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TECHNICAL MEMORANDUM

DATE: Friday, April 3, 2015

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FROM: David Mahama, P.E. and Thomas Krakow, P.E., DKS

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SUBJECT: **Traffic Circulation Analysis Technical Memorandum** **P#13028-000 Tasks 300 and 400**

INTRODUCTION AND SUMMARY

INTRODUCTION

This technical memorandum prepared by DKS presents the results of the traffic circulation study for roadways in the vicinity of Castro Valley Boulevard and Interstate 580 (I-580) in the unincorporated areas of Alameda County. The study intersections are along Castro Valley Boulevard, Redwood Road, Grove Way, Strobridge Avenue, and Center Street.

Several alternatives were previously studied in the 2009 traffic circulation study. However, only the preferred alternative selected as described in Scenarios 3 and 4 were included in this study. The difference between Scenarios 3 and 4 is whether the Gary Drive access restriction is retained or removed respectively. This updated traffic circulation study is needed to assess the changes in traffic patterns along the roadway segments in the study area due to the recently completed Castro Valley I-580 Improvements Project, the I-238 Widening Project, and the proposed construction of a New Road that links Strobridge Avenue to Castro Valley Boulevard. Additionally, there is the need to assess the effectiveness of the following proposed key improvements in Castro Valley:

- The proposed realignment of Norbridge Avenue, and proposed reconfiguration of the one-way southbound Strobridge Avenue in the vicinity of Castro Valley Boulevard;
- The removal of the southbound restriction at the Strobridge Avenue/Gary Drive intersection;
- Determination of the most suitable traffic operation measures for the I-580 WB off ramp/Strobridge Avenue intersection including an assessment of signalization, two way stop control for the Strobridge Avenue approaches and a roundabout at the intersection.

SUMMARY

Level of Service Analysis

Under Existing Conditions, all signalized intersections currently operate acceptably at LOS D or better. The proposed reconfiguration of the Norbridge Avenue and Strobridge Avenue couplet is expected to result in changes in traffic circulation in the project area. Therefore the traffic signals in the project area will need to be re-optimized to operate the intersections acceptably at LOS D or better under existing traffic conditions. In other words, under existing traffic conditions, other than traffic signal optimization, no physical improvements are

needed at the study intersections in the project area due to expected changes in traffic circulatory pattern, which will result from the proposed reconfiguration of the Norbridge Avenue-Strobridge Avenue couplet and the installation of the New Road connector between the I-580 Westbound off ramp and Castro Valley Boulevard.

Under future traffic conditions, all study intersection except for the Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp and Castro Valley Boulevard/John Drive/Strobridge Avenue intersections are expected to operate acceptably with traffic signal optimization. Physical improvements are needed at the intersections to improve traffic operating conditions as discussed in the following paragraphs.

Removal of southbound Strobridge Avenue access restriction at Gary Drive

A comparison of the results of the existing traffic conditions level of service (LOS) analysis for the 'with' and 'without' the southbound Strobridge Avenue restriction at Gary Drive indicate that there are no significant differences in the level of service and delay for the study intersections resulting from either maintaining or removing the access restriction.

However, under future traffic conditions (i.e. under Scenario 3f a.m.), the Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp intersection (int. #2) is expected to continue to operate unacceptably at LOS E. A third southbound left-turn lane will need to be added to operate the intersection acceptably at LOS D or better. This may require extensive geometric modification to accommodate the lane addition. This improvement is not necessary with the removal of the southbound Strobridge Avenue restriction at Gary Drive as shown in the LOS results for Scenario 4f a.m. Without the southbound restriction, intersection #2 is expected to operate acceptably at LOS D or better.

Also, removing the southbound Strobridge Avenue restriction at Gary Drive is expected to provide convenient traffic circulation for residents of the Baywood area to access their neighborhoods from the I-580 Westbound off ramp. It will also eliminate the need to make illegal southbound through movements at the intersection, which will enhance traffic safety. However, there is uncertainty about the potential for cut through traffic.

According to the October 10, 2005 memo presented to the Alameda County Board of Supervisors, the purpose of the temporary Strobridge Avenue southbound restriction at Gary Drive was to prevent motorists from using Baywood Area streets as a bypass to avoid anticipated congestions on the freeways resulting from the construction of the I-238 and I-580/Redwood Road interchange improvements. The interim measure was expected to be in place until 2010 when the construction of the improvements is expected to be completed.

Additionally, recent traffic counts indicate that the new I-580 Westbound off ramp at Redwood Road has provided an alternate access to the Castro Valley/Hayward border areas via Redwood Road for motorists who in the past had no option but to use the I-580 Westbound/Strobridge Avenue off ramp to go through the circuitous Baywood Area streets to access their destinations. The results of travel time analysis indicate that constructing the new road that links the I-580 WB off ramp/Strobridge Avenue intersection to Castro Valley Boulevard is expected to provide a faster and convenient bypass of the traffic congestion at the Castro Valley Boulevard/Norbridge Avenue and Castro Valley Boulevard/Strobridge Avenue intersections and the Baywood Area to access Foothill Boulevard. Based on the results of the study, it has been concluded that to further relieve the potential for cut through traffic in Baywood Area, the proposed new roadway that links Strobridge Avenue and Castro Valley Boulevard should be pursued prior to removing the access restriction at Gary Drive. Alameda County will continue to work with Caltrans to acquire right-of-way for the new roadway.

Reconfiguration of Norbridge Avenue and Strobridge Avenue

The proposed reconfiguration of the existing Norbridge Avenue-Strobridge Avenue couplet and the proposed New Road extension connector between the I-580 Westbound off ramp and Castro Valley Boulevard is expected

to operate acceptably under existing or near term traffic conditions. However, under future traffic conditions, the Castro Valley Boulevard/John Drive/Strobridge Avenue intersection is expected to operate unacceptably at LOS E during the p.m. peak hour. The critical movements at the intersection are expected to be the eastbound left-turn to access John Drive, the westbound left-turn to access the I-580 freeway, and the northbound right-turn traffic from the I-580 freeway.

With the reconfiguration, the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections will need to have the following improvements and traffic signal operational features to improve traffic operating conditions:

Recommendations:

- Under future traffic conditions, add one eastbound left-turn lane at the Castro Valley Avenue/John Drive/Strobridge Avenue intersection to operate the intersection acceptably at LOS D or better. This mitigation requires the widening of John Drive to accommodate a second receiving lane.
- Implement split phasing operation for the northbound and southbound movements at the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections.
- Relocate the existing east leg crosswalk to the west leg crosswalk at the Castro Valley Boulevard/John Drive/Strobridge Avenue intersection to eliminate conflict with the double northbound right-turn approach.
- Coordinate the traffic signals located at the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections with those located at the Castro Valley Boulevard/Lake Chabot Road, Castro Valley Boulevard/New Road, Strobridge Avenue/Interstate I-580 WB off ramp/New Road, and Strobridge Avenue/I-580 EB on and off ramps intersections as one traffic signal system to circulate traffic acceptably in the area.

With the reconfiguration of Strobridge Avenue and Norbridge Avenue, the Wendy's driveway on Strobridge Avenue will need to be restricted to northbound inbound and westbound right-turn outbound only because of the driveway's proximity to Castro Valley Boulevard. The McDonald's driveway access will remain unchanged.

The New Road is expected to primarily provide convenient access to motorists that make left-turns at the Castro Valley Boulevard/Norbridge Avenue intersection to go westbound on Castro Valley Boulevard. Additionally, because the traffic signals along Castro Valley Boulevard operate acceptably with the recent roadway improvements, motorists are likely to continue to use it rather than Norbridge Avenue as a reliever route as indicated by the results of the traffic forecast. The proposed reconfiguration of Norbridge Avenue is expected to provide convenient access to Castro Valley residents from I-580 eastbound who live off Norbridge Avenue.

Strobridge Avenue/I-580 Westbound Off Ramp Alternative Design Analysis

With the proposed re configuration of the Norbridge Avenue-Strobridge Avenue couplet and the New Road extension for the I-580 Westbound off ramp to Castro Valley Boulevard, there is the need to determine appropriate traffic control measures for the Strobridge Avenue/I-580 Westbound off ramp/New Road intersection.

Four control types were considered as follows: traffic signal; all-way stop control; two way stop control; and yield control (i.e. roundabout). For a conservative analysis, the future p.m. peak hour traffic forecast was used for the traffic operation analysis because it has more entering traffic volumes at the intersection than the a.m. peak hour. It was determined that the stop control is expected to operate the intersection unacceptably under future traffic conditions. While the yield control (roundabout) itself will operate acceptably at LOS C or better

during the p.m., long traffic queuing is expected on the I-580 Westbound off ramp, which may cause traffic congestion along the I-580 freeway. Also, installing a Multi-way stop control is expected to result in traffic queuing on the ramp in excess of 2,500 feet, which may impact the I-580 Westbound freeway operation. Of the four traffic control options considered, it is recommended to install a traffic signal, which is expected to operate the intersection acceptably at LOS C or better with minimal traffic queuing along all approaches of the intersection. It is also expected that installing a traffic signal at the Strobridge Avenue/I-580 Westbound off ramp/New Road intersection will not impact the I-580 Westbound freeway operation.

Impacts to Pedestrians, Bicyclists, and Transit Access and Circulation

Generally, there are sidewalks along all roadways in the study area. Pedestrian access will not be impeded with any proposed roadway reconfigurations and recommended improvements. There are limited Class II bike lanes in the study area listed as follows:

- Westbound Class II bike lane along Castro Valley Boulevard from Strobridge Avenue to Foothill Boulevard
- Class II bike lanes along Norbridge Avenue between Castro Boulevard (east intersection with Norbridge Avenue) and Tyee Court.

The proposed reconfiguration of the Norbridge Avenue-Strobridge Avenue couplet is not expected to impact bike travel as there are currently no bike routes along Norbridge Avenue and Strobridge Avenue. The feasibility of including bike lanes on Norbridge Avenue and Strobridge Avenue should be considered in the roadway design for the proposed reconfiguration of the roadways.

No roadway modifications or improvements are proposed near the existing bus stop locations. With the recommended improvements discussed in this technical memorandum and traffic signal synchronization along Castro Valley Boulevard and Redwood Road, all intersections are expected to operate acceptably with minimal delay to transit travel time under both existing and future traffic conditions.

CONCLUSIONS AND RECOMMENDATIONS

Scenarios 1 and 2 maintain the existing Norbridge Avenue and Strobridge Avenue couplet but differ with the retaining and removal of the southbound Strobridge Avenue access restriction at Gary Drive respectively. However, Scenarios 3 and 4 reconfigure the Norbridge Avenue and Strobridge Avenue couplet into two way streets, and a new roadway provides direct access by connecting the Strobridge Avenue/I-580 WB off ramp intersection to Castro Valley Boulevard. The difference between Scenarios 3 and 4 is the retaining and removal of the southbound Strobridge Avenue access restriction at Gary Drive respectively.

It can be concluded from the results (i.e. comparing the LOS results for Scenarios 1 and 2 versus Scenarios 3 and 4) of the analysis that traffic circulation in the study area is expected to improve under future traffic conditions with recommended improvements and the reconfiguration of the Norbridge Avenue and Strobridge Avenue couplet. The recommended improvements are described under the '*Reconfiguration of the Norbridge Avenue and Strobridge Avenue*' under the summary section of this technical memo.

Generally, under the existing Norbridge Avenue and Strobridge Avenue configuration all the study intersections are expected to operate acceptably under both existing or near term and future traffic conditions with optimization of the traffic signals. However, physical improvements are needed at the Castro Valley Boulevard/John Drive/Strobridge Avenue intersection, which are triggered by the reconfiguration of the Norbridge Avenue and Strobridge Avenue couplet. The improvements include the following:

- Implement split phasing operation for the northbound and southbound movements at the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections.
- Relocate the existing east leg crosswalk to the west leg crosswalk.
- Add a second eastbound left-turn lane and widen John Drive to provide a receiving lane for the second eastbound left-turn lane.

Additionally, comparing the results of Scenarios 3 and 4 indicate that the removal of the southbound Strobridge Avenue restriction at Gary Drive is expected to significantly improve traffic operations at the Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp intersection. Without the removal of the access restriction, a costly improvement may be needed at the intersection to operate it acceptably under future traffic conditions.

Although the reconfiguration of the Norbridge Avenue and Strobridge Avenue call for additional intersection and roadway improvements, the reconfiguration is expected to provide convenient traffic circulation and reduced travel time for motorists exiting I-580 at Strobridge Avenue to go elsewhere via Castro Valley Boulevard.

ANALYSIS METHODOLOGY

STUDY INTERSECTIONS

Alameda County staff selected 25 existing intersections for analysis. The study includes one proposed intersection as noted below. The traffic analysis for the intersections is based on weekday a.m. and p.m. peak hour volumes.

1. Foothill Boulevard/Grove Way
2. Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp
3. Castro Valley Boulevard/John Drive/Strobridge Avenue
4. Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue
5. Castro Valley Boulevard/Lake Chabot Road
6. Castro Valley Boulevard/Redwood Road
7. Castro Valley Boulevard/Forest Avenue
8. Castro Valley Boulevard/Center Street
9. Grove Way/Center Street
10. Grove Way/Interstate 580 EB off-ramp
11. Redwood Road/Heyer Avenue
12. Redwood Road/Mabel Avenue
13. Redwood Road/Somerset Avenue
14. Redwood Road/Berdina Road
15. Redwood Road/Safeway Driveway
16. East Castro Valley Boulevard/Grove Way/Crow Canyon Road
17. Redwood Road/Castro Valley Plaza Entrance
18. Redwood Road/Norbridge Avenue
19. Redwood Road/I-580 WB on/off ramps
20. Redwood Road/I-580 EB on/off ramps
21. Redwood Road/Lessley Avenue
22. Redwood Road/Grove Way
23. Strobridge Avenue/I-580 EB on ramp
24. Strobridge Avenue/I-580 EB off ramp
25. Strobridge Avenue/I-580 WB off ramp
26. Castro Valley Boulevard/New Road (proposed)

Study Scenarios

Traffic counts were conducted for the existing condition Scenario 1e. Traffic forecast were provided for existing traffic conditions (Scenarios 2e through 4e) and future traffic conditions (Scenarios 1f through 4f). Each scenario listed below was analyzed under both a.m. and p.m. peak hour traffic conditions.

Existing without Project Conditions

1. ***Scenario 1e*** - Existing roadway network configuration
2. ***Scenario 2e*** - Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive

Existing plus Project Conditions (the project is defined as all roadway improvements)

3. ***Scenario 3e*** - New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard
4. ***Scenario 4e*** - New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive

Future without Project Conditions

6. ***Scenario 1f*** - Existing roadway network configuration.
7. ***Scenario 2f***- Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

Future plus Project Conditions (the project is defined as all roadway improvements)

8. ***Scenario 3f*** - New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.
9. ***Scenario 4f*** - New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

LEVEL OF SERVICE METHODOLOGIES AND PARAMETERS

Level of service (LOS) is a qualitative description of intersection operations that uses an A through F letter rating system related to travel delay and congestion. LOS A indicates free flow conditions with little or no delay, while LOS F indicates jammed conditions with excessive delays and long back-ups.

Signalized Intersections

Peak hour intersection conditions are reported as average control delay with corresponding levels of service. LOS ratings are qualitative descriptions of intersection operations and are reported using an A through F letter rating system to describe travel delay and congestion. The operating conditions at signalized intersections were evaluated using the 2000 Highway Capacity Manual (HCM) Signalized Intersections methodology. **Appendix A** contains a detailed description of the HCM 2000 LOS methodology.

Unsignalized Intersections

LOS at unsignalized study intersections was evaluated using the HCM 2000 Unsignalized Intersections methodology. The method ranks level of service on an A through F scale similar to that used for signalized intersections, using average delay in seconds per vehicle for stopping movements as its measure of effectiveness. The HCM 2000 methodology for unsignalized intersections is also described in **Appendix A**.

Roundabout Analysis

The roundabout analysis for the proposed reconfiguration of the Strobridge Avenue/I-580 Westbound/New Road intersection was conducted with the VISSIM analysis software.

Arterials (or Roadway Segments)

Arterial roadway LOS was evaluated using the HCM 2000 Urban Street methodology contained in the Synchro version 7 software analysis program.

Alameda County Transportation Commission Traffic Model

The updated Alameda County Transportation Commission (ACTC) travel demand model was used to estimate turn movement volumes for the various project scenarios and forecast the future traffic volumes for the Castro Valley Traffic Circulation Study. This model set is developed on a CUBE TP+ platform and includes a 2000 base year scenario, plus 2005, 2020, and 2035 horizon years. The ACTC model land use is based on the Draft ABAG Projections for 2011 land use. The current version of the model includes the following analysis periods:

- AM peak hour
- PM peak hour
- PM peak two hours
- PM Peak period (four hours) and
- Daily period, covering all 24 hours of a weekday.

For the purposes of this analysis, DKS focused on the estimation and assessment of the AM and PM peak hour turn movement volumes and assumed the same land use trip generation and trip distribution assumptions that are contained in the ACTC travel model.

In order to assess the effect of the proposed roadway improvements described under the “Existing Conditions Study Scenarios”, DKS developed a 2013 baseline model that reflects a straight-line interpolation between the 2005 and 2035 land use conditions. The 2013 model results were validated using existing traffic counts. The

ACTC model network topology was verified for consistency with recent roadway improvements in the Castro Valley area including the removal of the I-580 eastbound Center Street off-ramp and the construction of the I-580 westbound Redwood Road off ramp and I-580 eastbound Redwood Road on-ramp. Subsequently, DKS developed four scenario networks to reflect the network improvements for each of the four project scenarios and executed the model for each scenario. The model was also executed for the "Future Conditions Study Scenarios" based on the 2035 land use and scenario networks with the necessary adjustments to reflect the four project scenarios.

In general, outputs from the travel demand model were not used directly in the traffic analysis. Instead, the "difference method" was used, under which changes in forecast demand volumes between the baseline and the project scenarios or between the existing year and the future year, as produced by the travel demand model, are added to existing traffic volumes. This approach is illustrated in the following equations:

(1) "Project Scenario" volumes = Existing (Observed) volumes + ("Project Scenario" model forecast – "Baseline Scenario" model forecast)

(2) "Future Year" volumes = Existing (Observed) volumes + ("Future Year" model forecast – "Existing Year" model forecast)

The turning movement volumes for the study intersections were generated using the "Furness" adjustment process. This approach involves applying the procedures described above to determine approach and departure link growth for each intersection, then applying the Furness methodology to determine individual turning movements at each intersection.

The full process may be summarized as follows:

- Generate existing and future year ACTC model forecasts for each intersection approach and departure link for each project scenario;
- For the existing year project scenarios compute the model volume difference (delta) for each link (project scenario model output minus baseline model output);
- Apply the Furness methodology to compute individual turning movement volumes using existing turn movement counts and model approach and departure link delta;
- For the future year project scenarios compute the model growth for each link (future year model output minus 2013 model output); and
- Apply the Furness methodology to compute individual turning movement volumes using existing turn movement counts and model approach and departure link growth.

EXISTING TRAFFIC CONDITIONS

This section includes analysis results for existing traffic conditions in the study area, and establishes the baseline traffic conditions for the assessment of proposed roadway reconfiguration to improve traffic flow in Castro Valley.

EXISTING ROADWAY NETWORK

Regional Access

Interstate 580 (I-580) is a major east-west highway through the San Francisco Bay Area, extending from I-5 in the east to U.S. Highway 101 in the west. It provides connectivity to freeways such as I-5, I-680, State Route 24, I-880, and U.S. 101. It serves as a major commuter route between Central Valley and San Francisco Bay Area. In the vicinity of the Castro Valley study area, I-580 carries approximately 191,000 vehicles per day *according to Caltrans' 2012 Traffic Volumes on California State Highways.*

Local Access

Castro Valley Boulevard is a major four-lane, east-west arterial in Castro Valley. It extends from Dublin Canyon Road in the east to Mattox Road in the west. The segment between Lake Chabot Road and Redwood Road was recently rehabilitated and median islands were installed to replace the two way left-turn lanes along the roadway. Castro Valley Boulevard frequently experiences surge in traffic flow when incidents occur on the I-580 freeway. Motorists use it to bypass I-580 freeway incidents to access Contra Costa areas via Crow Canyon Road. Castro Valley Boulevard is primarily fronted by commercial land uses and provides connectivity to the Castro Valley BART Station and the City of Hayward. Castro Valley Boulevard carries approximately 22,000 vehicles per day.

Redwood Road is a four-to-six lane, north-south arterial in Castro Valley. It is four lanes from Heyer Avenue to Castro Valley Boulevard and six lanes from Castro Valley Boulevard to Grove Way. Redwood Road is fronted by mixed land uses including residential, commercial, and schools. Redwood Road also provides connectivity to the Castro Valley BART Station and the City of Hayward. Redwood Road carries approximately 19,800 vehicles per day.

Norbridge Avenue is generally a two lane roadway that connects with Castro Valley Boulevard twice from Forest Avenue on the east end and Stanton Avenue on the west end. Norbridge Avenue converts from a two-way roadway to a one-way westbound roadway just before merging into Stanton Avenue to form a one-way couplet with Strobridge Avenue. The segment of Norbridge Avenue west of Wilbeam Avenue is primarily residential. East of Wilbeam Avenue, it provides access to the Castro Valley BART Station. The segment of Norbridge Avenue between Wilbeam Avenue and the merge point with Stanton Avenue carries approximately 1,300 vehicles per day. The segment between Castro Valley Boulevard and the Stanton Avenue merge point carries approximately 12,000 vehicles per day, which is traffic that primarily originates from the I-580 freeway.

Strobridge Avenue extends from John Drive to merge with Lake Chabot Road on the south side of the I-580 freeway. It is a two lane one-way roadway from Castro Valley Boulevard to Gary Drive. The segment of Strobridge Avenue between Castro Valley Boulevard and I-580 Westbound off ramp carries approximately 7,200 vehicles per day.

EXISTING TRANSIT SERVICE

The Castro Valley area is currently served by local bus services and regional rail services. Local transit services are provided by Alameda-Contra Costa Transit District (AC Transit) while regional transit is provided by Bay Area Rapid Transit (BART). AC Transit operates bus line 48 along Redwood Road and bus line 32 along the segment of Castro Valley Boulevard, east of Redwood Road. Both bus lines 32 and 48 operate on an hourly frequency.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

While there are continuous sidewalks along Castro Valley Boulevard, Redwood Road, and Strobridge Avenue, there are limited striped bike lanes along Castro Valley Boulevard and Norbridge Avenue as listed as follows:

- Westbound Class II bike lane along Castro Valley Boulevard from Strobridge Avenue to Foothill Boulevard
- Class II bike lanes along Norbridge Avenue between Castro Boulevard (east intersection with Norbridge Avenue) and Tyee Court.

Tables 1 and 2 show the peak hour pedestrian and bicycle traffic volume counts respectively. Midday traffic counts (vehicle, pedestrian, and bike) were collected for only six intersections along Redwood Road from Castro Valley Boulevard to Heyer Avenue for the Redwood Road traffic signal synchronization project. No midday traffic counts were collected for the remaining 19 study intersections.

EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

The existing weekday a.m. and p.m. peak hour vehicle turning movement counts at the 25 study intersections were collected in April 2013. The seven day tube counts were collected in September 2013. Pedestrian and bicycle counts were also collected and entered into the Synchro model for the existing conditions analysis. The details of the traffic counts are included as a technical memorandum contained in **Appendix B**.

Figures 1 through 4 show the a.m. and p.m. peak hour vehicle turning movement traffic volumes for the study intersections under four traffic analysis scenarios (i.e. scenarios 1e, 2e, 3e, and 4e, which corresponds to figures 1, 2, 3, and 4 respectively). For easy reading, the scenarios are restated as follows:

Existing without Project Conditions

Scenario 1e - Existing roadway network configuration.

Scenario 2e - Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

Existing plus Project Conditions (the project is defined as all roadway improvements)

Scenario 3e - New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.

