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 124 (89%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 35.9 Intersection LOS: D
Intersection Capacity Utilization 106.9% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 2750: Pacific Hwy S & S 316 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1487	200
Future Volume (vph)	1487	200
Satd. Flow (prot)	4962	0
Flt Permitted		
Satd. Flow (perm)	4962	0
Satd. Flow (RTOR)	19	
Lane Group Flow (vph)	1687	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	55.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	50.2	
Actuated g/C Ratio	0.36	
v/c Ratio	0.94	
Control Delay	30.8	
Queue Delay	0.0	
Total Delay	30.8	
LOS	C	
Approach Delay	33.7	
Approach LOS	C	
Queue Length 50th (ft)	576	
Queue Length 95th (ft)	m534	
Internal Link Dist (ft)	1258	
Turn Bay Length (ft)		
Base Capacity (vph)	1792	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.94	

Intersection Summary

Queues
3050: Pacific Hwy S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	47	282	1169	142	24	575	1581	393	33	331	1252	273
Future Volume (vph)	47	282	1169	142	24	575	1581	393	33	331	1252	273
Satd. Flow (prot)	0	3536	5114	0	0	3433	5031	1583	0	3344	5034	1542
Flt Permitted		0.950				0.950				0.950		
Satd. Flow (perm)	0	3528	5114	0	0	3420	5031	1548	0	3323	5034	1508
Satd. Flow (RTOR)			14					287				196
Lane Group Flow (vph)	0	329	1311	0	0	599	1581	393	0	364	1252	273
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2				8
Total Split (s)	19.0	19.0	41.0		30.0	30.0	52.0	52.0	27.0	27.0	40.0	40.0
Total Lost Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	6.0
Act Effct Green (s)		13.5	35.5			25.0	46.5	46.5		18.9	35.0	34.0
Actuated g/C Ratio		0.10	0.25			0.18	0.33	0.33		0.14	0.25	0.24
v/c Ratio		0.97	1.00			0.98	0.95	0.56		0.81	1.00	0.53
Control Delay		103.7	76.8			88.0	58.1	13.4		24.5	40.7	9.4
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		103.7	76.8			88.0	58.1	13.4		24.5	40.7	9.4
LOS		F	E			F	E	B		C	D	A
Approach Delay			82.2				58.2				33.1	
Approach LOS			F				E				C	
Queue Length 50th (ft)		156	~438			282	513	70		128	443	120
Queue Length 95th (ft)		#254	#550			#405	#613	176		m127	m437	m123
Internal Link Dist (ft)			550				1139				1190	
Turn Bay Length (ft)		425				300		250		275		
Base Capacity (vph)		340	1307			613	1671	705		525	1258	514
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		0.97	1.00			0.98	0.95	0.56		0.69	1.00	0.53

Intersection Summary

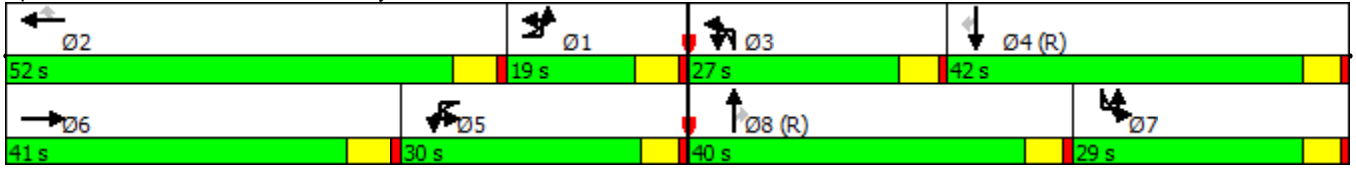
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 52.4 Intersection LOS: D
Intersection Capacity Utilization 115.7% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 3050: Pacific Hwy S & S 320 St



Lane Group	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	590	998	211
Future Volume (vph)	20	590	998	211
Satd. Flow (prot)	0	3440	5136	1548
Flt Permitted		0.950		
Satd. Flow (perm)	0	3427	5136	1510
Satd. Flow (RTOR)				144
Lane Group Flow (vph)	0	610	998	211
Turn Type	Prot	Prot	NA	Perm
Protected Phases	7	7	4	
Permitted Phases				4
Total Split (s)	29.0	29.0	42.0	42.0
Total Lost Time (s)		5.0	5.0	5.0
Act Effct Green (s)		24.0	40.1	40.1
Actuated g/C Ratio		0.17	0.29	0.29
v/c Ratio		1.04	0.68	0.39
Control Delay		69.7	24.3	4.3
Queue Delay		0.0	0.0	0.0
Total Delay		69.7	24.3	4.3
LOS		E	C	A
Approach Delay			37.2	
Approach LOS			D	
Queue Length 50th (ft)		~314	273	36
Queue Length 95th (ft)		m#364	m317	m45
Internal Link Dist (ft)			1221	
Turn Bay Length (ft)		325		225
Base Capacity (vph)		589	1470	535
Starvation Cap Reductn		0	0	0
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		1.04	0.68	0.39

Intersection Summary

Queues
3055: 23 Av S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	196	1688	99	297	1873	655	136	383	227	712	614
Future Volume (vph)	7	196	1688	99	297	1873	655	136	383	227	712	614
Satd. Flow (prot)	0	3240	4871	0	3448	5185	1519	1733	1735	2739	3392	1788
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3227	4871	0	3440	5185	1476	1724	1735	2675	3369	1788
Satd. Flow (RTOR)			7				418			174		
Lane Group Flow (vph)	0	203	1787	0	297	1873	655	136	383	227	712	614
Turn Type	Prot	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases							8			2		
Total Split (s)	15.0	15.0	53.0		18.0	56.0	56.0	16.0	36.0	36.0	33.0	53.0
Total Lost Time (s)		4.5	4.5		5.5	5.5	6.5	5.0	6.0	5.5	5.0	6.0
Act Effct Green (s)		10.5	48.5		12.5	50.5	49.5	11.0	30.0	30.5	28.0	47.0
Actuated g/C Ratio		0.08	0.35		0.09	0.36	0.35	0.08	0.21	0.22	0.20	0.34
v/c Ratio		0.84	1.06		0.97	1.00	0.83	1.00	1.03	0.32	1.05	1.02
Control Delay		91.2	82.1		66.7	38.1	11.1	138.9	90.3	5.6	101.6	88.3
Queue Delay		0.0	0.0		0.0	34.2	22.1	0.0	0.0	0.0	0.0	0.0
Total Delay		91.2	82.1		66.7	72.3	33.2	138.9	90.3	5.6	101.6	88.3
LOS		F	F		E	E	C	F	F	A	F	F
Approach Delay			83.1			62.6			73.4			82.0
Approach LOS			F			E			E			F
Queue Length 50th (ft)		95	~650		143	~518	73	~131	~383	41	~362	~593
Queue Length 95th (ft)		#163	#748		m#164	#732	m91	#272	#544	9	#489	#829
Internal Link Dist (ft)			487			460			680			931
Turn Bay Length (ft)		225			300			275			300	
Base Capacity (vph)		243	1692		307	1870	792	136	371	718	678	600
Starvation Cap Reductn		0	0		0	159	151	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		0.84	1.06		0.97	1.09	1.02	1.00	1.03	0.32	1.05	1.02

Intersection Summary

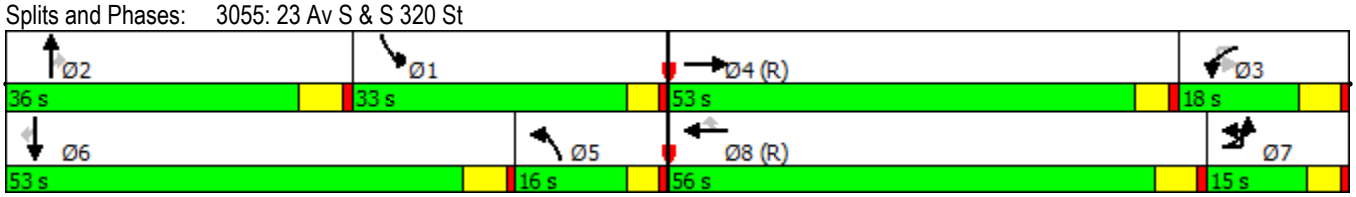
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 108 (77%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 73.8 Intersection LOS: E
Intersection Capacity Utilization 104.1% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 3055: 23 Av S & S 320 St



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	360
Future Volume (vph)	360
Satd. Flow (prot)	1558
Flt Permitted	
Satd. Flow (perm)	1522
Satd. Flow (RTOR)	108
Lane Group Flow (vph)	360
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Total Split (s)	53.0
Total Lost Time (s)	6.5
Act Effct Green (s)	46.5
Actuated g/C Ratio	0.33
v/c Ratio	0.62
Control Delay	32.4
Queue Delay	0.0
Total Delay	32.4
LOS	C
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	195
Queue Length 95th (ft)	307
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	577
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.62

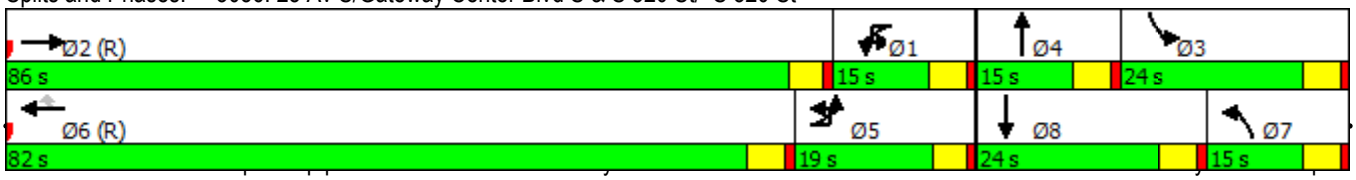
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	149	2477	15	3	49	2649	398	32	13	92	418
Future Volume (vph)	14	149	2477	15	3	49	2649	398	32	13	92	418
Satd. Flow (prot)	0	1752	4987	0	0	1778	5097	1591	1738	1569	0	3409
Flt Permitted		0.950				0.950			0.950			0.950
Satd. Flow (perm)	0	1750	4987	0	0	1774	5097	1517	1719	1569	0	3372
Satd. Flow (RTOR)			1					254		75		
Lane Group Flow (vph)	0	163	2492	0	0	52	2649	398	32	105	0	418
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6				
Total Split (s)	19.0	19.0	86.0		15.0	15.0	82.0	82.0	15.0	15.0		24.0
Total Lost Time (s)		4.5	4.5			5.0	5.0	6.0	6.0	6.0		6.0
Act Effct Green (s)		14.2	86.1			9.0	78.8	77.8	9.5	6.4		19.0
Actuated g/C Ratio		0.10	0.62			0.06	0.56	0.56	0.07	0.05		0.14
v/c Ratio		0.92	0.81			0.46	0.92	0.42	0.27	0.73		0.90
Control Delay		68.9	3.7			71.1	26.1	3.9	67.1	51.1		82.7
Queue Delay		0.0	1.0			0.0	13.3	0.6	0.0	0.4		0.0
Total Delay		68.9	4.6			71.1	39.3	4.5	67.1	51.5		82.7
LOS		E	A			E	D	A	E	D		F
Approach Delay			8.6				35.4			55.2		
Approach LOS			A				D			E		
Queue Length 50th (ft)		158	57			48	878	51	26	27		192
Queue Length 95th (ft)		m160	m55			m64	834	m59	64	90		#302
Internal Link Dist (ft)			460				380			431		
Turn Bay Length (ft)		100				200			125			
Base Capacity (vph)		181	3065			127	2869	955	140	171		465
Starvation Cap Reductn		0	189			0	273	251	0	0		0
Spillback Cap Reductn		0	304			0	265	0	0	4		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.90	0.90			0.41	1.02	0.57	0.23	0.63		0.90

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 86 (61%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 100.2% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	4	142
Future Volume (vph)	4	142
Satd. Flow (prot)	1560	0
Flt Permitted		
Satd. Flow (perm)	1560	0
Satd. Flow (RTOR)	116	
Lane Group Flow (vph)	146	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Total Split (s)	24.0	
Total Lost Time (s)	6.0	
Act Effct Green (s)	20.1	
Actuated g/C Ratio	0.14	
v/c Ratio	0.45	
Control Delay	20.5	
Queue Delay	0.0	
Total Delay	20.6	
LOS	C	
Approach Delay	66.6	
Approach LOS	E	
Queue Length 50th (ft)	27	
Queue Length 95th (ft)	94	
Internal Link Dist (ft)	200	
Turn Bay Length (ft)		
Base Capacity (vph)	347	
Starvation Cap Reductn	0	
Spillback Cap Reductn	5	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	

Intersection Summary

Queues

3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp 10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	Ø5
Lane Configurations												
Traffic Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1213	
Future Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1213	
Satd. Flow (prot)	0	5046	2751	1741	5072	0	0	0	1651	1664	3564	
Flt Permitted				0.066					0.950	0.950		
Satd. Flow (perm)	0	5046	2591	121	5072	0	0	0	1610	1527	3564	
Satd. Flow (RTOR)			779								55	
Lane Group Flow (vph)	0	1883	1072	309	1964	0	0	0	369	372	1213	
Turn Type		NA	Perm	D.P+P	NA				Prot	Prot	custom	
Protected Phases		2		1	6				4	4	4 5	5
Permitted Phases			2	2								
Total Split (s)		66.0	66.0	30.0	81.0				44.0	44.0		15.0
Total Lost Time (s)		5.0	5.0	5.0	5.0				5.0	5.0		
Act Effct Green (s)		61.0	61.0	86.0	76.8				39.0	39.0	53.2	
Actuated g/C Ratio		0.44	0.44	0.61	0.55				0.28	0.28	0.38	
v/c Ratio		0.86	0.68	0.85	0.71				0.80	0.80	0.87	
Control Delay		37.4	10.1	69.4	25.2				61.5	61.4	46.5	
Queue Delay		21.9	1.1	0.0	0.4				0.0	0.0	7.9	
Total Delay		59.3	11.2	69.4	25.6				61.5	61.4	54.4	
LOS		E	B	E	C				E	E	D	
Approach Delay		41.9			31.5					57.1		
Approach LOS		D			C					E		
Queue Length 50th (ft)		515	122	222	473				330	332	426	
Queue Length 95th (ft)		561	m134	#381	529				#489	#493	509	
Internal Link Dist (ft)		380			931		1129			888		
Turn Bay Length (ft)				150					600	600	600	
Base Capacity (vph)		2198	1568	363	2782				459	463	1408	
Starvation Cap Reductn		385	258	0	0				0	0	0	
Spillback Cap Reductn		0	0	0	320				0	0	171	
Storage Cap Reductn		0	0	0	0				0	0	0	
Reduced v/c Ratio		1.04	0.82	0.85	0.80				0.80	0.80	0.98	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 8 (6%), Referenced to phase 2:EBWB and 6:WBT, Start of Red

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 42.7 Intersection LOS: D

Intersection Capacity Utilization 96.0% ICU Level of Service F

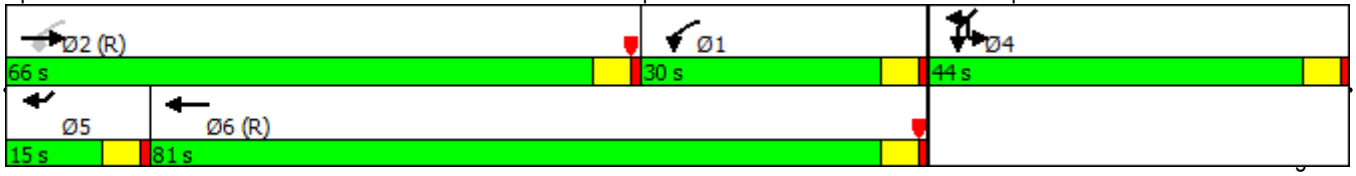
Analysis Period (min) 15

Description: All Traffic Data Services - 11/4/04

\# 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.

Splits and Phases: 3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1	93	39	16	90	136	555	19	46	672	54
Future Volume (vph)	96	1	93	39	16	90	136	555	19	46	672	54
Satd. Flow (prot)	1699	1542	0	1724	1611	0	1770	3445	0	1787	3465	0
Flt Permitted	0.536			0.631			0.337			0.413		
Satd. Flow (perm)	945	1542	0	1129	1611	0	623	3445	0	768	3465	0
Satd. Flow (RTOR)		93			90			3			7	
Lane Group Flow (vph)	96	94	0	39	106	0	136	574	0	46	726	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Total Split (s)	19.0	37.0		17.0	35.0		24.0	69.0		17.0	62.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Act Effct Green (s)	21.3	18.2		22.5	12.2		95.7	93.0		96.8	88.7	
Actuated g/C Ratio	0.15	0.13		0.16	0.09		0.68	0.66		0.69	0.63	
v/c Ratio	0.48	0.33		0.19	0.48		0.28	0.25		0.08	0.33	
Control Delay	53.3	12.2		43.3	21.2		14.1	19.9		0.8	1.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.3	12.2		43.3	21.2		14.1	19.9		0.8	1.3	
LOS	D	B		D	C		B	B		A	A	
Approach Delay		33.0			27.1			18.8			1.3	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	80	1		32	15		43	160		1	12	
Queue Length 95th (ft)	113	50		55	67		m108	m267		m2	m32	
Internal Link Dist (ft)		309			203			301			680	
Turn Bay Length (ft)	100			75			250			225		
Base Capacity (vph)	231	424		256	415		601	2289		638	2198	
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	0.42	0.22		0.15	0.26		0.23	0.25		0.07	0.33	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 40 (29%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 13.5 Intersection LOS: B
Intersection Capacity Utilization 55.2% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3255: 23 Av S & S 322 St

Queues
3350: Pacific Hwy S & S 324 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	98	345	122	955	690	60	162	156	1584	441	49	269
Future Volume (vph)	98	345	122	955	690	60	162	156	1584	441	49	269
Satd. Flow (prot)	1778	1812	1553	4926	1813	0	0	3419	5085	1533	0	3378
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1812	1516	4863	1813	0	0	3396	5085	1488	0	3356
Satd. Flow (RTOR)			132		4					304		
Lane Group Flow (vph)	98	345	122	955	750	0	0	318	1584	441	0	318
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Total Split (s)	15.0	40.0	40.0	35.0	60.0		18.0	18.0	47.0	47.0	18.0	18.0
Total Lost Time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0	6.0		5.0
Act Effct Green (s)	9.5	34.6	34.6	28.8	54.0			13.0	42.5	41.5		13.0
Actuated g/C Ratio	0.07	0.25	0.25	0.21	0.39			0.09	0.30	0.30		0.09
v/c Ratio	0.82	0.77	0.26	0.94	1.07			1.00	1.03	0.67		1.02
Control Delay	107.7	61.8	6.8	65.7	94.3			115.2	83.1	31.9		95.8
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0
Total Delay	107.7	61.8	6.8	65.7	94.3			115.2	83.1	31.9		95.8
LOS	F	E	A	E	F			F	F	C		F
Approach Delay		57.9			78.3				77.8			
Approach LOS		E			E				E			
Queue Length 50th (ft)	89	295	0	306	~761			~159	~584	260		~161
Queue Length 95th (ft)	#188	#418	44	#388	#1009			#261	#684	352		m#225
Internal Link Dist (ft)		1081			303				1289			
Turn Bay Length (ft)	200		275	500				275				275
Base Capacity (vph)	127	448	474	1037	701			317	1545	655		313
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	0.77	0.77	0.26	0.92	1.07			1.00	1.03	0.67		1.02

Intersection Summary

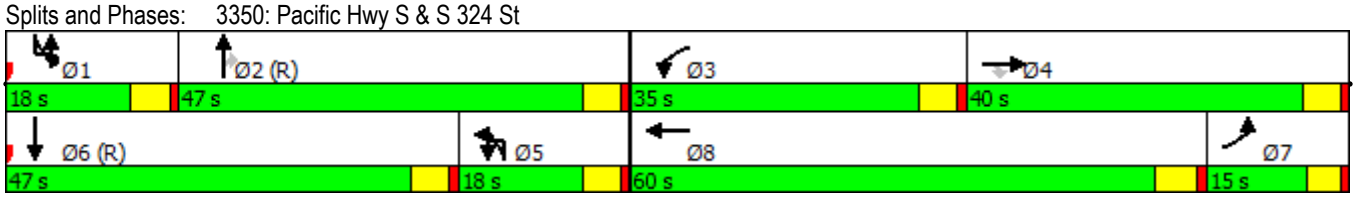
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 78 (56%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 76.9 Intersection LOS: E
Intersection Capacity Utilization 102.6% ICU Level of Service G
Analysis Period (min) 15

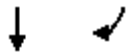
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 3350: Pacific Hwy S & S 324 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1389	152
Future Volume (vph)	1389	152
Satd. Flow (prot)	4945	0
Flt Permitted		
Satd. Flow (perm)	4945	0
Satd. Flow (RTOR)	14	
Lane Group Flow (vph)	1541	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	47.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	42.5	
Actuated g/C Ratio	0.30	
v/c Ratio	1.02	
Control Delay	77.0	
Queue Delay	0.0	
Total Delay	77.0	
LOS	E	
Approach Delay	80.2	
Approach LOS	F	
Queue Length 50th (ft)	~557	
Queue Length 95th (ft)	m#626	
Internal Link Dist (ft)	1190	
Turn Bay Length (ft)		
Base Capacity (vph)	1512	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.02	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	3	72	8	7	24	0	1437	18	50	1634	175
Future Volume (vph)	14	3	72	8	7	24	0	1437	18	50	1634	175
Satd. Flow (prot)	0	1647	0	0	1660	0	0	3512	0	0	3484	0
Flt Permitted		0.958			0.744						0.818	
Satd. Flow (perm)	0	1586	0	0	1244	0	0	3512	0	0	2852	0
Satd. Flow (RTOR)		72			24			4			39	
Lane Group Flow (vph)	0	89	0	0	39	0	0	1455	0	0	1859	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Total Split (s)	15.0	15.0		15.0	15.0		125.0	125.0		125.0	125.0	
Total Lost Time (s)		5.5			5.5			4.5			5.0	
Act Effct Green (s)		6.4			6.4			123.6			123.1	
Actuated g/C Ratio		0.05			0.05			0.88			0.88	
v/c Ratio		0.64			0.49			0.47			0.74	
Control Delay		39.5			53.8			0.6			5.3	
Queue Delay		0.1			0.0			0.1			0.2	
Total Delay		39.5			53.8			0.7			5.5	
LOS		D			D			A			A	
Approach Delay		39.5			53.8			0.7			5.5	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)		15			14			3			178	
Queue Length 95th (ft)		72			53			3			331	
Internal Link Dist (ft)		496			430			674			1045	
Turn Bay Length (ft)												
Base Capacity (vph)		174			106			3101			2512	
Starvation Cap Reductn		0			0			504			128	
Spillback Cap Reductn		1			0			0			50	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.51			0.37			0.56			0.78	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 4.9 Intersection LOS: A
Intersection Capacity Utilization 106.9% ICU Level of Service G
Analysis Period (min) 15
Description:

Splits and Phases: 3440: 1 Av S & SW 325 Pl

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	0	199	7	16	22	1431	150	21	1714	20
Future Volume (vph)	11	0	0	199	7	16	22	1431	150	21	1714	20
Satd. Flow (prot)	1770	1863	0	1761	1604	0	1752	3428	0	1796	3585	0
Flt Permitted	0.742						0.080			0.106		
Satd. Flow (perm)	1382	1863	0	1783	1604	0	148	3428	0	200	3585	0
Satd. Flow (RTOR)					16			13			1	
Lane Group Flow (vph)	11	0	0	199	23	0	22	1581	0	21	1734	0
Turn Type	D.P+P			D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Total Split (s)	15.0	15.0		25.0	25.0		15.0	85.0		15.0	85.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	19.5			20.5	17.1		107.5	102.5		107.5	102.5	
Actuated g/C Ratio	0.14			0.15	0.12		0.77	0.73		0.77	0.73	
v/c Ratio	0.05			0.77	0.11		0.13	0.63		0.10	0.66	
Control Delay	46.0			75.6	29.0		5.0	7.5		6.4	10.8	
Queue Delay	0.0			0.0	0.0		0.0	0.0		0.0	0.3	
Total Delay	46.0			75.6	29.0		5.0	7.6		6.4	11.1	
LOS	D			E	C		A	A		A	B	
Approach Delay		46.0			70.8			7.5			11.1	
Approach LOS		D			E			A			B	
Queue Length 50th (ft)	9			178	6		2	211		4	282	
Queue Length 95th (ft)	25			234	32		m7	232		m7	584	
Internal Link Dist (ft)		157			277			638			674	
Turn Bay Length (ft)	100			100			100			100		
Base Capacity (vph)	235			286	250		233	2513		274	2625	
Starvation Cap Reductn	0			0	0		0	60		0	307	
Spillback Cap Reductn	0			0	0		0	0		0	51	
Storage Cap Reductn	0			0	0		0	0		0	0	
Reduced v/c Ratio	0.05			0.70	0.09		0.09	0.64		0.08	0.75	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 98 (70%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

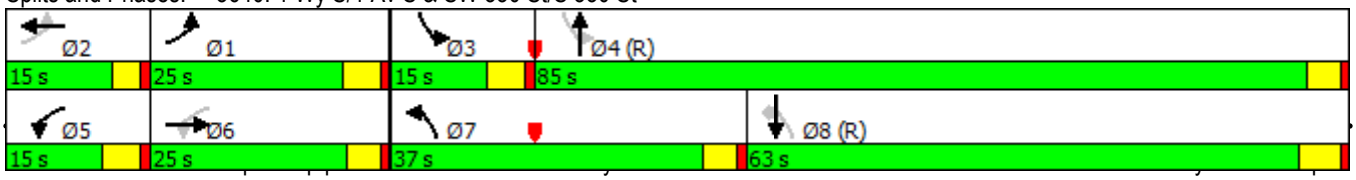
Splits and Phases: 3540: 1 Av S & S 328 St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	14	186	56	34	23	385	1281	51	14	1349	621
Future Volume (vph)	281	14	186	56	34	23	385	1281	51	14	1349	621
Satd. Flow (prot)	1805	1593	0	1743	1704	0	1708	3387	0	1814	3628	1623
Flt Permitted	0.720			0.328			0.063			0.146		
Satd. Flow (perm)	1349	1593	0	596	1704	0	113	3387	0	279	3628	1525
Satd. Flow (RTOR)		186			19			5				415
Lane Group Flow (vph)	281	200	0	56	57	0	385	1332	0	14	1349	621
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		8
Total Split (s)	25.0	25.0		15.0	15.0		37.0	85.0		15.0	63.0	63.0
Total Lost Time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	6.5
Act Effct Green (s)	25.3	19.8		25.3	7.1		94.9	95.4		96.9	64.2	63.2
Actuated g/C Ratio	0.18	0.14		0.18	0.05		0.68	0.68		0.69	0.46	0.45
v/c Ratio	0.92	0.52		0.34	0.55		0.93	0.58		0.06	0.81	0.68
Control Delay	88.7	14.4		48.5	64.4		71.2	14.4		4.9	30.4	7.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.4	0.4
Total Delay	88.7	14.4		48.5	64.4		71.2	14.4		4.9	30.8	8.1
LOS	F	B		D	E		E	B		A	C	A
Approach Delay		57.8			56.5			27.2			23.5	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	231	11		40	34		291	307		2	615	229
Queue Length 95th (ft)	#388	88		78	81		#470	463		m3	614	58
Internal Link Dist (ft)		960			420			1194			638	
Turn Bay Length (ft)	100			100			200			100		
Base Capacity (vph)	310	387		186	139		448	2309		306	1663	915
Starvation Cap Reductn	0	0		0	0		0	0		0	65	61
Spillback Cap Reductn	0	0		0	0		0	38		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.91	0.52		0.30	0.41		0.86	0.59		0.05	0.84	0.73

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 96 (69%), Referenced to phase 4:NBSB and 8:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 29.7 Intersection LOS: C
Intersection Capacity Utilization 101.3% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 3640: 1 Wy S/1 Av S & SW 330 St/S 330 St

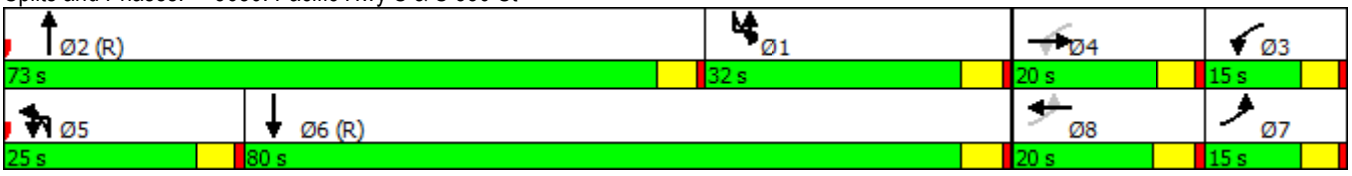


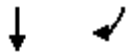
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	60	59	19	52	59	52	44	120	1987	47	167	60
Future Volume (vph)	60	59	19	52	59	52	44	120	1987	47	167	60
Satd. Flow (prot)	1762	1818	0	1727	1712	0	0	1752	4972	0	0	1787
Flt Permitted	0.547			0.706				0.950				0.950
Satd. Flow (perm)	1003	1818	0	1268	1712	0	0	1746	4972	0	0	1779
Satd. Flow (RTOR)		9			25				3			
Lane Group Flow (vph)	60	78	0	52	111	0	0	164	2034	0	0	227
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	15.0	20.0		15.0	20.0		25.0	25.0	73.0		32.0	32.0
Total Lost Time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Act Effct Green (s)	14.6	9.7		14.6	10.1			16.5	78.4			26.5
Actuated g/C Ratio	0.10	0.07		0.10	0.07			0.12	0.56			0.19
v/c Ratio	0.48	0.58		0.35	0.76			0.79	0.73			0.67
Control Delay	66.3	71.8		58.9	79.5			60.2	24.1			68.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	66.3	71.8		58.9	79.5			60.2	24.1			68.8
LOS	E	E		E	E			E	C			E
Approach Delay		69.4			72.9				26.8			
Approach LOS		E			E				C			
Queue Length 50th (ft)	49	63		42	78			142	574			218
Queue Length 95th (ft)	92	115		82	143			m160	m605			m231
Internal Link Dist (ft)		616			365				600			
Turn Bay Length (ft)	100			100				200				250
Base Capacity (vph)	188	189		199	187			250	2786			338
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.32	0.41		0.26	0.59			0.66	0.73			0.67

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 31.9	Intersection LOS: C
Intersection Capacity Utilization 82.9%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 3650: Pacific Hwy S & S 330 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2203	130
Future Volume (vph)	2203	130
Satd. Flow (prot)	5037	0
Flt Permitted		
Satd. Flow (perm)	5037	0
Satd. Flow (RTOR)	10	
Lane Group Flow (vph)	2333	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	80.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	88.4	
Actuated g/C Ratio	0.63	
v/c Ratio	0.73	
Control Delay	28.1	
Queue Delay	0.0	
Total Delay	28.1	
LOS	C	
Approach Delay	31.7	
Approach LOS	C	
Queue Length 50th (ft)	813	
Queue Length 95th (ft)	m829	
Internal Link Dist (ft)	561	
Turn Bay Length (ft)		
Base Capacity (vph)	3184	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.73	

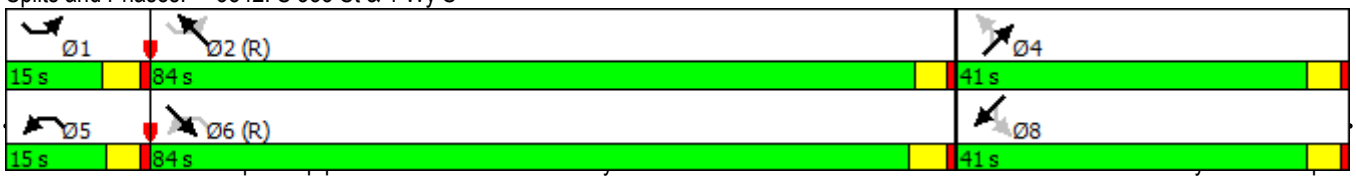
Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	111	1422	10	5	1449	38	33	5	18	38	11	320
Future Volume (vph)	111	1422	10	5	1449	38	33	5	18	38	11	320
Satd. Flow (prot)	1782	3573	0	1734	3450	0	0	1752	0	1747	1539	0
Flt Permitted	0.123			0.146				0.185		0.732		
Satd. Flow (perm)	231	3573	0	267	3450	0	0	333	0	1326	1539	0
Satd. Flow (RTOR)		1			3			16			152	
Lane Group Flow (vph)	111	1432	0	5	1487	0	0	56	0	38	331	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Total Split (s)	15.0	84.0		15.0	84.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Act Effct Green (s)	102.9	106.0		107.5	96.4			22.6		22.6	22.6	
Actuated g/C Ratio	0.74	0.76		0.77	0.69			0.16		0.16	0.16	
v/c Ratio	0.45	0.53		0.02	0.63			0.85		0.18	0.88	
Control Delay	11.1	9.5		4.2	11.0			113.2		48.4	54.2	
Queue Delay	0.0	4.9		0.0	0.0			0.0		0.0	0.0	
Total Delay	11.1	14.4		4.2	11.0			113.2		48.4	54.2	
LOS	B	B		A	B			F		D	D	
Approach Delay		14.2			11.0			113.2			53.6	
Approach LOS		B			B			F			D	
Queue Length 50th (ft)	21	226		1	295			36		30	169	
Queue Length 95th (ft)	53	492		m1	m316			#99		59	263	
Internal Link Dist (ft)		270			278			237			1502	
Turn Bay Length (ft)	75			75						100		
Base Capacity (vph)	285	2706		316	2375			98		345	513	
Starvation Cap Reductn	0	1192		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.39	0.95		0.02	0.63			0.57		0.11	0.65	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 98 (70%), Referenced to phase 2:NWSE and 6:NWSE, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 18.6 Intersection LOS: B
Intersection Capacity Utilization 91.5% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 3842: S 333 St & 1 Wy S



Queues
4043: 1 Wy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	40	600	64	690	12	550	285	669	1067	89
Future Volume (vph)	144	140	40	600	64	690	12	550	285	669	1067	89
Satd. Flow (prot)	1808	1845	0	1676	1709	1579	1743	3472	1560	1814	3553	0
Flt Permitted	0.950			0.950	0.961		0.155			0.172		
Satd. Flow (perm)	1791	1845	0	1657	1694	1536	284	3472	1520	327	3553	0
Satd. Flow (RTOR)		9				229			285		7	
Lane Group Flow (vph)	144	180	0	330	334	690	12	550	285	669	1156	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA	Perm	D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6		2	2		
Total Split (s)	33.5	33.5		30.0	30.0	51.5	15.0	25.0	25.0	51.5	61.5	
Total Lost Time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5	5.5	5.5	5.5	
Act Effct Green (s)	17.3	17.3		25.0	25.0	81.2	80.9	20.5	19.5	76.2	77.7	
Actuated g/C Ratio	0.12	0.12		0.18	0.18	0.58	0.58	0.15	0.14	0.54	0.56	
v/c Ratio	0.65	0.76		1.10	1.10	0.69	0.06	1.08	0.62	0.86	0.59	
Control Delay	70.5	75.6		117.2	114.1	17.3	7.3	107.6	19.8	46.4	22.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	70.5	75.6		117.2	114.1	17.3	7.3	107.6	19.8	46.4	22.3	
LOS	E	E		F	F	B	A	F	B	D	C	
Approach Delay		73.3			65.5			76.7			31.1	
Approach LOS		E			E			E			C	
Queue Length 50th (ft)	128	155		~345	~348	438	2	~291	112	364	256	
Queue Length 95th (ft)	185	218		m#543	m#545	627	7	#417	170	#842	393	
Internal Link Dist (ft)		300			1418			1066			684	
Turn Bay Length (ft)				200		160	175			300		
Base Capacity (vph)	361	376		299	305	1004	277	508	457	779	1974	
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	0.40	0.48		1.10	1.10	0.69	0.04	1.08	0.62	0.86	0.59	

Intersection Summary

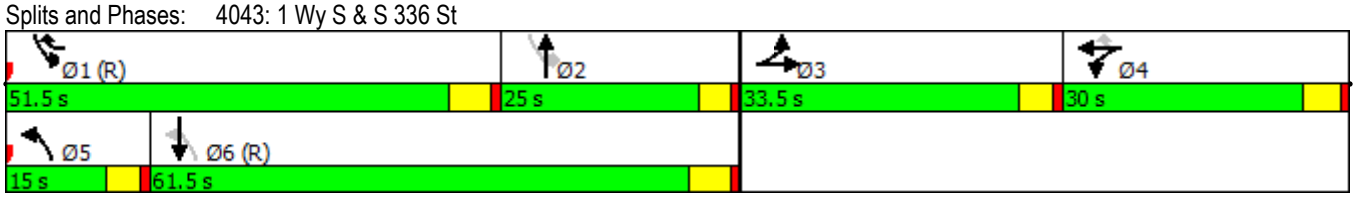
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 72 (51%), Referenced to phase 1:SBL and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 53.9 Intersection LOS: D
Intersection Capacity Utilization 113.7% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4043: 1 Wy S & S 336 St

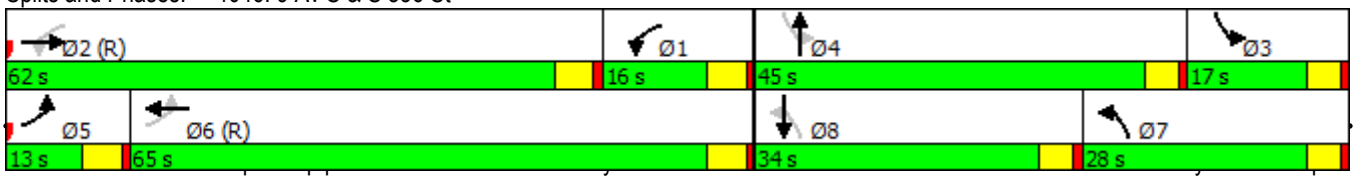


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	706	426	131	980	63	275	143	187	196	209	97
Future Volume (vph)	76	706	426	131	980	63	275	143	187	196	209	97
Satd. Flow (prot)	1770	3260	0	1764	3511	0	1752	1661	0	1791	1779	0
Flt Permitted	0.169			0.125			0.161			0.167		
Satd. Flow (perm)	315	3260	0	232	3511	0	295	1661	0	313	1779	0
Satd. Flow (RTOR)		108			6			47			15	
Lane Group Flow (vph)	76	1132	0	131	1043	0	275	330	0	196	306	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Total Split (s)	13.0	62.0		16.0	65.0		28.0	45.0		17.0	34.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Act Effct Green (s)	74.4	63.9		74.4	68.0		44.6	28.5		44.6	25.6	
Actuated g/C Ratio	0.53	0.46		0.53	0.49		0.32	0.20		0.32	0.18	
v/c Ratio	0.33	0.73		0.55	0.61		0.95	0.88		0.73	0.91	
Control Delay	12.3	23.6		43.9	29.6		94.0	69.8		66.8	83.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.3	23.6		43.9	29.6		94.0	69.8		66.8	83.1	
LOS	B	C		D	C		F	E		E	F	
Approach Delay		22.8			31.2			80.8			76.7	
Approach LOS		C			C			F			E	
Queue Length 50th (ft)	30	411		56	370		186	256		125	259	
Queue Length 95th (ft)	m39	566		98	482		#315	345		#203	#399	
Internal Link Dist (ft)		1418			1473			2541			568	
Turn Bay Length (ft)	200			125			100			100		
Base Capacity (vph)	247	1546		238	1708		341	508		270	380	
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	0.31	0.73		0.55	0.61		0.81	0.65		0.73	0.81	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 128 (91%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 92.3% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 4046: 9 Av S & S 336 St



Queues
4050: Pacific Hwy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	413	762	372	307	785	144	14	244	1612	208	27	79
Future Volume (vph)	413	762	372	307	785	144	14	244	1612	208	27	79
Satd. Flow (prot)	3375	3522	1550	1733	3415	0	0	3368	4969	1560	0	1796
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	3366	3522	1516	1726	3415	0	0	3355	4969	1480	0	1784
Satd. Flow (RTOR)			136		15					162		
Lane Group Flow (vph)	413	762	372	307	929	0	0	258	1612	208	0	106
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Total Split (s)	21.0	34.0	34.0	29.0	42.0		15.0	15.0	60.0	60.0	17.0	17.0
Total Lost Time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	6.0		5.5
Act Effct Green (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.0	54.0		11.5
Actuated g/C Ratio	0.12	0.20	0.20	0.17	0.26			0.07	0.39	0.39		0.08
v/c Ratio	1.04	1.06	0.89	1.06	1.03			1.07	0.83	0.31		0.72
Control Delay	114.7	104.4	58.6	123.7	87.5			109.6	28.1	4.0		74.4
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0
Total Delay	114.7	104.4	58.6	123.7	87.5			109.6	28.1	4.0		74.4
LOS	F	F	E	F	F			F	C	A		E
Approach Delay		96.1			96.5				35.8			
Approach LOS		F			F				D			
Queue Length 50th (ft)	~208	~401	222	~305	~470			~134	341	6		101
Queue Length 95th (ft)	#317	#531	#410	#496	#607			m#152	m358	m9		m142
Internal Link Dist (ft)		735			466				780			
Turn Bay Length (ft)	650			100				350				500
Base Capacity (vph)	397	716	416	290	901			240	1952	670		147
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	1.04	1.06	0.89	1.06	1.03			1.07	0.83	0.31		0.72

Intersection Summary

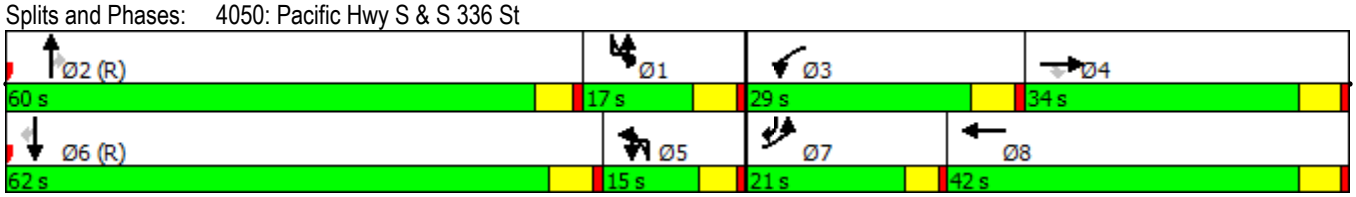
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 70 (50%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 61.1 Intersection LOS: E
Intersection Capacity Utilization 109.2% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4050: Pacific Hwy S & S 336 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2067	104
Future Volume (vph)	2067	104
Satd. Flow (prot)	5134	1594
Flt Permitted		
Satd. Flow (perm)	5134	1544
Satd. Flow (RTOR)		105
Lane Group Flow (vph)	2067	104
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Total Split (s)	62.0	21.0
Total Lost Time (s)	5.5	4.5
Act Effct Green (s)	56.5	74.0
Actuated g/C Ratio	0.40	0.53
v/c Ratio	1.00	0.12
Control Delay	41.6	1.5
Queue Delay	0.0	0.0
Total Delay	41.6	1.5
LOS	D	A
Approach Delay	41.3	
Approach LOS	D	
Queue Length 50th (ft)	729	12
Queue Length 95th (ft)	#790	m11
Internal Link Dist (ft)	810	
Turn Bay Length (ft)		250
Base Capacity (vph)	2071	871
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.00	0.12

Intersection Summary

Queues
4250: Pacific Hwy S & S 340 Pl/16 Av S

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	22	43	74	10	1544	41	1121	25	1267	1565	2
Future Volume (vph)	64	22	43	74	10	1544	41	1121	25	1267	1565	2
Satd. Flow (prot)	1770	1678	0	1799	1909	2833	1752	4990	0	5027	5122	0
Flt Permitted	0.950			0.950			0.090			0.950		
Satd. Flow (perm)	1770	1678	0	1778	1909	2833	166	4990	0	5010	5122	0
Satd. Flow (RTOR)		43				163		2				
Lane Group Flow (vph)	64	65	0	74	10	1544	41	1146	0	1267	1567	0
Turn Type	Prot	NA		Prot	NA	pt+ov	D.P+P	NA		Prot	NA	
Protected Phases	7	4		3	8	8 5	1	6		5	2	
Permitted Phases							2					
Total Split (s)	15.0	21.0		38.0	44.0		15.0	37.0		44.0	66.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.5	5.5	
Act Effct Green (s)	8.5	9.7		37.2	38.4	80.8	76.2	32.0		42.7	70.7	
Actuated g/C Ratio	0.06	0.07		0.27	0.27	0.58	0.54	0.23		0.30	0.50	
v/c Ratio	0.60	0.42		0.16	0.02	0.91	0.26	1.00		0.83	0.61	
Control Delay	86.5	33.2		31.1	26.9	23.6	16.7	56.7		24.6	8.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	86.5	33.2		31.1	26.9	23.6	16.7	56.7		24.6	8.4	
LOS	F	C		C	C	C	B	E		C	A	
Approach Delay		59.7			24.0			55.3			15.7	
Approach LOS		E			C			E			B	
Queue Length 50th (ft)	58	20		47	6	417	23	~408		342	132	
Queue Length 95th (ft)	109	65		101	m17	#606	48	#500		m351	m135	
Internal Link Dist (ft)		294			48			107			314	
Turn Bay Length (ft)	100			50		100	100			400		
Base Capacity (vph)	126	229		477	533	1718	207	1142		1532	2585	
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	0.51	0.28		0.16	0.02	0.90	0.20	1.00		0.83	0.61	

Intersection Summary

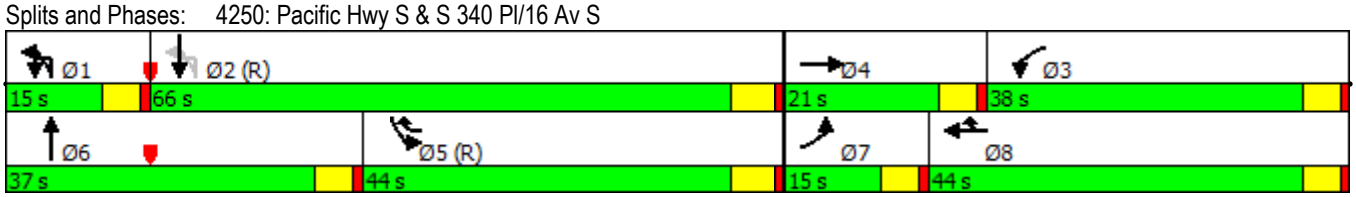
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 88 (63%), Referenced to phase 2:NBSB and 5:SBL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 27.1 Intersection LOS: C
Intersection Capacity Utilization 108.4% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 4250: Pacific Hwy S & S 340 Pl/16 Av S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	78	12	0	814	1753	123	
Future Volume (vph)	78	12	0	814	1753	123	
Satd. Flow (prot)	1729	1547	0	3578	3495	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1700	1503	0	3578	3495	0	
Satd. Flow (RTOR)		12			14		
Lane Group Flow (vph)	78	12	0	814	1876	0	
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		8
Permitted Phases		4		2			
Total Split (s)	32.0	32.0		108.0	108.0		32.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		
Act Effct Green (s)	14.5	14.5		115.5	115.5		
Actuated g/C Ratio	0.10	0.10		0.82	0.82		
v/c Ratio	0.44	0.07		0.28	0.65		
Control Delay	63.7	22.4		1.0	5.4		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	63.7	22.4		1.0	5.4		
LOS	E	C		A	A		
Approach Delay	58.2			1.0	5.4		
Approach LOS	E			A	A		
Queue Length 50th (ft)	71	0		11	86		
Queue Length 95th (ft)	113	19		26	m410		
Internal Link Dist (ft)	244			982	846		
Turn Bay Length (ft)		100					
Base Capacity (vph)	333	299		2952	2886		
Starvation Cap Reductn	0	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.23	0.04		0.28	0.65		

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 108 (77%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 5.8	Intersection LOS: A
Intersection Capacity Utilization 69.8%	ICU Level of Service C
Analysis Period (min) 15	

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

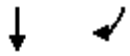
Splits and Phases: 4540: 1 Av S/1 Wy S & Winco Dwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	55	0	69	61	24	27	12	33	1054	89	12	64
Future Volume (vph)	55	0	69	61	24	27	12	33	1054	89	12	64
Satd. Flow (prot)	1738	1490	0	1782	1696	0	0	1752	4929	0	0	1787
Flt Permitted	0.724			0.678				0.126				0.220
Satd. Flow (perm)	1277	1490	0	1228	1696	0	0	232	4929	0	0	414
Satd. Flow (RTOR)		189			27				16			
Lane Group Flow (vph)	55	69	0	61	51	0	0	45	1143	0	0	76
Turn Type	D.P+P	NA		D.P+P	NA		custom	D.P+P	NA		custom	D.P+P
Protected Phases	7	4		3	8			5	2			1
Permitted Phases	8			4			5	6			1	2
Total Split (s)	19.0	19.0		19.0	19.0		19.0	19.0	83.0		19.0	19.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Act Effct Green (s)	14.5	6.9		14.6	7.2			109.5	102.5			108.5
Actuated g/C Ratio	0.10	0.05		0.10	0.05			0.78	0.73			0.78
v/c Ratio	0.34	0.27		0.38	0.45			0.19	0.32			0.20
Control Delay	65.1	2.6		54.3	44.7			3.3	0.4			1.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	65.1	2.6		54.3	44.7			3.3	0.4			1.8
LOS	E	A		D	D			A	A			A
Approach Delay		30.3			50.0				0.5			
Approach LOS		C			D				A			
Queue Length 50th (ft)	48	0		47	19			1	6			1
Queue Length 95th (ft)	m79	m0		m79	m49			m1	m10			m2
Internal Link Dist (ft)		1727			456				1382			
Turn Bay Length (ft)	100			100				100				100
Base Capacity (vph)	225	319		226	193			339	3614			472
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.24	0.22		0.27	0.26			0.13	0.32			0.16