Scenario 4e - New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

Figure 1 specifically shows the existing traffic counts. Figures 2, 3, and 4 show the recirculated traffic volumes under existing conditions and the proposed reconfiguration of Norbridge Avenue and Strobridge Avenue, and the removal of southbound access restriction on Strobridge Avenue at Gary Drive.

Figures 5 through 8 show the lane configurations and traffic controls corresponding to scenarios 1e through 4e respectively.

Table 1: Existing Pedestrian Counts Summary

ID	*Intersection*	*Peak Period (1-hour counts)*	*South Crosswalk*	*North Crosswalk*	*East Crosswalk*	*West Crosswalk*	*Total*
1	Foothill Blvd/Grove Wy	A.M.	3	30	2	6	41
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	3	10	1	11	25
2	CVB/Mattox Rd/Foothill Blvd/I-238 EB off ramp	A.M.	2	2	2	0	6
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	6	1	0	2	9
3	CVB/John Dr/Strobridge Ave	A.M.	1	0	4	0	5
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	6	0	4	0	10
4	CVB/Stanton Ave/Norbridge Ave	A.M.	11	4	3	0	18
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	6	12	6	0	24
5	CVB/Lake Chabot Rd	A.M.	6	11	3	0	20
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	12	6	7	0	25
6	CVB/Redwood Rd	A.M.	12	11	7	35	65
		MIDDAY	16	20	15	45	96
		P.M.	13	15	5	32	65
7	CVB/Center St	A.M.	6	21	16	0	43
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	12	17	0	16	45
8	CVB/Center St	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
9	Grove Wy/Center St	A.M.	3	1	0	4	8
		MIDDAY	4	2	2	7	15
		P.M.	5	1	0	15	21
10	Grove Wy/I-580 EB off-ramp	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0

ID	Intersection	Peak Period (1-hour counts)	South Crosswalk	North Crosswalk	East Crosswalk	West Crosswalk	Total
11	Redwood Rd/Heyer Ave	A.M.	67	78	8	4	157
		MIDDAY	13	42	8	5	68
		P.M.	13	12	5	10	40
12	Redwood Rd/Mabel Ave	A.M.	87	4	5	142	238
		MIDDAY	23	0	7	48	78
		P.M.	3	0	4	11	18
13	Redwood Rd/Somerset Ave	A.M.	10	15	54	34	113
		MIDDAY	3	0	8	12	23
		P.M.	3	2	9	41	55
14	Redwood Road/Berdina Rd	A.M.	9	0	11	40	60
		MIDDAY	1	0	8	46	55
		P.M.	2	0	11	23	36
15	Redwood Rd/Safeway Dwy	A.M.	6	0	9	38	53
		MIDDAY	28	0	8	26	62
		P.M.	19	0	8	18	45
16	East CVB/Grove Wy/Crow Canyon Rd	A.M.	0	6	2	0	8
		MIDDAY	1	1	1	0	3
		P.M.	0	3	0	0	3
17	Redwood Rd/Castro Valley Plaza Entrance	A.M.	0	3	8	0	11
		MIDDAY	0	13	11	0	24
		P.M.	0	16	14	28	58
18	Redwood Rd/Norbridge Ave	A.M.	29	8	9	24	70
		MIDDAY	13	17	5	30	65
		P.M.	28	19	19	35	101
19	Redwood Rd/I-580 WB on/off ramps	A.M.	0	0	5	27	32
		MIDDAY	0	0	7	28	35
		P.M.	0	0	8	26	34
20	Redwood Rd/I-580 EB on/off ramps	A.M.	0	0	8	6	14
		MIDDAY	0	0	6	8	14
		P.M.	0	0	13	23	36
21	Redwood Rd/Lessley Ave	A.M.	3	0	5	7	15
		MIDDAY	7	0	8	20	35
		P.M.	6	0	7	12	25

ID	Intersection	Peak Period (1-hour counts)	South Crosswalk	North Crosswalk	East Crosswalk	West Crosswalk	Total
22	Redwood Rd/Grove Wy	A.M.	6	4	2	9	21
		MIDDAY	10	19	5	5	39
		P.M.	14	11	12	10	47
23	Strobridge Ave/I-580 EB on-ramp	A.M.	0	0	6	1	7
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	5	0	5
24	Strobridge Ave/I-580 EB off-ramp	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
25	Strobridge Ave/I-580 WB off-ramp	A.M.	1	0	2	1	4
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	1	0	1

Note:
n/a = traffic counts are unavailable because the analysis did not include midday peak period.

Table 2: Existing Bicycle Counts Summary

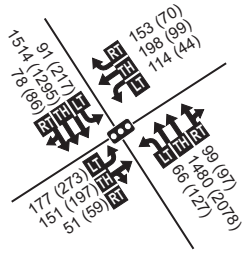
ID	*Intersection*	*Peak Period (1-hour counts)*	*Southbound*	*Northbound*	*Eastbound*	*Westbound*	*Total*
1	Foothill Blvd/Grove Wy	A.M.	0	1	0	1	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	1	0	1	2
2	CVB/Mattox Rd/Foothill Blvd/I-238 EB off ramp	A.M.	1	0	1	2	4
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	1	1	2
3	CVB/John Dr/Strobridge Ave	A.M.	0	0	1	1	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	1	0	2	1	4
4	CVB/Stanton Ave/Norbridge Ave	A.M.	0	0	3	1	4
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	2	5	1	8
5	CVB/Lake Chabot Rd	A.M.	1	0	0	1	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	1	0	1	1	3
6	CVB/Redwood Rd	A.M.	1	0	1	4	6
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	8	5	13
7	CVB/Center St	A.M.	1	0	1	3	5
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	8	5	13
8	CVB/Center St	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
9	Grove Wy/Center St	A.M.	2	1	0	0	3
		MIDDAY	0	0	0	3	3
		P.M.	0	1	3	1	5
10	Grove Wy/I-580 EB off-ramp	A.M.	0	0	0	2	2
		MIDDAY	0	0	0	3	3
		P.M.	0	0	2	2	4
11	Redwood Rd/Heyer Ave	A.M.	1	2	0	2	5
		MIDDAY	2	1	2	2	7
		P.M.	1	4	1	2	8

ID	Intersection	Peak Period (1-hour counts)	Southbound	Northbound	Eastbound	Westbound	Total
12	Redwood Rd/Mabel Ave	A.M.	1	1	2	6	10
		MIDDAY	1	1	0	0	2
		P.M.	1	5	0	0	6
13	Redwood Rd/Somerset Ave	A.M.	1	1	0	0	2
		MIDDAY	2	0	0	0	2
		P.M.	4	5	3	0	12
14	Redwood Road/Berdina Rd	A.M.	5	3	0	3	11
		MIDDAY	5	4	0	2	11
		P.M.	3	1	0	0	4
15	Redwood Rd/Safeway Dwy	A.M.	0	4	0	0	4
		MIDDAY	2	0	0	0	2
		P.M.	0	4	0	1	5
16	East CVB/Grove Wy/Crow Canyon Rd	A.M.	0	0	0	1	1
		MIDDAY	0	0	1	1	2
		P.M.	0	1	5	0	6
17	Redwood Rd/Castro Valley Plaza Entrance	A.M.	2	2	0	0	4
		MIDDAY	2	0	0	1	3
		P.M.	3	7	2	0	12
18	Redwood Rd/Norbridge Ave	A.M.	1	2	1	1	5
		MIDDAY	2	1	2	0	5
		P.M.	1	6	2	2	11
19	Redwood Rd/I-580 WB on/off ramps	A.M.	3	3	0	1	7
		MIDDAY	2	2	0	0	4
		P.M.	3	5	0	0	8
20	Redwood Rd/I-580 EB on/off ramps	A.M.	4	3	0	0	7
		MIDDAY	4	4	0	0	8
		P.M.	3	10	0	0	13
21	Redwood Rd/Lessley Ave	A.M.	5	1	0	0	6
		MIDDAY	4	3	1	0	8
		P.M.	5	8	0	0	13
22	Redwood Rd/Grove Wy	A.M.	0	1	0	0	1
		MIDDAY	2	2	0	0	4
		P.M.	3	4	0	3	10

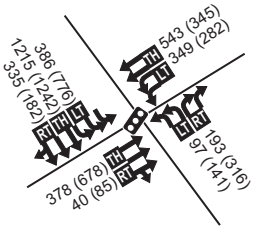
ID	*Intersection*	*Peak Period (1-hour counts)*	*Southbound*	*Northbound*	*Eastbound*	*Westbound*	*Total*
23	Strobridge Ave/I-580 EB on-ramp	A.M.	0	0	1	0	1
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	2	0	0	0	2
24	Strobridge Ave/I-580 EB off-ramp	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
25	Strobridge Ave/I-580 WB off-ramp	A.M.	0	1	1	0	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0

Note:
n/a = traffic counts are unavailable because the analysis did not include midday peak period.

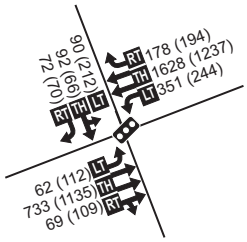
1. Foothill Blvd./Grove Way

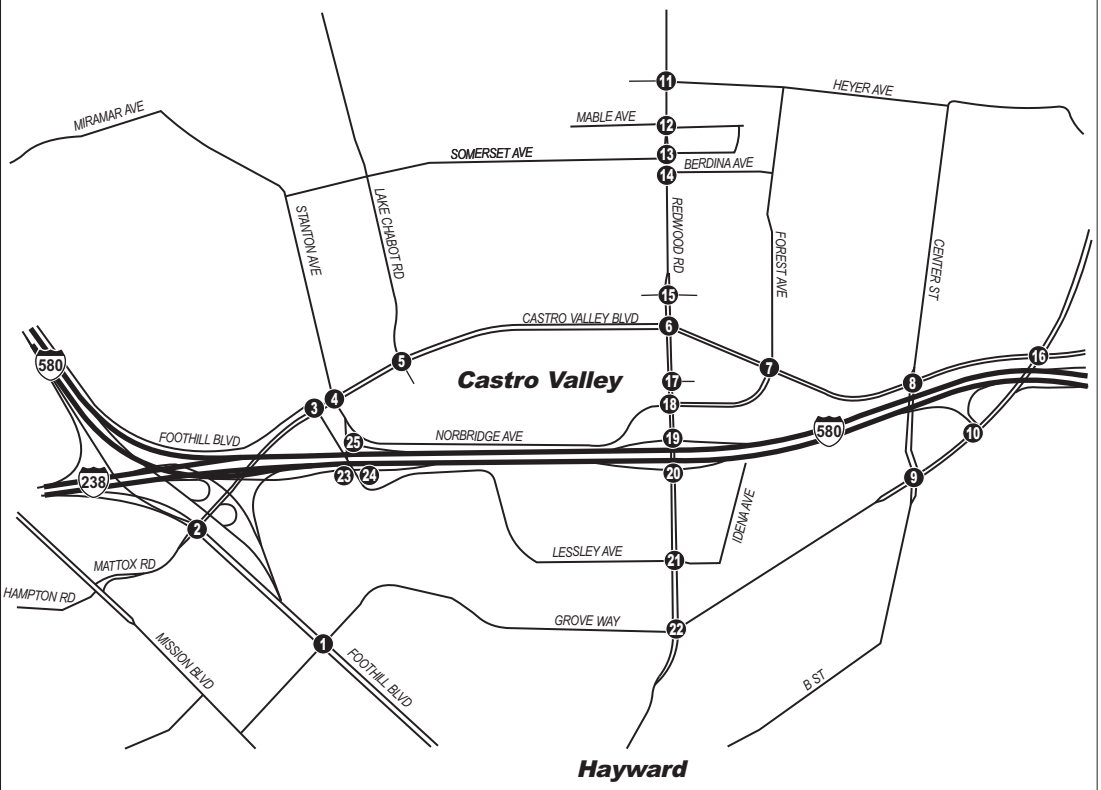


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp



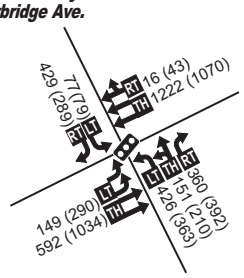
3. Castro Valley Blvd./John Dr./ Strobridge Ave.



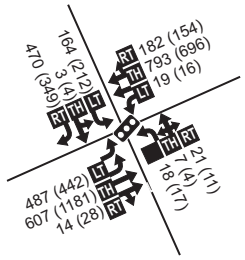


NO SCALE

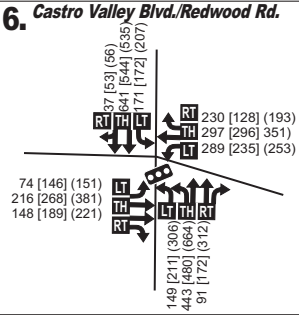
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



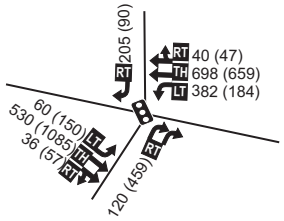
5. Castro Valley Blvd./Lake Chabot Rd.



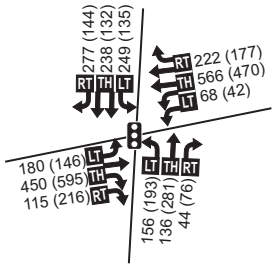
6. Castro Valley Blvd./Redwood Rd.



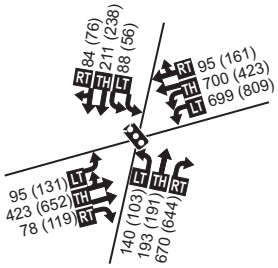
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



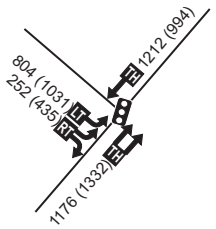
8. Castro Valley Blvd./Center St.



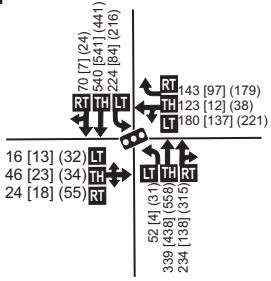
9. Grove Way/Center St.



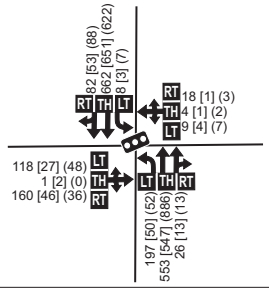
10. Grove Way/Interstate 580 EB Off-Ramp



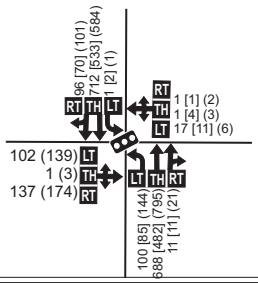
11. Redwood Rd./Heyer Ave.



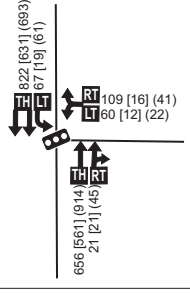
12. Redwood Rd./Mable Ave.



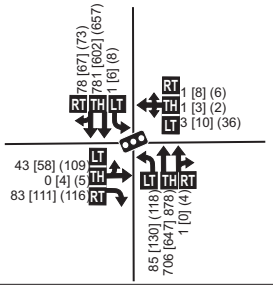
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 1

Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 1e

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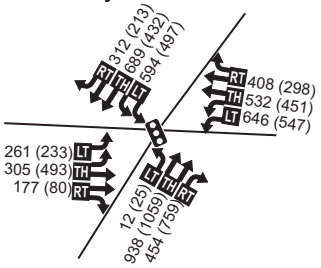
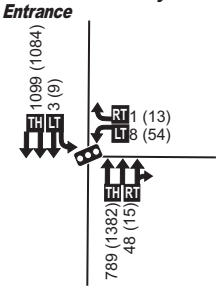
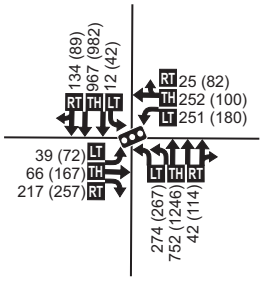
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



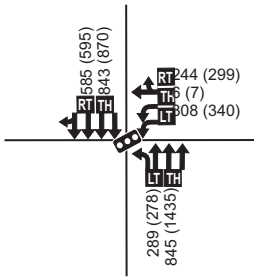
17. ***Redwood Rd./Castro Valley Plaza Entrance***



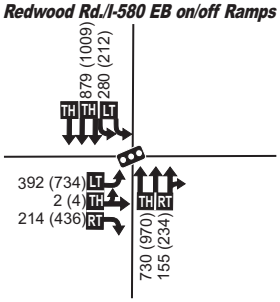
18. ***Redwood Rd./Norbridge Ave.***



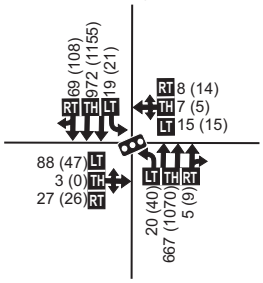
19. ***Redwood Rd./I-580 WB on/off Ramps***



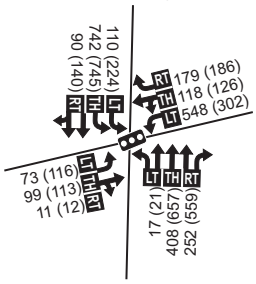
20. ***Redwood Rd./I-580 EB on/off Ramps***



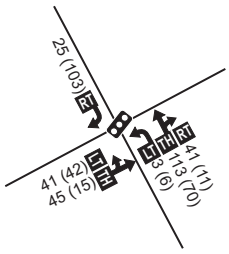
21. ***Redwood Rd./Lessley Ave.***



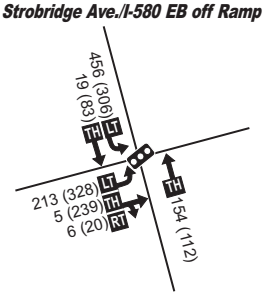
22. ***Redwood Rd./Grove Way***



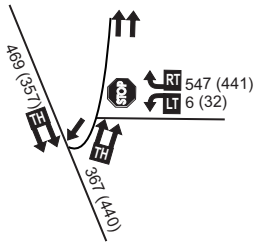
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

- 00 - Study Intersection
- Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)
- STOP - Stop Sign

DKS

Figure 1

Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 1e

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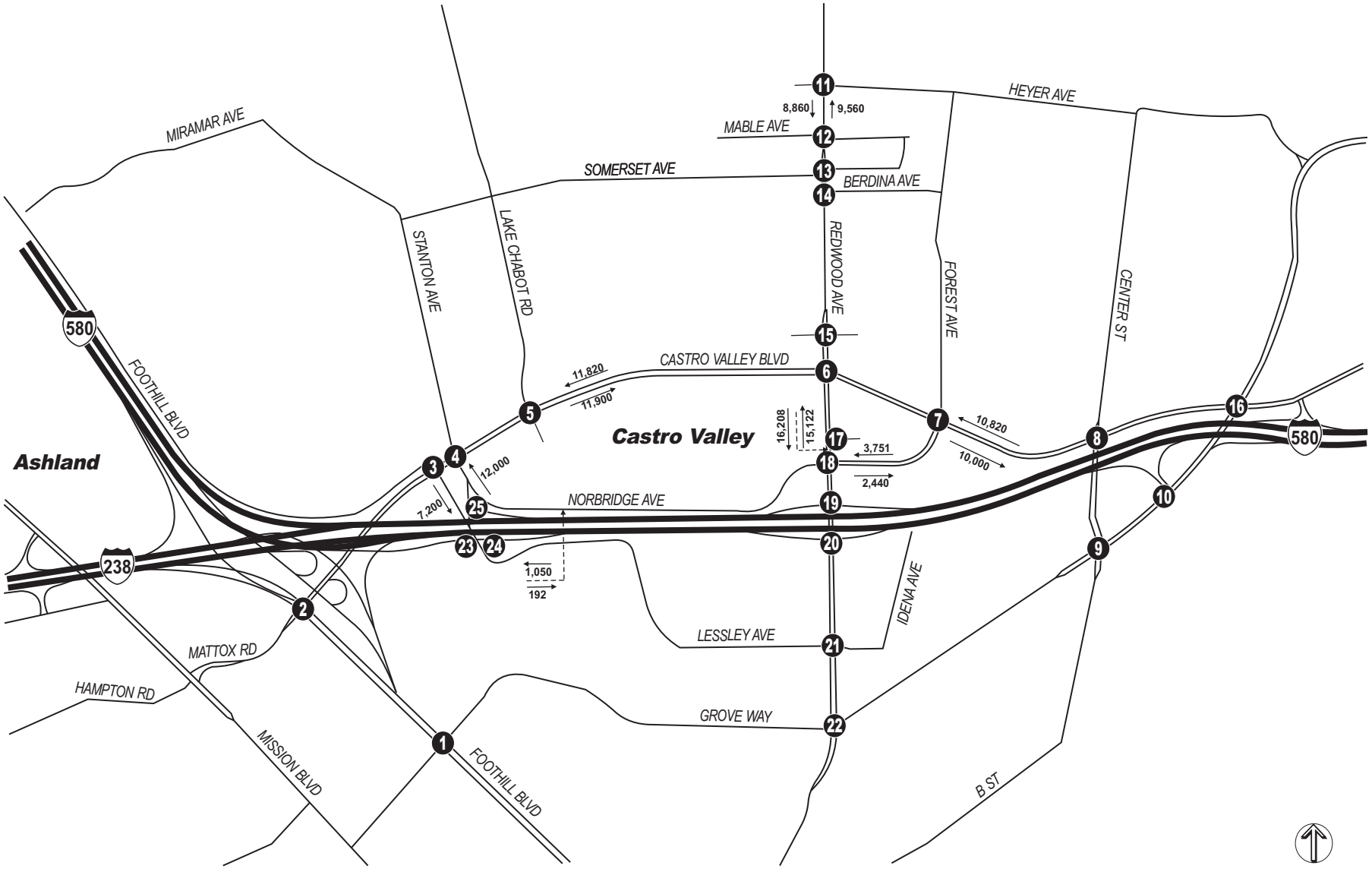