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 128 (91%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 4.0 Intersection LOS: A
Intersection Capacity Utilization 57.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4549: Pacific Hwy S & S 344 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1573	34
Future Volume (vph)	1573	34
Satd. Flow (prot)	5098	0
Flt Permitted		
Satd. Flow (perm)	5098	0
Satd. Flow (RTOR)	4	
Lane Group Flow (vph)	1607	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	83.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	106.0	
Actuated g/C Ratio	0.76	
v/c Ratio	0.42	
Control Delay	1.4	
Queue Delay	0.0	
Total Delay	1.4	
LOS	A	
Approach Delay	1.4	
Approach LOS	A	
Queue Length 50th (ft)	7	
Queue Length 95th (ft)	12	
Internal Link Dist (ft)	1196	
Turn Bay Length (ft)		
Base Capacity (vph)	3862	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.42	

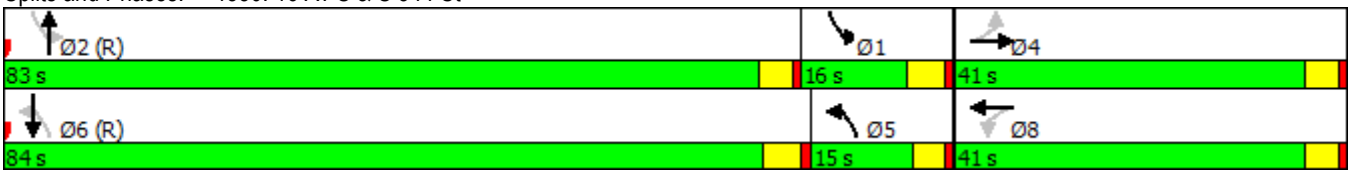
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	54	29	217	48	95	53	967	62	136	1530	22
Future Volume (vph)	32	54	29	217	48	95	53	967	62	136	1530	22
Satd. Flow (prot)	1738	1732	0	1799	1684	0	1743	3430	0	1778	3532	0
Flt Permitted	0.540			0.679			0.107			0.229		
Satd. Flow (perm)	974	1732	0	1269	1684	0	196	3430	0	429	3532	0
Satd. Flow (RTOR)		19			69			8			2	
Lane Group Flow (vph)	32	83	0	217	143	0	53	1029	0	136	1552	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Total Split (s)	41.0	41.0		41.0	41.0		15.0	83.0		16.0	84.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		5.0	5.0	
Act Effct Green (s)	27.5	27.5		27.5	27.5		100.0	92.8		98.0	95.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.66		0.70	0.68	
v/c Ratio	0.17	0.23		0.87	0.37		0.27	0.45		0.38	0.65	
Control Delay	36.8	29.6		85.5	26.1		5.9	2.9		6.9	10.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.8	29.6		85.5	26.1		5.9	2.9		6.9	10.7	
LOS	D	C		F	C		A	A		A	B	
Approach Delay		31.6			61.9			3.0			10.4	
Approach LOS		C			E			A			B	
Queue Length 50th (ft)	27	61		193	57		3	38		8	211	
Queue Length 95th (ft)	64	117		273	113		m3	m38		m19	m210	
Internal Link Dist (ft)		456			370			1310			725	
Turn Bay Length (ft)	50			150			150			150		
Base Capacity (vph)	253	465		330	490		263	2276		422	2399	
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	0.13	0.18		0.66	0.29		0.20	0.45		0.32	0.65	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 112 (80%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 84.8% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4550: 16 Av S & S 344 St



Queues
4840: 1 Av S & SW Campus Dr/S 348 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	746	221	417	1404	194	174	439	257	195	1147	372
Future Volume (vph)	171	746	221	417	1404	194	174	439	257	195	1147	372
Satd. Flow (prot)	3351	3314	0	3436	3543	1579	1694	3402	1516	1782	3578	1594
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3338	3314	0	3408	3543	1534	1688	3402	1476	1768	3578	1549
Satd. Flow (RTOR)		30				90			257			90
Lane Group Flow (vph)	171	967	0	417	1404	194	174	439	257	195	1147	372
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8			2			6
Total Split (s)	15.0	51.0		24.0	60.0	30.0	18.0	35.0	35.0	30.0	47.0	15.0
Total Lost Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	5.5	5.0	5.0	4.5
Act Effct Green (s)	10.5	46.5		19.0	55.0	86.4	13.0	24.1	23.1	31.4	42.0	53.0
Actuated g/C Ratio	0.08	0.33		0.14	0.39	0.62	0.09	0.17	0.16	0.22	0.30	0.38
v/c Ratio	0.68	0.86		0.89	1.01	0.20	1.11	0.75	0.56	0.49	1.07	0.58
Control Delay	77.4	51.6		81.8	68.5	6.1	129.8	50.9	14.7	44.0	84.8	14.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	51.6		81.8	68.5	6.1	129.8	50.9	14.7	44.0	84.8	14.4
LOS	E	D		F	E	A	F	D	B	D	F	B
Approach Delay		55.5			65.2			56.0			64.9	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	79	422		195	~681	33	~176	192	73	156	~611	134
Queue Length 95th (ft)	#121	513		#287	#844	73	m#197	m185	m77	248	#748	157
Internal Link Dist (ft)		752			2822			1475			982	
Turn Bay Length (ft)	175			225		250	150			400		225
Base Capacity (vph)	251	1120		466	1391	991	157	741	513	400	1073	645
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	0.68	0.86		0.89	1.01	0.20	1.11	0.59	0.50	0.49	1.07	0.58

Intersection Summary

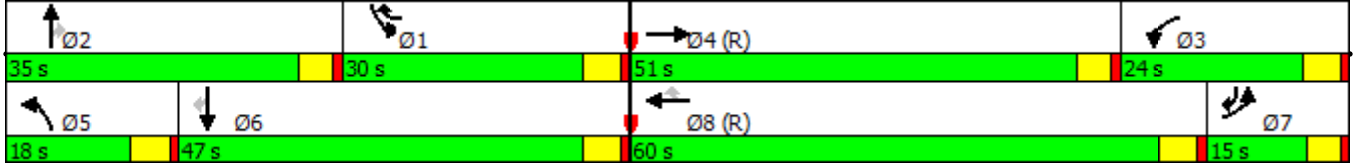
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 72 (51%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 61.8 Intersection LOS: E
Intersection Capacity Utilization 101.3% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 4840: 1 Av S & SW Campus Dr/S 348 St



Queues
4848: Pacific Hwy S & S 348 St

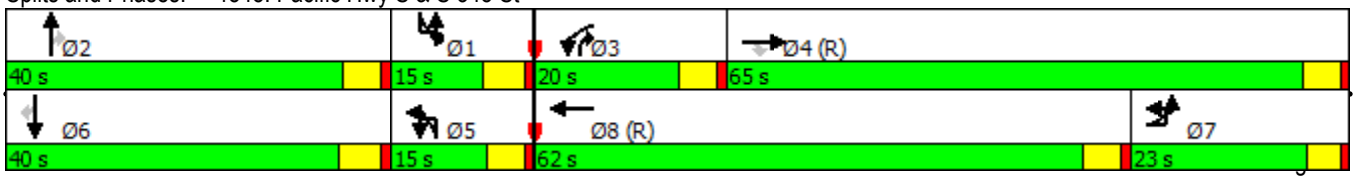
10/29/2018

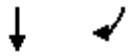
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	50	169	1866	434	348	1902	60	5	210	1002	290	142
Future Volume (vph)	50	169	1866	434	348	1902	60	5	210	1002	290	142
Satd. Flow (prot)	0	1720	4984	1539	3402	5018	0	0	3385	4723	1348	3485
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1718	4984	1505	3400	5018	0	0	3372	4723	1320	3477
Satd. Flow (RTOR)				115		4				3	97	
Lane Group Flow (vph)	0	219	1866	434	348	1962	0	0	215	1031	261	142
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4							2	
Total Split (s)	23.0	23.0	65.0	65.0	20.0	62.0		15.0	15.0	40.0	20.0	15.0
Total Lost Time (s)		4.5	5.0	6.0	5.0	5.0			5.0	5.0	5.0	5.5
Act Effct Green (s)		18.5	60.0	59.0	15.0	57.0			10.0	34.5	49.5	10.0
Actuated g/C Ratio		0.13	0.43	0.42	0.11	0.41			0.07	0.25	0.35	0.07
v/c Ratio		0.96	0.87	0.62	0.96	0.96			0.89	0.88	0.49	0.57
Control Delay		111.1	42.2	27.2	67.6	42.2			86.3	38.0	11.6	48.8
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0
Total Delay		111.1	42.2	27.2	67.6	42.2			86.3	38.0	11.6	48.8
LOS		F	D	C	E	D			F	D	B	D
Approach Delay			45.6			46.0				40.3		
Approach LOS			D			D				D		
Queue Length 50th (ft)		201	561	227	166	683			106	358	136	62
Queue Length 95th (ft)		#367	630	346	m#205	m#745			#180	399	63	99
Internal Link Dist (ft)			1161			1022				1351		
Turn Bay Length (ft)		200		200	350				350		350	250
Base Capacity (vph)		227	2136	700	364	2045			241	1183	531	249
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		0.96	0.87	0.62	0.96	0.96			0.89	0.87	0.49	0.57

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 56 (40%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 46.9 Intersection LOS: D
Intersection Capacity Utilization 99.5% ICU Level of Service F
Analysis Period (min) 15
Description:
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.

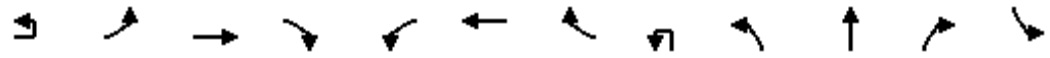
Splits and Phases: 4848: Pacific Hwy S & S 348 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1263	145
Future Volume (vph)	1263	145
Satd. Flow (prot)	5148	1594
Flt Permitted		
Satd. Flow (perm)	5148	1558
Satd. Flow (RTOR)		136
Lane Group Flow (vph)	1263	145
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Total Split (s)	40.0	40.0
Total Lost Time (s)	5.5	5.5
Act Effct Green (s)	34.5	34.5
Actuated g/C Ratio	0.25	0.25
v/c Ratio	1.00	0.30
Control Delay	63.6	5.6
Queue Delay	0.0	0.0
Total Delay	63.6	5.6
LOS	E	A
Approach Delay	56.8	
Approach LOS	E	
Queue Length 50th (ft)	394	13
Queue Length 95th (ft)	#518	31
Internal Link Dist (ft)	1382	
Turn Bay Length (ft)		
Base Capacity (vph)	1268	486
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.00	0.30

Intersection Summary



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	132	1493	462	1113	1730	286	73	345	782	669	752
Future Volume (vph)	13	132	1493	462	1113	1730	286	73	345	782	669	752
Satd. Flow (prot)	0	1738	5034	1555	5077	5173	1602	0	3385	3212	1426	5040
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1733	5034	1519	5064	5173	1559	0	3374	3212	1426	5015
Satd. Flow (RTOR)				97			210			24	86	
Lane Group Flow (vph)	0	145	1493	462	1113	1730	286	0	418	1009	442	752
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pt+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	2 3	1
Permitted Phases				4			8					
Total Split (s)	17.0	17.0	46.0	46.0	31.0	60.0	60.0	23.0	23.0	41.0		22.0
Total Lost Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0		5.0
Act Effct Green (s)		12.5	41.5	41.5	26.0	55.0	55.0		18.0	36.0	62.0	17.0
Actuated g/C Ratio		0.09	0.30	0.30	0.19	0.39	0.39		0.13	0.26	0.44	0.12
v/c Ratio		0.94	1.00	0.89	1.18	0.85	0.39		0.96	1.20	0.65	1.23
Control Delay		93.2	48.2	31.3	134.3	40.5	9.0		99.3	142.3	21.6	153.5
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		93.2	48.2	31.3	134.3	40.5	9.0		99.3	142.3	21.6	153.5
LOS		F	D	C	F	D	A		F	F	C	F
Approach Delay			47.6			71.0				104.2		
Approach LOS			D			E				F		
Queue Length 50th (ft)		122	~527	359	~430	501	49		206	~591	207	~294
Queue Length 95th (ft)		m#182	#632	m#477	m#480	m558	m63		m#307	m#736	m296	#384
Internal Link Dist (ft)			1022			444				1187		
Turn Bay Length (ft)		500		550	450		250		400		300	500
Base Capacity (vph)		155	1492	518	942	2032	739		435	843	679	612
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		0.94	1.00	0.89	1.18	0.85	0.39		0.96	1.20	0.65	1.23

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 121 (86%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 79.8	Intersection LOS: E
Intersection Capacity Utilization 110.7%	ICU Level of Service H
Analysis Period (min) 15	

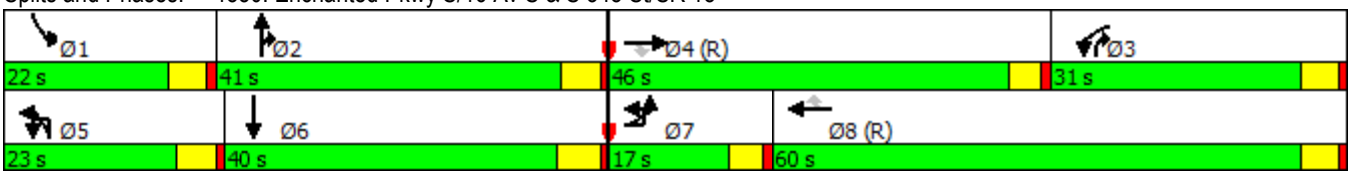
Description:

~ 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.

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1084	164
Future Volume (vph)	1084	164
Satd. Flow (prot)	5006	0
Flt Permitted		
Satd. Flow (perm)	5006	0
Satd. Flow (RTOR)	19	
Lane Group Flow (vph)	1248	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	40.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	34.5	
Actuated g/C Ratio	0.25	
v/c Ratio	1.00	
Control Delay	75.2	
Queue Delay	0.0	
Total Delay	75.2	
LOS	E	
Approach Delay	104.6	
Approach LOS	F	
Queue Length 50th (ft)	~422	
Queue Length 95th (ft)	#533	
Internal Link Dist (ft)	1310	
Turn Bay Length (ft)		
Base Capacity (vph)	1247	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.00	

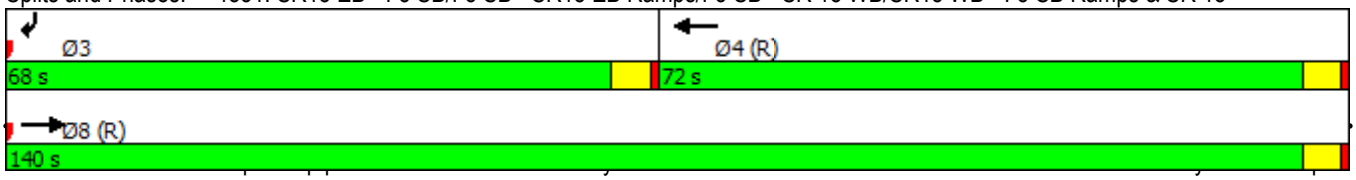
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↱			↱↱↱
Traffic Volume (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1608
Future Volume (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1608
Satd. Flow (prot)	0	3539	0	0	3539	0	0	0	1611	0	0	3600
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	3539	0	0	0	1587	0	0	3489
Satd. Flow (RTOR)									175			30
Lane Group Flow (vph)	0	1374	0	0	1521	0	0	0	1150	0	0	1608
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Total Split (s)		140.0			72.0							68.0
Total Lost Time (s)		5.0			5.0							5.0
Act Effct Green (s)		140.0			67.2				140.0			62.8
Actuated g/C Ratio		1.00			0.48				1.00			0.45
v/c Ratio		0.39			0.90				0.72			0.99
Control Delay		0.0			41.5				2.9			56.4
Queue Delay		0.0			0.0				0.0			0.0
Total Delay		0.0			41.5				2.9			56.4
LOS		A			D				A			E
Approach Delay					41.5			2.9			56.4	
Approach LOS					D			A			E	
Queue Length 50th (ft)		0			653				0			615
Queue Length 95th (ft)		m0			766				0			#765
Internal Link Dist (ft)		517			1126			463			420	
Turn Bay Length (ft)												
Base Capacity (vph)		3539			1697				1587			1636
Starvation Cap Reductn		0			0				0			0
Spillback Cap Reductn		0			0				0			0
Storage Cap Reductn		0			0				0			0
Reduced v/c Ratio		0.39			0.90				0.72			0.98

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 120 (86%), Referenced to phase 4:WBT and 8:EBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 88.9%	ICU Level of Service E
Analysis Period (min) 15	

\# 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.

Splits and Phases: 4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

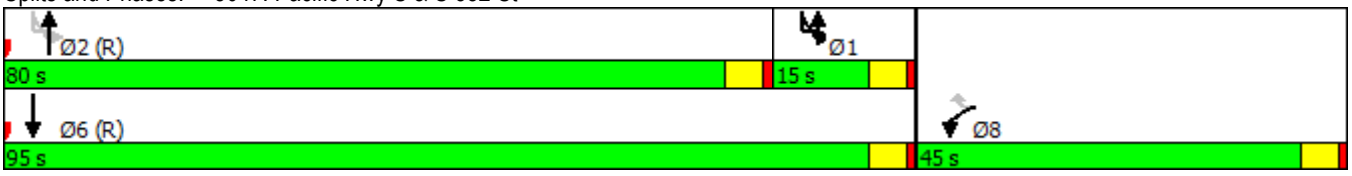


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	296	1121	246	0	2050
Future Volume (vph)	0	296	1121	246	0	2050
Satd. Flow (prot)	1863	1583	4899	0	1881	5136
Flt Permitted						
Satd. Flow (perm)	1863	1583	4899	0	1881	5136
Satd. Flow (RTOR)		187	53			
Lane Group Flow (vph)	0	296	1367	0	0	2050
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	8		2		1	6
Permitted Phases		8			2	
Total Split (s)	45.0	45.0	80.0		15.0	95.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)		15.5	114.5			114.5
Actuated g/C Ratio		0.11	0.82			0.82
v/c Ratio		0.87	0.34			0.49
Control Delay		35.6	2.3			3.0
Queue Delay		0.0	0.0			0.0
Total Delay		35.6	2.3			3.0
LOS		D	A			A
Approach Delay	35.6		2.3			3.0
Approach LOS	D		A			A
Queue Length 50th (ft)		88	48			101
Queue Length 95th (ft)		m147	53			m154
Internal Link Dist (ft)	1538		1299			1351
Turn Bay Length (ft)						
Base Capacity (vph)		585	4014			4198
Starvation Cap Reductn		0	0			0
Spillback Cap Reductn		0	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.51	0.34			0.49

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 114 (81%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 5.3	Intersection LOS: A
Intersection Capacity Utilization 53.8%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 5047: Pacific Hwy S & S 352 St



Queues
5050: Enchanted Pkwy S & S 352 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	108	123	197	108	296	18	1278	253	169	2017	170
Future Volume (vph)	15	108	123	197	108	296	18	1278	253	169	2017	170
Satd. Flow (prot)	1747	1853	1563	1759	1644	1574	1770	3411	0	1761	3507	1575
Flt Permitted	0.950			0.950	0.995		0.045			0.077		
Satd. Flow (perm)	1730	1853	1524	1740	1642	1534	84	3411	0	143	3507	1497
Satd. Flow (RTOR)			132		21	114		26				115
Lane Group Flow (vph)	15	108	123	177	220	204	18	1531	0	169	2017	170
Turn Type	Split	NA	Perm	Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3	1	5	2		1	6	
Permitted Phases			4			3	6			2		6
Total Split (s)	15.0	15.0	15.0	25.0	25.0	18.0	10.0	82.0		18.0	90.0	90.0
Total Lost Time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	9.2	9.2	9.2	18.2	18.2	28.3	94.1	80.0		91.1	92.1	92.1
Actuated g/C Ratio	0.07	0.07	0.07	0.13	0.13	0.20	0.67	0.57		0.65	0.66	0.66
v/c Ratio	0.13	0.89	0.55	0.78	0.95	0.51	0.16	0.78		0.77	0.87	0.17
Control Delay	75.3	123.6	27.9	81.2	100.9	23.3	12.0	17.6		25.3	13.5	0.2
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	75.3	123.6	27.9	81.2	100.9	23.3	12.0	17.6		25.3	13.5	0.2
LOS	E	F	C	F	F	C	B	B		C	B	A
Approach Delay		72.8			68.8			17.6			13.4	
Approach LOS		E			E			B			B	
Queue Length 50th (ft)	10	83	21	165	201	68	3	293		50	587	0
Queue Length 95th (ft)	31	#207	83	#277	#375	148	m9	431		m46	m576	m0
Internal Link Dist (ft)		1538			420			954			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	118	125	226	238	241	423	116	1961		245	2306	1023
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	0.13	0.86	0.54	0.74	0.91	0.48	0.16	0.78		0.69	0.87	0.17

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 52 (37%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 94.8% ICU Level of Service F
Analysis Period (min) 15
Description:
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.

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St

Queues
5240: 1 Av S & SW 356 St/S 356 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	551	402	43	65	1117	209	43	195	52	343	468	963
Future Volume (vph)	551	402	43	65	1117	209	43	195	52	343	468	963
Satd. Flow (prot)	1791	1900	1615	1725	3437	1531	1729	1820	1560	1761	3522	2762
Flt Permitted	0.087			0.443			0.249			0.258		
Satd. Flow (perm)	164	1900	1564	798	3437	1455	450	1820	1489	471	3522	2631
Satd. Flow (RTOR)			90			152			129			172
Lane Group Flow (vph)	551	402	43	65	1117	209	43	195	52	343	468	963
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6		2	8		4	4		8
Total Split (s)	42.0	80.0	80.0	15.0	53.0	53.0	15.0	19.0	19.0	26.0	30.0	42.0
Total Lost Time (s)	5.5	5.5	5.5	4.5	4.5	5.5	5.0	4.5	4.5	5.0	4.5	5.5
Act Effct Green (s)	83.6	80.2	80.2	86.5	48.1	47.1	36.4	14.5	14.5	35.4	27.5	63.0
Actuated g/C Ratio	0.60	0.57	0.57	0.62	0.34	0.34	0.26	0.10	0.10	0.25	0.20	0.45
v/c Ratio	1.06	0.37	0.05	0.12	0.95	0.35	0.20	1.04	0.19	1.09	0.68	0.73
Control Delay	99.8	18.0	0.1	16.4	62.1	19.6	43.9	135.3	1.6	89.0	53.9	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.8	18.0	0.1	16.4	62.1	19.6	43.9	135.3	1.6	89.0	53.9	27.1
LOS	F	B	A	B	E	B	D	F	A	F	D	C
Approach Delay		62.4			53.6			97.8			46.1	
Approach LOS		E			D			F			D	
Queue Length 50th (ft)	~494	196	0	26	526	84	29	~190	0	~298	183	253
Queue Length 95th (ft)	#726	278	0	m33	m#648	m104	61	#351	0	m#302	m174	m326
Internal Link Dist (ft)		2555			297			560			529	
Turn Bay Length (ft)	150			125			150		150	150		200
Base Capacity (vph)	522	1088	934	579	1190	594	220	188	269	315	726	1312
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	1.06	0.37	0.05	0.11	0.94	0.35	0.20	1.04	0.19	1.09	0.64	0.73

Intersection Summary

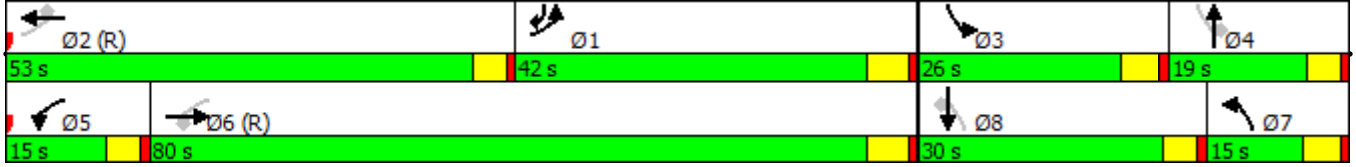
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 115 (82%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 55.5 Intersection LOS: E
Intersection Capacity Utilization 110.4% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 5240: 1 Av S & SW 356 St/S 356 St

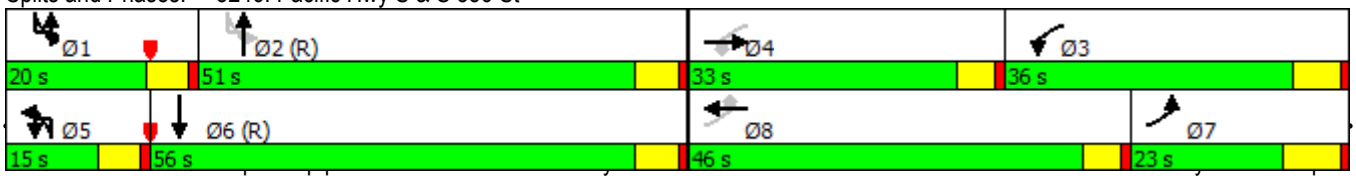


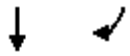
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	216	694	169	427	879	48	2	155	1202	48	4	132
Future Volume (vph)	216	694	169	427	879	48	2	155	1202	48	4	132
Satd. Flow (prot)	1764	3557	1579	1782	3592	1594	0	3399	4985	0	0	1787
Flt Permitted	0.103			0.143				0.950				0.099
Satd. Flow (perm)	191	3557	1537	267	3592	1555	0	3387	4985	0	0	186
Satd. Flow (RTOR)			156			117			5			
Lane Group Flow (vph)	216	694	169	427	879	48	0	157	1250	0	0	136
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4		8					2	2
Total Split (s)	23.0	33.0	33.0	36.0	46.0	46.0	15.0	15.0	51.0		20.0	20.0
Total Lost Time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Act Effct Green (s)	55.0	28.0	28.0	57.0	38.8	37.8		10.1	50.2			60.0
Actuated g/C Ratio	0.39	0.20	0.20	0.41	0.28	0.27		0.07	0.36			0.43
v/c Ratio	0.77	0.98	0.39	0.99	0.88	0.10		0.65	0.70			0.67
Control Delay	66.9	77.6	11.2	88.9	48.7	1.5		75.8	41.2			36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
Total Delay	66.9	77.6	11.2	88.9	48.7	1.5		75.8	41.2			36.7
LOS	E	E	B	F	D	A		E	D			D
Approach Delay		65.0			59.7				45.1			
Approach LOS		E			E				D			
Queue Length 50th (ft)	133	342	16	364	432	1		72	353			59
Queue Length 95th (ft)	m#217	m#410	m31	m#584	504	m2		112	427			136
Internal Link Dist (ft)		1184			1704				675			
Turn Bay Length (ft)	400		175	100				225				250
Base Capacity (vph)	279	711	432	433	1051	527		254	1790			249
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	0.77	0.98	0.39	0.99	0.84	0.09		0.62	0.70			0.55

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 78 (56%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 51.9 Intersection LOS: D
Intersection Capacity Utilization 100.3% ICU Level of Service G
Analysis Period (min) 15
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.

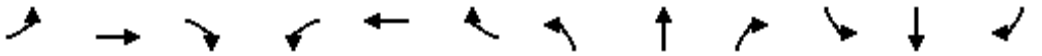
Splits and Phases: 5246: Pacific Hwy S & S 356 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1232	447
Future Volume (vph)	1232	447
Satd. Flow (prot)	4878	0
Flt Permitted		
Satd. Flow (perm)	4878	0
Satd. Flow (RTOR)	73	
Lane Group Flow (vph)	1679	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	56.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	50.9	
Actuated g/C Ratio	0.36	
v/c Ratio	0.92	
Control Delay	44.0	
Queue Delay	0.0	
Total Delay	44.0	
LOS	D	
Approach Delay	43.5	
Approach LOS	D	
Queue Length 50th (ft)	456	
Queue Length 95th (ft)	#592	
Internal Link Dist (ft)	1299	
Turn Bay Length (ft)		
Base Capacity (vph)	1821	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.92	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	889	17	39	833	0	26	0	125	0	64	410
Future Volume (vph)	0	889	17	39	833	0	26	0	125	0	64	410
Satd. Flow (prot)	0	3402	0	0	3550	0	0	1513	1482	0	1863	1583
Flt Permitted					0.680			0.872				
Satd. Flow (perm)	0	3402	0	0	2418	0	0	1335	1437	0	1863	1535
Satd. Flow (RTOR)		1										278
Lane Group Flow (vph)	0	906	0	0	872	0	0	76	75	0	64	410
Turn Type		NA		custom	NA		Perm	NA	Perm		NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3			6
Total Split (s)		31.0		27.0			27.0	27.0	27.0		55.0	55.0
Total Lost Time (s)		3.5						4.0	4.0		3.0	3.0
Act Effct Green (s)		27.5			52.0			13.1	13.1		61.9	61.9
Actuated g/C Ratio		0.20			0.37			0.09	0.09		0.44	0.44
v/c Ratio		1.35			0.80			0.61	0.56		0.08	0.49
Control Delay		185.3			25.7			80.6	75.7		16.2	4.5
Queue Delay		2.1			0.0			0.5	0.4		0.0	0.0
Total Delay		187.5			25.7			81.1	76.1		16.2	4.5
LOS		F			C			F	E		B	A
Approach Delay		187.5			25.7			78.6			6.1	
Approach LOS		F			C			E			A	
Queue Length 50th (ft)		~551			125			71	69		26	37
Queue Length 95th (ft)		m#635			m52			125	122		m42	m88
Internal Link Dist (ft)		386			19			910			219	
Turn Bay Length (ft)									100			50
Base Capacity (vph)		669			1092			219	236		824	834
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		168			0			27	30		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		1.81			0.80			0.40	0.36		0.08	0.49

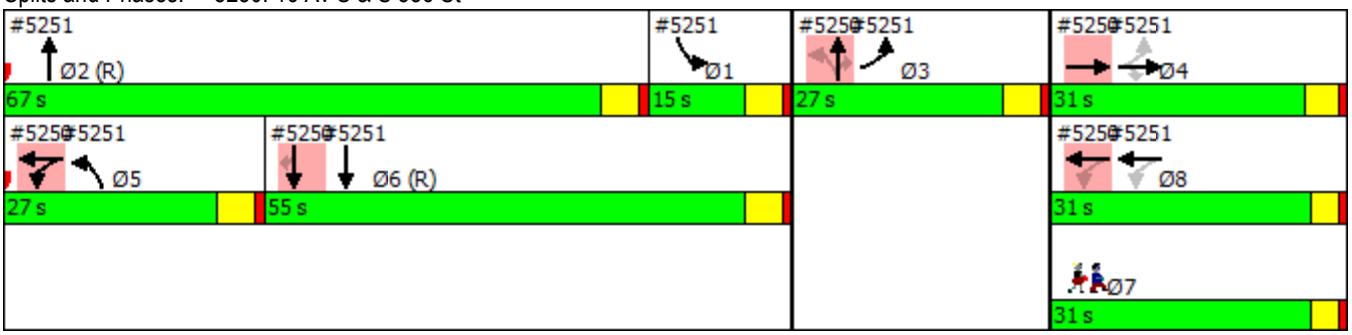
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 80 (57%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 86.1	Intersection LOS: F
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

~ 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.

Splits and Phases: 5250: 16 Av S & S 356 St



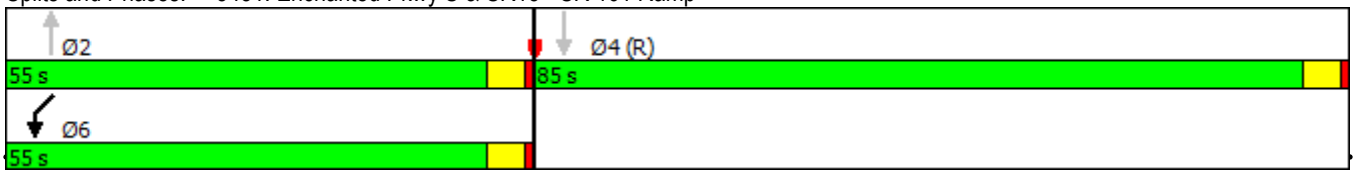
Lane Group	Ø1	Ø2	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	7	8
Permitted Phases				
Total Split (s)	15.0	67.0	31.0	31.0
Total Lost Time (s)				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	853	0	0	1443	143	164
Future Volume (vph)	853	0	0	1443	143	164
Satd. Flow (prot)	3543	0	0	3560	3235	0
Flt Permitted					0.977	
Satd. Flow (perm)	3543	0	0	3560	3235	0
Satd. Flow (RTOR)					164	
Lane Group Flow (vph)	853	0	0	1443	307	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Total Split (s)	55.0			85.0	55.0	
Total Lost Time (s)	5.0			5.0	5.0	
Act Effct Green (s)	50.0			80.0	50.0	
Actuated g/C Ratio	0.36			0.57	0.36	
v/c Ratio	0.67			0.71	0.24	
Control Delay	39.1			10.3	14.8	
Queue Delay	0.0			0.0	0.0	
Total Delay	39.1			10.3	14.8	
LOS	D			B	B	
Approach Delay	39.1			10.3	14.8	
Approach LOS	D			B	B	
Queue Length 50th (ft)	246			193	44	
Queue Length 95th (ft)	380			m135	79	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	1265			2034	1260	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.67			0.71	0.24	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 110 (79%), Referenced to phase 4:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	
Description: WSDOT 2013-03-19	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

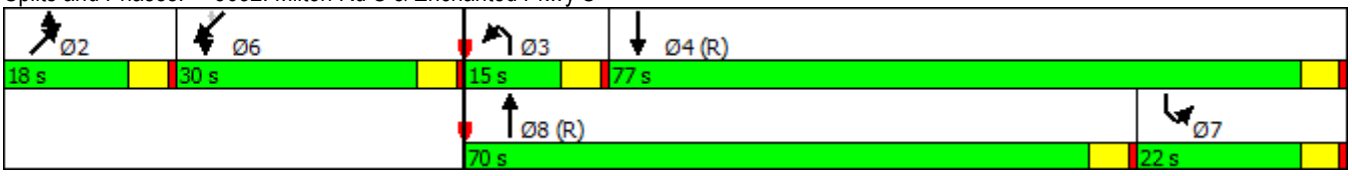


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	538	23	101	1012	253	71	51	22	20	54	234
Future Volume (vph)	3	538	23	101	1012	253	71	51	22	20	54	234
Satd. Flow (prot)	1743	3440	0	1787	3397	0	1712	1709	0	0	1820	1555
Flt Permitted	0.950			0.950			0.950				0.987	
Satd. Flow (perm)	1724	3440	0	1735	3397	0	1653	1709	0	0	1803	1478
Satd. Flow (RTOR)		4			32			12				234
Lane Group Flow (vph)	3	561	0	101	1265	0	71	73	0	0	74	234
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Total Split (s)	15.0	70.0		22.0	77.0		18.0	18.0		30.0	30.0	30.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Act Effct Green (s)	5.1	82.8		17.0	102.7		9.9	9.9			10.3	10.3
Actuated g/C Ratio	0.04	0.59		0.12	0.73		0.07	0.07			0.07	0.07
v/c Ratio	0.05	0.28		0.47	0.51		0.59	0.56			0.56	0.72
Control Delay	67.7	18.9		41.9	5.7		82.3	67.9			77.3	20.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	67.7	18.9		41.9	5.7		82.3	67.9			77.3	20.2
LOS	E	B		D	A		F	E			E	C
Approach Delay		19.2			8.4			75.0			33.9	
Approach LOS		B			A			E			C	
Queue Length 50th (ft)	3	147		79	100		64	54			66	0
Queue Length 95th (ft)	m11	212		m115	145		115	107			116	85
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	124	2037		216	2501		158	169			325	456
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	0.02	0.28		0.47	0.51		0.45	0.43			0.23	0.51

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 94 (67%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 18.3 Intersection LOS: B
Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	26	0	853	1586	0
Future Volume (vph)	43	26	0	853	1586	0
Satd. Flow (prot)	1755	1571	1872	3543	3507	0
Flt Permitted	0.950					
Satd. Flow (perm)	1688	1493	1872	3543	3507	0
Satd. Flow (RTOR)		26				
Lane Group Flow (vph)	43	26	0	853	1586	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	21.0	21.0	119.0	119.0	119.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	7.9	7.9		125.1	125.1	
Actuated g/C Ratio	0.06	0.06		0.89	0.89	
v/c Ratio	0.44	0.24		0.27	0.51	
Control Delay	76.8	26.1		1.7	2.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	76.8	26.1		1.7	2.0	
LOS	E	C		A	A	
Approach Delay	57.7			1.7	2.0	
Approach LOS	E			A	A	
Queue Length 50th (ft)	39	0		48	62	
Queue Length 95th (ft)	79	32		75	181	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100				
Base Capacity (vph)	200	193		3167	3134	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.21	0.13		0.27	0.51	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 3.4	Intersection LOS: A
Intersection Capacity Utilization 57.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S

2040 BUILD

Queues
251: Pacific Hwy S & S 276 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	51	1	75	39	5	118	23	42	955	9	77	17
Future Volume (vph)	51	1	75	39	5	118	23	42	955	9	77	17
Satd. Flow (prot)	1727	1551	0	1596	1534	0	0	1805	5131	0	0	1748
Flt Permitted	0.484			0.633				0.950				0.276
Satd. Flow (perm)	873	1551	0	1022	1534	0	0	1801	5131	0	0	503
Satd. Flow (RTOR)		55			118				2			
Lane Group Flow (vph)	51	76	0	39	123	0	0	65	964	0	0	94
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	22.0	22.0		22.0	22.0		19.0	19.0	103.0		15.0	15.0
Total Lost Time (s)	4.5	4.5		6.0	6.0			6.0	5.5			5.0
Act Effct Green (s)	12.2	12.2		10.7	10.7			9.5	105.8			113.3
Actuated g/C Ratio	0.09	0.09		0.08	0.08			0.07	0.76			0.81
v/c Ratio	0.68	0.41		0.51	0.55			0.54	0.25			0.20
Control Delay	100.0	28.0		81.8	20.2			78.0	16.2			3.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	100.0	28.0		81.8	20.2			78.0	16.2			3.8
LOS	F	C		F	C			E	B			A
Approach Delay		56.9			35.0				20.1			
Approach LOS		E			D				C			
Queue Length 50th (ft)	46	18		35	4			50	210			10
Queue Length 95th (ft)	91	67		73	66			m62	m226			25
Internal Link Dist (ft)		107			863				909			
Turn Bay Length (ft)	25			200				175				275
Base Capacity (vph)	109	242		116	279			167	3876			506
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.47	0.31		0.34	0.44			0.39	0.25			0.19

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 15.7 Intersection LOS: B
Intersection Capacity Utilization 95.2% ICU Level of Service F
Analysis Period (min) 15
Description:
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 251: Pacific Hwy S & S 276 St

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2297	67
Future Volume (vph)	2297	67
Satd. Flow (prot)	4986	0
Flt Permitted		
Satd. Flow (perm)	4986	0
Satd. Flow (RTOR)	7	
Lane Group Flow (vph)	2364	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	99.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	105.2	
Actuated g/C Ratio	0.75	
v/c Ratio	0.63	
Control Delay	10.7	
Queue Delay	0.0	
Total Delay	10.7	
LOS	B	
Approach Delay	10.5	
Approach LOS	B	
Queue Length 50th (ft)	347	
Queue Length 95th (ft)	506	
Internal Link Dist (ft)	1335	
Turn Bay Length (ft)		
Base Capacity (vph)	3747	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.63	

Intersection Summary

Queues
1050: Pacific Hwy S & S 288 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
Future Volume (vph)	37	129	22	1193	59	271	34	14	836	870	25	612
Satd. Flow (prot)	0	3426	0	1711	1728	1631	0	1787	4492	1375	0	3318
Flt Permitted		0.990		0.950	0.957			0.950				0.950
Satd. Flow (perm)	0	3426	0	1711	1728	1585	0	1787	4492	1307	0	3318
Satd. Flow (RTOR)						182			91	435		
Lane Group Flow (vph)	0	188	0	620	632	271	0	48	1271	435	0	637
Turn Type	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	7		8	8		5	5	2		1	1
Permitted Phases						8				2		
Total Split (s)	15.0	15.0		52.0	52.0	52.0	15.0	15.0	42.0	42.0	31.0	31.0
Total Lost Time (s)		6.0		5.5	5.5	5.5		5.5	5.5	7.0		5.0
Act Effct Green (s)		8.8		46.5	46.5	46.5		8.1	36.7	35.2		26.0
Actuated g/C Ratio		0.06		0.33	0.33	0.33		0.06	0.26	0.25		0.19
v/c Ratio		0.87		1.09	1.10	0.42		0.47	1.02	0.67		1.03
Control Delay		99.6		108.8	112.3	13.9		46.9	67.6	18.3		93.1
Queue Delay		0.0		5.7	2.4	0.7		0.0	0.0	0.0		0.0
Total Delay		99.6		114.5	114.7	14.6		46.9	67.6	18.3		93.1
LOS		F		F	F	B		D	E	B		F
Approach Delay		99.6			96.8				54.8			
Approach LOS		F			F				D			
Queue Length 50th (ft)		91		~668	~686	57		36	~286	255		~321
Queue Length 95th (ft)		#161		#916	#936	137		m68	#536	m83		m#437
Internal Link Dist (ft)		420			339				2705			
Turn Bay Length (ft)				225				325				450
Base Capacity (vph)		220		568	573	647		121	1243	654		616
Starvation Cap Reductn		0		141	144	155		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		0.85		1.45	1.47	0.55		0.40	1.02	0.67		1.03

Intersection Summary

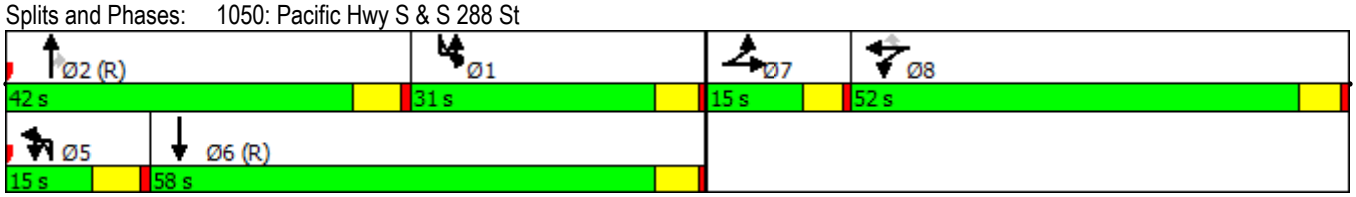
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 34 (24%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 73.1 Intersection LOS: E
Intersection Capacity Utilization 103.2% ICU Level of Service G
Analysis Period (min) 15

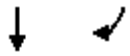
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 1050: Pacific Hwy S & S 288 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1874	185
Future Volume (vph)	1874	185
Satd. Flow (prot)	4921	0
Flt Permitted		
Satd. Flow (perm)	4921	0
Satd. Flow (RTOR)	13	
Lane Group Flow (vph)	2059	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	58.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	56.8	
Actuated g/C Ratio	0.41	
v/c Ratio	1.03	
Control Delay	62.6	
Queue Delay	0.0	
Total Delay	62.6	
LOS	E	
Approach Delay	69.8	
Approach LOS	E	
Queue Length 50th (ft)	~768	
Queue Length 95th (ft)	m#856	
Internal Link Dist (ft)	1437	
Turn Bay Length (ft)		
Base Capacity (vph)	2003	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.03	

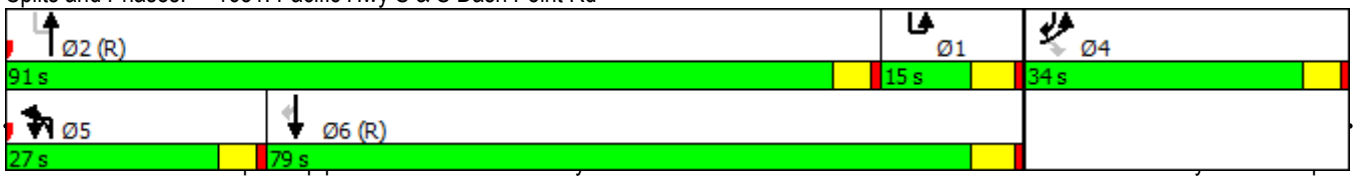
Intersection Summary

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	562	90	90	431	1253	42	1955	1138
Future Volume (vph)	562	90	90	431	1253	42	1955	1138
Satd. Flow (prot)	3311	1541	0	3467	5095	1753	4666	1382
Flt Permitted	0.950			0.950		0.181		
Satd. Flow (perm)	3311	1482	0	3464	5095	334	4666	1350
Satd. Flow (RTOR)		90					48	22
Lane Group Flow (vph)	562	90	0	521	1253	42	2387	706
Turn Type	Prot	Perm	Prot	Prot	NA	D.P+P	NA	pm+ov
Protected Phases	4		5	5	2	1	6	4
Permitted Phases		4				2		6
Total Split (s)	34.0	34.0	27.0	27.0	91.0	15.0	79.0	34.0
Total Lost Time (s)	5.0	5.0		5.0	4.5	5.5	5.0	5.0
Act Effct Green (s)	27.2	27.2		22.0	91.3	97.9	75.8	103.0
Actuated g/C Ratio	0.19	0.19		0.16	0.65	0.70	0.54	0.74
v/c Ratio	0.87	0.25		0.96	0.38	0.13	0.94	0.70
Control Delay	69.9	10.5		64.7	14.5	3.7	29.7	13.4
Queue Delay	51.2	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	121.1	10.5		64.7	14.5	3.7	29.7	13.4
LOS	F	B		E	B	A	C	B
Approach Delay	105.9				29.3		25.7	
Approach LOS	F				C		C	
Queue Length 50th (ft)	254	0		210	381	7	733	344
Queue Length 95th (ft)	324	47		m#346	300	m6	m648	m333
Internal Link Dist (ft)	244				640		2705	
Turn Bay Length (ft)	75			400		250		650
Base Capacity (vph)	685	378		544	3321	329	2547	1022
Starvation Cap Reductn	181	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	1.12	0.24		0.96	0.38	0.13	0.94	0.69

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 97.9% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 1651: Pacific Hwy S & S Dash Point Rd

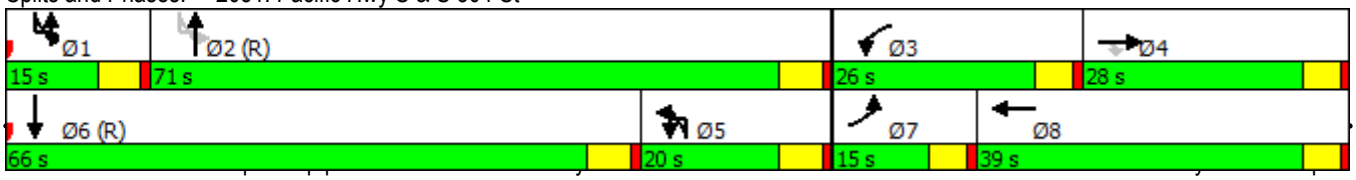


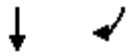
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	29	77	282	408	303	65	82	79	1475	167	5	32
Future Volume (vph)	29	77	282	408	303	65	82	79	1475	167	5	32
Satd. Flow (prot)	1762	1837	1505	3320	1721	0	0	1778	4984	0	0	1752
Flt Permitted	0.950			0.950				0.950				0.091
Satd. Flow (perm)	1757	1837	1471	3320	1721	0	0	1774	4984	0	0	168
Satd. Flow (RTOR)			183		7				19			
Lane Group Flow (vph)	29	77	282	408	368	0	0	161	1642	0	0	37
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4								2	2
Total Split (s)	15.0	28.0	28.0	26.0	39.0		20.0	20.0	71.0		15.0	15.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			5.5	5.5			5.5
Act Effct Green (s)	5.9	14.9	14.9	18.9	32.1			14.5	79.5			84.2
Actuated g/C Ratio	0.04	0.11	0.11	0.14	0.23			0.10	0.57			0.60
v/c Ratio	0.39	0.39	0.88	0.91	0.92			0.88	0.58			0.22
Control Delay	79.8	61.9	48.5	84.3	80.5			112.7	34.9			4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	79.8	61.9	48.5	84.3	80.5			112.7	34.9			4.6
LOS	E	E	D	F	F			F	C			A
Approach Delay		53.5			82.5				41.9			
Approach LOS		D			F				D			
Queue Length 50th (ft)	26	64	89	189	322			156	564			4
Queue Length 95th (ft)	61	113	196	#273	#500			m#288	615			m6
Internal Link Dist (ft)		218			1954				1274			
Turn Bay Length (ft)	100			100				300				275
Base Capacity (vph)	113	288	385	474	415			184	2837			212
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	0.26	0.27	0.73	0.86	0.89			0.88	0.58			0.17

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 46 (33%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 36.1 Intersection LOS: D
Intersection Capacity Utilization 99.1% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2051: Pacific Hwy S & S 304 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1921	87
Future Volume (vph)	1921	87
Satd. Flow (prot)	4929	0
Flt Permitted		
Satd. Flow (perm)	4929	0
Satd. Flow (RTOR)	6	
Lane Group Flow (vph)	2008	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	66.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	68.6	
Actuated g/C Ratio	0.49	
v/c Ratio	0.83	
Control Delay	10.3	
Queue Delay	0.0	
Total Delay	10.3	
LOS	B	
Approach Delay	10.2	
Approach LOS	B	
Queue Length 50th (ft)	336	
Queue Length 95th (ft)	m#563	
Internal Link Dist (ft)	1451	
Turn Bay Length (ft)		
Base Capacity (vph)	2418	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.83	