LEGEND

00 - Study Intersection

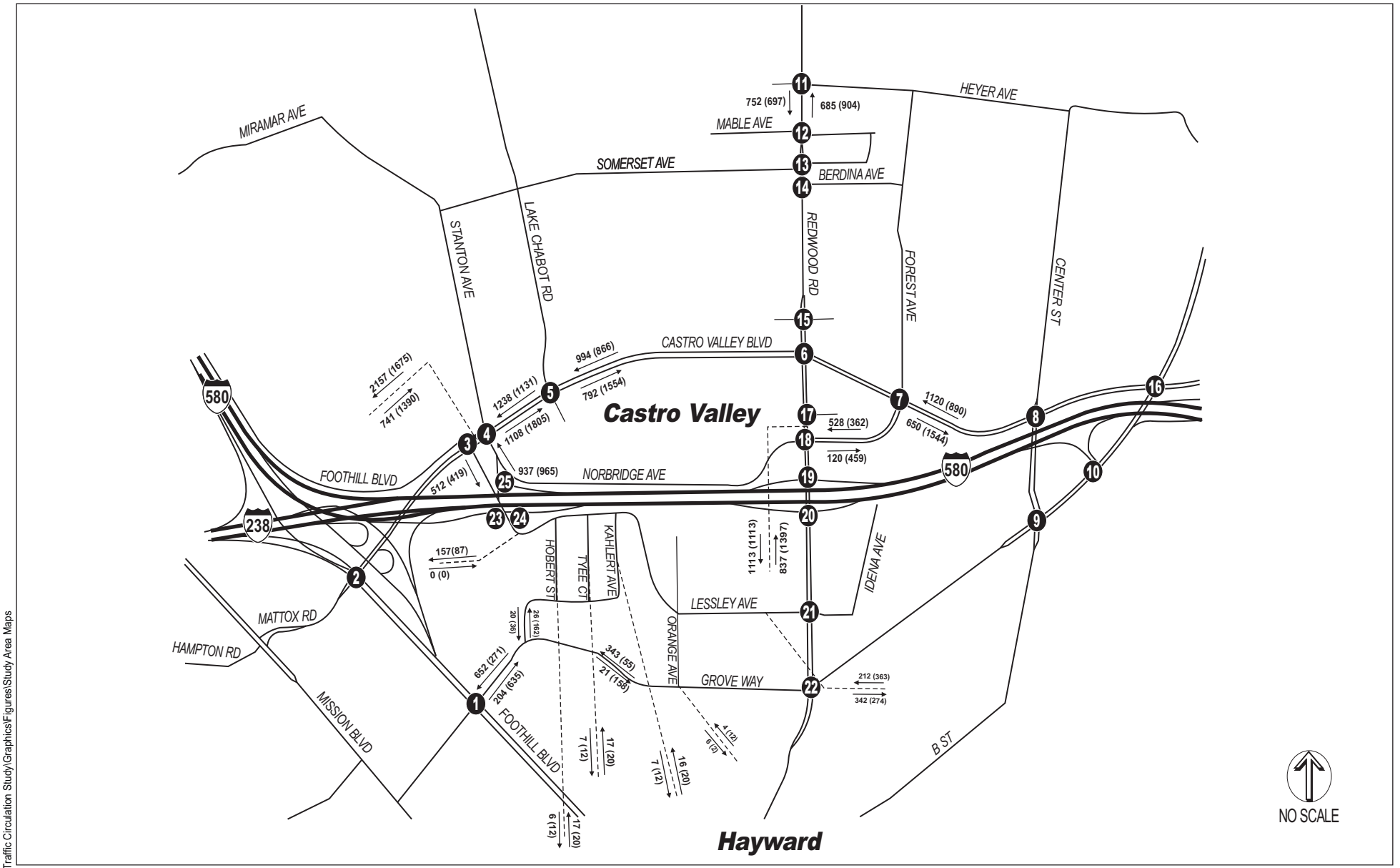
xx - Average Directional Weekday Daily Traffic Volume

DKS

Figure 1A

Existing Conditions Traffic Volumes - Scenario 1e

P:\P13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures



LEGEND

00 - Study Intersection

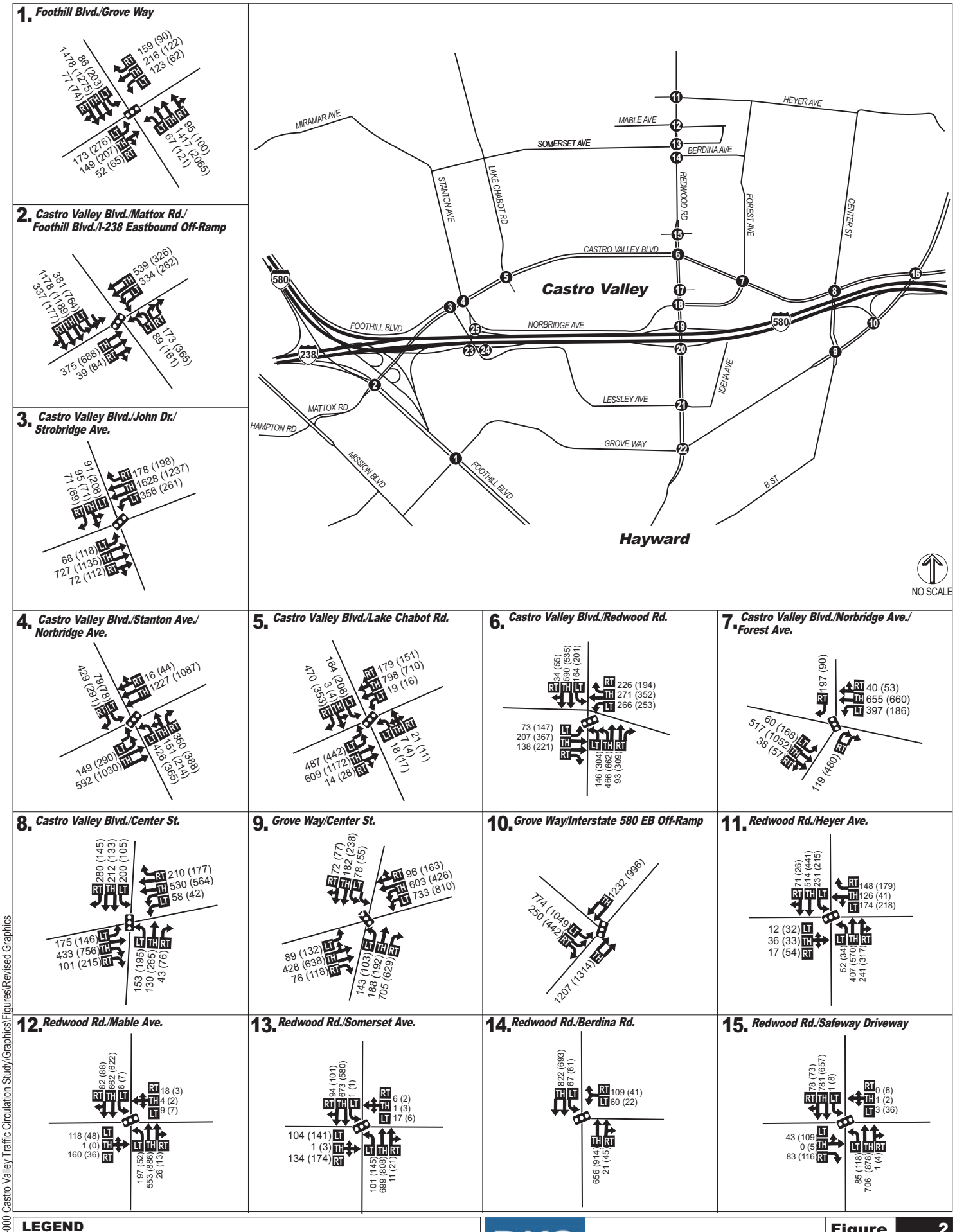
← AM (PM) - Directional Peak Hour Traffic Volume

DKS

Figure 1B

Existing Conditions Traffic Volumes - Scenario 1e

P:\P13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures\Study Area Maps



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- 8 - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

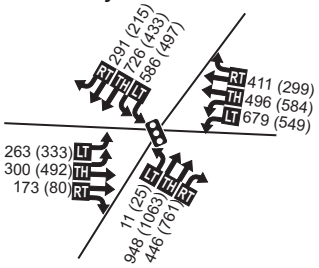
DKS

Figure 2

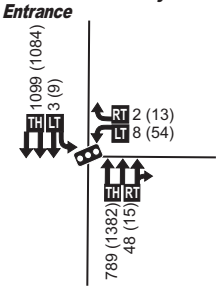
Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 2e

P:\P\13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures\Revised Graphics

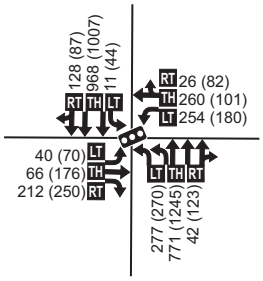
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



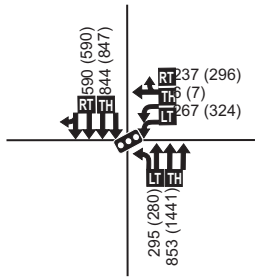
17. ***Redwood Rd./Castro Valley Plaza Entrance***



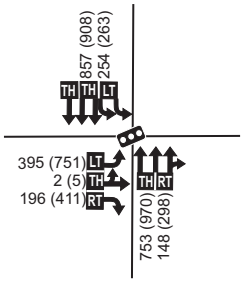
18. ***Redwood Rd./Norbridge Ave.***



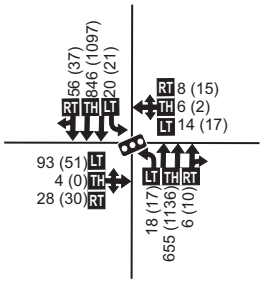
19. ***Redwood Rd./I-580 WB on/off Ramps***



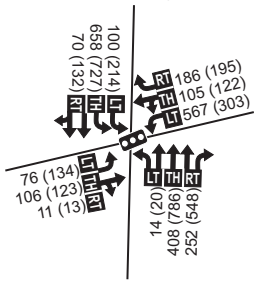
20. ***Redwood Rd./I-580 EB on/off Ramps***



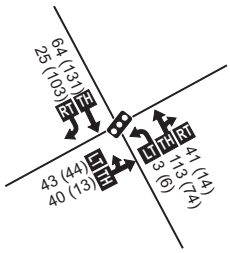
21. ***Redwood Rd./Lessley Ave.***



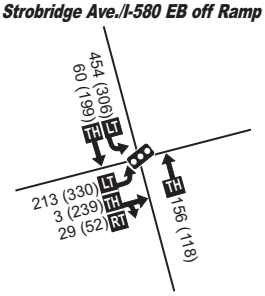
22. ***Redwood Rd./Grove Way***



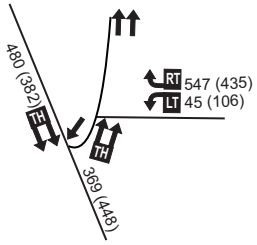
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
AM (PM) - Peak Hour Traffic Volume
LT TH RT - Volume Turn Movement
Left•Thru•Right
STOP -Stop Sign

DKS

Figure 2

Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 2e

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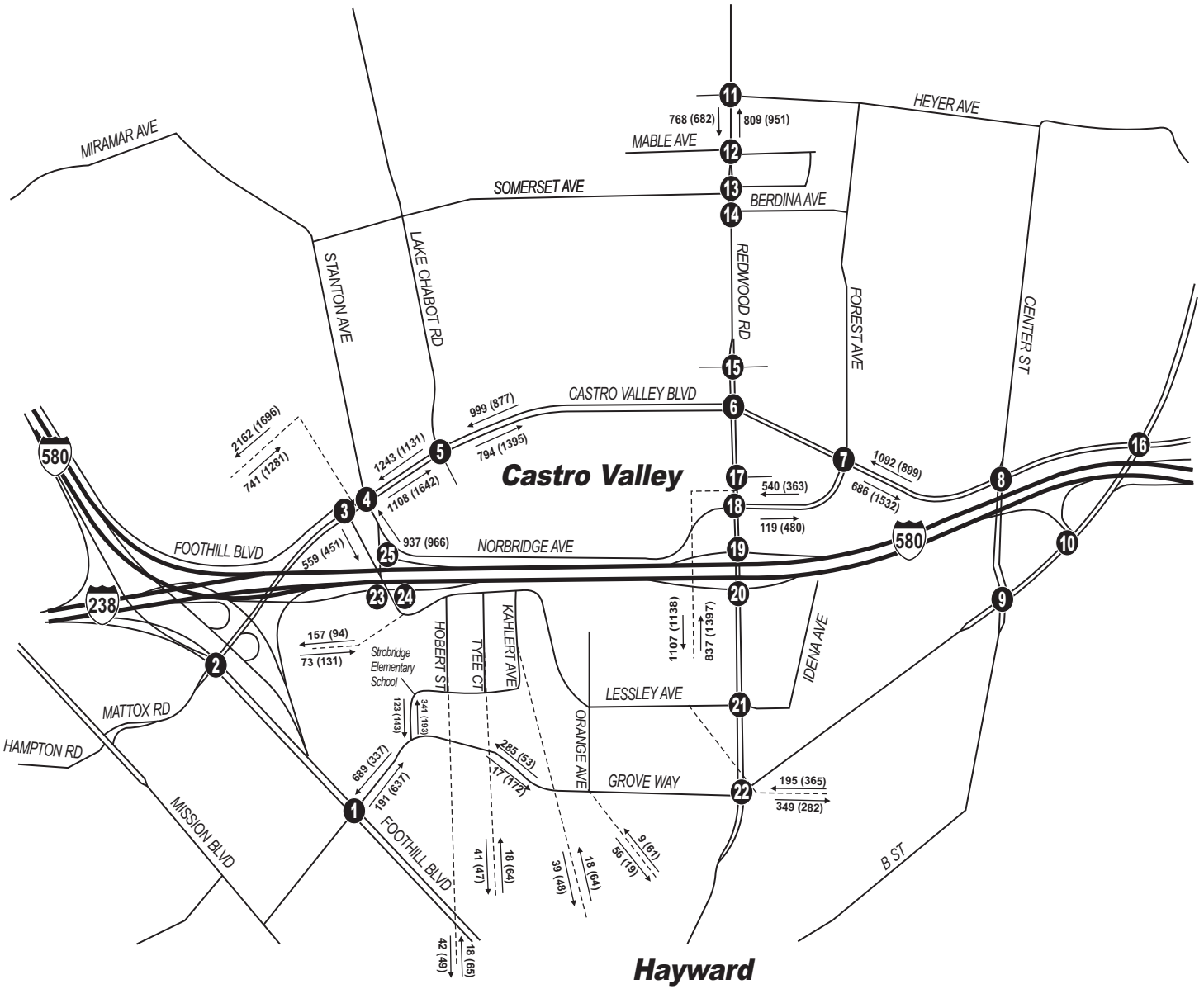


LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

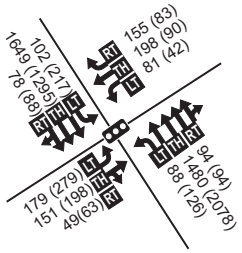
DKS

Figure 2A

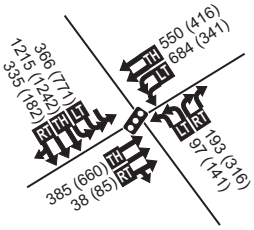
Existing Conditions Traffic Volumes - Scenario 2e

P:\P13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures\Study Area Maps

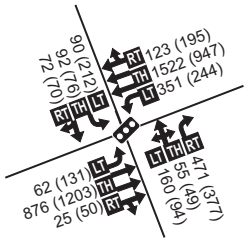
1. Foothill Blvd./Grove Way

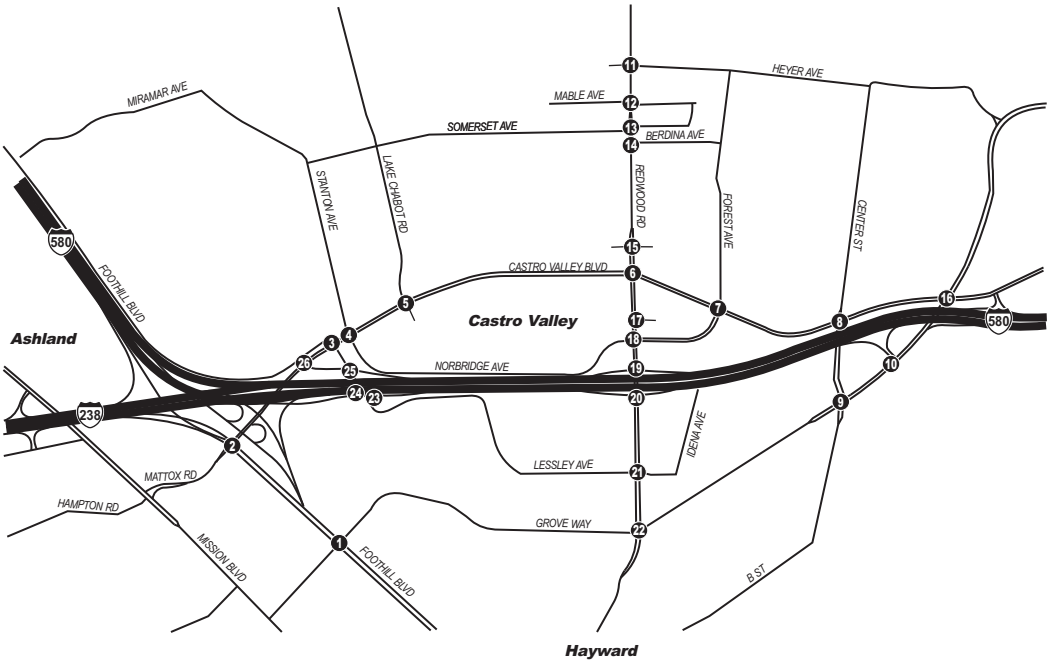


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

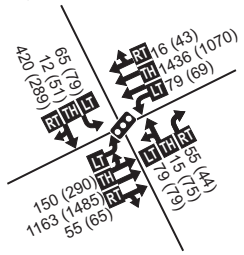


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

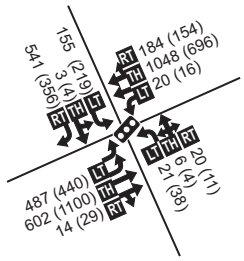




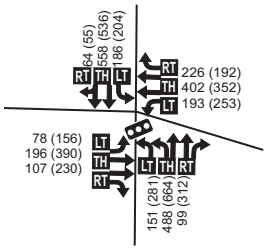
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



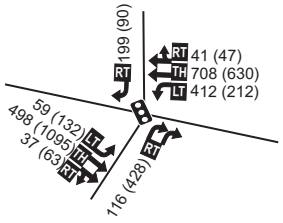
5. Castro Valley Blvd./Lake Chabot Rd.



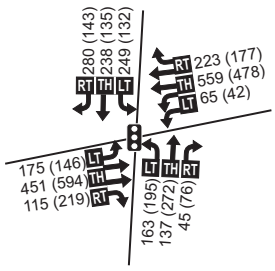
6. Castro Valley Blvd./Redwood Rd.



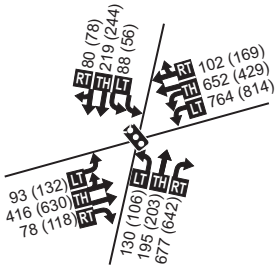
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



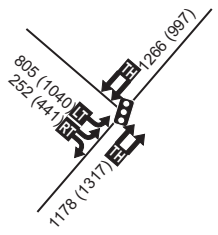
8. Castro Valley Blvd./Center St.



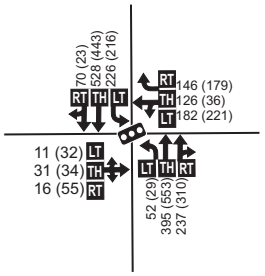
9. Grove Way/Center St.



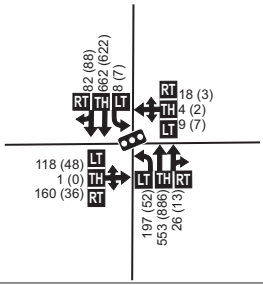
10. Grove Way/Interstate 580 EB Off-Ramp



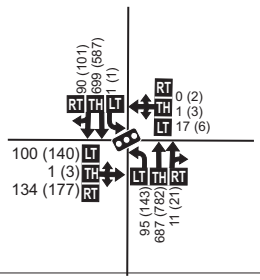
11. Redwood Rd./Heyer Ave.



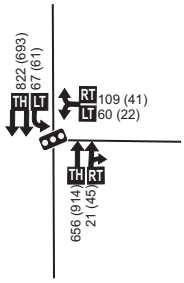
12. Redwood Rd./Mable Ave.



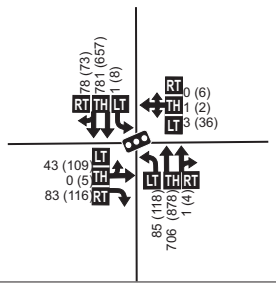
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 3

Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 3e

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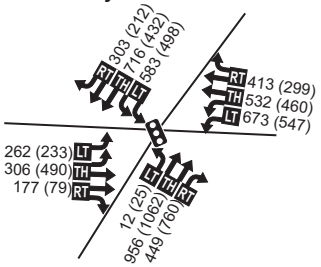
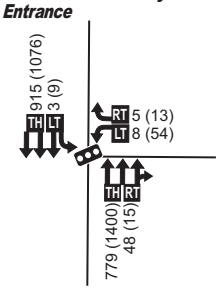
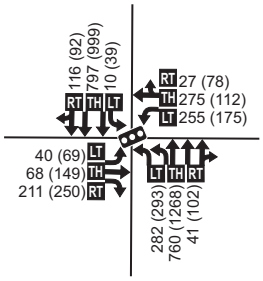
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



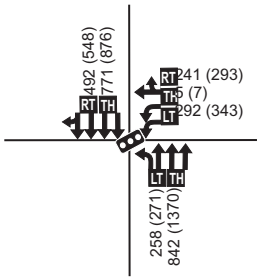
17. ***Redwood Rd./Castro Valley Plaza Entrance***



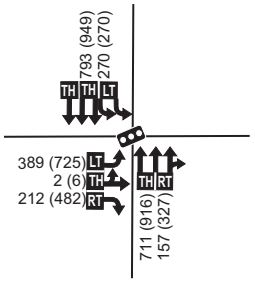
18. ***Redwood Rd./Norbridge Ave.***



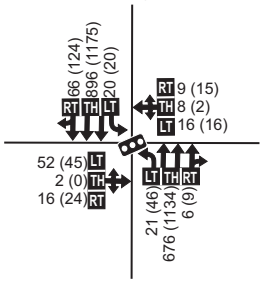
19. ***Redwood Rd./I-580 WB on/off Ramps***



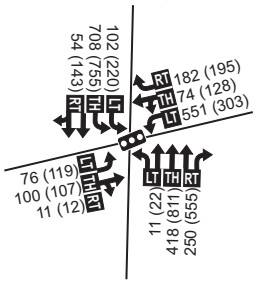
20. ***Redwood Rd./I-580 EB on/off Ramps***



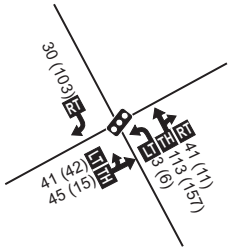
21. ***Redwood Rd./Lessley Ave.***



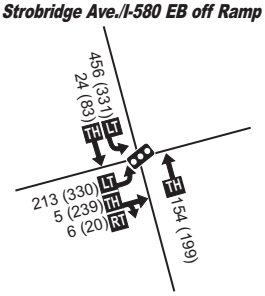
22. ***Redwood Rd./Grove Way***



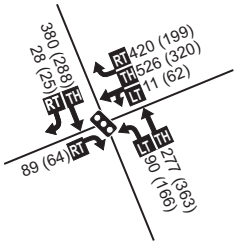
23. ***Strobridge Ave./Gary Dr.***



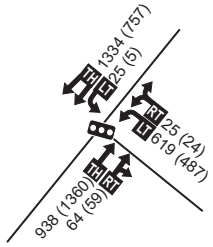
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 3

Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 3e

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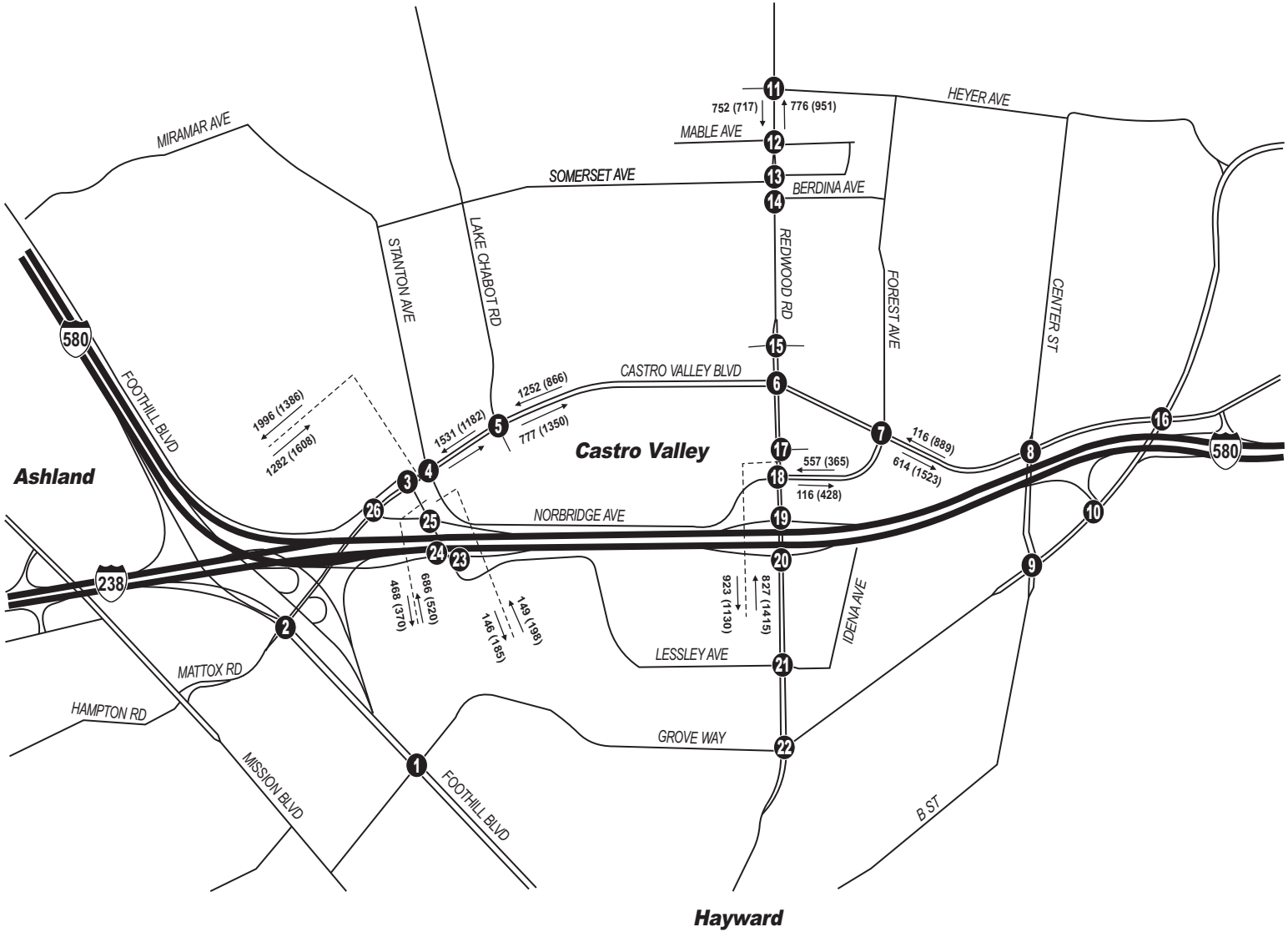

LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

DKS

Figure 3A

Existing Conditions Traffic Volumes - Scenario 3e

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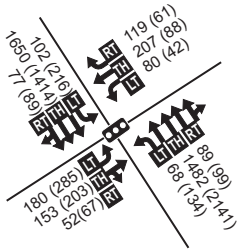
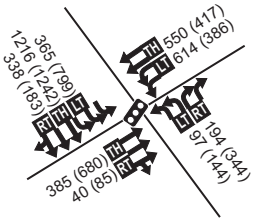
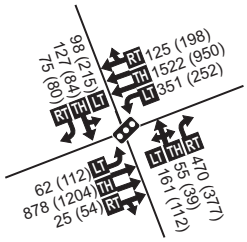
1. Foothill Blvd./Grove Way

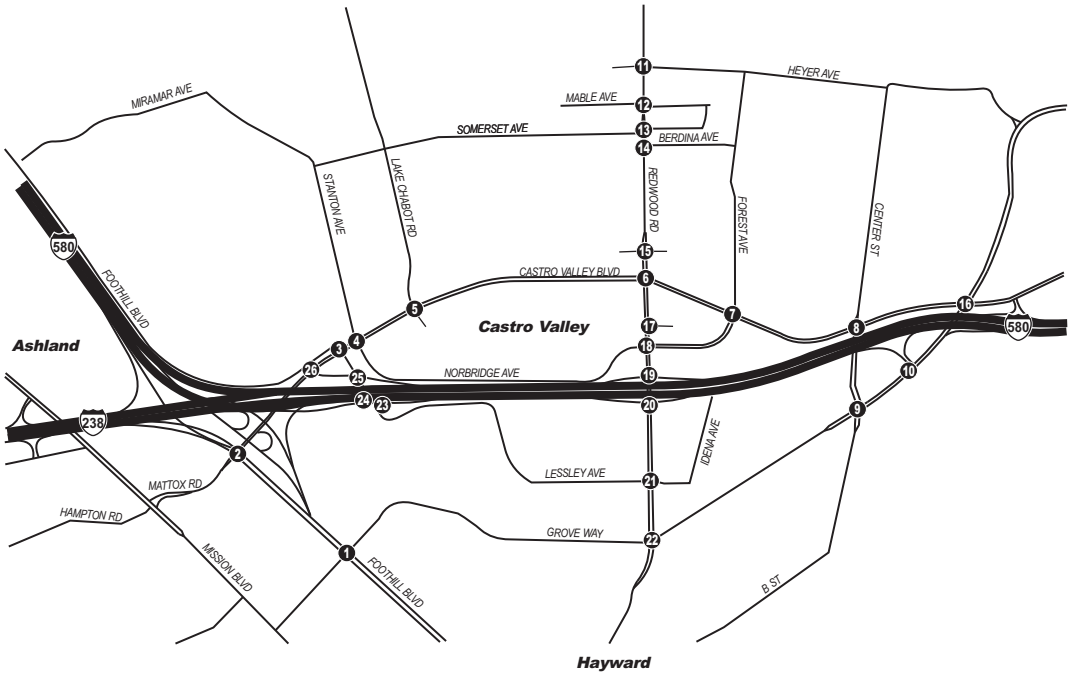


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp



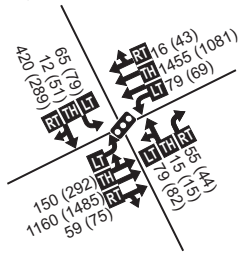
3. Castro Valley Blvd./John Dr./ Strobridge Ave.



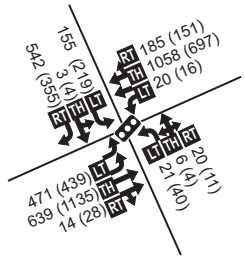


NO SCALE

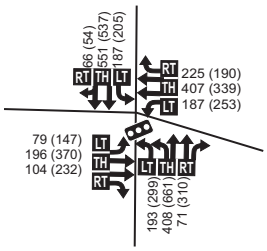
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



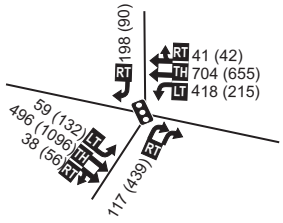
5. Castro Valley Blvd./Lake Chabot Rd.



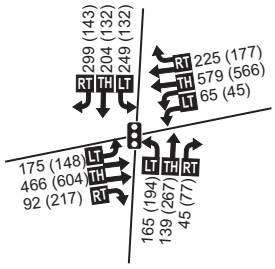
6. Castro Valley Blvd./Redwood Rd.



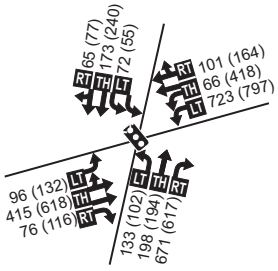
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



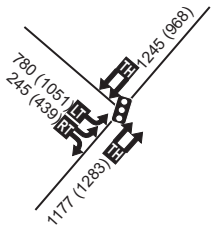
8. Castro Valley Blvd./Center St.



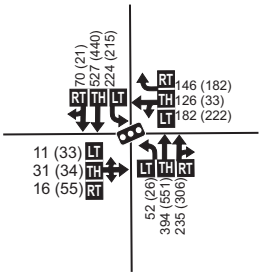
9. Grove Way/Center St.



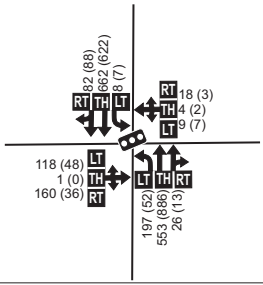
10. Grove Way/Interstate 580 EB Off-Ramp



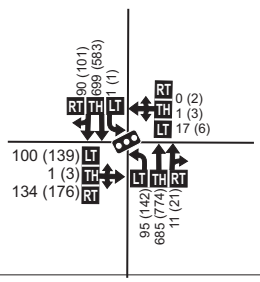
11. Redwood Rd./Heyer Ave.



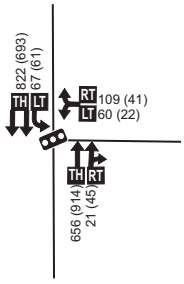
12. Redwood Rd./Mable Ave.



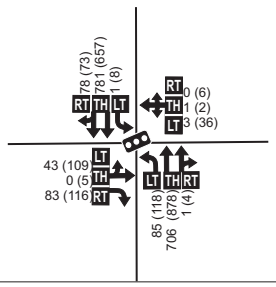
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

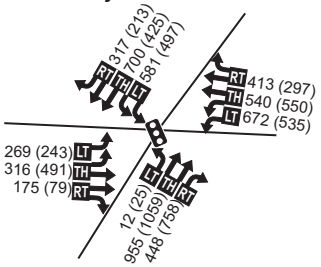
DKS

Figure 4

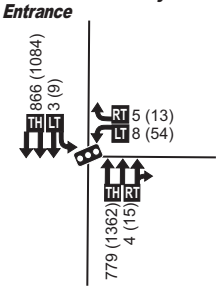
Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 4e

P:\P\13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures

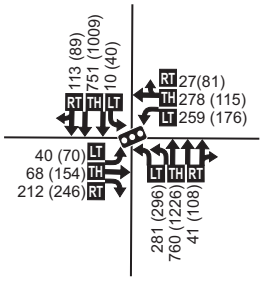
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



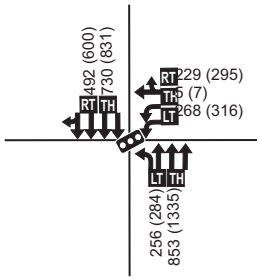
17. ***Redwood Rd./Castro Valley Plaza Entrance***



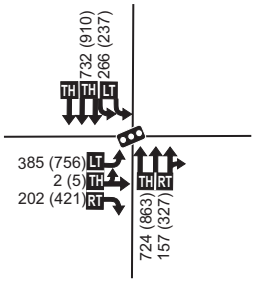
18. ***Redwood Rd./Norbridge Ave.***



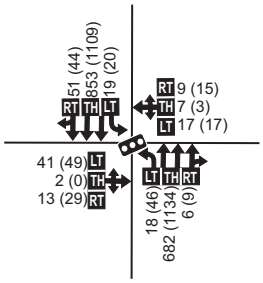
19. ***Redwood Rd./I-580 WB on/off Ramps***



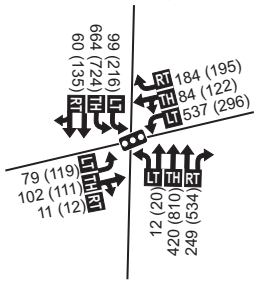
20. ***Redwood Rd./I-580 EB on/off Ramps***



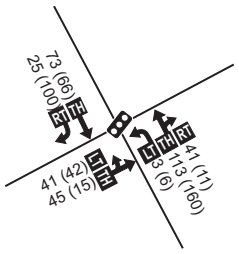
21. ***Redwood Rd./Lessley Ave.***



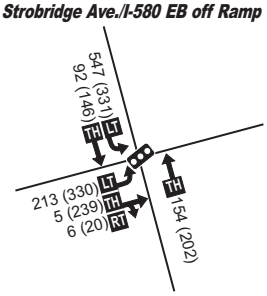
22. ***Redwood Rd./Grove Way***



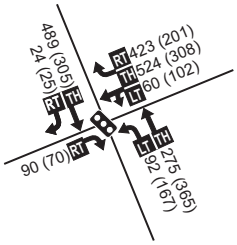
23. ***Strobridge Ave./Gary Dr.***



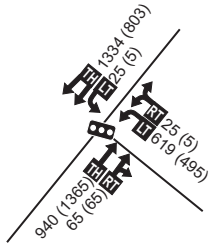
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 4

Existing Traffic Conditions Turning Movement Traffic Volumes - Scenario 4e

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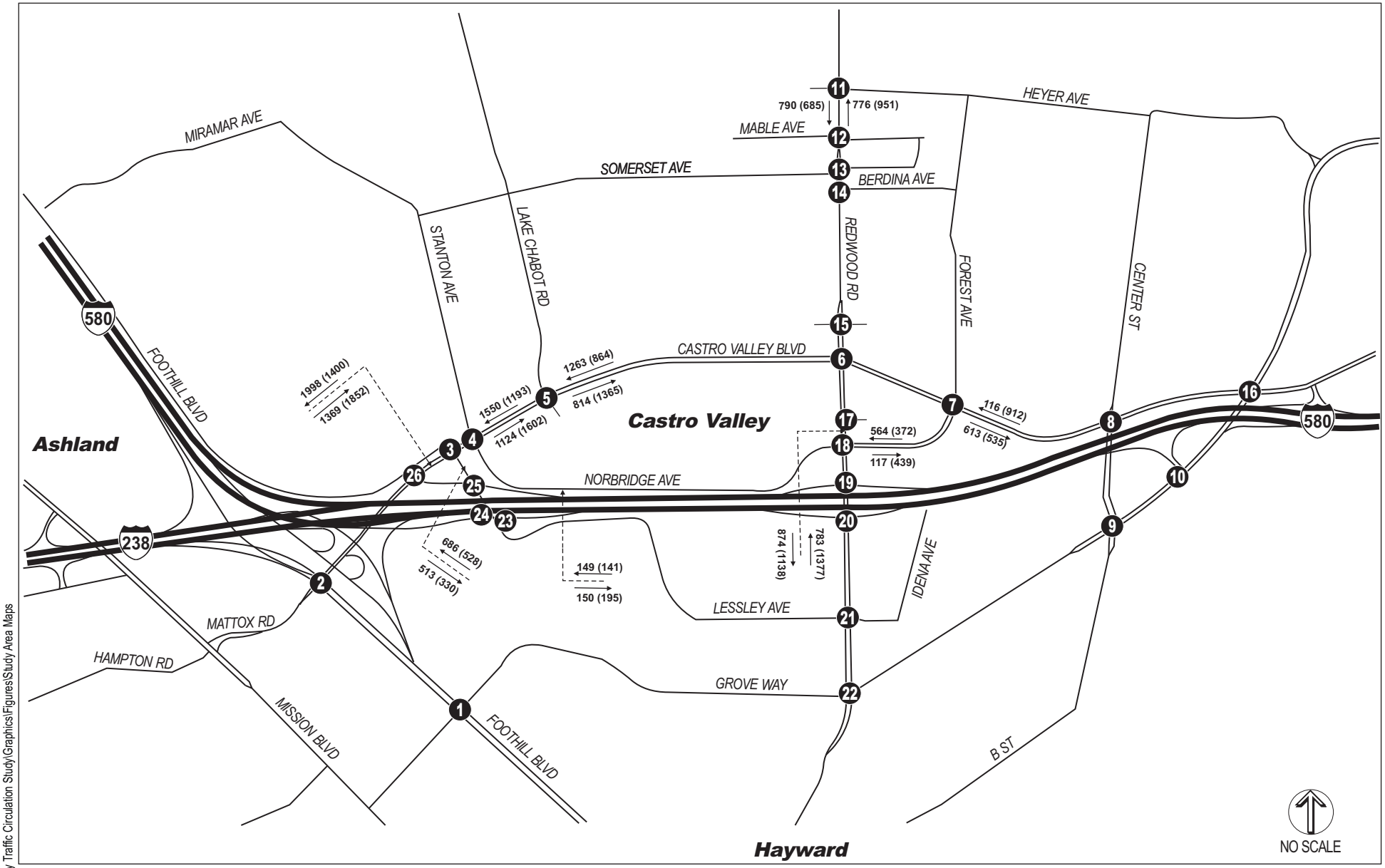


LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

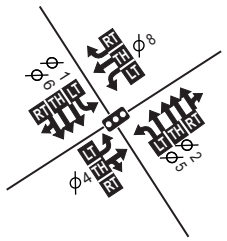
DKS

Figure 4A

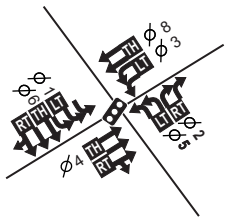
Existing Conditions Traffic Volumes - Scenario 4e

P:\P\13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures\Study Area Maps

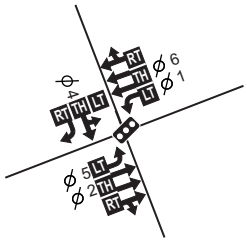
1. Foothill Blvd./Grove Way

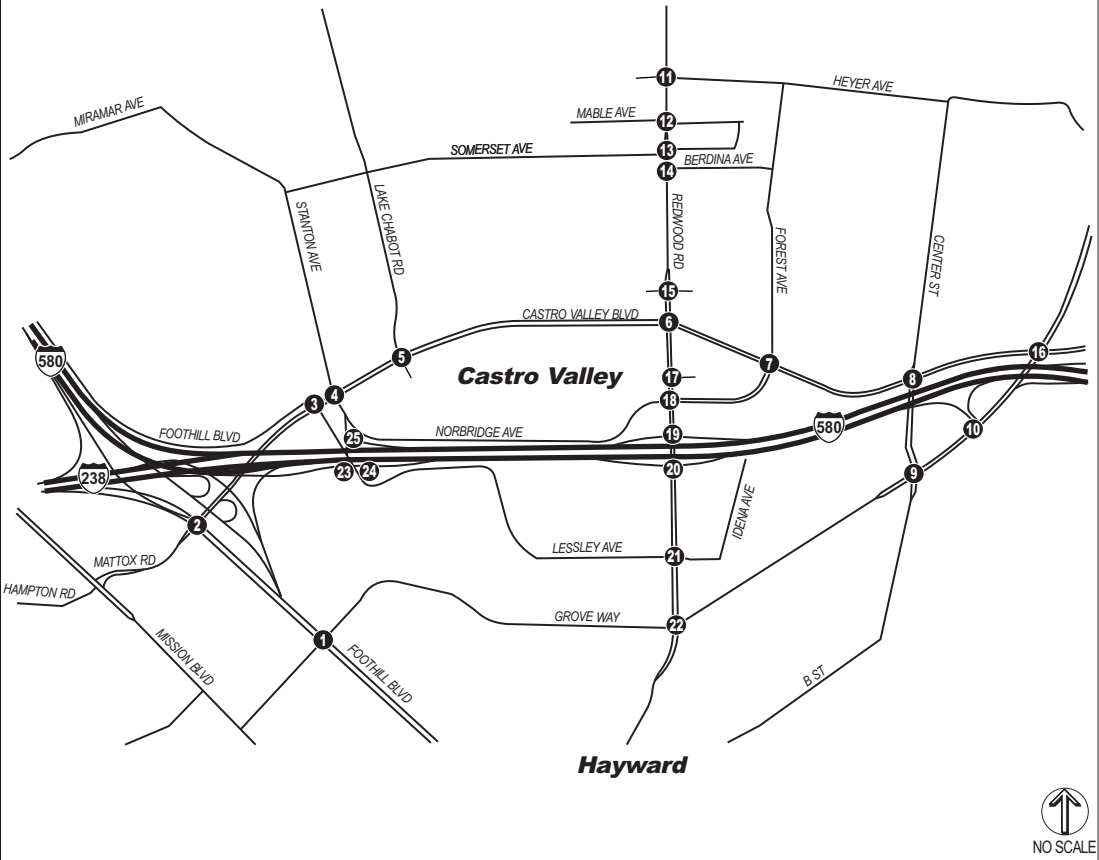


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

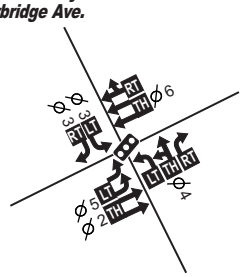


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

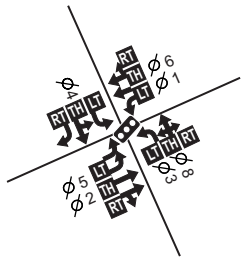




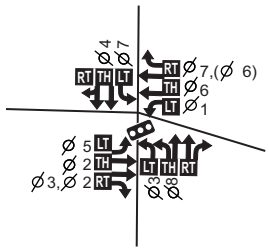
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



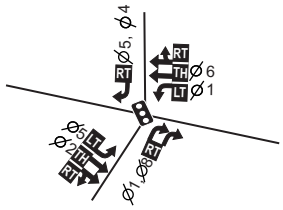
5. Castro Valley Blvd./Lake Chabot Rd.



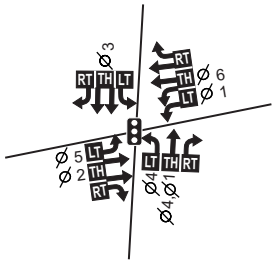
6. Castro Valley Blvd./Redwood Rd.



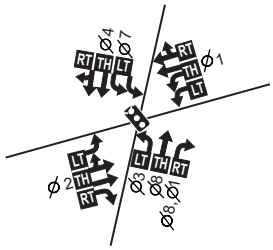
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



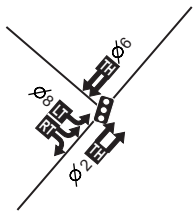
8. Castro Valley Blvd./Center St.



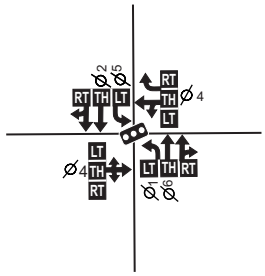
9. Grove Way/Center St.



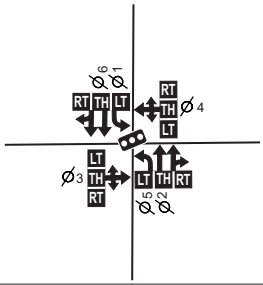
10. Grove Way/Interstate 580 EB Off-Ramp



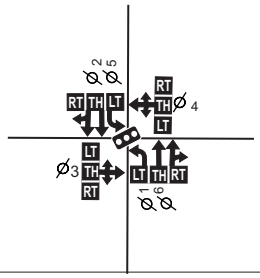
11. Redwood Rd./Heyer Ave.



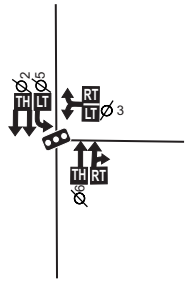
12. Redwood Rd./Mable Ave.



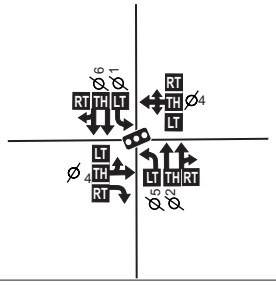
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

DKS

Figure 5

Existing Lane Configuration and Traffic Signal Phasing - Scenario 1e

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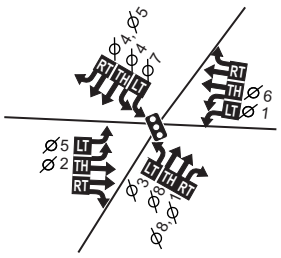
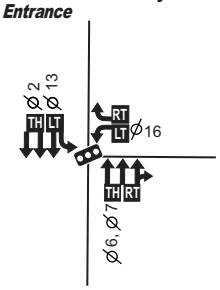
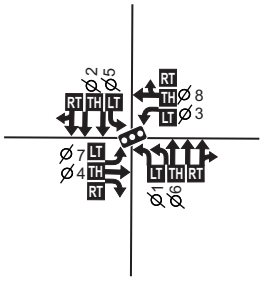
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



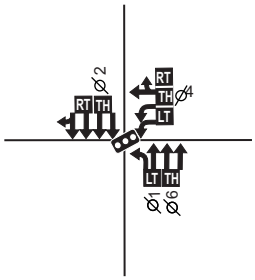
17. ***Redwood Rd./Castro Valley Plaza Entrance***



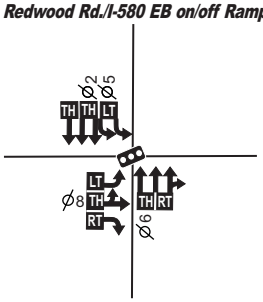
18. ***Redwood Rd./Norbridge Ave.***



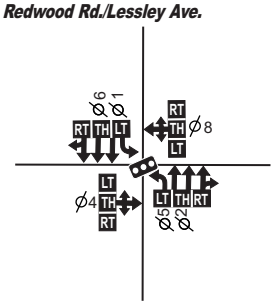
19. ***Redwood Rd./I-580 WB on/off Ramps***



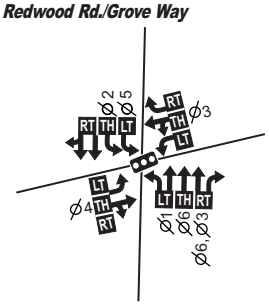
20. ***Redwood Rd./I-580 EB on/off Ramps***



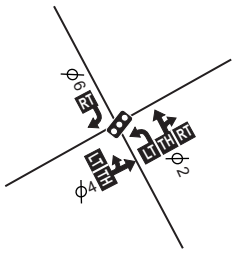
21. ***Redwood Rd./Lessley Ave.***



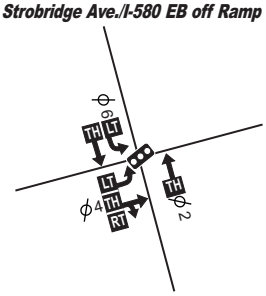
22. ***Redwood Rd./Grove Way***



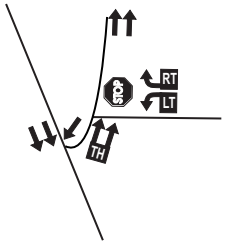
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 5

Existing Lane Configuration and Traffic Signal Phasing - Scenario 1e

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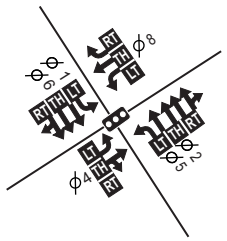
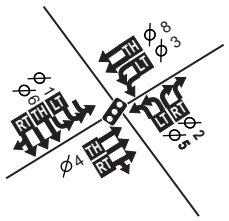
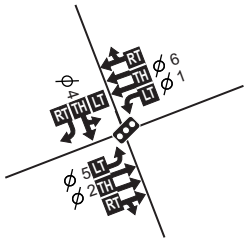
1. Foothill Blvd./Grove Way

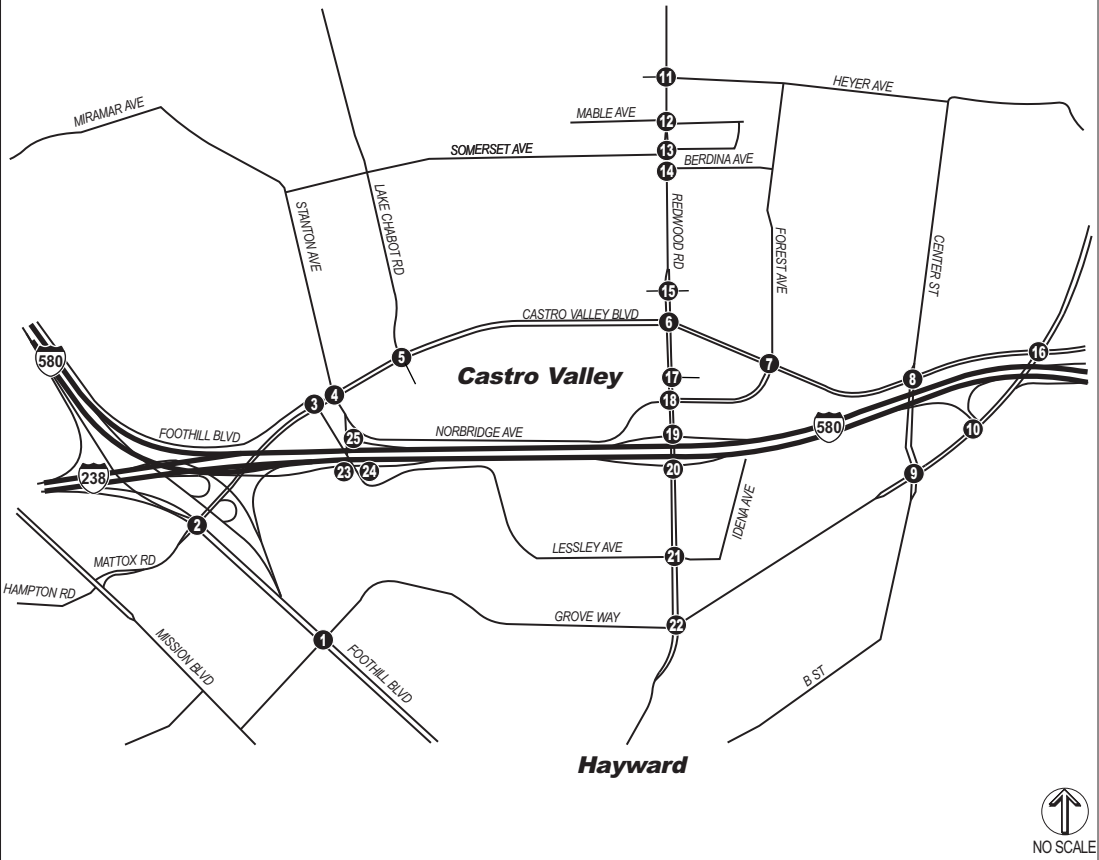


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

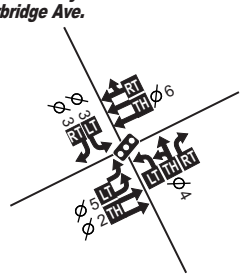


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

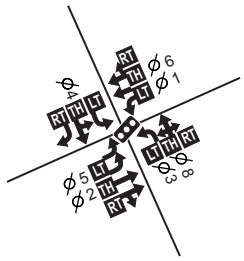




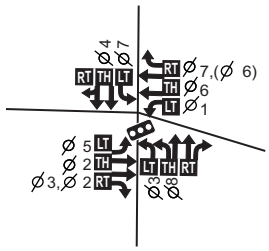
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



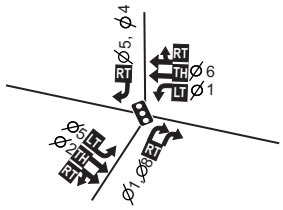
5. Castro Valley Blvd./Lake Chabot Rd.



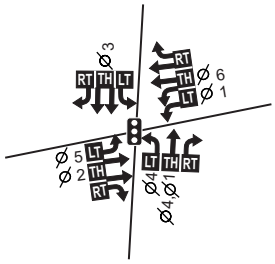
6. Castro Valley Blvd./Redwood Rd.



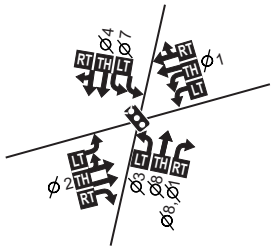
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



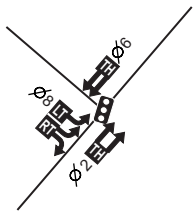
8. Castro Valley Blvd./Center St.



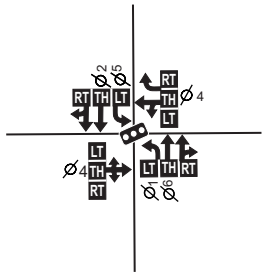
9. Grove Way/Center St.



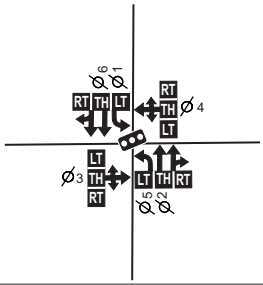
10. Grove Way/Interstate 580 EB Off-Ramp



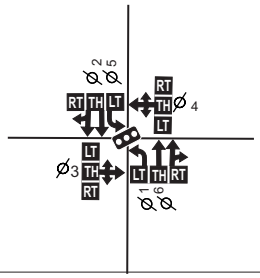
11. Redwood Rd./Heyer Ave.



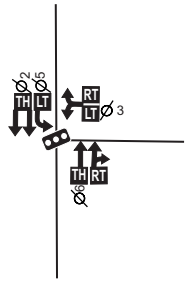
12. Redwood Rd./Mable Ave.



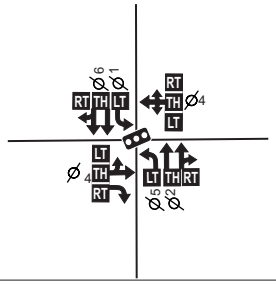
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
ø x - Phase Number
- Lane Geometry
- Traffic Signal

DKS

Figure 6

Existing Lane Configuration and Traffic Signal Phasing - Scenario 2e

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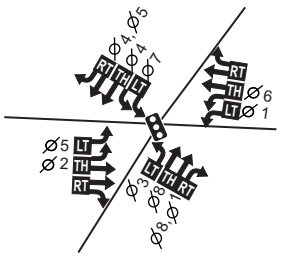
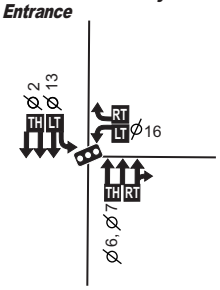
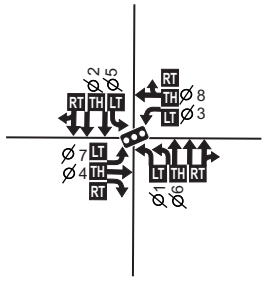
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



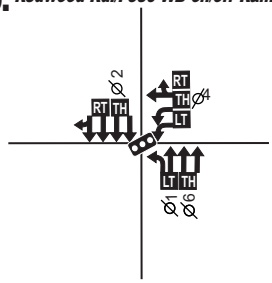
17. ***Redwood Rd./Castro Valley Plaza Entrance***



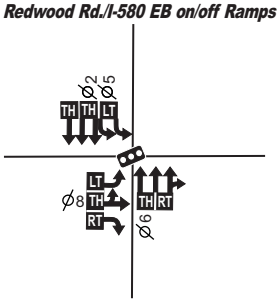
18. ***Redwood Rd./Norbridge Ave.***



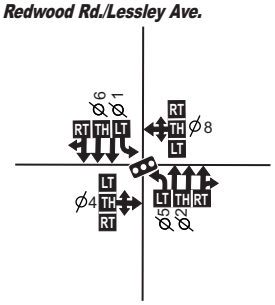
19. ***Redwood Rd./I-580 WB on/off Ramps***



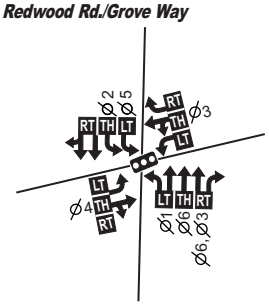
20. ***Redwood Rd./I-580 EB on/off Ramps***



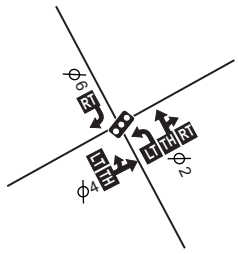
21. ***Redwood Rd./Lessley Ave.***



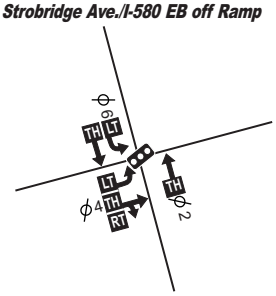
22. ***Redwood Rd./Grove Way***



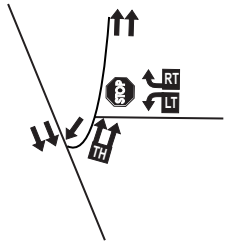
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 6

Existing Lane Configuration and Traffic Signal Phasing - Scenario 2e

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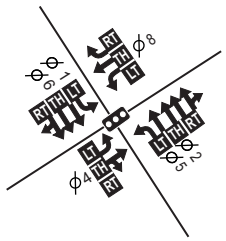
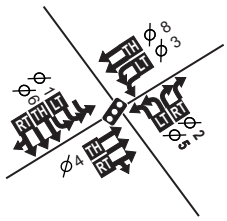
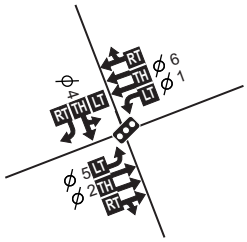
1. Foothill Blvd./Grove Way

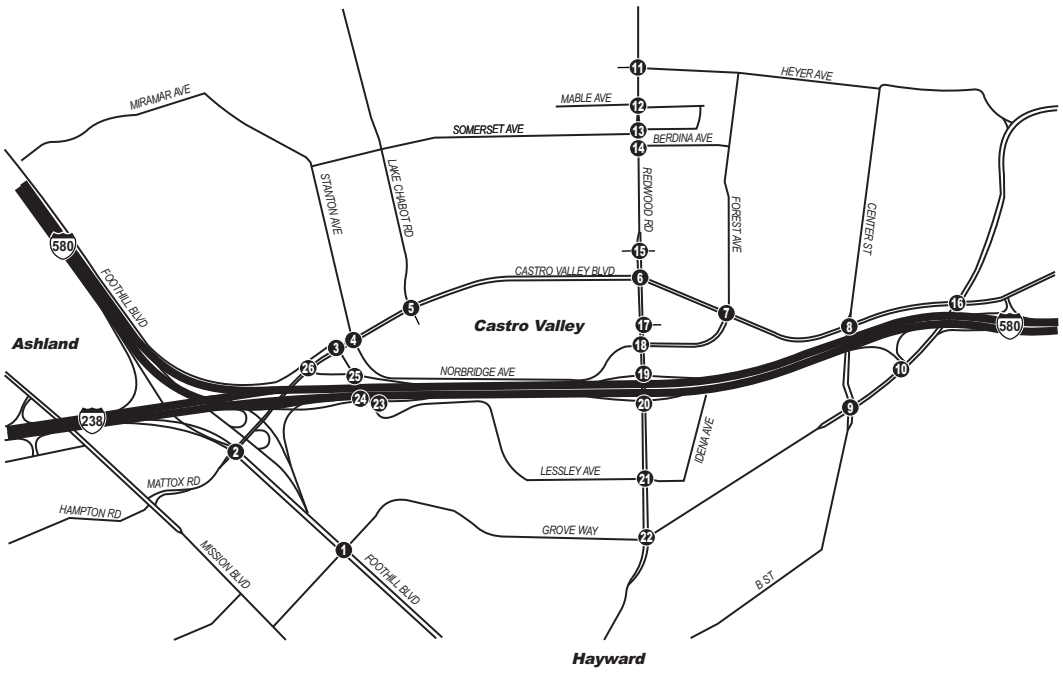


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

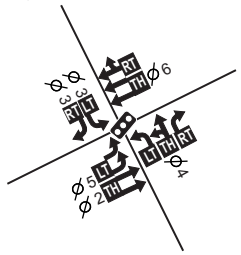


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

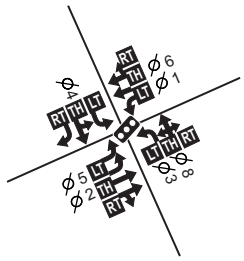




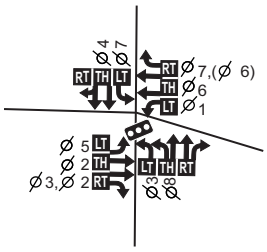
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



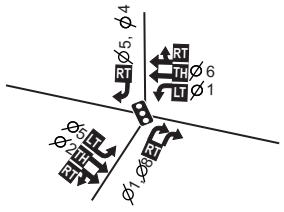
5. Castro Valley Blvd./Lake Chabot Rd.



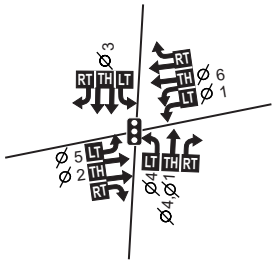
6. Castro Valley Blvd./Redwood Rd.



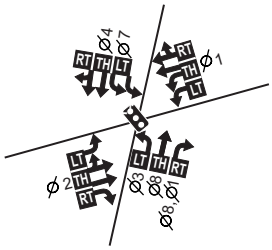
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



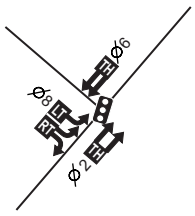
8. Castro Valley Blvd./Center St.



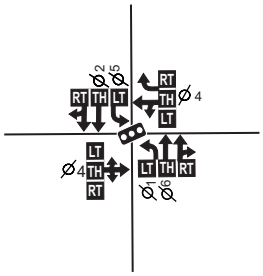
9. Grove Way/Center St.



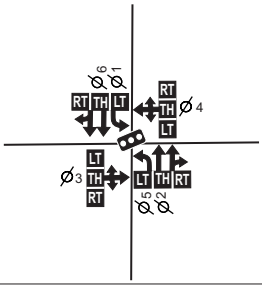
10. Grove Way/Interstate 580 EB Off-Ramp



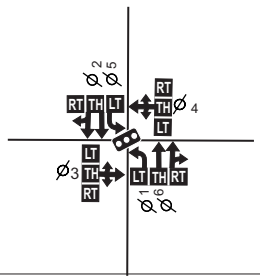
11. Redwood Rd./Heyer Ave.



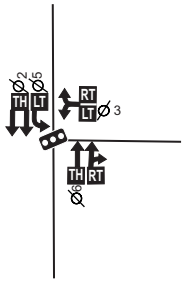
12. Redwood Rd./Mable Ave.



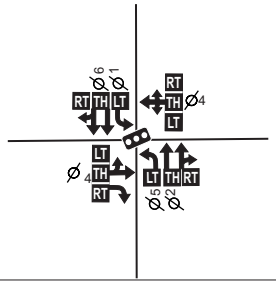
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

DKS

Figure 7

Existing Lane Configuration and Traffic Signal Phasing - Scenario 3e

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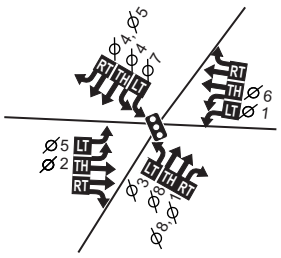
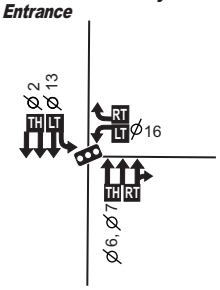
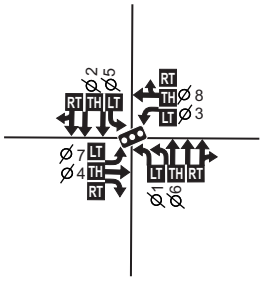
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



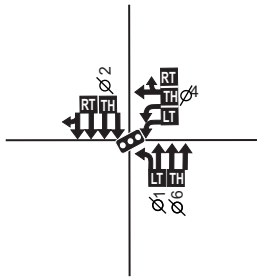
17. ***Redwood Rd./Castro Valley Plaza Entrance***



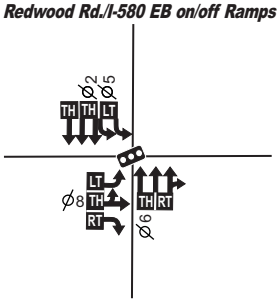
18. ***Redwood Rd./Norbridge Ave.***



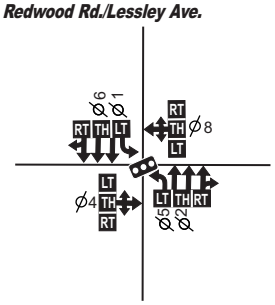
19. ***Redwood Rd./I-580 WB on/off Ramps***



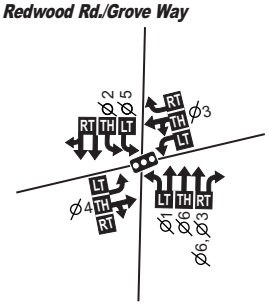
20. ***Redwood Rd./I-580 EB on/off Ramps***



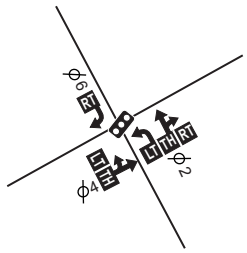
21. ***Redwood Rd./Lessley Ave.***



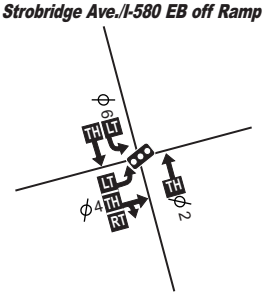
22. ***Redwood Rd./Grove Way***



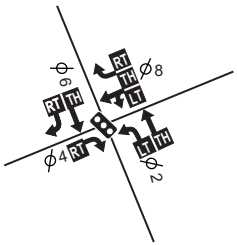
23. ***Strobridge Ave./Gary Dr.***



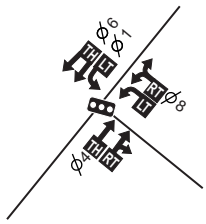
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 7

Existing Lane Configuration and Traffic Signal Phasing - Scenario 3e

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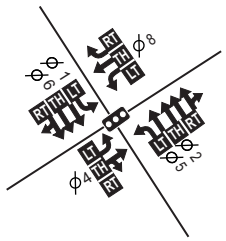
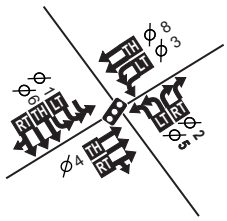
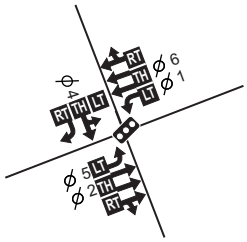
1. Foothill Blvd./Grove Way

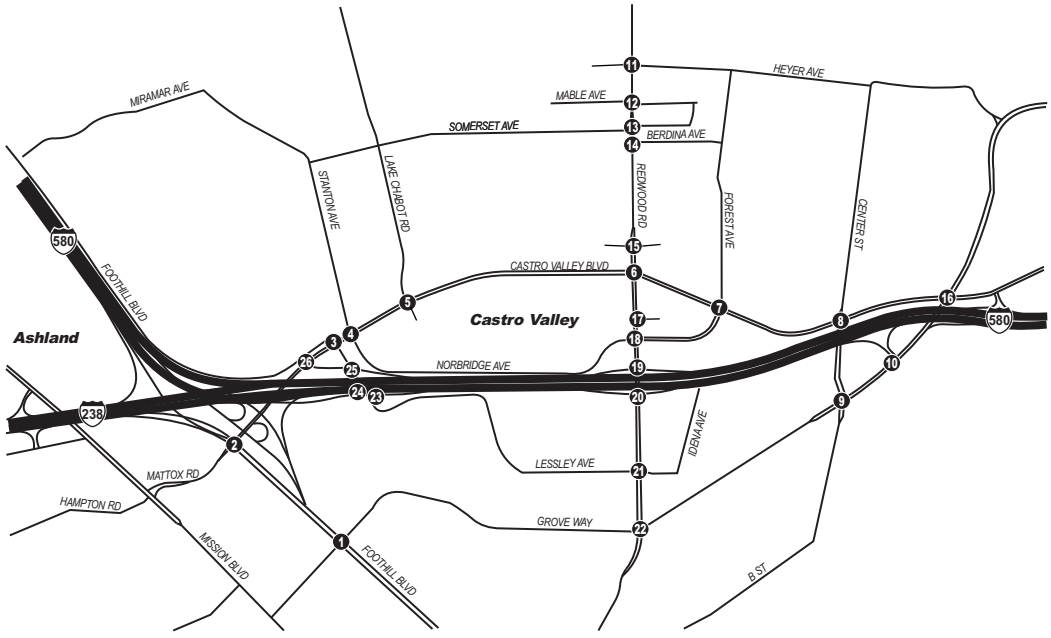


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp



3. Castro Valley Blvd./John Dr./ Strobridge Ave.





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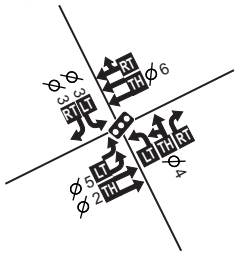
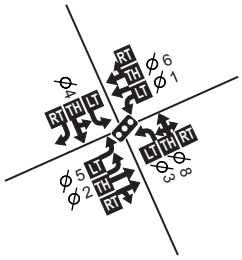
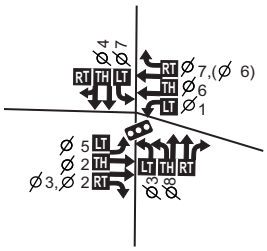
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



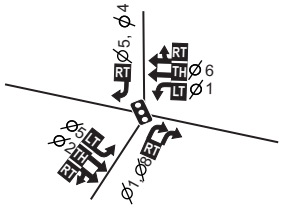
5. Castro Valley Blvd./Lake Chabot Rd.