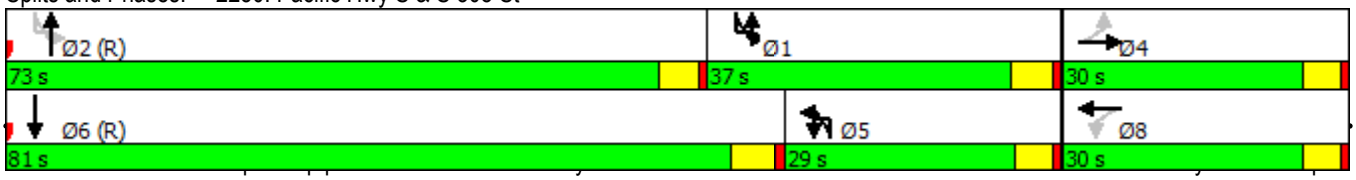
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
Future Volume (vph)	112	41	78	32	44	90	150	54	1550	26	67	263
Satd. Flow (prot)	1693	1723	0	1708	1786	0	0	1761	5009	0	0	1796
Flt Permitted	0.528			0.580				0.950				0.104
Satd. Flow (perm)	939	1723	0	1028	1786	0	0	1761	5009	0	0	197
Satd. Flow (RTOR)		59			63				2			
Lane Group Flow (vph)	112	119	0	32	134	0	0	204	1576	0	0	330
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		D.P+P	D.P+P
Protected Phases		4			8		5	5	2		1	1
Permitted Phases	4			8							2	2
Total Split (s)	30.0	30.0		30.0	30.0		29.0	29.0	73.0		37.0	37.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	5.0			5.5
Act Effct Green (s)	17.9	17.9		17.9	17.9			19.7	78.5			105.1
Actuated g/C Ratio	0.13	0.13		0.13	0.13			0.14	0.56			0.75
v/c Ratio	0.94	0.44		0.24	0.48			0.83	0.56			0.72
Control Delay	126.8	32.8		57.0	34.3			71.5	33.8			34.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	126.8	32.8		57.0	34.3			71.5	33.8			34.0
LOS	F	C		E	C			E	C			C
Approach Delay		78.4			38.7				38.1			
Approach LOS		E			D				D			
Queue Length 50th (ft)	102	50		26	59			150	484			114
Queue Length 95th (ft)	#188	109		58	122			m157	m517			m192
Internal Link Dist (ft)		309			353				582			
Turn Bay Length (ft)								300				275
Base Capacity (vph)	160	344		176	358			301	2808			514
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.70	0.35		0.18	0.37			0.68	0.56			0.64

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 37.9 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 2250: Pacific Hwy S & S 308 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1989	406
Future Volume (vph)	1989	406
Satd. Flow (prot)	4958	0
Flt Permitted		
Satd. Flow (perm)	4958	0
Satd. Flow (RTOR)	48	
Lane Group Flow (vph)	2395	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	81.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	86.0	
Actuated g/C Ratio	0.61	
v/c Ratio	0.78	
Control Delay	34.2	
Queue Delay	0.0	
Total Delay	34.2	
LOS	C	
Approach Delay	34.2	
Approach LOS	C	
Queue Length 50th (ft)	696	
Queue Length 95th (ft)	806	
Internal Link Dist (ft)	1274	
Turn Bay Length (ft)		
Base Capacity (vph)	3063	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.78	

Intersection Summary

Queues
2550: Pacific Hwy S & S 312 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
Future Volume (vph)	404	590	230	220	1226	113	29	425	1152	79	80	176
Satd. Flow (prot)	3408	3424	1566	1759	3357	0	0	3439	5005	0	0	1773
Flt Permitted	0.082			0.301				0.950				0.950
Satd. Flow (perm)	294	3424	1488	553	3357	0	0	3429	5005	0	0	1750
Satd. Flow (RTOR)			199		8				7			
Lane Group Flow (vph)	404	590	230	220	1339	0	0	454	1231	0	0	256
Turn Type	D.P+P	NA	Perm	D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4								
Total Split (s)	16.0	48.0	48.0	23.0	55.0		22.0	22.0	43.0		26.0	26.0
Total Lost Time (s)	5.5	6.0	6.0	5.5	6.5			5.0	5.0			5.0
Act Effct Green (s)	60.0	45.8	45.8	60.0	48.5			17.0	38.0			21.0
Actuated g/C Ratio	0.43	0.33	0.33	0.43	0.35			0.12	0.27			0.15
v/c Ratio	1.13	0.53	0.37	0.62	1.15			1.09	0.90			0.97
Control Delay	118.8	41.0	9.1	31.1	117.5			97.1	40.2			96.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	118.8	41.0	9.1	31.1	117.5			97.1	40.2			96.5
LOS	F	D	A	C	F			F	D			F
Approach Delay		60.6			105.3				55.5			
Approach LOS		E			F				E			
Queue Length 50th (ft)	~167	230	20	120	~750			~230	430			245
Queue Length 95th (ft)	#276	303	89	179	#892			m#337	m#479			m#380
Internal Link Dist (ft)		596			551				1258			
Turn Bay Length (ft)	225			275				450				225
Base Capacity (vph)	359	1119	620	400	1168			417	1363			265
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	1.13	0.53	0.37	0.55	1.15			1.09	0.90			0.97

Intersection Summary

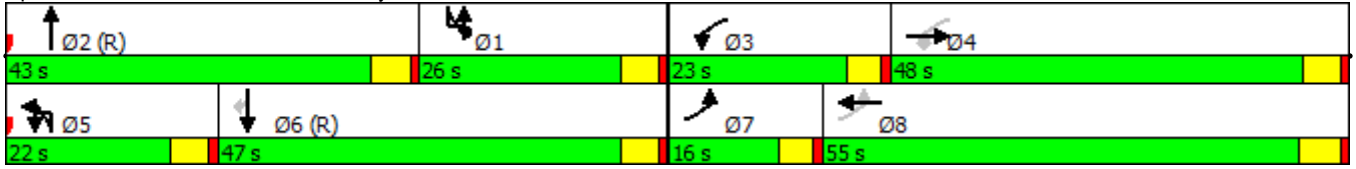
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 60 (43%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 79.9 Intersection LOS: E
Intersection Capacity Utilization 111.6% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 2550: Pacific Hwy S & S 312 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1294	719
Future Volume (vph)	1294	719
Satd. Flow (prot)	4631	1353
Flt Permitted		
Satd. Flow (perm)	4631	1232
Satd. Flow (RTOR)	29	175
Lane Group Flow (vph)	1560	453
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Total Split (s)	47.0	47.0
Total Lost Time (s)	5.0	6.0
Act Effct Green (s)	42.0	41.0
Actuated g/C Ratio	0.30	0.29
v/c Ratio	1.11	0.94
Control Delay	100.8	54.6
Queue Delay	0.0	0.0
Total Delay	100.8	54.6
LOS	F	D
Approach Delay	91.1	
Approach LOS	F	
Queue Length 50th (ft)	~633	367
Queue Length 95th (ft)	#734	#590
Internal Link Dist (ft)	580	
Turn Bay Length (ft)		225
Base Capacity (vph)	1409	484
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.11	0.94

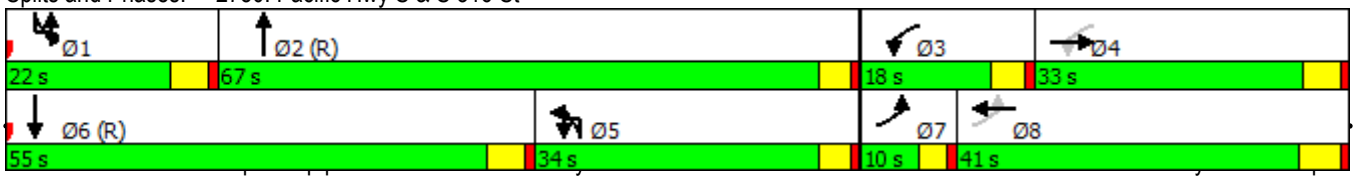
Intersection Summary

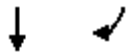
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	79	101	191	215	281	132	87	266	1569	102	46	109
Future Volume (vph)	79	101	191	215	281	132	87	266	1569	102	46	109
Satd. Flow (prot)	1762	1554	0	1708	1664	0	0	1769	4961	0	0	1737
Flt Permitted	0.143			0.236				0.950				0.950
Satd. Flow (perm)	264	1554	0	419	1664	0	0	1761	4961	0	0	1731
Satd. Flow (RTOR)		60			16				9			
Lane Group Flow (vph)	79	292	0	215	413	0	0	353	1671	0	0	155
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	10.0	33.0		18.0	41.0		34.0	34.0	67.0		22.0	22.0
Total Lost Time (s)	5.0	6.0		5.5	6.5			4.5	4.5			5.0
Act Effct Green (s)	40.8	26.8		39.8	34.3			29.5	64.5			15.3
Actuated g/C Ratio	0.29	0.19		0.28	0.24			0.21	0.46			0.11
v/c Ratio	0.61	0.85		0.92	0.98			0.95	0.73			0.82
Control Delay	56.0	65.2		81.4	90.1			44.5	8.2			76.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	56.0	65.2		81.4	90.1			44.5	8.2			76.0
LOS	E	E		F	F			D	A			E
Approach Delay		63.2			87.1				14.5			
Approach LOS		E			F				B			
Queue Length 50th (ft)	51	209		151	364			237	100			115
Queue Length 95th (ft)	#99	#366		#271	#584			m#285	m110			m128
Internal Link Dist (ft)		283			1233				1221			
Turn Bay Length (ft)	150			300				450				250
Base Capacity (vph)	130	348		233	422			372	2288			210
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.61	0.84		0.92	0.98			0.95	0.73			0.74

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 112 (80%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 107.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 2750: Pacific Hwy S & S 316 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1508	200
Future Volume (vph)	1508	200
Satd. Flow (prot)	4963	0
Flt Permitted		
Satd. Flow (perm)	4963	0
Satd. Flow (RTOR)	19	
Lane Group Flow (vph)	1708	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	55.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	50.2	
Actuated g/C Ratio	0.36	
v/c Ratio	0.95	
Control Delay	27.2	
Queue Delay	0.0	
Total Delay	27.2	
LOS	C	
Approach Delay	31.2	
Approach LOS	C	
Queue Length 50th (ft)	553	
Queue Length 95th (ft)	m541	
Internal Link Dist (ft)	1258	
Turn Bay Length (ft)		
Base Capacity (vph)	1793	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.95	

Intersection Summary

Queues
3050: Pacific Hwy S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	47	282	1169	142	27	578	1581	393	33	331	1275	275
Future Volume (vph)	47	282	1169	142	27	578	1581	393	33	331	1275	275
Satd. Flow (prot)	0	3536	5114	0	0	3433	5031	1583	0	3344	5034	1542
Flt Permitted		0.950				0.950				0.950		
Satd. Flow (perm)	0	3528	5114	0	0	3420	5031	1548	0	3324	5034	1508
Satd. Flow (RTOR)			14					256				197
Lane Group Flow (vph)	0	329	1311	0	0	605	1581	393	0	364	1275	275
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases								2				8
Total Split (s)	19.0	19.0	41.0		30.0	30.0	52.0	52.0	27.0	27.0	40.0	40.0
Total Lost Time (s)		5.5	5.5			5.0	5.5	5.5		5.0	5.0	6.0
Act Effct Green (s)		13.5	35.5			25.0	46.5	46.5		22.0	35.0	34.0
Actuated g/C Ratio		0.10	0.25			0.18	0.33	0.33		0.16	0.25	0.24
v/c Ratio		0.97	1.00			0.99	0.95	0.57		0.69	1.01	0.53
Control Delay		103.7	76.8			90.2	58.1	16.3		32.9	47.1	6.8
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		103.7	76.8			90.2	58.1	16.3		32.9	47.1	6.8
LOS		F	E			F	E	B		C	D	A
Approach Delay			82.2				59.2				38.6	
Approach LOS			F				E				D	
Queue Length 50th (ft)		156	~438			286	513	97		176	~293	38
Queue Length 95th (ft)		#254	#550			#411	#613	206		m176	m250	m38
Internal Link Dist (ft)			550				1139				1190	
Turn Bay Length (ft)		425				300		250		275		
Base Capacity (vph)		340	1307			613	1671	685		525	1258	515
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		0.97	1.00			0.99	0.95	0.57		0.69	1.01	0.53

Intersection Summary

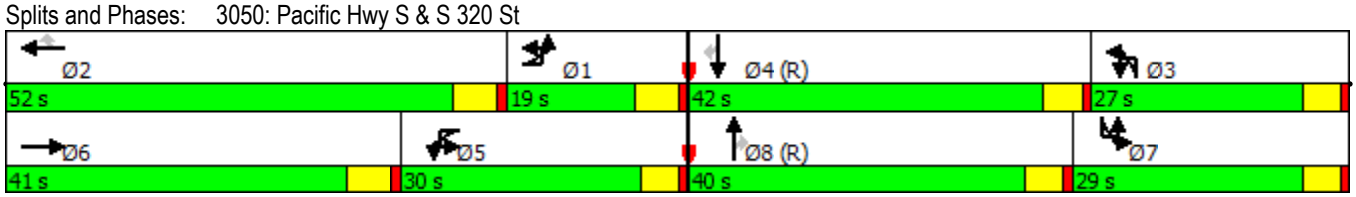
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 54.5 Intersection LOS: D
Intersection Capacity Utilization 115.9% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 3050: Pacific Hwy S & S 320 St



Lane Group	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	20	590	1022	211
Future Volume (vph)	20	590	1022	211
Satd. Flow (prot)	0	3440	5136	1548
Flt Permitted		0.950		
Satd. Flow (perm)	0	3427	5136	1510
Satd. Flow (RTOR)				144
Lane Group Flow (vph)	0	610	1022	211
Turn Type	Prot	Prot	NA	Perm
Protected Phases	7	7	4	
Permitted Phases				4
Total Split (s)	29.0	29.0	42.0	42.0
Total Lost Time (s)		5.0	5.0	5.0
Act Effct Green (s)		24.0	37.0	37.0
Actuated g/C Ratio		0.17	0.26	0.26
v/c Ratio		1.04	0.75	0.42
Control Delay		76.6	25.4	2.7
Queue Delay		0.0	0.0	0.0
Total Delay		76.6	25.4	2.7
LOS		E	C	A
Approach Delay			39.8	
Approach LOS			D	
Queue Length 50th (ft)		~313	209	4
Queue Length 95th (ft)		m#355	m245	m3
Internal Link Dist (ft)			1221	
Turn Bay Length (ft)		325		225
Base Capacity (vph)		589	1357	505
Starvation Cap Reductn		0	0	0
Spillback Cap Reductn		0	0	0
Storage Cap Reductn		0	0	0
Reduced v/c Ratio		1.04	0.75	0.42

Intersection Summary

Queues
3055: 23 Av S & S 320 St

10/29/2018

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
Future Volume (vph)	7	196	1688	99	309	1874	655	136	385	227	712	616
Satd. Flow (prot)	0	3240	4871	0	3448	5185	1519	1733	1735	2739	3392	1788
Flt Permitted		0.950			0.950			0.950			0.950	
Satd. Flow (perm)	0	3227	4871	0	3440	5185	1476	1724	1735	2675	3369	1788
Satd. Flow (RTOR)			7				418			174		
Lane Group Flow (vph)	0	203	1787	0	309	1874	655	136	385	227	712	616
Turn Type	Prot	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases							8			2		
Total Split (s)	15.0	15.0	53.0		18.0	56.0	56.0	16.0	36.0	36.0	33.0	53.0
Total Lost Time (s)		4.5	4.5		5.5	5.5	6.5	5.0	6.0	5.5	5.0	6.0
Act Effct Green (s)		10.5	48.5		12.5	50.5	49.5	11.0	30.0	30.5	28.0	47.0
Actuated g/C Ratio		0.08	0.35		0.09	0.36	0.35	0.08	0.21	0.22	0.20	0.34
v/c Ratio		0.84	1.06		1.01	1.00	0.83	1.00	1.04	0.32	1.05	1.03
Control Delay		91.2	82.1		75.7	39.8	11.0	142.4	105.1	15.5	101.6	89.1
Queue Delay		0.0	0.0		0.0	34.9	22.5	0.0	0.0	0.0	0.0	0.0
Total Delay		91.2	82.1		75.7	74.6	33.5	142.4	105.1	15.5	101.6	89.1
LOS		F	F		E	E	C	F	F	B	F	F
Approach Delay			83.1			65.3			84.7			82.3
Approach LOS			F			E			F			F
Queue Length 50th (ft)		95	~650		~147	~523	69	~131	~383	11	~362	~597
Queue Length 95th (ft)		#163	#748		m#177	#732	m102	#274	#553	61	#489	#833
Internal Link Dist (ft)			487			460			680			931
Turn Bay Length (ft)		225			300			275			300	
Base Capacity (vph)		243	1692		307	1870	792	136	371	718	678	600
Starvation Cap Reductn		0	0		0	161	152	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		0.84	1.06		1.01	1.10	1.02	1.00	1.04	0.32	1.05	1.03

Intersection Summary

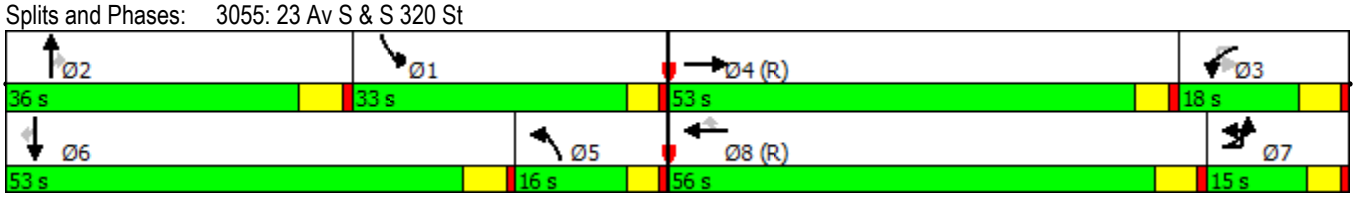
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 26 (19%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 76.1 Intersection LOS: E
Intersection Capacity Utilization 104.5% ICU Level of Service G
Analysis Period (min) 15

~ 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.

Splits and Phases: 3055: 23 Av S & S 320 St



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	360
Future Volume (vph)	360
Satd. Flow (prot)	1558
Flt Permitted	
Satd. Flow (perm)	1522
Satd. Flow (RTOR)	108
Lane Group Flow (vph)	360
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Total Split (s)	53.0
Total Lost Time (s)	6.5
Act Effct Green (s)	46.5
Actuated g/C Ratio	0.33
v/c Ratio	0.62
Control Delay	32.4
Queue Delay	0.0
Total Delay	32.4
LOS	C
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	195
Queue Length 95th (ft)	307
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	577
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.62

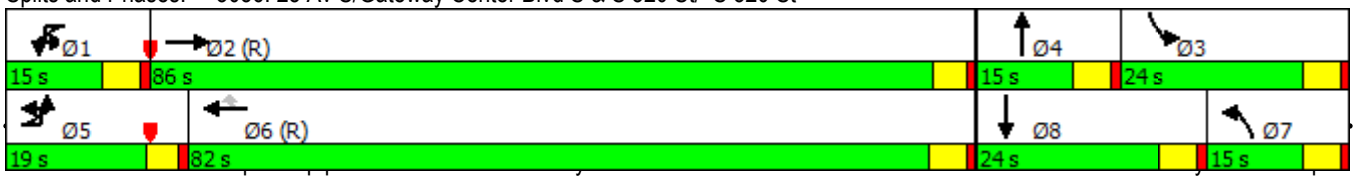
Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
Future Volume (vph)	14	149	2477	15	3	49	2664	399	32	13	92	418
Satd. Flow (prot)	0	1752	4987	0	0	1778	5097	1591	1738	1569	0	3409
Flt Permitted		0.950				0.950			0.950			0.950
Satd. Flow (perm)	0	1750	4987	0	0	1774	5097	1517	1719	1569	0	3372
Satd. Flow (RTOR)			1					253		75		
Lane Group Flow (vph)	0	163	2492	0	0	52	2664	399	32	105	0	418
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		7	4		3
Permitted Phases								6				
Total Split (s)	19.0	19.0	86.0		15.0	15.0	82.0	82.0	15.0	15.0		24.0
Total Lost Time (s)		4.5	4.5			5.0	5.0	6.0	6.0	6.0		6.0
Act Effct Green (s)		14.2	87.0			8.0	78.8	77.8	9.5	6.4		19.0
Actuated g/C Ratio		0.10	0.62			0.06	0.56	0.56	0.07	0.05		0.14
v/c Ratio		0.92	0.80			0.51	0.93	0.42	0.27	0.73		0.90
Control Delay		98.5	4.2			77.8	27.2	4.2	67.1	51.1		82.7
Queue Delay		0.0	0.3			0.0	14.9	0.6	0.0	0.2		0.0
Total Delay		98.5	4.5			77.8	42.1	4.8	67.1	51.3		82.7
LOS		F	A			E	D	A	E	D		F
Approach Delay			10.3				37.9			55.0		
Approach LOS			B				D			E		
Queue Length 50th (ft)		158	68			46	886	54	26	27		192
Queue Length 95th (ft)		m158	m70			m61	906	m64	64	90		#302
Internal Link Dist (ft)			460				380			431		
Turn Bay Length (ft)		100				200			125			
Base Capacity (vph)		181	3100			127	2869	955	140	171		465
Starvation Cap Reductn		0	178			0	272	252	0	0		0
Spillback Cap Reductn		0	175			0	267	0	0	2		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.90	0.85			0.41	1.03	0.57	0.23	0.62		0.90

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 2 (1%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 100.5% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 3056: 25 Av S/Gateway Center Blvd S & S 320 St/ S 320 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	4	142
Future Volume (vph)	4	142
Satd. Flow (prot)	1560	0
Flt Permitted		
Satd. Flow (perm)	1560	0
Satd. Flow (RTOR)	116	
Lane Group Flow (vph)	146	0
Turn Type	NA	
Protected Phases	8	
Permitted Phases		
Total Split (s)	24.0	
Total Lost Time (s)	6.0	
Act Effct Green (s)	20.1	
Actuated g/C Ratio	0.14	
v/c Ratio	0.45	
Control Delay	20.5	
Queue Delay	0.0	
Total Delay	20.6	
LOS	C	
Approach Delay	66.6	
Approach LOS	E	
Queue Length 50th (ft)	27	
Queue Length 95th (ft)	94	
Internal Link Dist (ft)	200	
Turn Bay Length (ft)		
Base Capacity (vph)	347	
Starvation Cap Reductn	0	
Spillback Cap Reductn	5	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	

Intersection Summary

Queues

3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp 10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SWL2	SWL	SWR	Ø5
Lane Configurations												
Traffic Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227	
Future Volume (vph)	0	1883	1072	309	1964	0	0	0	738	3	1227	
Satd. Flow (prot)	0	5046	2751	1741	5072	0	0	0	1651	1664	3564	
Flt Permitted				0.063					0.950	0.950		
Satd. Flow (perm)	0	5046	2591	115	5072	0	0	0	1610	1527	3564	
Satd. Flow (RTOR)			779								55	
Lane Group Flow (vph)	0	1883	1072	309	1964	0	0	0	369	372	1227	
Turn Type		NA	Perm	D.P+P	NA				Prot	Prot	custom	
Protected Phases		2		1	6				4	4	4 5	5
Permitted Phases			2	2								
Total Split (s)		66.0	66.0	30.0	81.0				44.0	44.0		15.0
Total Lost Time (s)		5.0	5.0	5.0	5.0				5.0	5.0		
Act Effct Green (s)		63.1	63.1	86.0	76.6				39.0	39.0	53.4	
Actuated g/C Ratio		0.45	0.45	0.61	0.55				0.28	0.28	0.38	
v/c Ratio		0.83	0.67	0.92	0.71				0.80	0.80	0.88	
Control Delay		20.4	3.8	74.0	25.3				61.5	61.4	47.0	
Queue Delay		9.5	1.1	0.0	0.5				0.0	0.0	6.3	
Total Delay		29.9	5.0	74.0	25.8				61.5	61.4	53.3	
LOS		C	A	E	C				E	E	D	
Approach Delay		20.8			32.4					56.3		
Approach LOS		C			C					E		
Queue Length 50th (ft)		390	64	225	473				330	332	434	
Queue Length 95th (ft)		516	m108	#386	529				#489	#493	517	
Internal Link Dist (ft)		380			931		1129			888		
Turn Bay Length (ft)				150					600	600	600	
Base Capacity (vph)		2274	1595	362	2775				459	463	1408	
Starvation Cap Reductn		385	285	0	0				0	0	0	
Spillback Cap Reductn		0	0	0	374				0	0	146	
Storage Cap Reductn		0	0	0	0				0	0	0	
Reduced v/c Ratio		1.00	0.82	0.85	0.82				0.80	0.80	0.97	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 96 (69%), Referenced to phase 2:EBWB and 6:WBT, Start of Red

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 34.2 Intersection LOS: C

Intersection Capacity Utilization 96.0% ICU Level of Service F

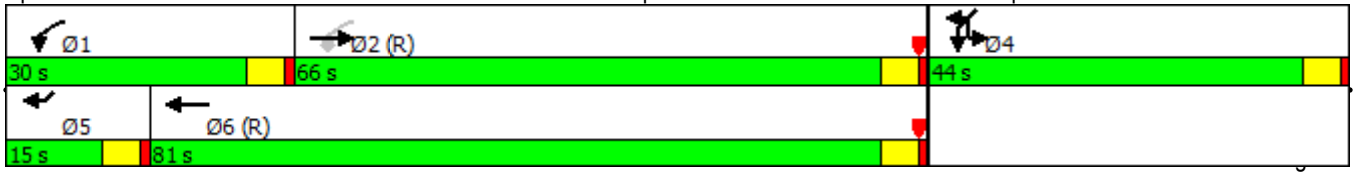
Analysis Period (min) 15

Description: All Traffic Data Services - 11/4/04

\# 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.

Splits and Phases: 3057: I-5 SB Ramp & S 320 St/S 320 St & I-5 SB Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1	93	39	16	90	136	558	19	46	686	54
Future Volume (vph)	96	1	93	39	16	90	136	558	19	46	686	54
Satd. Flow (prot)	1699	1542	0	1724	1611	0	1770	3445	0	1787	3465	0
Flt Permitted	0.536			0.631			0.331			0.411		
Satd. Flow (perm)	945	1542	0	1129	1611	0	612	3445	0	765	3465	0
Satd. Flow (RTOR)		93			90			3			7	
Lane Group Flow (vph)	96	94	0	39	106	0	136	577	0	46	740	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	4			8			2			6		
Total Split (s)	19.0	37.0		17.0	35.0		24.0	69.0		17.0	62.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0		5.5	5.0		5.5	5.0	
Act Effct Green (s)	21.3	18.2		22.5	12.2		95.7	93.0		96.8	88.7	
Actuated g/C Ratio	0.15	0.13		0.16	0.09		0.68	0.66		0.69	0.63	
v/c Ratio	0.48	0.33		0.19	0.48		0.28	0.25		0.08	0.34	
Control Delay	53.3	12.2		43.3	21.2		8.4	10.9		1.8	3.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.3	12.2		43.3	21.2		8.4	10.9		1.8	3.9	
LOS	D	B		D	C		A	B		A	A	
Approach Delay		33.0			27.1			10.5			3.8	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	80	1		32	15		24	68		2	23	
Queue Length 95th (ft)	113	50		55	67		m61	m206		m4	m146	
Internal Link Dist (ft)		309			203			301			680	
Turn Bay Length (ft)	100			75			250			225		
Base Capacity (vph)	231	424		256	415		595	2289		636	2198	
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	0.42	0.22		0.15	0.26		0.23	0.25		0.07	0.34	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 112 (80%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 55.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3255: 23 Av S & S 322 St

Queues
3350: Pacific Hwy S & S 324 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
Future Volume (vph)	98	345	122	968	690	60	162	156	1606	444	49	271
Satd. Flow (prot)	1778	1812	1553	4926	1813	0	0	3419	5085	1533	0	3378
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	1770	1812	1516	4863	1813	0	0	3397	5085	1488	0	3357
Satd. Flow (RTOR)			132		4					302		
Lane Group Flow (vph)	98	345	122	968	750	0	0	318	1606	444	0	320
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Total Split (s)	15.0	40.0	40.0	35.0	60.0		18.0	18.0	47.0	47.0	18.0	18.0
Total Lost Time (s)	5.0	5.5	5.5	5.5	6.0			5.0	5.0	6.0		5.0
Act Effct Green (s)	9.5	34.5	34.5	29.0	54.0			13.0	42.5	41.5		13.0
Actuated g/C Ratio	0.07	0.25	0.25	0.21	0.39			0.09	0.30	0.30		0.09
v/c Ratio	0.82	0.77	0.26	0.95	1.07			1.00	1.04	0.68		1.02
Control Delay	107.7	62.1	6.8	65.5	91.8			113.8	81.0	19.2		87.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0
Total Delay	107.7	62.1	6.8	65.5	91.8			113.8	81.0	19.2		87.5
LOS	F	E	A	E	F			F	F	B		F
Approach Delay		58.1			77.0				73.8			
Approach LOS		E			E				E			
Queue Length 50th (ft)	89	295	0	303	~761			~152	~583	113		~140
Queue Length 95th (ft)	#188	#418	44	#391	#1010			#254	#680	244		m#214
Internal Link Dist (ft)		1081			303				1289			
Turn Bay Length (ft)	200		275	500				275				275
Base Capacity (vph)	127	446	473	1037	701			317	1545	654		313
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	0.77	0.77	0.26	0.93	1.07			1.00	1.04	0.68		1.02

Intersection Summary

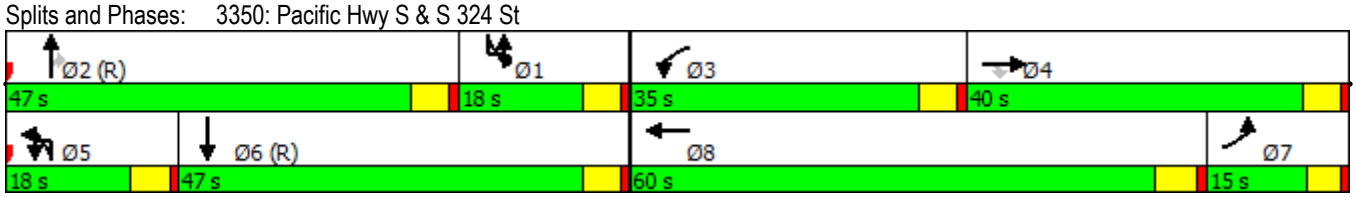
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 122 (87%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 69.6 Intersection LOS: E
Intersection Capacity Utilization 103.1% ICU Level of Service G
Analysis Period (min) 15

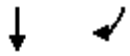
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 3350: Pacific Hwy S & S 324 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1407	158
Future Volume (vph)	1407	158
Satd. Flow (prot)	4945	0
Flt Permitted		
Satd. Flow (perm)	4945	0
Satd. Flow (RTOR)	14	
Lane Group Flow (vph)	1565	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	47.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	42.5	
Actuated g/C Ratio	0.30	
v/c Ratio	1.04	
Control Delay	55.6	
Queue Delay	0.0	
Total Delay	55.6	
LOS	E	
Approach Delay	61.0	
Approach LOS	E	
Queue Length 50th (ft)	~535	
Queue Length 95th (ft)	m#607	
Internal Link Dist (ft)	1190	
Turn Bay Length (ft)		
Base Capacity (vph)	1512	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.04	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
Future Volume (vph)	14	3	72	8	7	24	0	1442	18	50	1639	175
Satd. Flow (prot)	0	1647	0	0	1660	0	0	3512	0	0	3484	0
Flt Permitted		0.958			0.744						0.818	
Satd. Flow (perm)	0	1586	0	0	1244	0	0	3512	0	0	2852	0
Satd. Flow (RTOR)		72			24			4			39	
Lane Group Flow (vph)	0	89	0	0	39	0	0	1460	0	0	1864	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Total Split (s)	15.0	15.0		15.0	15.0		125.0	125.0		125.0	125.0	
Total Lost Time (s)		5.5			5.5			4.5			5.0	
Act Effct Green (s)		6.4			6.4			123.6			123.1	
Actuated g/C Ratio		0.05			0.05			0.88			0.88	
v/c Ratio		0.64			0.49			0.47			0.74	
Control Delay		39.5			53.8			0.8			10.1	
Queue Delay		0.0			0.0			0.1			0.0	
Total Delay		39.5			53.8			0.9			10.1	
LOS		D			D			A			B	
Approach Delay		39.5			53.8			0.9			10.1	
Approach LOS		D			D			A			B	
Queue Length 50th (ft)		15			14			1			295	
Queue Length 95th (ft)		72			53			6			702	
Internal Link Dist (ft)		496			430			674			1045	
Turn Bay Length (ft)												
Base Capacity (vph)		174			106			3101			2512	
Starvation Cap Reductn		0			0			546			0	
Spillback Cap Reductn		0			0			0			22	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.51			0.37			0.57			0.75	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 134 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 107.0%	ICU Level of Service G
Analysis Period (min) 15	
Description:	

Splits and Phases: 3440: 1 Av S & SW 325 Pl

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
Future Volume (vph)	11	0	0	199	7	16	22	1436	150	21	1719	20
Satd. Flow (prot)	1770	1863	0	1761	1604	0	1752	3428	0	1796	3585	0
Flt Permitted	0.742						0.080			0.105		
Satd. Flow (perm)	1382	1863	0	1783	1604	0	148	3428	0	199	3585	0
Satd. Flow (RTOR)					16			13			1	
Lane Group Flow (vph)	11	0	0	199	23	0	22	1586	0	21	1739	0
Turn Type	D.P+P			D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8			4			6			2		
Total Split (s)	15.0	15.0		25.0	25.0		15.0	85.0		15.0	85.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Act Effct Green (s)	19.5			20.5	17.1		107.5	102.5		107.5	102.5	
Actuated g/C Ratio	0.14			0.15	0.12		0.77	0.73		0.77	0.73	
v/c Ratio	0.05			0.77	0.11		0.13	0.63		0.10	0.66	
Control Delay	46.0			75.6	29.0		5.6	8.1		4.8	7.6	
Queue Delay	0.0			0.0	0.0		0.0	0.0		0.0	0.3	
Total Delay	46.0			75.6	29.0		5.6	8.2		4.8	7.9	
LOS	D			E	C		A	A		A	A	
Approach Delay		46.0			70.8			8.1			7.8	
Approach LOS		D			E			A			A	
Queue Length 50th (ft)	9			178	6		3	220		3	251	
Queue Length 95th (ft)	25			234	32		m7	m241		m6	472	
Internal Link Dist (ft)		157			277			638			674	
Turn Bay Length (ft)	100			100			100			100		
Base Capacity (vph)	235			286	250		233	2513		273	2625	
Starvation Cap Reductn	0			0	0		0	60		0	307	
Spillback Cap Reductn	0			0	0		0	0		0	59	
Storage Cap Reductn	0			0	0		0	0		0	0	
Reduced v/c Ratio	0.05			0.70	0.09		0.09	0.65		0.08	0.75	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 4 (3%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 12.0 Intersection LOS: B
Intersection Capacity Utilization 74.2% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

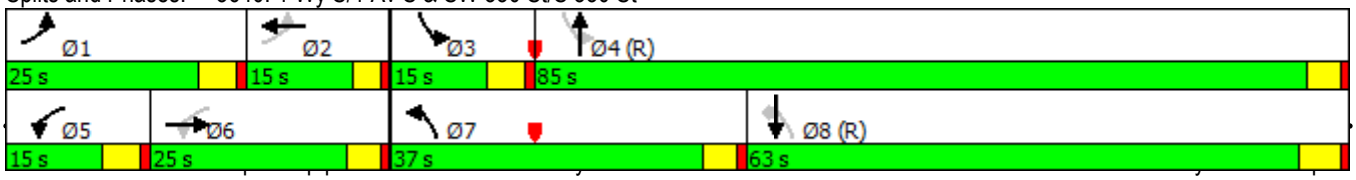
Splits and Phases: 3540: 1 Av S & S 328 St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
Future Volume (vph)	281	14	186	56	34	23	385	1286	51	14	1354	621
Satd. Flow (prot)	1805	1593	0	1743	1704	0	1708	3387	0	1814	3628	1623
Flt Permitted	0.720			0.308			0.063			0.147		
Satd. Flow (perm)	1349	1593	0	560	1704	0	113	3387	0	281	3628	1525
Satd. Flow (RTOR)		186			19			5				413
Lane Group Flow (vph)	281	200	0	56	57	0	385	1337	0	14	1354	621
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	2			6			8			4		8
Total Split (s)	25.0	25.0		15.0	15.0		37.0	85.0		15.0	63.0	63.0
Total Lost Time (s)	6.0	5.5		6.0	5.0		4.5	4.5		5.0	5.5	6.5
Act Effct Green (s)	24.3	18.8		24.3	7.1		95.9	96.4		97.9	65.2	64.2
Actuated g/C Ratio	0.17	0.13		0.17	0.05		0.68	0.69		0.70	0.47	0.46
v/c Ratio	0.95	0.53		0.36	0.55		0.93	0.57		0.06	0.80	0.67
Control Delay	94.0	14.8		50.0	64.4		70.7	13.9		4.7	26.8	7.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.5	0.4
Total Delay	94.0	14.8		50.0	64.4		70.7	13.9		4.7	27.3	7.6
LOS	F	B		D	E		E	B		A	C	A
Approach Delay		61.1			57.3			26.6			21.0	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)	239	11		42	34		288	282		1	540	125
Queue Length 95th (ft)	#320	88		78	81		#470	465		m3	#700	100
Internal Link Dist (ft)		960			420			1194			638	
Turn Bay Length (ft)	100			100			200			100		
Base Capacity (vph)	297	383		178	139		449	2332		310	1689	922
Starvation Cap Reductn	0	0		0	0		0	0		0	84	61
Spillback Cap Reductn	0	0		0	0		0	30		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.95	0.52		0.31	0.41		0.86	0.58		0.05	0.84	0.72

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 4 (3%), Referenced to phase 4:NBSB and 8:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 101.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 3640: 1 Wy S/1 Av S & SW 330 St/S 330 St



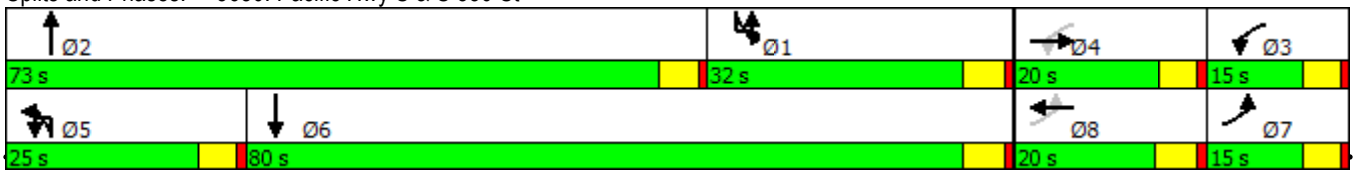
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
Future Volume (vph)	60	59	19	52	59	52	44	120	2013	47	167	60
Satd. Flow (prot)	1762	1818	0	1727	1712	0	0	1752	4973	0	0	1787
Flt Permitted	0.631			0.706				0.950				0.950
Satd. Flow (perm)	1157	1818	0	1268	1712	0	0	1746	4973	0	0	1779
Satd. Flow (RTOR)		9			25				3			
Lane Group Flow (vph)	60	78	0	52	111	0	0	164	2060	0	0	227
Turn Type	D.P+P	NA		D.P+P	NA		Prot	Prot	NA		Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8			4								
Total Split (s)	15.0	20.0		15.0	20.0		25.0	25.0	73.0		32.0	32.0
Total Lost Time (s)	6.0	6.0		6.0	6.5			5.0	5.0			5.5
Act Effct Green (s)	19.8	11.3		18.8	15.2			15.4	66.1			25.2
Actuated g/C Ratio	0.15	0.09		0.14	0.12			0.12	0.50			0.19
v/c Ratio	0.31	0.48		0.25	0.51			0.80	0.82			0.66
Control Delay	49.5	61.4		47.4	49.7			85.9	34.0			63.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	49.5	61.4		47.4	49.7			85.9	34.0			63.3
LOS	D	E		D	D			F	C			E
Approach Delay		56.2			49.0				37.8			
Approach LOS		E			D				D			
Queue Length 50th (ft)	44	56		38	70			132	482			178
Queue Length 95th (ft)	86	108		77	134			m#254	765			#314
Internal Link Dist (ft)		616			365				600			
Turn Bay Length (ft)	100			100				200				250
Base Capacity (vph)	261	243		252	275			271	2624			372
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.23	0.32		0.21	0.40			0.61	0.79			0.61

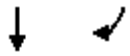
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 131.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

\# 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.

Splits and Phases: 3650: Pacific Hwy S & S 330 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2237	130
Future Volume (vph)	2237	130
Satd. Flow (prot)	5037	0
Flt Permitted		
Satd. Flow (perm)	5037	0
Satd. Flow (RTOR)	10	
Lane Group Flow (vph)	2367	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	80.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	75.9	
Actuated g/C Ratio	0.58	
v/c Ratio	0.81	
Control Delay	28.4	
Queue Delay	0.0	
Total Delay	28.4	
LOS	C	
Approach Delay	31.4	
Approach LOS	C	
Queue Length 50th (ft)	530	
Queue Length 95th (ft)	879	
Internal Link Dist (ft)	561	
Turn Bay Length (ft)		
Base Capacity (vph)	2915	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.81	

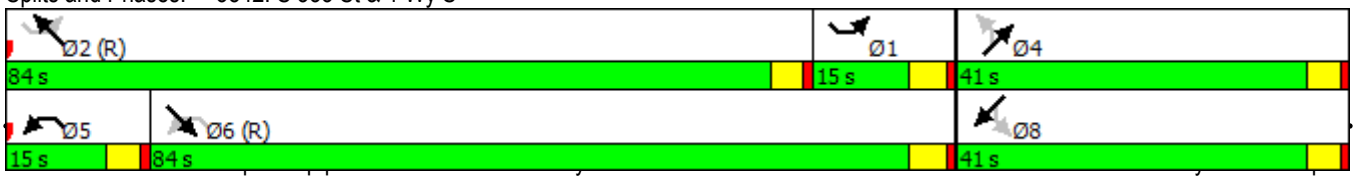
Intersection Summary

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	111	1427	15	5	1454	38	33	5	18	38	11	320
Future Volume (vph)	111	1427	15	5	1454	38	33	5	18	38	11	320
Satd. Flow (prot)	1782	3569	0	1734	3450	0	0	1752	0	1747	1539	0
Flt Permitted	0.109			0.144				0.163		0.732		
Satd. Flow (perm)	204	3569	0	263	3450	0	0	293	0	1326	1539	0
Satd. Flow (RTOR)		1			3			16			157	
Lane Group Flow (vph)	111	1442	0	5	1492	0	0	56	0	38	331	0
Turn Type	D.P+P	NA		D.P+P	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	2			6			4			8		
Total Split (s)	15.0	84.0		15.0	84.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)	5.0	5.0		4.5	4.5			4.5		4.5	4.5	
Act Effct Green (s)	103.4	106.5		108.0	93.9			22.1		22.1	22.1	
Actuated g/C Ratio	0.74	0.76		0.77	0.67			0.16		0.16	0.16	
v/c Ratio	0.42	0.53		0.02	0.64			0.95		0.18	0.88	
Control Delay	21.0	9.4		2.8	6.2			144.2		48.8	53.5	
Queue Delay	0.0	4.9		0.0	0.0			0.0		0.0	0.0	
Total Delay	21.0	14.3		2.8	6.2			144.2		48.8	53.5	
LOS	C	B		A	A			F		D	D	
Approach Delay		14.8			6.2			144.2			53.0	
Approach LOS		B			A			F			D	
Queue Length 50th (ft)	21	226		1	155			38		30	164	
Queue Length 95th (ft)	53	493		m1	m172			#110		59	259	
Internal Link Dist (ft)		270			278			237			1502	
Turn Bay Length (ft)	75			75						100		
Base Capacity (vph)	263	2714		314	2314			88		345	517	
Starvation Cap Reductn	0	1190		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.42	0.95		0.02	0.64			0.64		0.11	0.64	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 86 (61%), Referenced to phase 2:NWSE and 6:NWSE, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 17.2 Intersection LOS: B
Intersection Capacity Utilization 91.7% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 3842: S 333 St & 1 Wy S



Queues
4043: 1 Wy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
Future Volume (vph)	144	140	40	604	64	692	12	554	285	672	1069	89
Satd. Flow (prot)	1808	1845	0	1676	1709	2789	1743	3267	0	1814	3553	0
Flt Permitted	0.950			0.950	0.961		0.157			0.145		
Satd. Flow (perm)	1791	1845	0	1657	1693	2665	288	3267	0	276	3553	0
Satd. Flow (RTOR)		9				388		58			7	
Lane Group Flow (vph)	144	180	0	332	336	692	12	839	0	672	1158	0
Turn Type	Split	NA		Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	6			2		
Total Split (s)	33.5	33.5		29.0	29.0	45.5	15.0	32.0		45.5	62.5	
Total Lost Time (s)	5.5	5.5		5.0	5.0	5.5	4.5	4.5		5.5	5.5	
Act Effct Green (s)	17.3	17.3		24.0	24.0	74.2	81.9	27.5		77.2	78.7	
Actuated g/C Ratio	0.12	0.12		0.17	0.17	0.53	0.58	0.20		0.55	0.56	
v/c Ratio	0.65	0.76		1.16	1.15	0.42	0.05	1.22		0.95	0.58	
Control Delay	70.5	75.6		135.2	132.7	6.4	9.4	145.0		57.9	17.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	70.5	75.6		135.2	132.7	6.4	9.4	145.0		57.9	17.0	
LOS	E	E		F	F	A	A	F		E	B	
Approach Delay		73.3			69.0			143.1			32.0	
Approach LOS		E			E			F			C	
Queue Length 50th (ft)	128	155		~376	~382	83	2	~468		532	208	
Queue Length 95th (ft)	185	218		m#563	m#565	175	16	#615		#978	334	
Internal Link Dist (ft)		300			1418			1066			684	
Turn Bay Length (ft)				200		160	175			300		
Base Capacity (vph)	361	376		287	292	1639	281	688		708	2000	
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	0.40	0.48		1.16	1.15	0.42	0.04	1.22		0.95	0.58	

Intersection Summary

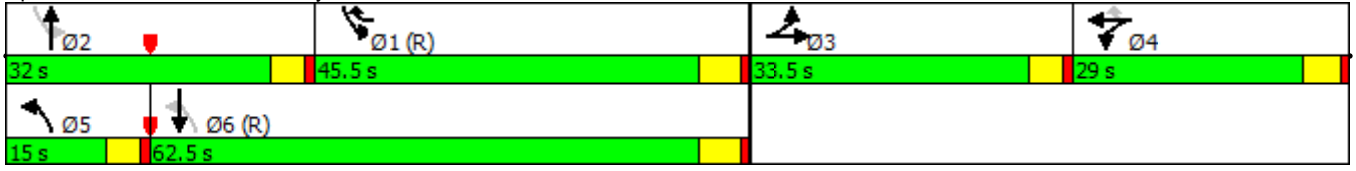
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 115 (82%), Referenced to phase 1:SBL and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 68.3 Intersection LOS: E
Intersection Capacity Utilization 114.0% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4043: 1 Wy S & S 336 St

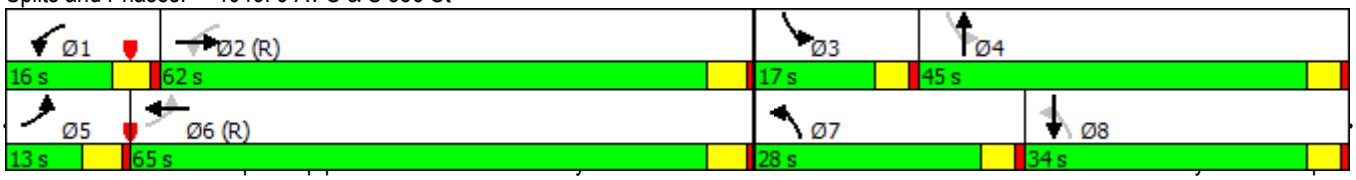


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	706	430	131	980	63	277	143	187	196	211	101
Future Volume (vph)	76	706	430	131	980	63	277	143	187	196	211	101
Satd. Flow (prot)	1770	3256	0	1764	3511	0	1752	1661	0	1791	1777	0
Flt Permitted	0.164			0.125			0.154			0.256		
Satd. Flow (perm)	305	3256	0	232	3511	0	282	1661	0	479	1777	0
Satd. Flow (RTOR)		110			6			47			16	
Lane Group Flow (vph)	76	1136	0	131	1043	0	277	330	0	196	312	0
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	6			2			8			4		
Total Split (s)	13.0	62.0		16.0	65.0		28.0	45.0		17.0	34.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.0	5.0		5.0	5.0	
Act Effct Green (s)	72.9	64.3		72.9	66.5		46.1	34.4		46.1	25.9	
Actuated g/C Ratio	0.52	0.46		0.52	0.48		0.33	0.25		0.33	0.18	
v/c Ratio	0.34	0.73		0.61	0.62		0.91	0.74		0.73	0.91	
Control Delay	8.1	17.8		28.9	30.6		71.4	51.6		48.5	83.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.1	17.8		28.9	30.6		71.4	51.6		48.5	83.5	
LOS	A	B		C	C		E	D		D	F	
Approach Delay		17.1			30.4			60.7			70.0	
Approach LOS		B			C			E			E	
Queue Length 50th (ft)	19	400		57	380		193	236		123	263	
Queue Length 95th (ft)	m19	m462		98	482		#324	339		179	#409	
Internal Link Dist (ft)		1418			1473			2541			568	
Turn Bay Length (ft)	200			125			100			100		
Base Capacity (vph)	239	1553		238	1671		339	508		271	380	
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	0.32	0.73		0.55	0.62		0.82	0.65		0.72	0.82	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 20 (14%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 36.8 Intersection LOS: D
Intersection Capacity Utilization 92.8% ICU Level of Service F
Analysis Period (min) 15
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.