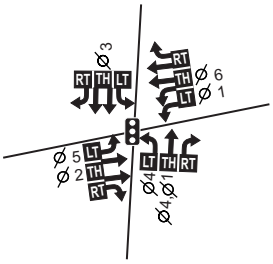
6. Castro Valley Blvd./Redwood Rd.



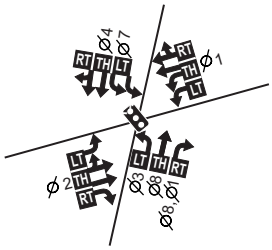
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



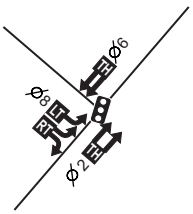
8. Castro Valley Blvd./Center St.



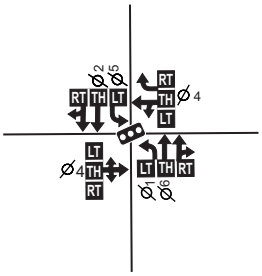
9. Grove Way/Center St.



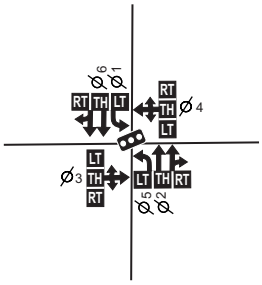
10. Grove Way/Interstate 580 EB Off-Ramp



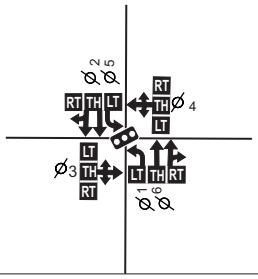
11. Redwood Rd./Heyer Ave.



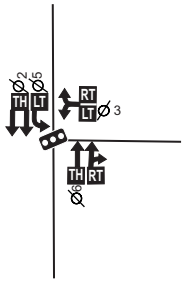
12. Redwood Rd./Mable Ave.



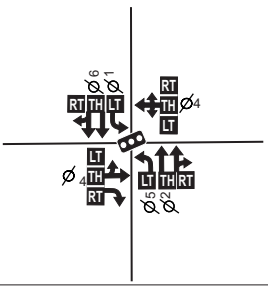
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

DKS

Figure 8

Existing Lane Configuration and Traffic Signal Phasing - Scenario 4e

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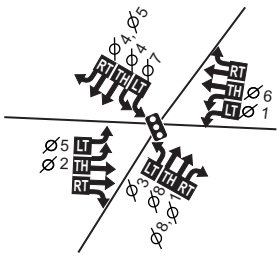
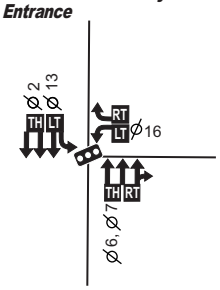
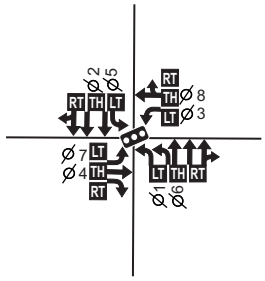
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



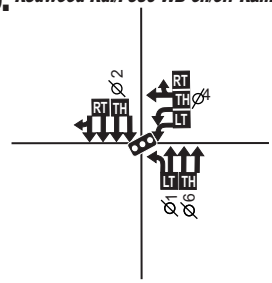
17. ***Redwood Rd./Castro Valley Plaza Entrance***



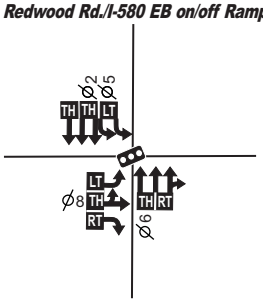
18. ***Redwood Rd./Norbridge Ave.***



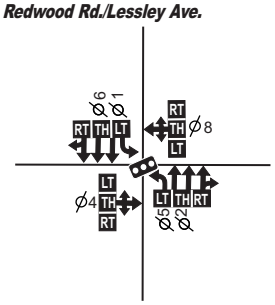
19. ***Redwood Rd./I-580 WB on/off Ramps***



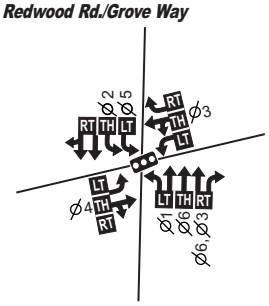
20. ***Redwood Rd./I-580 EB on/off Ramps***



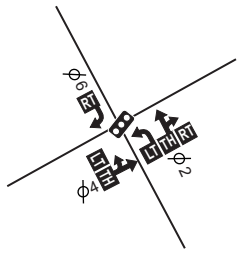
21. ***Redwood Rd./Lessley Ave.***



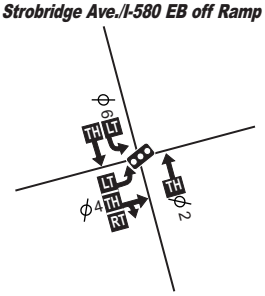
22. ***Redwood Rd./Grove Way***



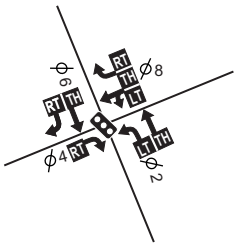
23. ***Strobridge Ave./Gary Dr.***



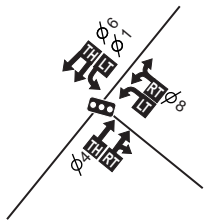
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 8

Existing Lane Configuration and Traffic Signal Phasing - Scenario 4e

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INTERSECTION LEVEL OF SERVICE ANALYSIS – EXISTING TRAFFIC CONDITIONS

Table 3 summarizes peak hour level of service (LOS) at all study intersections under Existing Traffic Conditions. The existing lane configurations, signal timing, and phasing operations were assumed for the base analysis. Improvements are recommended where feasible to mitigate expected unacceptable intersection level of service expected with the changes in traffic circulation pattern resulting from the roadway reconfiguration scenarios defined in this technical memorandum.

LOS worksheets are provided in **Appendix C**. Under Existing Traffic Conditions, all study intersections are expected to operate at acceptable levels of service except for the various intersections listed under specific traffic scenarios below.

As shown in Table 3, the LOS for intersections operating at unacceptable conditions can be improved with traffic signal optimization, which is a low cost improvement option. The intersections are expected to operate at LOS D or better with traffic signal optimization.

Other than traffic signal optimization at each of the study intersections, no physical roadway improvements are necessary at the study intersections under existing traffic conditions.

Scenario 1e (AM) - Existing roadway network configuration.

- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 2e (AM) - Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

- Redwood Road/Mabel Avenue (Int. #12)

Scenario 2e (PM) - Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

- Castro Valley Boulevard/Redwood Road (Int. #6)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 3e (AM)- New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)
- Redwood Road/Mabel Avenue (Int. #12)

Scenario 3e (PM)- New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.

- Castro Valley Boulevard/Redwood Road (Int. #6)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 4e (AM) - New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)
- Castro Valley Boulevard/John Drive/Strobridge Avenue (Int. #3)
- Redwood Road/Mabel Avenue (Int. #12)

Scenario 4e (PM)- New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

- Castro Valley Boulevard/Redwood Road (Int. #6)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

DISCUSSION OF THE EXISTING TRAFFIC CONDITIONS RESULTS

Removal of southbound Strobridge Avenue access restriction at Gary Drive

A comparison of the results of the level of service (LOS) analysis indicate that there are no significant differences in the level of service and delay for the study intersections (particularly for intersections #3, #4, #24 and #25) under Scenarios 1e and 2e traffic conditions.

County staff provided previous 24-hour traffic counts collected for Strobridge Avenue, south of Gary Drive in 2004 and 2006. The counts were collected before and after the Gary Drive closure in 2005. The traffic counts were reviewed to assess the impact of removing the Gary Drive restriction. The 2004 counts indicate that prior to the Gary Drive restriction traffic on Strobridge Avenue south of Gary Drive was as high as 320 vehicles per hour (vph) in the eastbound direction and 132 vph in the westbound during the a.m. peak hour. Also, the 2004 counts indicate as high as 286 vph in the eastbound direction and 103 vph in the westbound direction during the p.m. peak hour. This is primarily Strobridge Elementary School traffic that conveniently uses Hobert Street, Tyee Street and Riverbank Avenue to access the school.

After the Gary Drive closure in 2005, the 2006 traffic counts indicate that while the road closure eliminated eastbound traffic on Strobridge Avenue, a few motorists violate the southbound access restriction at Gary Drive by making an illegal southbound movement at the Strobridge Avenue/Gary Drive intersection. With the Gary Drive closure, school traffic currently uses circuitous routes via Grove Way, Bedford Drive and Riverbank Avenue to access the school. Comparing the 2004 and 2006 traffic counts indicate no significant change in westbound to northbound Strobridge Avenue traffic flow during peak hours. Removing the southbound Strobridge Avenue restriction at Gary Drive is expected to provide convenient traffic circulation for residents of the Baywood area to access their neighborhoods from the I-580 Westbound off ramp. It will also eliminate the need to make illegal southbound through movements at the intersection, which will enhance traffic safety. However, there is uncertainty about the potential for cut through traffic.

According to the October 10, 2005 memo presented to the Alameda County Board of Supervisors, the purpose of the temporary Strobridge Avenue southbound restriction at Gary Drive was to prevent motorists from using Baywood Area streets as a bypass to avoid anticipated congestions on the freeways resulting from the construction of the I-238 and I-580/Redwood Road interchange improvements. The interim measure was expected to be in place until 2010 when the construction of the improvements is expected to be completed.

The recent traffic counts indicate that the new I-580 Westbound off ramp at Redwood Road has provided an alternate access to the Castro Valley/Hayward border areas via Redwood Road for motorists who in the past had to use the I-580 Westbound/Strobridge Avenue off ramp to go through circuitous Baywood Area streets to access their destinations.

The results of travel time analysis indicate that constructing the new road that links the I-580 WB off ramp/Strobridge Avenue intersection to Castro Valley Boulevard is expected to provide a faster and convenient bypass of the traffic congestion at the Castro Valley Boulevard/Norbridge Avenue and Castro Valley Boulevard/Strobridge Avenue intersections and the Baywood Area to access Foothill Boulevard. Based on the results of the study, it has been concluded that to further relieve the potential for cut through traffic in Baywood Area, the proposed new roadway that links Strobridge Avenue and Castro Valley Boulevard should be pursued prior to removing the access restriction at Gary Drive. Alameda County will continue to work with Caltrans to acquire right-of-way for the new roadway.

Reconfiguration of Norbridge Avenue and Strobridge Avenue

A comparison of the results for Scenarios 3e and 4e indicate that the reconfiguration of Norbridge Avenue and Strobridge Avenue is expected to circulate traffic acceptably under near term traffic conditions.

With the reconfiguration, the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections will need to have the following traffic signal operational features to operate acceptably:

- Implement split phasing operation for the northbound and southbound movements at the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections.
- Relocate the existing east leg crosswalk to the west leg crosswalk at the Castro Valley Boulevard/John Drive/Strobridge Avenue intersection.
- Coordinate the traffic signals located at the Castro Valley Boulevard/John Drive/Strobridge Avenue and Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue intersections with those located at the Castro Valley Boulevard/Lake Chabot Road, Castro Valley Boulevard/New Road, Strobridge Avenue/Interstate I-580 WB off ramp/New Road, and Strobridge Avenue/I-580 EB on and off ramps intersections as one traffic signal system to circulate traffic acceptably in the area.

With the reconfiguration of Strobridge Avenue and Norbridge Avenue, the Wendy's driveway on Strobridge Avenue will need to be restricted to inbound only. The McDonald's driveway access will remain unchanged.

The New Road is expected to primarily provide alternative access to motorists that currently make left-turn at the Castro Valley Boulevard/Norbridge Avenue intersection to go westbound on Castro Valley Boulevard.

Additionally, because the traffic signals along Castro Valley Boulevard operate acceptably with the recent roadway improvements, motorists are likely to continue to use it rather than Norbridge Avenue as a reliever route as indicated by the results of the traffic forecast. The reconfigured Norbridge Avenue is expected to provide convenient access to Castro Valley Boulevard residents who live off Norbridge Avenue.

Table 3: Peak Hour Intersection Level of Service – Existing Traffic Conditions

ID	Study Intersection	Control Type	Scenario 1e				Scenario 2e				Scenario 3e				Scenario 4e			
			A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Foothill Boulevard/Grove Way	Signal	22.2	C	29.5	C	23.2	C	30.2	C	20.7	C	29.2	C	21.4	C	30.0	C
2	Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp	Signal	34.2	C	44.2	D	33.9	C	42.8	D	**73.0**	**E**	46.9	D	**59.2**	**E**	52.8	D
	Recommended Improvement: Optimize traffic signal	"									*37.8*	*D*			*37.6*	*D*		
3	Castro Valley Boulevard/John Drive/Strobridge Avenue	Signal	22.3	C	23.6	C	22.6	C	24.0	C	53.2	D	40.2	D	**87.7**	**F**	41.6	D
	Recommended Improvement: Optimize traffic signal	"													*51.9*	*D*		
4	Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue	Signal	39.7	D	33.3	C	39.7	D	33.7	C	24.3	C	23.4	C	25.1	C	29.2	C
5	Castro Valley Boulevard/Lake Chabot Road	Signal	35.9	D	32.1	C	35.8	D	31.2	C	53.7	D	29.3	C	52.9	D	29.3	C
6	Castro Valley Boulevard/Redwood Road	Signal	42.2	D	43.3	D	41.2	D	**59.1**	**E**	39.0	D	**59.4**	**E**	38.3	D	**58.8**	**E**
	Recommended Improvement: Optimize traffic signal	"							*48.1*	*D*			*48.5*	*D*			*48.4*	*D*
7	Castro Valley Boulevard/Norbridge Avenue/Forest Avenue	Signal	27.5	C	30.0	C	30.1	C	27.0	C	34.9	C	26.8	C	35.5	D	26.9	C
8	Castro Valley Boulevard/Center Street	Signal	36.5	D	36.3	D	35.3	D	34.5	C	36.5	D	36.6	D	36.3	D	35.6	D
9	Grove Way/Center Street	Signal	39.3	D	42.7	D	38.4	D	42.3	D	39.0	D	42.6	D	37.5	D	42.0	D
10	Grove Way/Interstate 580 EB off-ramp	Signal	13.6	B	27.8	C	13.4	B	27.3	C	13.7	B	27.2	C	13.5	B	24.4	C
11	Redwood Road/Heyer Avenue	Signal	22.2	C	23.4	C	22.2	C	23.5	C	22.2	C	23.1	C	22.1	C	22.9	C
12	Redwood Road/Mabel Avenue	Signal	27.0	C	9.9	A	**55.1**	**E**	10.1	B	**55.1**	**E**	10.1	B	**55.1**	**E**	10.1	B
	Recommended Improvement: Optimize traffic signal	"					*27.1*	*C*			*27.1*	*C*			*27.1*	*C*		
13	Redwood Road/Somerset Avenue	Signal	17.0	B	19.2	B	17.9	B	19.2	B	16.4	B	19.2	B	16.4	B	19.1	B
14	Redwood Road/Berdina Road	Signal	15.3	B	21.7	C	16.3	B	21.6	C	15.2	B	21.6	C	15.2	B	21.4	C
15	Redwood Road/Safeway Driveway	Signal	9.2	A	11.5	B	9.2	A	11.5	B	9.2	A	11.5	B	9.2	A	11.5	B
16	East Castro Valley Boulevard/Grove Way/Crow Canyon Road	Signal	53.0	D	**57.7**	**E**	54.4	D	**58.3**	**E**	54.2	D	**57.7**	**E**	54.5	D	**57.2**	**E**
	Recommended Improvement: Optimize traffic signal	"			*51.2*	*D*			*51.0*	*D*			*51.0*	*D*			*50.8*	*D*
17	Redwood Road/Castro Valley Plaza Entrance	Signal	9.1	A	9.9	A	9.6	A	14.0	B	8.6	A	14.4	B	8.3	A	14.9	B
18	Redwood Road/Norbridge Avenue	Signal	23.9	C	34.4	C	22.7	C	30.6	C	23.7	C	30.1	C	24.2	C	30.0	C
19	Redwood Road/I-580 WB on/off ramps	Signal	14.6	B	14.5	B	14.2	B	17.9	B	12.9	B	17.6	B	12.1	B	18.1	B
20	Redwood Road/I-580 EB on/off ramps	Signal	13.3	B	18.2	B	13.9	B	20.4	C	14.0	B	20.9	C	14.2	B	19.7	B
21	Redwood Road/Lessley Avenue	Signal	6.6	A	6.1	A	6.0	A	5.5	A	4.7	A	6.3	A	4.0	A	6.2	A
22	Redwood Road/Grove Way	Signal	33.9	C	30.4	C	34.4	C	31.4	C	32.6	C	30.7	C	33.0	C	30.3	C
23	Strobridge Avenue/Interstate 580 EB on ramp	Signal	6.2	A	4.9	A	5.3	A	4.0	A	6.1	A	4.3	A	5.3	A	3.9	A
24	Strobridge Avenue/Interstate 580 EB off ramp	Signal	10.2	B	9.5	A	10.0	A	9.4	A	10.2	B	10.8	B	15.0	B	10.6	B
25	Strobridge Avenue/Interstate 580 WB off ramp	Stop	(19.6)	(C)	(15.5)	(C)	(19.2)	(C)	(15.3)	(C)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		Signal	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	17.2	B	12.9	B	15.1	B	12.8	B
26	New Roadway/Castro Valley Boulevard	Signal	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	15.2	B	9.9	A	26.7	C	10.2	B

Notes: LOS = Level of Service, X= Intersection level of service, X.X = Average intersection delay in seconds per vehicle, (Y.Y) = Delay to minor street, (Y) = Minor street LOS, **Bold** values indicate unacceptable LOS conditions

FUTURE TRAFFIC CONDITIONS

This section shows the traffic volume forecast for 2035 Conditions. The future conditions was analyzed with the existing roadway network, the reconfiguration of the Norbridge Avenue-Strobridge Avenue couplet, and the addition of a New Road that connects the I-580 Westbound off ramp/Strobridge Avenue intersection with Castro Valley Boulevard. The future conditions traffic volumes are primarily used to assess the effectiveness of traffic control measures and intersection and roadway improvements.

FUTURE TRAFFIC VOLUMES AND LANE CONFIGURATIONS

Figures 9 through 12 show the a.m. and p.m. peak hour vehicle turning movement traffic volumes for the study intersections under four traffic analysis scenarios (i.e. scenarios 1f, 2f, 3f, and 4f, which correspond to figures 9, 10, 11 and 12 respectively). No figure is provided for scenario 5f because it has similar volumes as scenario 3f. The scenarios will be assessed with future traffic volume forecast. For easy reading, the scenarios restated as follows:

Future without Project Conditions

Scenario 1f - Existing roadway network configuration.

Scenario 2f- Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

Future plus Project Conditions (the project is defined as all roadway improvements)

Scenario 3f - New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.

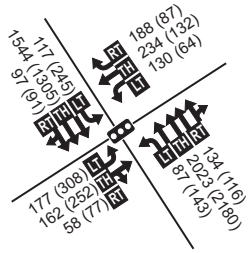
Scenario 4f - New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

Scenario 5f - Scenario 3 improvements with the possibility of installing a new marked crosswalk at the Redwood Road/I-580 interchange.

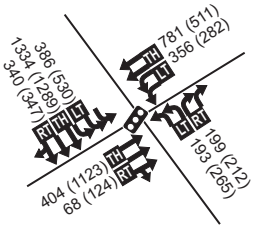
Figure 9 shows the expected future forecast traffic volumes with the existing roadway network. Figures 10, 11, and 12 show the recirculated traffic volumes under future traffic conditions and the proposed reconfiguration of Norbridge Avenue and Strobridge Avenue, and the removal of southbound access restriction on Strobridge Avenue at Gary Drive.

Figures 13 through 16 show the lane configurations and traffic controls corresponding to scenarios 1f through 4f respectively. As stated above, scenario 5f has similar lane configurations as scenario 3f.

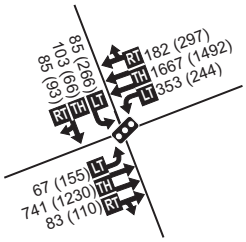
1. Foothill Blvd./Grove Way

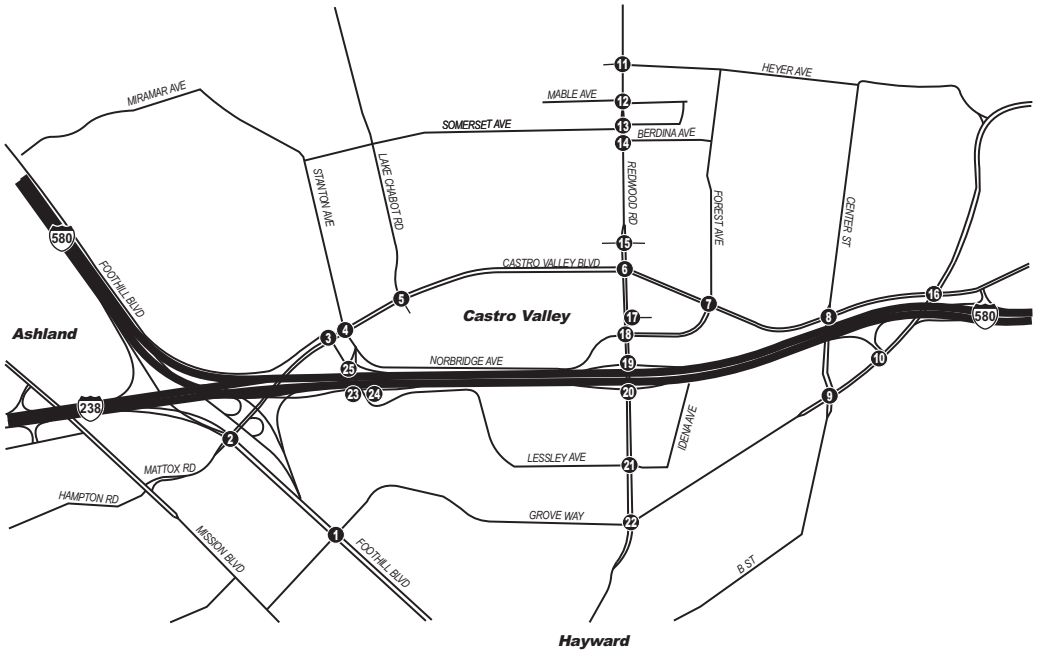


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp



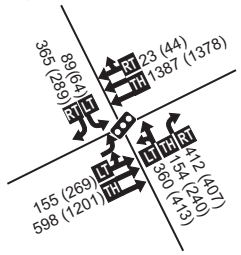
3. Castro Valley Blvd./John Dr./ Strobridge Ave.