Splits and Phases: 4046: 9 Av S & S 336 St



Queues
4050: Pacific Hwy S & S 336 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	413	762	372	311	785	145	14	244	1637	208	27	115
Future Volume (vph)	413	762	372	311	785	145	14	244	1637	208	27	115
Satd. Flow (prot)	3375	3522	1550	1733	3415	0	0	3368	4969	1560	0	1796
Flt Permitted	0.950			0.950				0.950				0.950
Satd. Flow (perm)	3366	3522	1516	1726	3415	0	0	3356	4969	1480	0	1784
Satd. Flow (RTOR)			187		15					160		
Lane Group Flow (vph)	413	762	372	311	930	0	0	258	1637	208	0	142
Turn Type	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases			4							2		
Total Split (s)	21.0	34.0	34.0	29.0	42.0		15.0	15.0	60.0	60.0	17.0	17.0
Total Lost Time (s)	4.5	5.5	5.5	5.5	5.5			5.0	5.0	6.0		5.5
Act Effct Green (s)	16.5	28.5	28.5	23.5	36.5			10.0	55.0	54.0		11.5
Actuated g/C Ratio	0.12	0.20	0.20	0.17	0.26			0.07	0.39	0.39		0.08
v/c Ratio	1.04	1.06	0.81	1.07	1.03			1.07	0.84	0.31		0.97
Control Delay	114.7	104.4	41.1	127.3	87.8			108.9	32.4	4.1		129.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0
Total Delay	114.7	104.4	41.1	127.3	87.8			108.9	32.4	4.1		129.0
LOS	F	F	D	F	F			F	C	A		F
Approach Delay		91.9			97.7				39.0			
Approach LOS		F			F				D			
Queue Length 50th (ft)	~208	~401	169	~313	~471			~134	480	10		131
Queue Length 95th (ft)	#317	#531	#331	#504	#608			m#148	m549	m13		m#270
Internal Link Dist (ft)		735			466				780			
Turn Bay Length (ft)	650			100				350				500
Base Capacity (vph)	397	716	457	290	901			240	1952	669		147
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	1.04	1.06	0.81	1.07	1.03			1.07	0.84	0.31		0.97

Intersection Summary

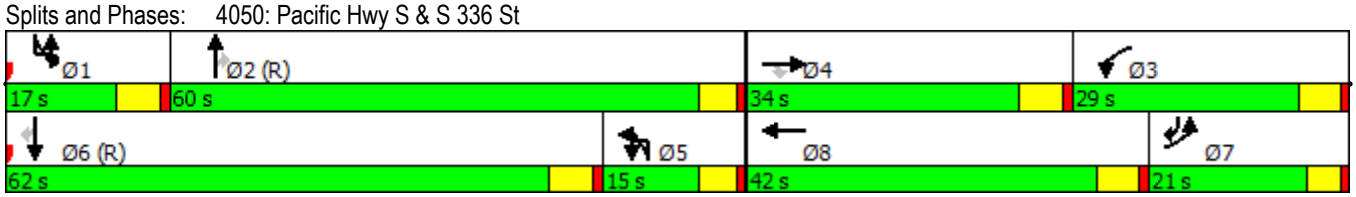
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 118 (84%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 69.3 Intersection LOS: E
Intersection Capacity Utilization 110.1% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4050: Pacific Hwy S & S 336 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2103	104
Future Volume (vph)	2103	104
Satd. Flow (prot)	5134	1594
Flt Permitted		
Satd. Flow (perm)	5134	1544
Satd. Flow (RTOR)		101
Lane Group Flow (vph)	2103	104
Turn Type	NA	pm+ov
Protected Phases	6	7
Permitted Phases		6
Total Split (s)	62.0	21.0
Total Lost Time (s)	5.5	4.5
Act Effct Green (s)	56.5	74.0
Actuated g/C Ratio	0.40	0.53
v/c Ratio	1.02	0.12
Control Delay	65.4	3.3
Queue Delay	0.0	0.0
Total Delay	65.4	3.3
LOS	E	A
Approach Delay	66.5	
Approach LOS	E	
Queue Length 50th (ft)	~738	2
Queue Length 95th (ft)	#833	m29
Internal Link Dist (ft)	810	
Turn Bay Length (ft)		250
Base Capacity (vph)	2071	869
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.02	0.12

Intersection Summary

Queues
4250: Pacific Hwy S & S 340 Pl/16 Av S

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	22	43	74	10	1567	41	1123	25	1288	1573	2
Future Volume (vph)	64	22	43	74	10	1567	41	1123	25	1288	1573	2
Satd. Flow (prot)	1770	1678	0	1799	1909	2833	1752	4990	0	5027	5122	0
Flt Permitted	0.950			0.950			0.087			0.950		
Satd. Flow (perm)	1770	1678	0	1778	1909	2833	160	4990	0	5010	5122	0
Satd. Flow (RTOR)		43				163		2				
Lane Group Flow (vph)	64	65	0	74	10	1567	41	1148	0	1288	1575	0
Turn Type	Prot	NA		Prot	NA	pt+ov	D.P+P	NA		Prot	NA	
Protected Phases	7	4		3	8	8 5	1	6		5	2	
Permitted Phases							2					
Total Split (s)	15.0	21.0		38.0	44.0		15.0	37.0		44.0	66.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.5	5.5	
Act Effct Green (s)	8.5	9.7		37.9	39.2	80.8	75.4	32.0		41.9	69.9	
Actuated g/C Ratio	0.06	0.07		0.27	0.28	0.58	0.54	0.23		0.30	0.50	
v/c Ratio	0.60	0.42		0.15	0.02	0.92	0.27	1.01		0.86	0.62	
Control Delay	86.5	33.2		43.5	39.4	30.8	19.0	58.4		23.5	6.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	86.5	33.2		43.5	39.4	30.8	19.0	58.4		23.5	6.8	
LOS	F	C		D	D	C	B	E		C	A	
Approach Delay		59.7			31.4			57.0			14.3	
Approach LOS		E			C			E			B	
Queue Length 50th (ft)	58	20		52	7	412	5	~172		349	126	
Queue Length 95th (ft)	109	65		100	m16	#518	23	#472		m349	m129	
Internal Link Dist (ft)		294			48			107			314	
Turn Bay Length (ft)	100			50		100	100			400		
Base Capacity (vph)	126	229		487	539	1712	203	1142		1506	2558	
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	0.51	0.28		0.15	0.02	0.92	0.20	1.01		0.86	0.62	

Intersection Summary

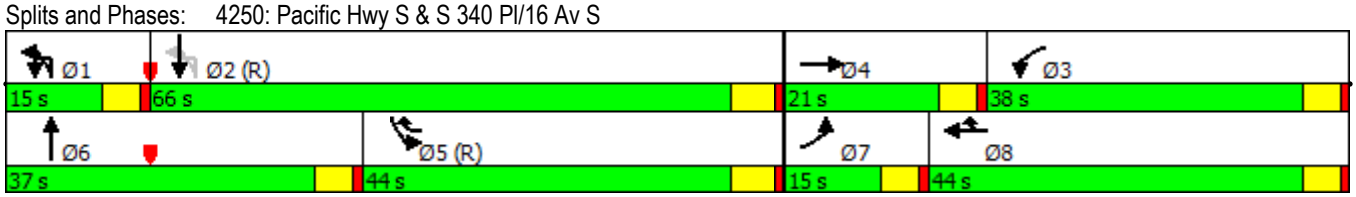
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 136 (97%), Referenced to phase 2:NBSB and 5:SBL, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 109.2% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 4250: Pacific Hwy S & S 340 Pl/16 Av S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	78	12	0	818	1759	123	
Future Volume (vph)	78	12	0	818	1759	123	
Satd. Flow (prot)	1729	1547	0	3578	3496	0	
Flt Permitted	0.950						
Satd. Flow (perm)	1700	1503	0	3578	3496	0	
Satd. Flow (RTOR)		12			14		
Lane Group Flow (vph)	78	12	0	818	1882	0	
Turn Type	Prot	Perm		NA	NA		
Protected Phases	4			2	6		8
Permitted Phases		4		2			
Total Split (s)	32.0	32.0		108.0	108.0		32.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		
Act Effct Green (s)	14.5	14.5		115.5	115.5		
Actuated g/C Ratio	0.10	0.10		0.82	0.82		
v/c Ratio	0.44	0.07		0.28	0.65		
Control Delay	63.7	22.4		1.0	10.3		
Queue Delay	0.0	0.0		0.0	0.0		
Total Delay	63.7	22.4		1.0	10.3		
LOS	E	C		A	B		
Approach Delay	58.2			1.0	10.3		
Approach LOS	E			A	B		
Queue Length 50th (ft)	71	0		11	409		
Queue Length 95th (ft)	113	19		27	m596		
Internal Link Dist (ft)	244			982	846		
Turn Bay Length (ft)		100					
Base Capacity (vph)	333	299		2952	2887		
Starvation Cap Reductn	0	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.23	0.04		0.28	0.65		

Intersection Summary		
Cycle Length: 140		
Actuated Cycle Length: 140		
Offset: 20 (14%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.65		
Intersection Signal Delay: 9.1	Intersection LOS: A	
Intersection Capacity Utilization 69.9%	ICU Level of Service C	
Analysis Period (min) 15		

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

Splits and Phases: 4540: 1 Av S/1 Wy S & Winco Dwy

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	59	4	69	61	24	27	12	33	1056	89	12	64
Future Volume (vph)	59	4	69	61	24	27	12	33	1056	89	12	64
Satd. Flow (prot)	1738	1508	0	1782	1696	0	0	1752	4929	0	0	1787
Flt Permitted	0.724			0.667				0.123				0.219
Satd. Flow (perm)	1277	1508	0	1208	1696	0	0	227	4929	0	0	412
Satd. Flow (RTOR)		69			27				16			
Lane Group Flow (vph)	59	73	0	61	51	0	0	45	1145	0	0	76
Turn Type	D.P+P	NA		D.P+P	NA		custom	D.P+P	NA		custom	D.P+P
Protected Phases	7	4		3	8			5	2			1
Permitted Phases	8			4			5	6			1	2
Total Split (s)	19.0	19.0		19.0	19.0		19.0	19.0	83.0		19.0	19.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0			5.0
Act Effct Green (s)	14.7	7.0		14.7	7.0			109.3	102.4			108.3
Actuated g/C Ratio	0.10	0.05		0.10	0.05			0.78	0.73			0.77
v/c Ratio	0.36	0.52		0.38	0.46			0.19	0.32			0.20
Control Delay	54.9	27.0		49.2	38.8			6.9	3.9			2.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	54.9	27.0		49.2	38.8			6.9	3.9			2.1
LOS	D	C		D	D			A	A			A
Approach Delay		39.4			44.4				4.0			
Approach LOS		D			D				A			
Queue Length 50th (ft)	45	5		48	21			1	45			0
Queue Length 95th (ft)	m73	m42		m74	m50			m8	m111			m5
Internal Link Dist (ft)		1727			456				1382			
Turn Bay Length (ft)	100			100				100				100
Base Capacity (vph)	225	212		226	193			336	3610			471
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.26	0.34		0.27	0.26			0.13	0.32			0.16

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 50 (36%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 58.2%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 4549: Pacific Hwy S & S 344 St

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1591	34
Future Volume (vph)	1591	34
Satd. Flow (prot)	5098	0
Flt Permitted		
Satd. Flow (perm)	5098	0
Satd. Flow (RTOR)	4	
Lane Group Flow (vph)	1625	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	83.0	
Total Lost Time (s)	5.0	
Act Effct Green (s)	105.9	
Actuated g/C Ratio	0.76	
v/c Ratio	0.42	
Control Delay	7.1	
Queue Delay	0.0	
Total Delay	7.1	
LOS	A	
Approach Delay	6.8	
Approach LOS	A	
Queue Length 50th (ft)	259	
Queue Length 95th (ft)	505	
Internal Link Dist (ft)	1196	
Turn Bay Length (ft)		
Base Capacity (vph)	3857	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.42	

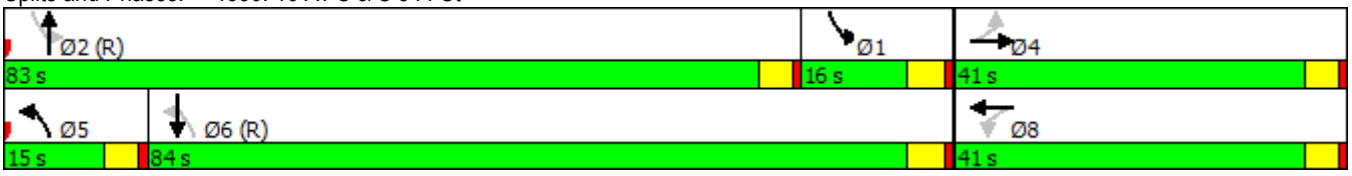
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
Future Volume (vph)	32	54	33	217	48	95	53	992	62	136	1551	22
Satd. Flow (prot)	1738	1721	0	1799	1684	0	1743	3430	0	1778	3532	0
Flt Permitted	0.541			0.670			0.102			0.211		
Satd. Flow (perm)	976	1721	0	1252	1684	0	187	3430	0	395	3532	0
Satd. Flow (RTOR)		21			69			7			2	
Lane Group Flow (vph)	32	87	0	217	143	0	53	1054	0	136	1573	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Total Split (s)	41.0	41.0		41.0	41.0		15.0	83.0		16.0	84.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		5.0	5.0	
Act Effct Green (s)	27.7	27.7		27.7	27.7		99.7	87.3		97.8	94.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.71	0.62		0.70	0.68	
v/c Ratio	0.17	0.24		0.88	0.37		0.27	0.49		0.35	0.66	
Control Delay	51.3	40.8		86.7	26.0		7.0	19.1		7.7	12.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.3	40.8		86.7	26.0		7.0	19.1		7.7	12.1	
LOS	D	D		F	C		A	B		A	B	
Approach Delay		43.6			62.6			18.5			11.7	
Approach LOS		D			E			B			B	
Queue Length 50th (ft)	28	61		193	57		4	237		9	211	
Queue Length 95th (ft)	66	126		274	113		m6	m217		m24	m838	
Internal Link Dist (ft)		456			370			1310			725	
Turn Bay Length (ft)	50			150			150			150		
Base Capacity (vph)	254	464		326	490		254	2142		384	2384	
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	0.13	0.19		0.67	0.29		0.21	0.49		0.35	0.66	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 38 (27%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 85.6% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4550: 16 Av S & S 344 St



Queues
4840: 1 Av S & SW Campus Dr/S 348 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
Future Volume (vph)	171	746	222	417	1404	194	176	442	257	195	1153	372
Satd. Flow (prot)	3351	3314	0	3436	3543	1579	1694	3402	1516	1782	3578	1594
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3338	3314	0	3408	3543	1534	1688	3402	1476	1768	3578	1549
Satd. Flow (RTOR)		30				86			257			90
Lane Group Flow (vph)	171	968	0	417	1404	194	176	442	257	195	1153	372
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8			2			6
Total Split (s)	15.0	51.0		24.0	60.0	30.0	18.0	35.0	35.0	30.0	47.0	15.0
Total Lost Time (s)	4.5	4.5		5.0	5.0	5.0	5.0	4.5	5.5	5.0	5.0	4.5
Act Effct Green (s)	9.9	46.5		19.0	55.6	86.8	13.0	24.3	23.3	31.2	42.0	52.4
Actuated g/C Ratio	0.07	0.33		0.14	0.40	0.62	0.09	0.17	0.17	0.22	0.30	0.37
v/c Ratio	0.72	0.86		0.89	1.00	0.20	1.12	0.75	0.56	0.49	1.07	0.58
Control Delay	81.3	51.7		81.8	65.5	4.3	135.0	55.1	13.2	55.1	92.2	24.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	51.7		81.8	65.5	4.3	135.0	55.1	13.2	55.1	92.2	24.8
LOS	F	D		F	E	A	F	E	B	E	F	C
Approach Delay		56.1			63.0			58.9			73.5	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	79	423		195	~681	22	~181	201	67	120	~600	95
Queue Length 95th (ft)	#121	515		#287	#844	52	m#203	m195	m72	235	#743	221
Internal Link Dist (ft)		752			2822			1475			982	
Turn Bay Length (ft)	175			225		250	150			400		225
Base Capacity (vph)	251	1120		466	1407	993	157	741	513	396	1073	645
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	0.68	0.86		0.89	1.00	0.20	1.12	0.60	0.50	0.49	1.07	0.58

Intersection Summary

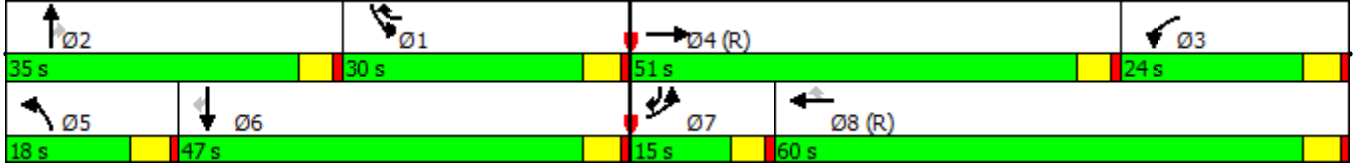
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 66 (47%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 64.1 Intersection LOS: E
Intersection Capacity Utilization 101.6% ICU Level of Service G
Analysis Period (min) 15

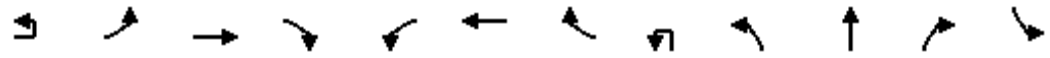
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 4840: 1 Av S & SW Campus Dr/S 348 St





Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
Future Volume (vph)	50	169	1868	434	351	1904	60	5	211	1004	290	146
Satd. Flow (prot)	0	1720	4984	1539	3402	5018	0	0	3385	4723	1348	3485
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1718	4984	1505	3400	5018	0	0	3372	4723	1320	3477
Satd. Flow (RTOR)				115		4				3	94	
Lane Group Flow (vph)	0	219	1868	434	351	1964	0	0	216	1033	261	146
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	Prot	NA	pm+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	3	1
Permitted Phases				4							2	
Total Split (s)	23.0	23.0	65.0	65.0	20.0	62.0		15.0	15.0	40.0	20.0	15.0
Total Lost Time (s)		4.5	5.0	6.0	5.0	5.0			5.0	5.0	5.0	5.5
Act Effct Green (s)		18.5	60.0	59.0	15.0	57.0			10.0	34.5	49.5	10.0
Actuated g/C Ratio		0.13	0.43	0.42	0.11	0.41			0.07	0.25	0.35	0.07
v/c Ratio		0.96	0.87	0.62	0.96	0.96			0.90	0.89	0.49	0.59
Control Delay		111.1	42.3	27.2	66.0	25.5			94.6	47.0	10.4	52.9
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0
Total Delay		111.1	42.3	27.2	66.0	25.5			94.6	47.0	10.4	52.9
LOS		F	D	C	E	C			F	D	B	D
Approach Delay			45.7			31.6				47.5		
Approach LOS			D			C				D		
Queue Length 50th (ft)		201	562	227	173	621			104	374	32	72
Queue Length 95th (ft)		#367	631	346	m#209	m#552			#180	436	73	111
Internal Link Dist (ft)			1161			1022				1351		
Turn Bay Length (ft)		200		200	350				350		350	250
Base Capacity (vph)		227	2136	700	364	2045			241	1183	529	249
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		0.96	0.87	0.62	0.96	0.96			0.90	0.87	0.49	0.59

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 128 (91%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 99.8%	ICU Level of Service F
Analysis Period (min) 15	

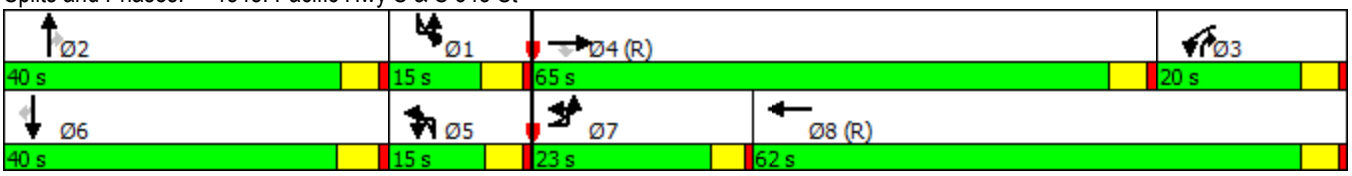
Description:

~ 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.

Splits and Phases: 4848: Pacific Hwy S & S 348 St



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1278	145
Future Volume (vph)	1278	145
Satd. Flow (prot)	5148	1594
Flt Permitted		
Satd. Flow (perm)	5148	1558
Satd. Flow (RTOR)		132
Lane Group Flow (vph)	1278	145
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Total Split (s)	40.0	40.0
Total Lost Time (s)	5.5	5.5
Act Effct Green (s)	34.5	34.5
Actuated g/C Ratio	0.25	0.25
v/c Ratio	1.01	0.30
Control Delay	51.7	4.0
Queue Delay	0.0	0.0
Total Delay	51.7	4.0
LOS	D	A
Approach Delay	47.4	
Approach LOS	D	
Queue Length 50th (ft)	~423	35
Queue Length 95th (ft)	#522	19
Internal Link Dist (ft)	1382	
Turn Bay Length (ft)		
Base Capacity (vph)	1268	483
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.01	0.30

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
Future Volume (vph)	13	132	1493	468	1144	1735	286	73	346	807	694	752
Satd. Flow (prot)	0	1738	5034	1555	5077	5173	1602	0	3385	3212	1426	5040
Flt Permitted		0.950			0.950				0.950			0.950
Satd. Flow (perm)	0	1733	5034	1519	5064	5173	1559	0	3374	3212	1426	5017
Satd. Flow (RTOR)				136			210			24	94	
Lane Group Flow (vph)	0	145	1493	468	1144	1735	286	0	419	1043	458	752
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	Prot	NA	pt+ov	Prot
Protected Phases	7	7	4		3	8		5	5	2	2 3	1
Permitted Phases				4			8					
Total Split (s)	17.0	17.0	45.0	45.0	32.0	60.0	60.0	23.0	23.0	41.0		22.0
Total Lost Time (s)		4.5	4.5	4.5	5.0	5.0	5.0		5.0	5.0		5.0
Act Effct Green (s)		12.5	40.5	40.5	27.0	55.0	55.0		18.0	36.0	63.0	17.0
Actuated g/C Ratio		0.09	0.29	0.29	0.19	0.39	0.39		0.13	0.26	0.45	0.12
v/c Ratio		0.94	1.03	0.87	1.17	0.85	0.39		0.96	1.24	0.66	1.23
Control Delay		80.0	49.8	21.2	126.0	46.2	11.9		76.4	150.4	26.2	153.8
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		80.0	49.8	21.2	126.0	46.2	11.9		76.4	150.4	26.2	153.8
LOS		E	D	C	F	D	B		E	F	C	F
Approach Delay			45.5			71.9				104.6		
Approach LOS			D			E				F		
Queue Length 50th (ft)		134	~532	201	~439	587	73		195	~645	317	~297
Queue Length 95th (ft)		m#180	#615	m#340	m#438	m510	m68		m#285	m#782	m438	#384
Internal Link Dist (ft)			1022			444				1187		
Turn Bay Length (ft)		500		550	450		250		400		300	500
Base Capacity (vph)		155	1456	536	979	2032	739		435	843	693	612
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		0.94	1.03	0.87	1.17	0.85	0.39		0.96	1.24	0.66	1.23

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 132 (94%), Referenced to phase 4:EBT and 8:WBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 78.3	Intersection LOS: E
Intersection Capacity Utilization 112.2%	ICU Level of Service H
Analysis Period (min) 15	

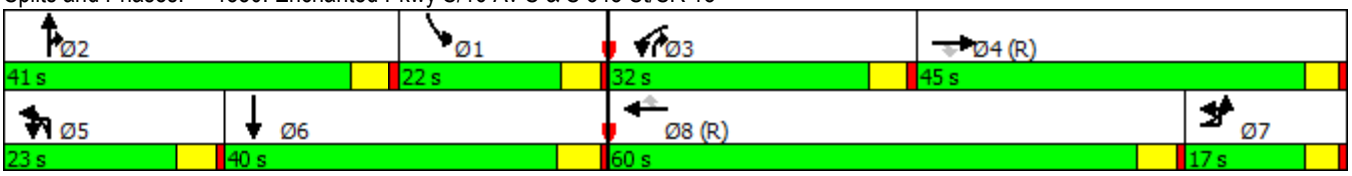
Description:

~ 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.

Splits and Phases: 4850: Enchanted Pkwy S/16 Av S & S 348 St/SR 18



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1109	164
Future Volume (vph)	1109	164
Satd. Flow (prot)	5011	0
Flt Permitted		
Satd. Flow (perm)	5011	0
Satd. Flow (RTOR)	19	
Lane Group Flow (vph)	1273	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	40.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	34.5	
Actuated g/C Ratio	0.25	
v/c Ratio	1.02	
Control Delay	63.9	
Queue Delay	0.0	
Total Delay	63.9	
LOS	E	
Approach Delay	97.3	
Approach LOS	F	
Queue Length 50th (ft)	~412	
Queue Length 95th (ft)	#534	
Internal Link Dist (ft)	1310	
Turn Bay Length (ft)		
Base Capacity (vph)	1249	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.02	

Intersection Summary

Queues

4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↱			↱↱↱
Traffic Volume (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Future Volume (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Satd. Flow (prot)	0	3539	0	0	3539	0	0	0	1611	0	0	3600
Flt Permitted												
Satd. Flow (perm)	0	3539	0	0	3539	0	0	0	1587	0	0	3483
Satd. Flow (RTOR)									175			49
Lane Group Flow (vph)	0	1374	0	0	1528	0	0	0	1150	0	0	1637
Turn Type		NA			NA				Free			Prot
Protected Phases		8			4							3
Permitted Phases									Free			3
Total Split (s)		140.0			80.0							60.0
Total Lost Time (s)		5.0			5.0							5.0
Act Effct Green (s)		140.0			75.0				140.0			55.0
Actuated g/C Ratio		1.00			0.54				1.00			0.39
v/c Ratio		0.39			0.81				0.72			1.13
Control Delay		0.0			30.8				2.9			107.4
Queue Delay		0.0			0.0				0.0			0.0
Total Delay		0.0			30.8				2.9			107.4
LOS		A			C				A			F
Approach Delay					30.8			2.9			107.4	
Approach LOS					C			A			F	
Queue Length 50th (ft)		0			580				0			~747
Queue Length 95th (ft)		m0			681				0			#866
Internal Link Dist (ft)		517			1126			463			420	
Turn Bay Length (ft)												
Base Capacity (vph)		3539			1895				1587			1444
Starvation Cap Reductn		0			0				0			0
Spillback Cap Reductn		0			0				0			0
Storage Cap Reductn		0			0				0			0
Reduced v/c Ratio		0.39			0.81				0.72			1.13

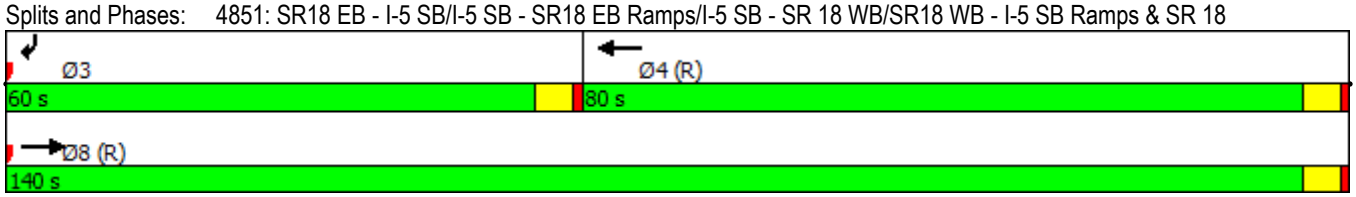
Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 106 (76%), Referenced to phase 4:WBT and 8:EBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 39.8	Intersection LOS: D
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

~ 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.

Splits and Phases: 4851: SR18 EB - I-5 SB/I-5 SB - SR18 EB Ramps/I-5 SB - SR 18 WB/SR18 WB - I-5 SB Ramps & SR 18

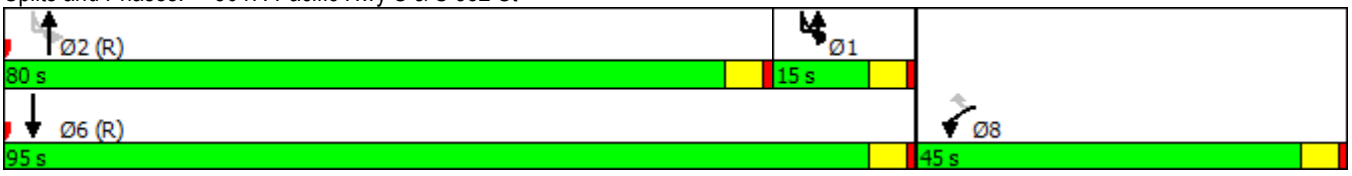


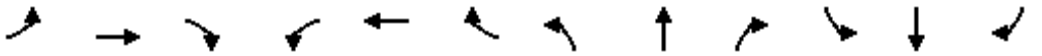
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	296	1124	246	0	2070
Future Volume (vph)	2	296	1124	246	0	2070
Satd. Flow (prot)	1770	1583	4899	0	1881	5136
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	4899	0	1881	5136
Satd. Flow (RTOR)		187	53			
Lane Group Flow (vph)	2	296	1370	0	0	2070
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	8		2		1	6
Permitted Phases		8			2	
Total Split (s)	45.0	45.0	80.0		15.0	95.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Act Effct Green (s)	15.5	15.5	114.5			114.5
Actuated g/C Ratio	0.11	0.11	0.82			0.82
v/c Ratio	0.01	0.87	0.34			0.49
Control Delay	44.5	44.9	0.5			14.7
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	44.5	44.9	0.5			14.7
LOS	D	D	A			B
Approach Delay	44.9		0.5			14.7
Approach LOS	D		A			B
Queue Length 50th (ft)	1	98	8			488
Queue Length 95th (ft)	m5	m108	9			m522
Internal Link Dist (ft)	1538		1299			1351
Turn Bay Length (ft)	100					
Base Capacity (vph)	505	585	4014			4198
Starvation Cap Reductn	0	0	0			0
Spillback Cap Reductn	0	0	0			0
Storage Cap Reductn	0	0	0			0
Reduced v/c Ratio	0.00	0.51	0.34			0.49

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 11.9	Intersection LOS: B
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 5047: Pacific Hwy S & S 352 St





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	108	123	197	108	296	18	1330	253	231	2079	172
Future Volume (vph)	15	108	123	197	108	296	18	1330	253	231	2079	172
Satd. Flow (prot)	1747	1853	1563	1759	1644	1574	1770	3415	0	1761	3507	1575
Flt Permitted	0.950			0.950	0.995		0.045			0.061		
Satd. Flow (perm)	1730	1853	1524	1740	1642	1534	84	3415	0	113	3507	1497
Satd. Flow (RTOR)			132		21	109		25				113
Lane Group Flow (vph)	15	108	123	177	220	204	18	1583	0	231	2079	172
Turn Type	Split	NA	Perm	Split	NA	pm+ov	D.P+P	NA		D.P+P	NA	Perm
Protected Phases	4	4		3	3	1	5	2		1	6	
Permitted Phases			4			3	6			2		6
Total Split (s)	15.0	15.0	15.0	25.0	25.0	18.0	10.0	82.0		18.0	90.0	90.0
Total Lost Time (s)	5.5	5.5	5.5	6.0	6.0	6.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	9.2	9.2	9.2	18.2	18.2	30.2	94.1	78.1		91.1	92.1	92.1
Actuated g/C Ratio	0.07	0.07	0.07	0.13	0.13	0.22	0.67	0.56		0.65	0.66	0.66
v/c Ratio	0.13	0.89	0.55	0.78	0.95	0.49	0.16	0.83		1.02	0.90	0.17
Control Delay	37.5	94.5	16.4	81.2	100.9	19.1	18.8	26.6		75.5	10.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	37.5	94.5	16.4	81.2	100.9	19.1	18.8	26.6		75.5	10.5	0.1
LOS	D	F	B	F	F	B	B	C		E	B	A
Approach Delay		52.0			67.3			26.6			15.8	
Approach LOS		D			E			C			B	
Queue Length 50th (ft)	11	94	46	165	201	61	5	451		~152	415	0
Queue Length 95th (ft)	30	#207	67	#277	#375	128	m13	616		m134	m964	m0
Internal Link Dist (ft)		1538			420			954			1187	
Turn Bay Length (ft)	125			200		200	150			500		
Base Capacity (vph)	118	125	226	238	241	419	116	1915		226	2306	1023
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	0.13	0.86	0.54	0.74	0.91	0.49	0.16	0.83		1.02	0.90	0.17

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 112 (80%), Referenced to phase 2:NBSB and 6:NBSB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	

Description:

~ 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.

Splits and Phases: 5050: Enchanted Pkwy S & S 352 St

Queues
5240: 1 Av S & SW 356 St/S 356 St

10/29/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Future Volume (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Satd. Flow (prot)	1791	1900	1615	1725	3437	1531	1729	1820	1560	1761	3522	2762
Flt Permitted	0.087			0.441			0.282			0.256		
Satd. Flow (perm)	164	1900	1564	795	3437	1455	510	1820	1489	467	3522	2631
Satd. Flow (RTOR)			125			156			168			176
Lane Group Flow (vph)	551	405	43	65	1119	214	43	195	52	350	468	963
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	2		6	6		2	8		4	4		8
Total Split (s)	42.0	80.0	80.0	15.0	53.0	53.0	15.0	19.0	19.0	26.0	30.0	42.0
Total Lost Time (s)	5.5	5.5	5.5	4.5	4.5	5.5	5.0	4.5	4.5	5.0	4.5	5.5
Act Effct Green (s)	83.7	80.2	80.2	86.6	48.2	47.2	36.3	14.5	14.5	35.3	30.8	66.3
Actuated g/C Ratio	0.60	0.57	0.57	0.62	0.34	0.34	0.26	0.10	0.10	0.25	0.22	0.47
v/c Ratio	1.06	0.37	0.05	0.12	0.95	0.36	0.22	1.04	0.17	1.11	0.60	0.70
Control Delay	99.8	18.0	0.1	7.8	30.7	3.3	39.8	135.3	1.2	98.1	33.7	12.6
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	99.8	18.0	0.1	7.8	30.7	3.3	39.8	135.3	1.2	98.1	33.7	12.6
LOS	F	B	A	A	C	A	D	F	A	F	C	B
Approach Delay		62.3			25.4			97.1			34.9	
Approach LOS		E			C			F			C	
Queue Length 50th (ft)	~494	198	0	16	458	6	29	~190	0	~313	157	89
Queue Length 95th (ft)	#726	280	0	m18	m#624	m16	61	#351	0	m#315	m172	m102
Internal Link Dist (ft)		2555			297			560			529	
Turn Bay Length (ft)	150			125			150		150	150		200
Base Capacity (vph)	522	1088	949	578	1190	596	226	188	304	314	774	1372
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	1.06	0.37	0.05	0.11	0.94	0.36	0.19	1.04	0.17	1.11	0.60	0.70

Intersection Summary

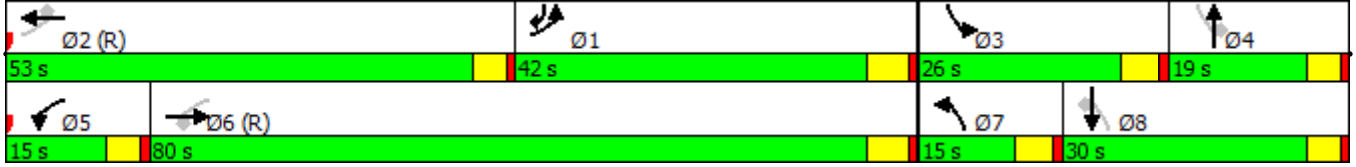
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 42.1 Intersection LOS: D
Intersection Capacity Utilization 110.8% ICU Level of Service H
Analysis Period (min) 15

~ 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.

Splits and Phases: 5240: 1 Av S & SW 356 St/S 356 St

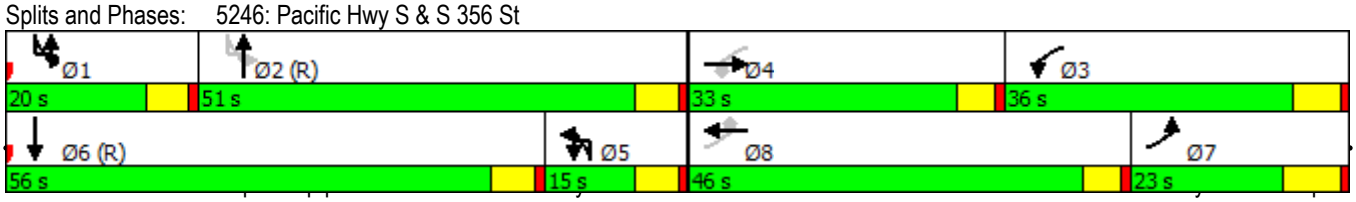


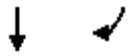
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
Future Volume (vph)	216	694	178	427	883	51	2	157	1202	48	4	151
Satd. Flow (prot)	1764	3557	1579	1782	3592	1594	0	3399	4985	0	0	1787
Flt Permitted	0.103			0.143				0.950				0.096
Satd. Flow (perm)	191	3557	1537	267	3592	1555	0	3387	4985	0	0	181
Satd. Flow (RTOR)			199			160			5			
Lane Group Flow (vph)	216	694	178	427	883	51	0	159	1250	0	0	155
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	Prot	NA		D.P+P	D.P+P
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases	8		4	4		8					2	2
Total Split (s)	23.0	33.0	33.0	36.0	46.0	46.0	15.0	15.0	51.0		20.0	20.0
Total Lost Time (s)	7.0	5.0	5.0	6.0	5.0	6.0		4.5	4.5			5.5
Act Effct Green (s)	55.0	28.0	28.0	57.0	38.9	37.9		10.5	49.3			60.0
Actuated g/C Ratio	0.39	0.20	0.20	0.41	0.28	0.27		0.08	0.35			0.43
v/c Ratio	0.78	0.98	0.38	0.99	0.89	0.09		0.63	0.71			0.73
Control Delay	78.0	80.6	9.4	83.7	76.8	1.1		74.3	42.1			67.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
Total Delay	78.0	80.6	9.4	83.7	76.8	1.1		74.3	42.1			67.1
LOS	E	F	A	F	E	A		E	D			E
Approach Delay		68.4			76.1				45.8			
Approach LOS		E			E				D			
Queue Length 50th (ft)	153	342	21	249	431	0		73	359			90
Queue Length 95th (ft)	m#215	m#405	m37	m#543	507	m2		113	427			175
Internal Link Dist (ft)		1184			1704				675			
Turn Bay Length (ft)	400		175	100				225				250
Base Capacity (vph)	278	711	466	433	1051	558		254	1758			247
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	0.78	0.98	0.38	0.99	0.84	0.09		0.63	0.71			0.63

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 126 (90%), Referenced to phase 2:NBSB and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 55.0 Intersection LOS: E
Intersection Capacity Utilization 100.4% ICU Level of Service G
Analysis Period (min) 15
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.

Splits and Phases: 5246: Pacific Hwy S & S 356 St





Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1234	447
Future Volume (vph)	1234	447
Satd. Flow (prot)	4878	0
Flt Permitted		
Satd. Flow (perm)	4878	0
Satd. Flow (RTOR)	73	
Lane Group Flow (vph)	1681	0
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Total Split (s)	56.0	
Total Lost Time (s)	5.5	
Act Effct Green (s)	50.5	
Actuated g/C Ratio	0.36	
v/c Ratio	0.93	
Control Delay	35.9	
Queue Delay	0.0	
Total Delay	35.9	
LOS	D	
Approach Delay	38.5	
Approach LOS	D	
Queue Length 50th (ft)	184	
Queue Length 95th (ft)	#375	
Internal Link Dist (ft)	1299	
Turn Bay Length (ft)		
Base Capacity (vph)	1806	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.93	

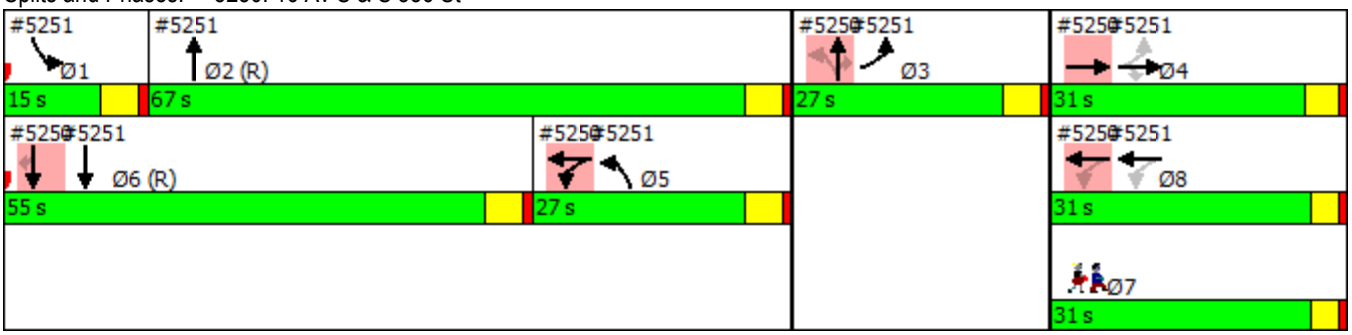
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	995	33	39	833	0	33	11	125	0	96	410
Future Volume (vph)	0	995	33	39	833	0	33	11	125	0	96	410
Satd. Flow (prot)	0	3394	0	0	3550	0	0	1564	1482	0	1863	1583
Flt Permitted					0.690			0.840				
Satd. Flow (perm)	0	3394	0	0	2454	0	0	1330	1437	0	1863	1535
Satd. Flow (RTOR)		2										264
Lane Group Flow (vph)	0	1028	0	0	872	0	0	85	84	0	96	410
Turn Type		NA		custom	NA		Perm	NA	Perm		NA	Perm
Protected Phases		4		5	5 8			3			6	
Permitted Phases				8			3		3			6
Total Split (s)		31.0		27.0			27.0	27.0	27.0		55.0	55.0
Total Lost Time (s)		3.5						4.0	4.0		3.0	3.0
Act Effct Green (s)		27.5			52.0			14.0	14.0		61.0	61.0
Actuated g/C Ratio		0.20			0.37			0.10	0.10		0.44	0.44
v/c Ratio		1.54			0.79			0.64	0.59		0.12	0.50
Control Delay		270.9			11.4			81.0	75.5		22.5	8.9
Queue Delay		2.2			0.0			0.7	0.5		0.0	0.0
Total Delay		273.1			11.4			81.7	76.0		22.5	8.9
LOS		F			B			F	E		C	A
Approach Delay		273.1			11.4			78.8			11.5	
Approach LOS		F			B			E			B	
Queue Length 50th (ft)		~708			94			80	77		39	31
Queue Length 95th (ft)		m#770			m32			136	133		m61	m90
Internal Link Dist (ft)		386			19			910			219	
Turn Bay Length (ft)									100			50
Base Capacity (vph)		668			1099			218	236		811	817
Starvation Cap Reductn		0			0			0	0		0	0
Spillback Cap Reductn		170			0			27	30		0	0
Storage Cap Reductn		0			0			0	0		0	0
Reduced v/c Ratio		2.06			0.79			0.45	0.41		0.12	0.50

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 6 (4%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.54	
Intersection Signal Delay: 120.3	Intersection LOS: F
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

~ 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.

Splits and Phases: 5250: 16 Av S & S 356 St



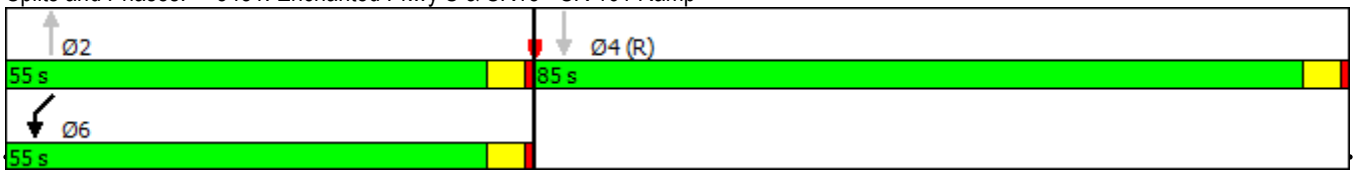
Lane Group	Ø1	Ø2	Ø7	Ø8
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	7	8
Permitted Phases				
Total Split (s)	15.0	67.0	31.0	31.0
Total Lost Time (s)				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	894	0	0	1479	167	164
Future Volume (vph)	894	0	0	1479	167	164
Satd. Flow (prot)	3543	0	0	3560	3250	0
Flt Permitted					0.975	
Satd. Flow (perm)	3543	0	0	3560	3250	0
Satd. Flow (RTOR)					164	
Lane Group Flow (vph)	894	0	0	1479	331	0
Turn Type	NA			NA	Prot	
Protected Phases					6	
Permitted Phases	2			4		
Total Split (s)	55.0			85.0	55.0	
Total Lost Time (s)	5.0			5.0	5.0	
Act Effct Green (s)	50.0			80.0	50.0	
Actuated g/C Ratio	0.36			0.57	0.36	
v/c Ratio	0.71			0.73	0.26	
Control Delay	42.9			3.7	16.1	
Queue Delay	0.0			0.0	0.0	
Total Delay	42.9			3.7	16.1	
LOS	D			A	B	
Approach Delay	42.9			3.7	16.1	
Approach LOS	D			A	B	
Queue Length 50th (ft)	304			117	53	
Queue Length 95th (ft)	467			m99	90	
Internal Link Dist (ft)	777			965	69	
Turn Bay Length (ft)						
Base Capacity (vph)	1265			2034	1266	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.71			0.73	0.26	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:SBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	
Description: WSDOT 2013-03-19	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 5451: Enchanted Pkwy S & SR18 - SR 161 Ramp

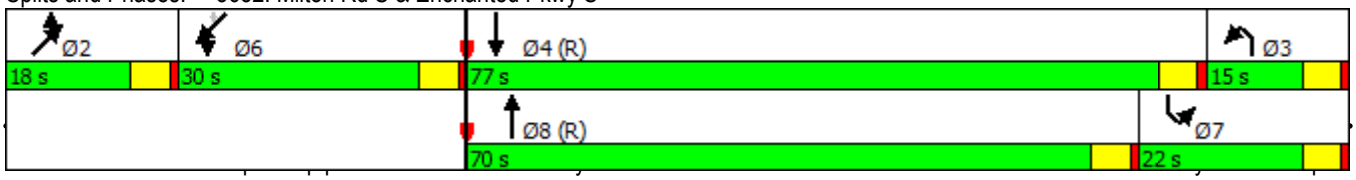


Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	3	538	26	101	1029	296	112	59	22	34	56	234
Future Volume (vph)	3	538	26	101	1029	296	112	59	22	34	56	234
Satd. Flow (prot)	1743	3435	0	1787	3376	0	1712	1718	0	0	1809	1555
Flt Permitted	0.950			0.950			0.950				0.981	
Satd. Flow (perm)	1725	3435	0	1735	3376	0	1654	1718	0	0	1786	1478
Satd. Flow (RTOR)		5			39			11				234
Lane Group Flow (vph)	3	564	0	101	1325	0	112	81	0	0	90	234
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	3	8		7	4		2	2		6	6	
Permitted Phases												6
Total Split (s)	15.0	70.0		22.0	77.0		18.0	18.0		30.0	30.0	30.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	5.0
Act Effct Green (s)	6.0	84.7		12.1	98.8		11.8	11.8			11.4	11.4
Actuated g/C Ratio	0.04	0.60		0.09	0.71		0.08	0.08			0.08	0.08
v/c Ratio	0.04	0.27		0.66	0.55		0.78	0.52			0.62	0.70
Control Delay	64.3	13.6		63.1	13.0		95.6	65.0			79.2	18.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	64.3	13.6		63.1	13.0		95.6	65.0			79.2	18.6
LOS	E	B		E	B		F	E			E	B
Approach Delay		13.9			16.6			82.8			35.5	
Approach LOS		B			B			F			D	
Queue Length 50th (ft)	3	116		85	198		101	61			81	0
Queue Length 95th (ft)	m10	175		m113	347		#190	118			136	84
Internal Link Dist (ft)		2035			777			2750			2034	
Turn Bay Length (ft)	150			250			250					150
Base Capacity (vph)	124	2079		216	2394		158	169			323	456
Starvation Cap Reductn	0	0		0	94		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	0.02	0.27		0.47	0.58		0.71	0.48			0.28	0.51

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 128 (91%), Referenced to phase 4:SBT and 8:NBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15
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.

Splits and Phases: 5652: Milton Rd S & Enchanted Pkwy S



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	34	9	853	1586	23
Future Volume (vph)	46	34	9	853	1586	23
Satd. Flow (prot)	1755	1571	1778	3543	3496	0
Flt Permitted	0.950		0.142			
Satd. Flow (perm)	1688	1493	266	3543	3496	0
Satd. Flow (RTOR)		34			4	
Lane Group Flow (vph)	46	34	9	853	1609	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	21.0	21.0	119.0	119.0	119.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	8.1	8.1	124.9	124.9	124.9	
Actuated g/C Ratio	0.06	0.06	0.89	0.89	0.89	
v/c Ratio	0.46	0.29	0.04	0.27	0.52	
Control Delay	77.4	25.0	1.9	1.7	1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	77.4	25.0	1.9	1.7	1.2	
LOS	E	C	A	A	A	
Approach Delay	55.1			1.7	1.2	
Approach LOS	E			A	A	
Queue Length 50th (ft)	41	0	1	49	41	
Queue Length 95th (ft)	84	36	4	76	60	
Internal Link Dist (ft)	785			1165	2035	
Turn Bay Length (ft)		100	200			
Base Capacity (vph)	200	200	237	3161	3120	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.23	0.17	0.04	0.27	0.52	

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 3.1 Intersection LOS: A
Intersection Capacity Utilization 58.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5954: Enchanted Pkwy S & 19 Wy S