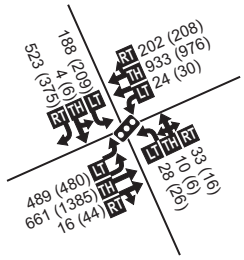


NO SCALE

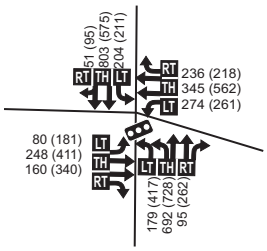
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



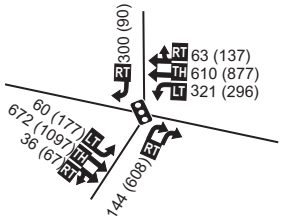
5. Castro Valley Blvd./Lake Chabot Rd.



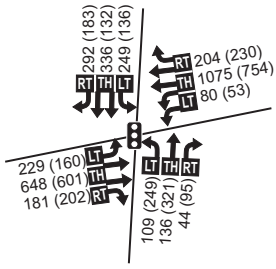
6. Castro Valley Blvd./Redwood Rd.



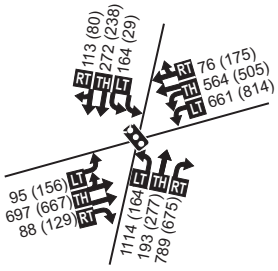
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



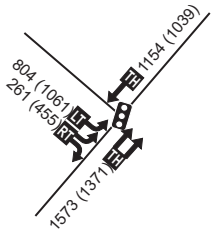
8. Castro Valley Blvd./Center St.



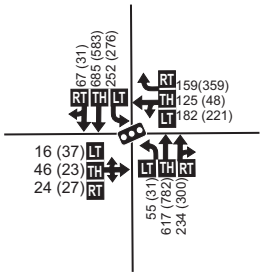
9. Grove Way/Center St.



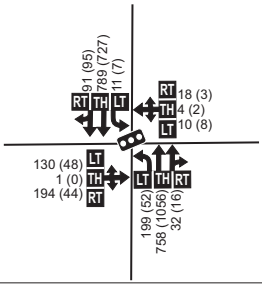
10. Grove Way/Interstate 580 EB Off-Ramp



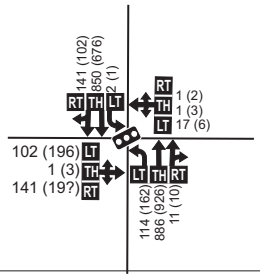
11. Redwood Rd./Heyer Ave.



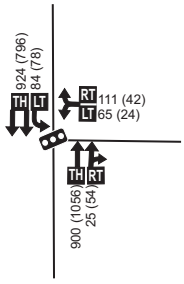
12. Redwood Rd./Mable Ave.



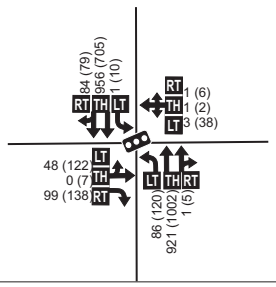
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)
- STOP - Stop Sign

DKS

Figure 9

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 1f

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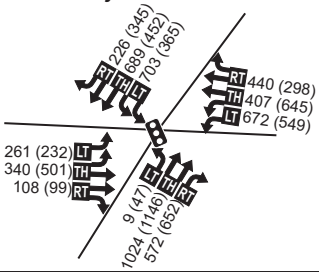
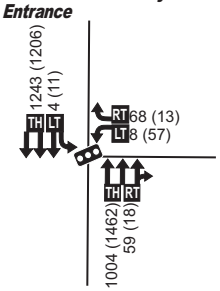
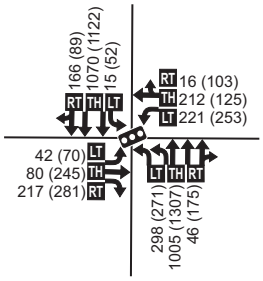
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



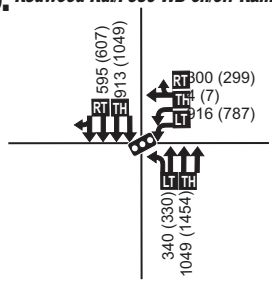
17. ***Redwood Rd./Castro Valley Plaza Entrance***



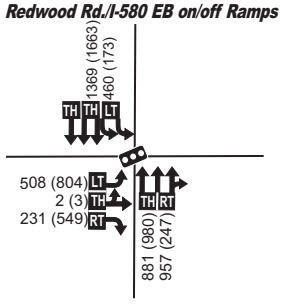
18. ***Redwood Rd./Norbridge Ave.***



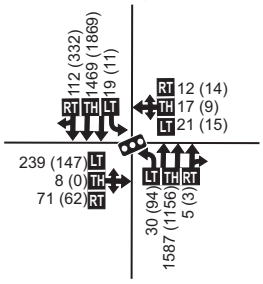
19. ***Redwood Rd./I-580 WB on/off Ramps***



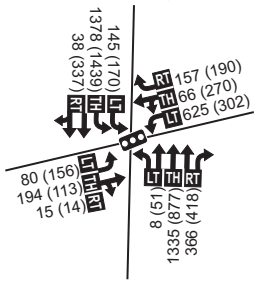
20. ***Redwood Rd./I-580 EB on/off Ramps***



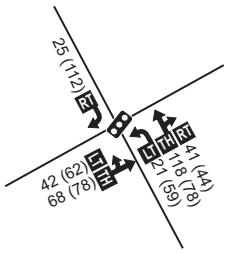
21. ***Redwood Rd./Lessley Ave.***



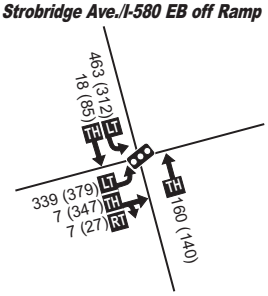
22. ***Redwood Rd./Grove Way***



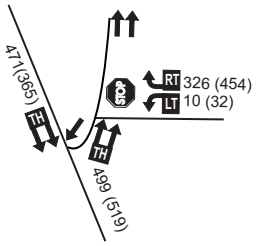
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

- 00 - Study Intersection
- Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)
- STOP - Stop Sign

DKS

Figure 9

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 1f

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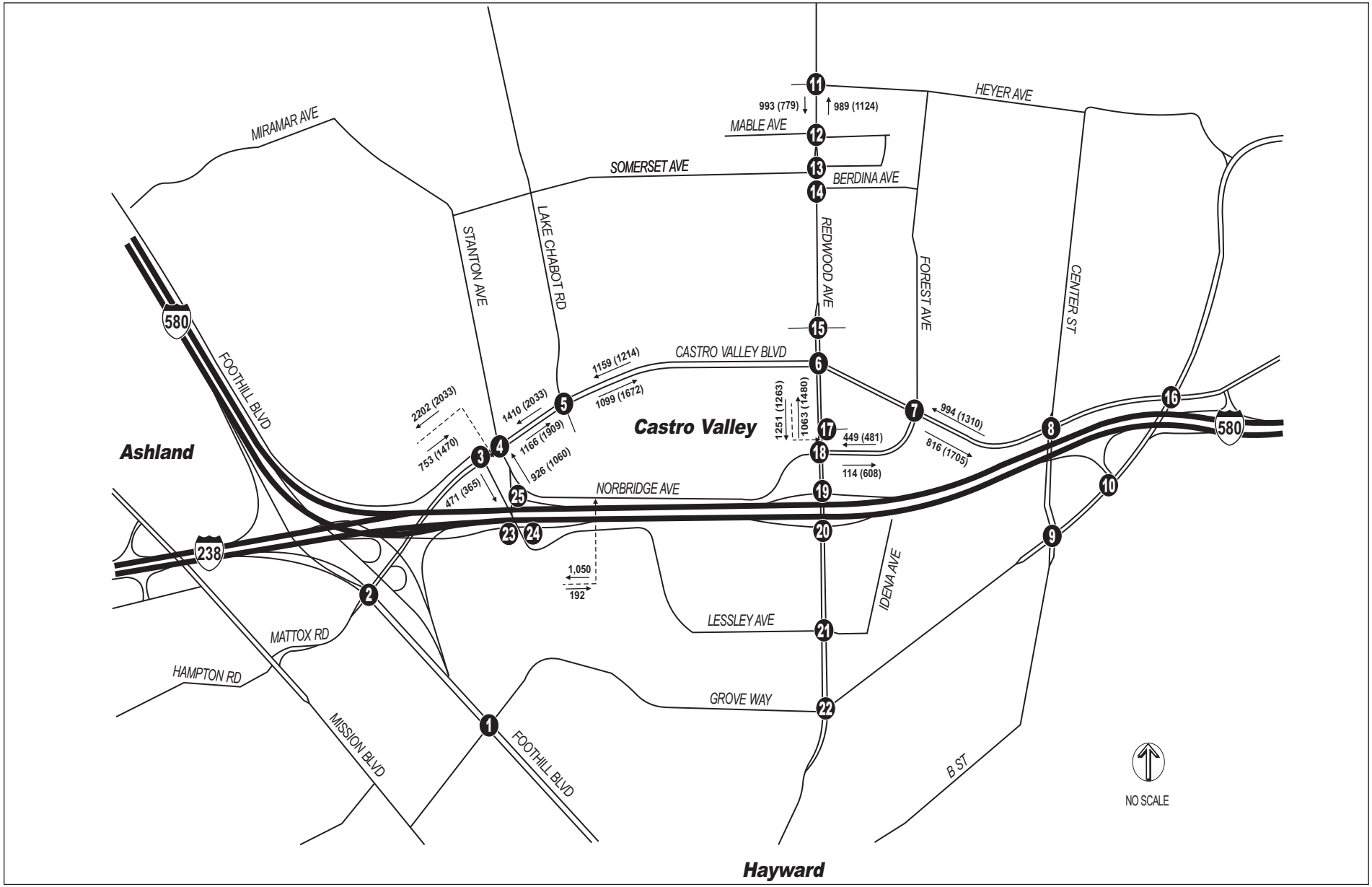

LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

DKS

Figure 9A

Future Conditions Traffic Volumes - Scenario 1f

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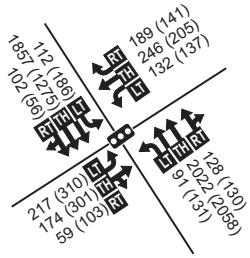
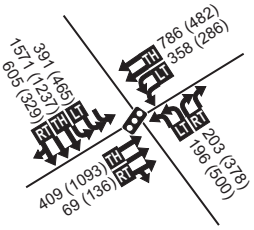
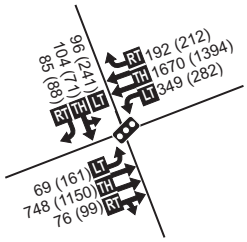
1. Foothill Blvd./Grove Way

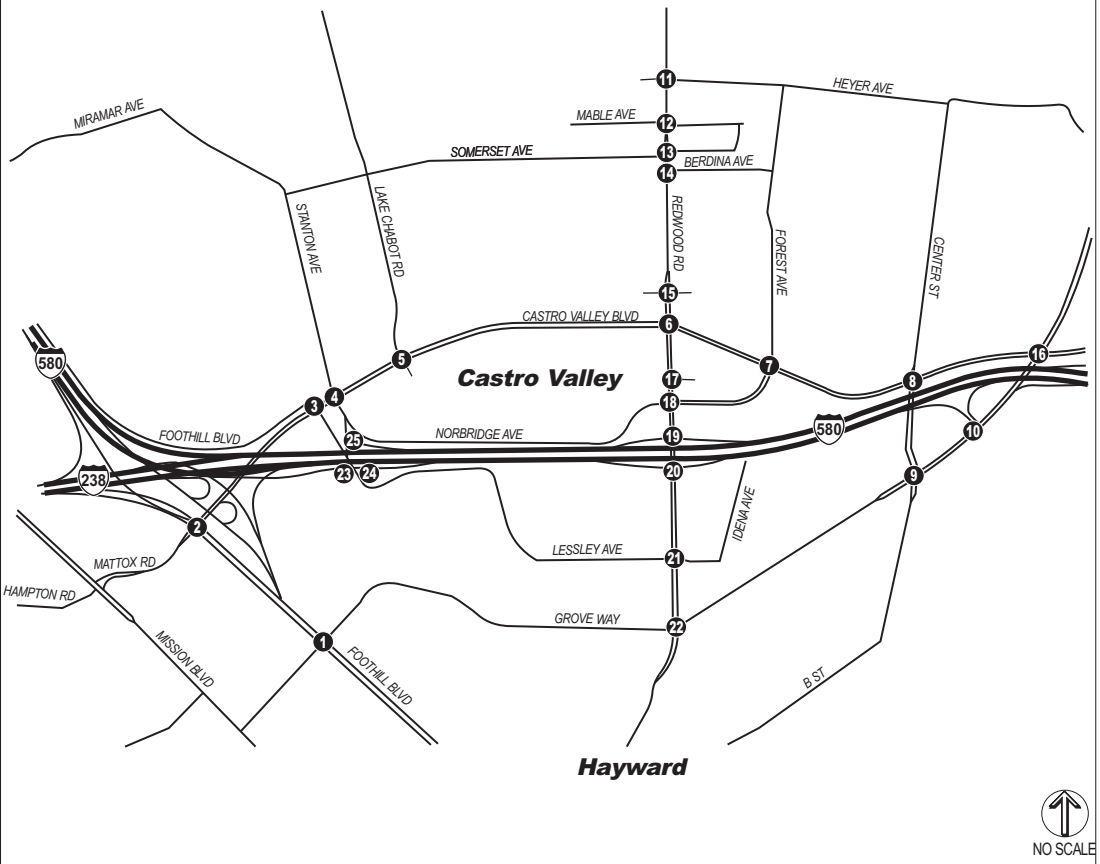


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

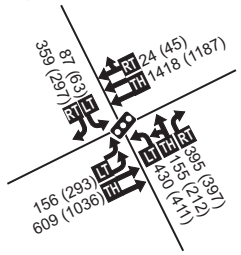


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

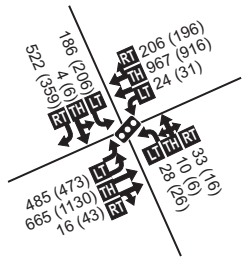




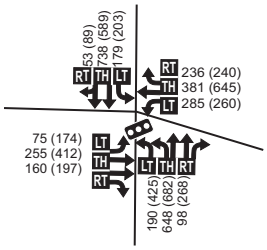
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



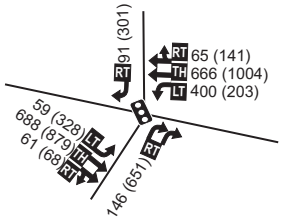
5. Castro Valley Blvd./Lake Chabot Rd.



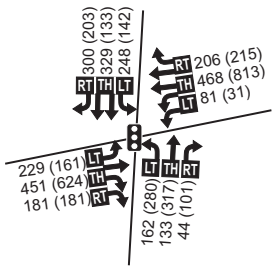
6. Castro Valley Blvd./Redwood Rd.



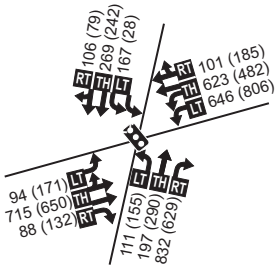
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



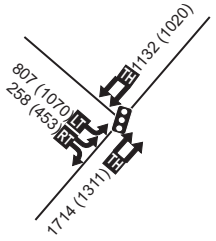
8. Castro Valley Blvd./Center St.



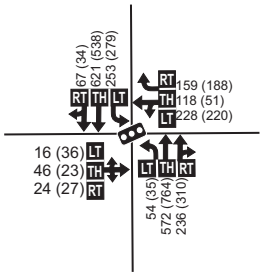
9. Grove Way/Center St.



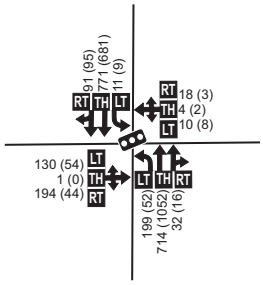
10. Grove Way/Interstate 580 EB Off-Ramp



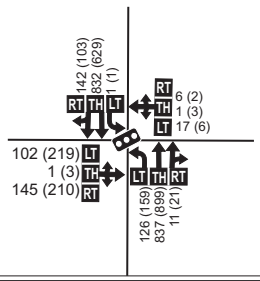
11. Redwood Rd./Heyer Ave.



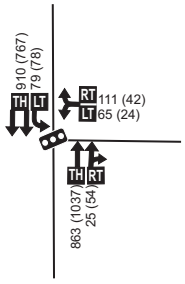
12. Redwood Rd./Mable Ave.



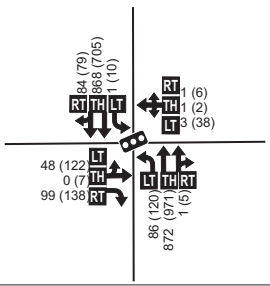
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 10

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 2f

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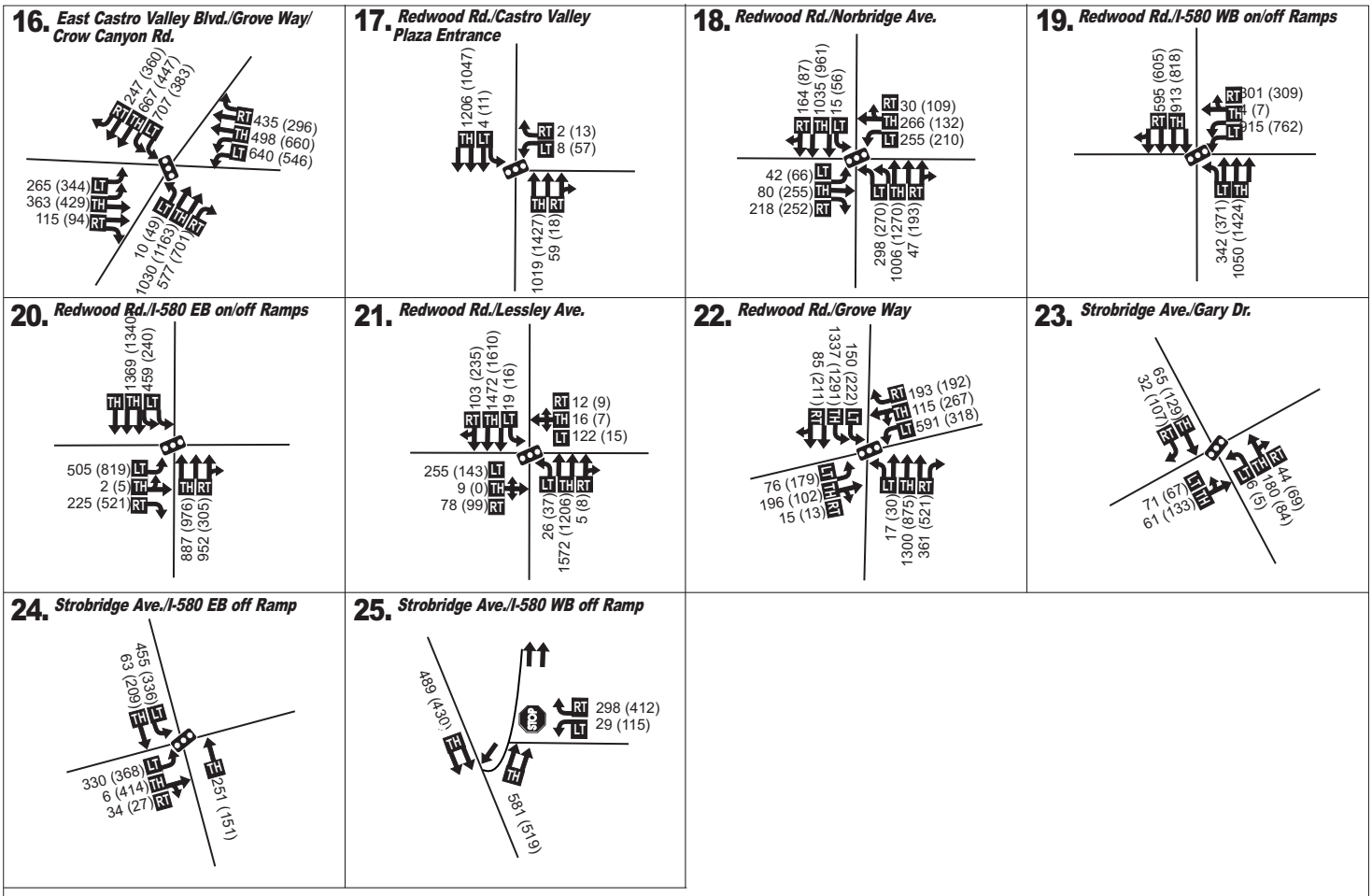

LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
AM (PM) - Peak Hour Traffic Volume
LT TH RT - Volume Turn Movement
Left•Thru•Right
STOP - Stop Sign

DKS

Figure 10

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 2f

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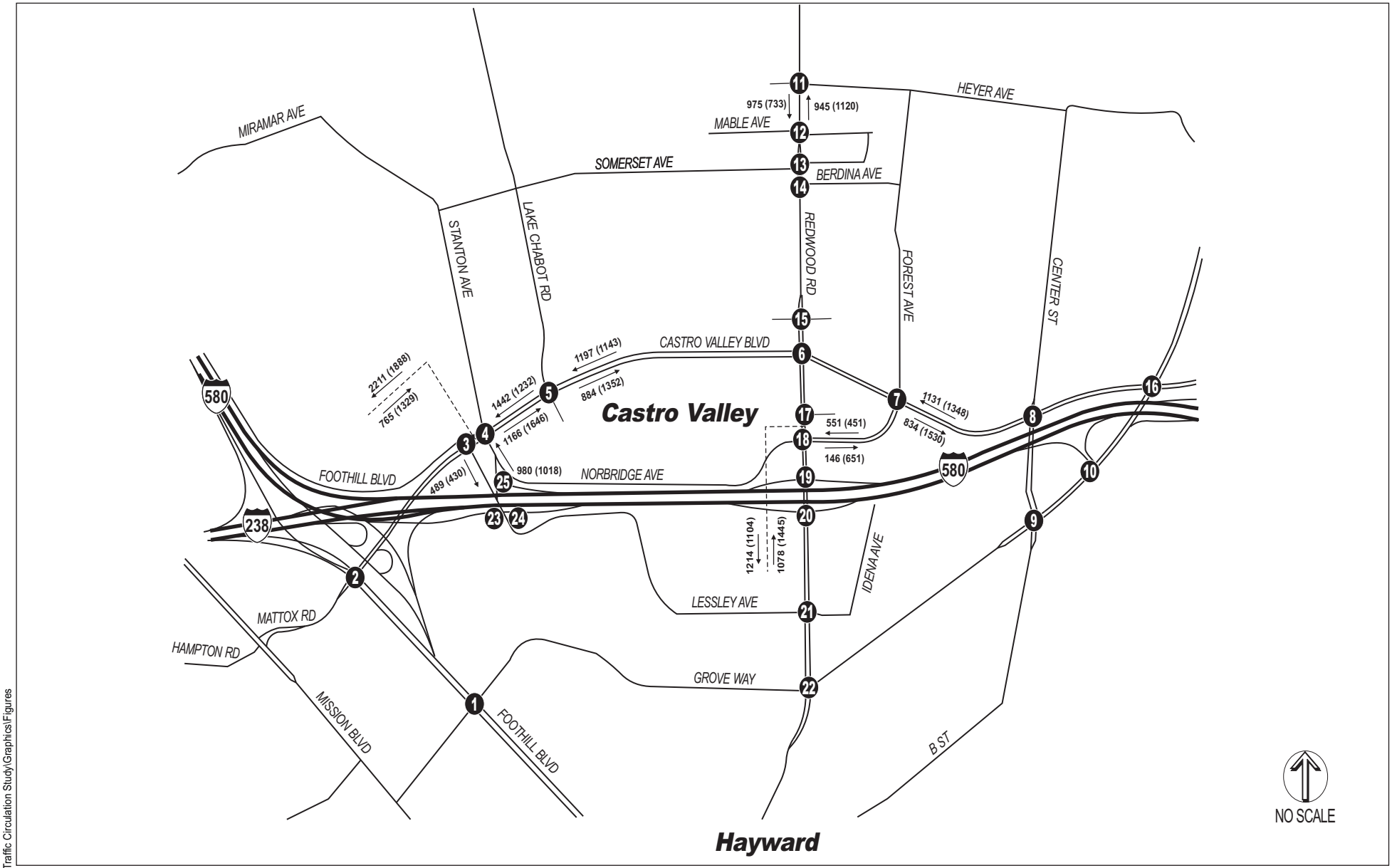

LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

DKS

Figure 10A

Future Conditions Traffic Volumes - Scenario 2f

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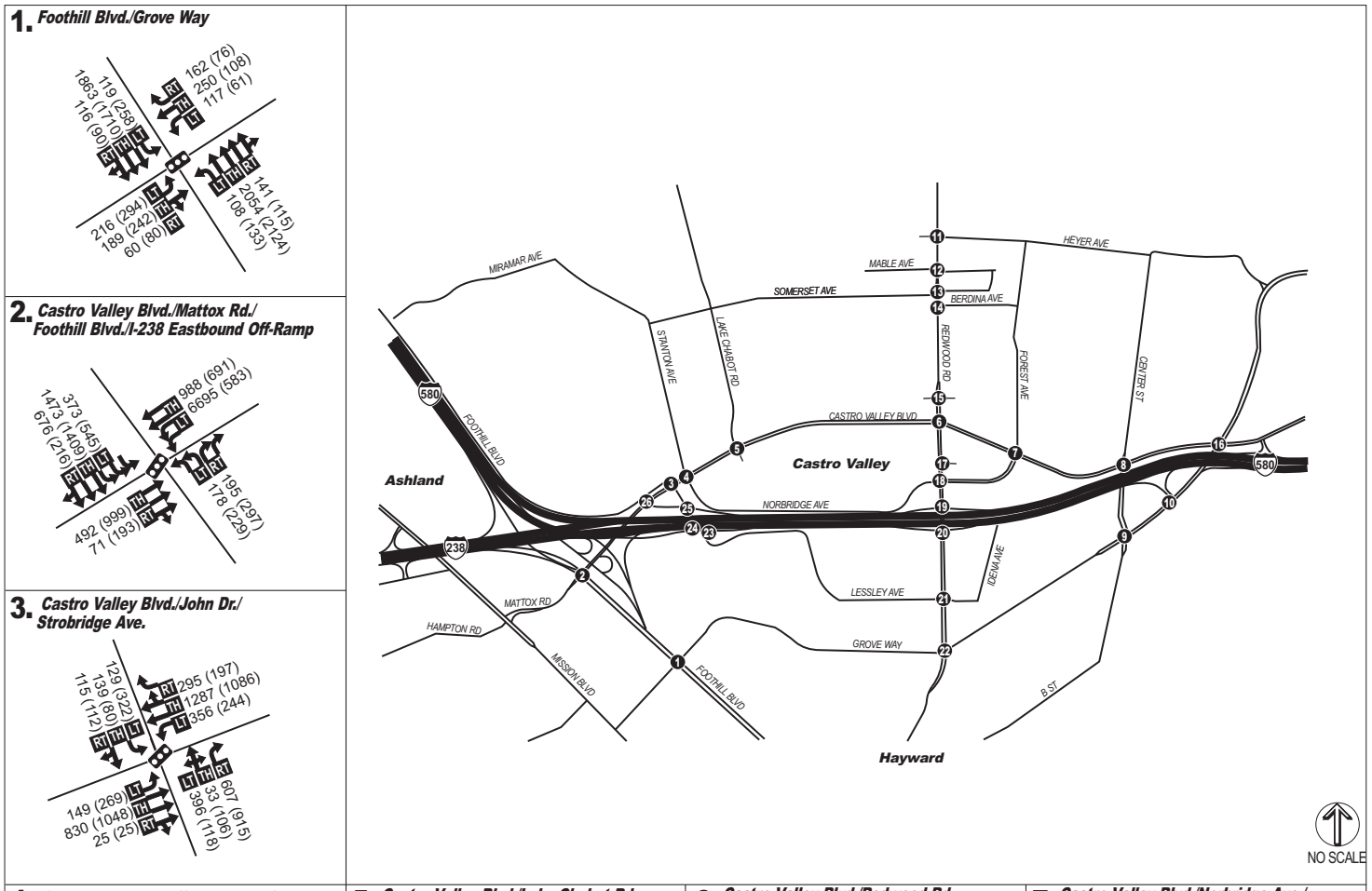

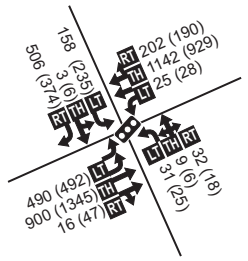

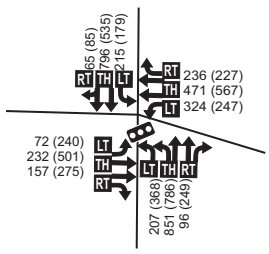

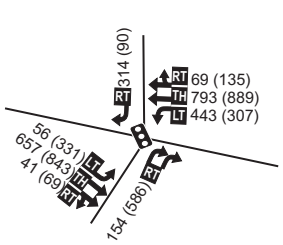

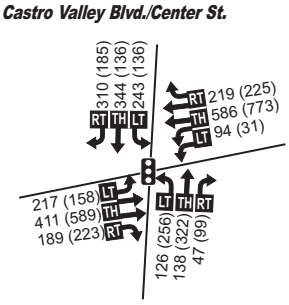

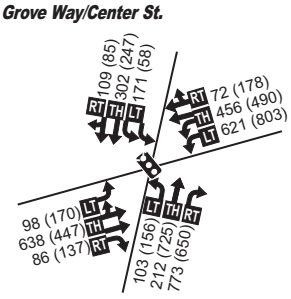

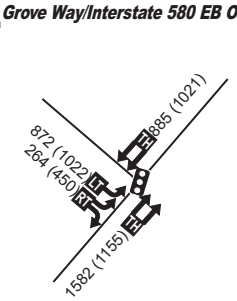

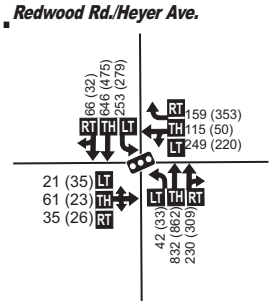

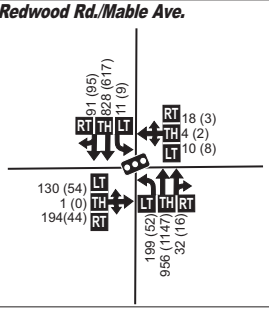

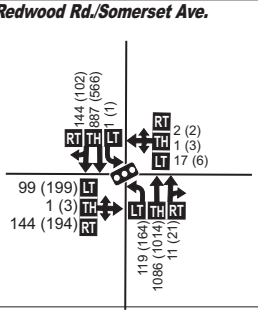

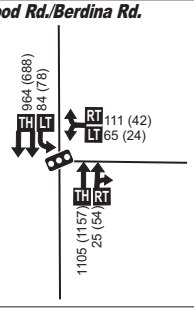

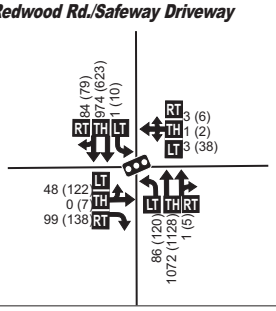

LEGEND

00 - Study Intersection
← - Lane Geometry
- Traffic Signal

AM (PM) - Peak Hour Traffic Volume
LT TH RT - Volume Turn Movement
Left•Thru•Right

DKS

Figure 11

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 3f

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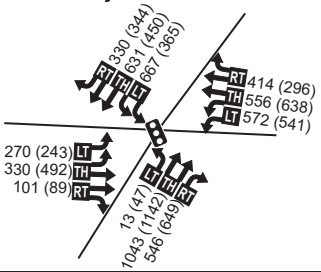
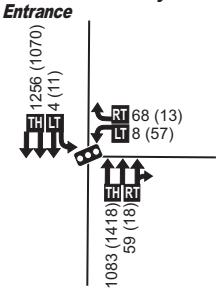
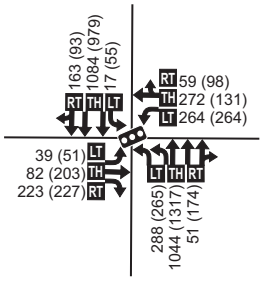
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



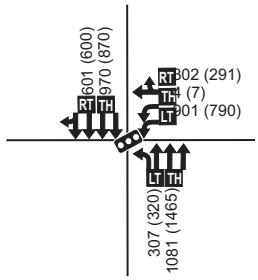
17. ***Redwood Rd./Castro Valley Plaza Entrance***



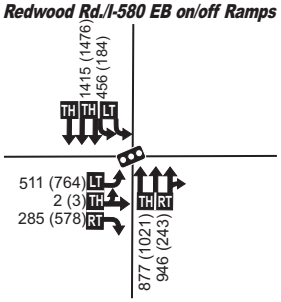
18. ***Redwood Rd./Norbridge Ave.***



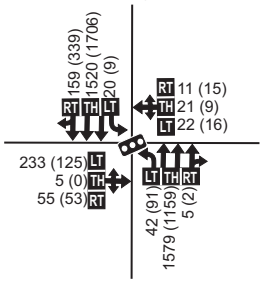
19. ***Redwood Rd./I-580 WB on/off Ramps***



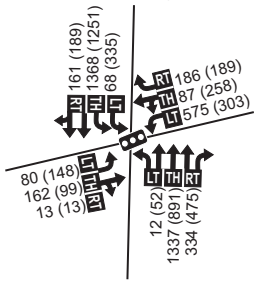
20. ***Redwood Rd./I-580 EB on/off Ramps***



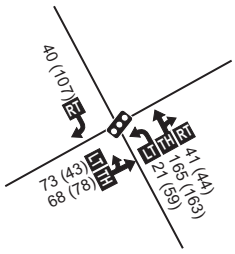
21. ***Redwood Rd./Lessley Ave.***



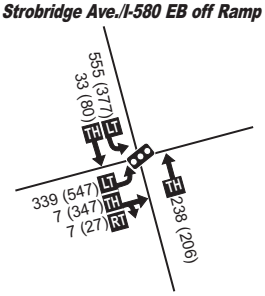
22. ***Redwood Rd./Grove Way***



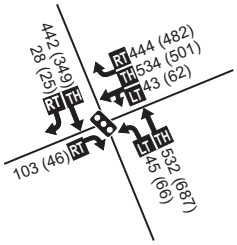
23. ***Strobridge Ave./Gary Dr.***



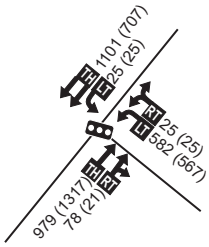
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 11

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 3f

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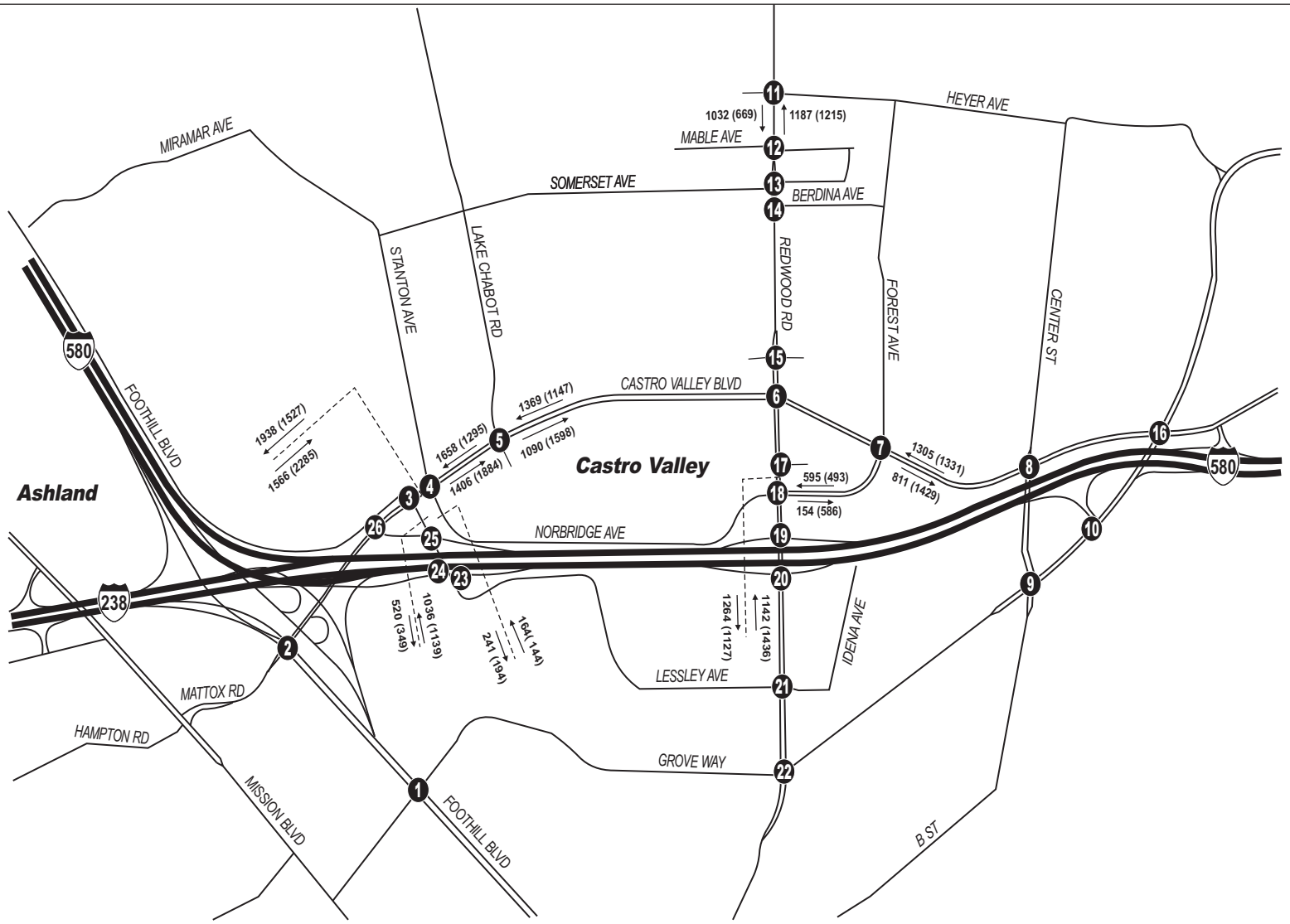

LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

DKS

Figure 11A

Future Conditions Traffic Volumes - Scenario 3f

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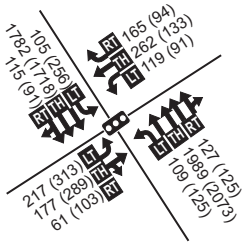
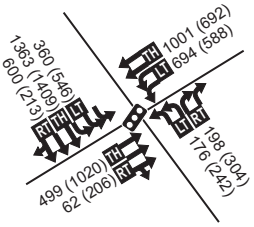
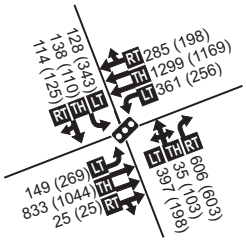
1. Foothill Blvd./Grove Way

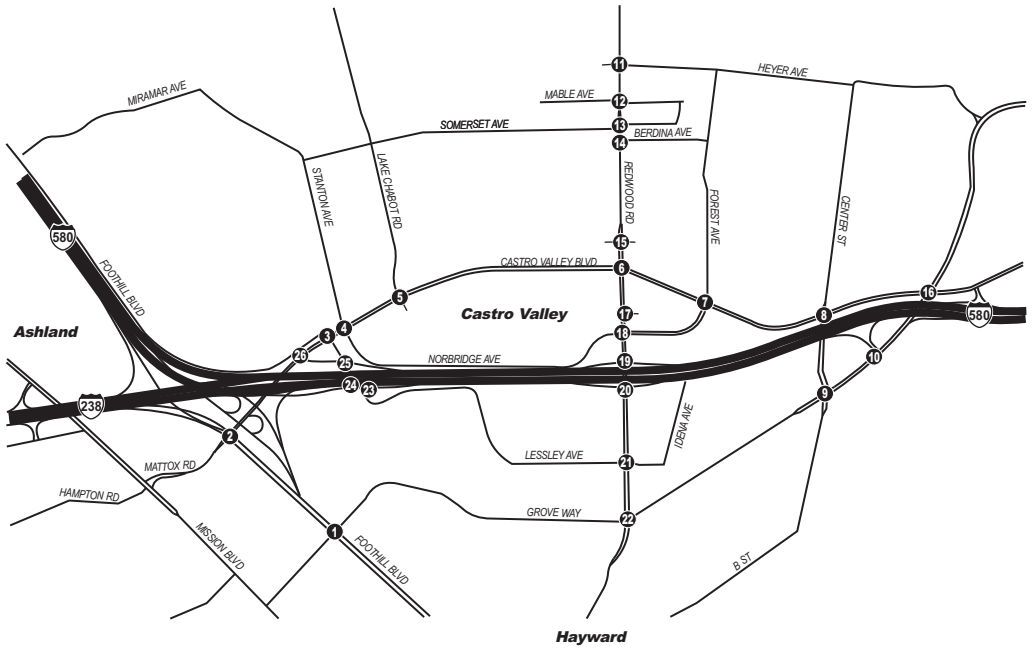


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp



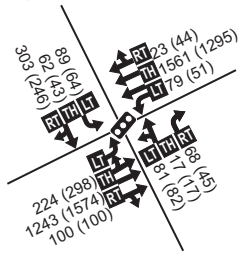
3. Castro Valley Blvd./John Dr./ Strobridge Ave.



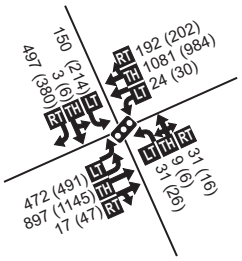


NO SCALE

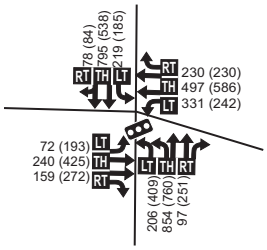
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



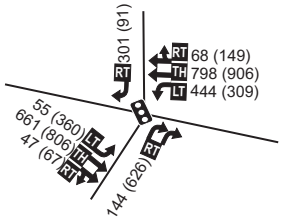
5. Castro Valley Blvd./Lake Chabot Rd.



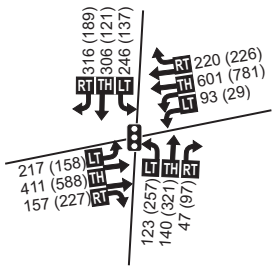
6. Castro Valley Blvd./Redwood Rd.



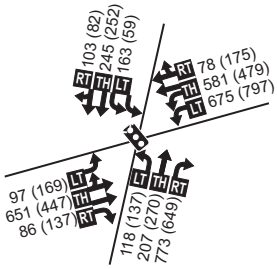
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



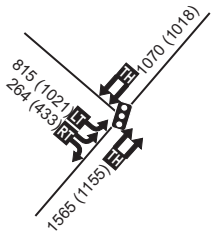
8. Castro Valley Blvd./Center St.



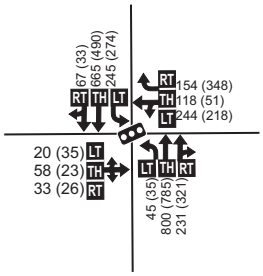
9. Grove Way/Center St.



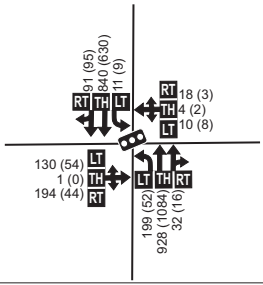
10. Grove Way/Interstate 580 EB Off-Ramp



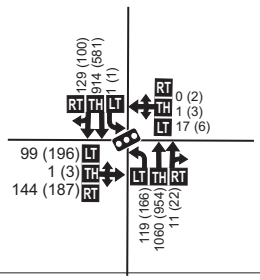
11. Redwood Rd./Heyer Ave.



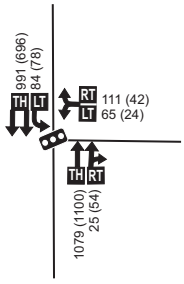
12. Redwood Rd./Mable Ave.



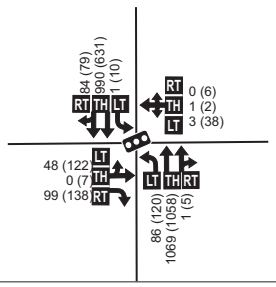
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 12

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 4f

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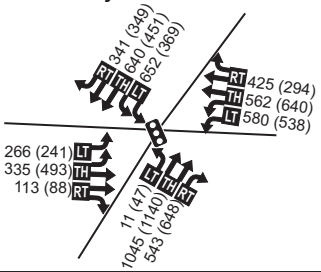
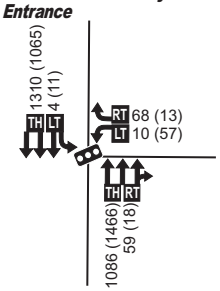
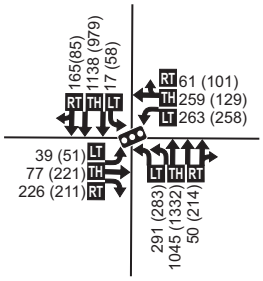
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



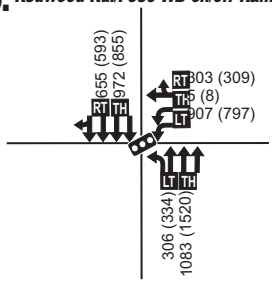
17. ***Redwood Rd./Castro Valley Plaza Entrance***



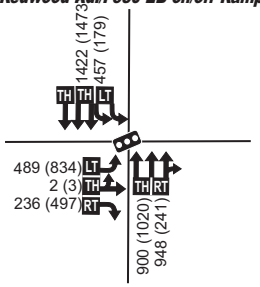
18. ***Redwood Rd./Norbridge Ave.***



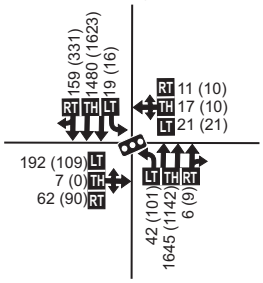
19. ***Redwood Rd./I-580 WB on/off Ramps***



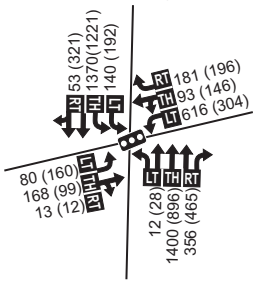
20. ***Redwood Rd./I-580 EB on/off Ramps***



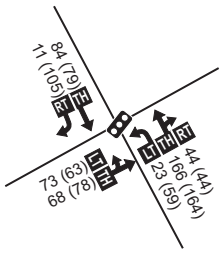
21. ***Redwood Rd./Lessley Ave.***



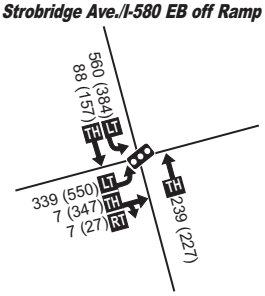
22. ***Redwood Rd./Grove Way***



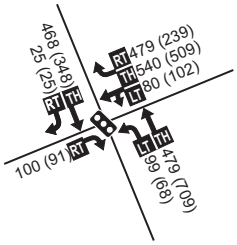
23. ***Strobridge Ave./Gary Dr.***



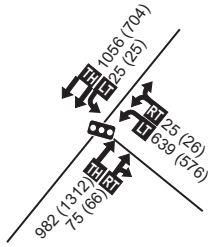
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

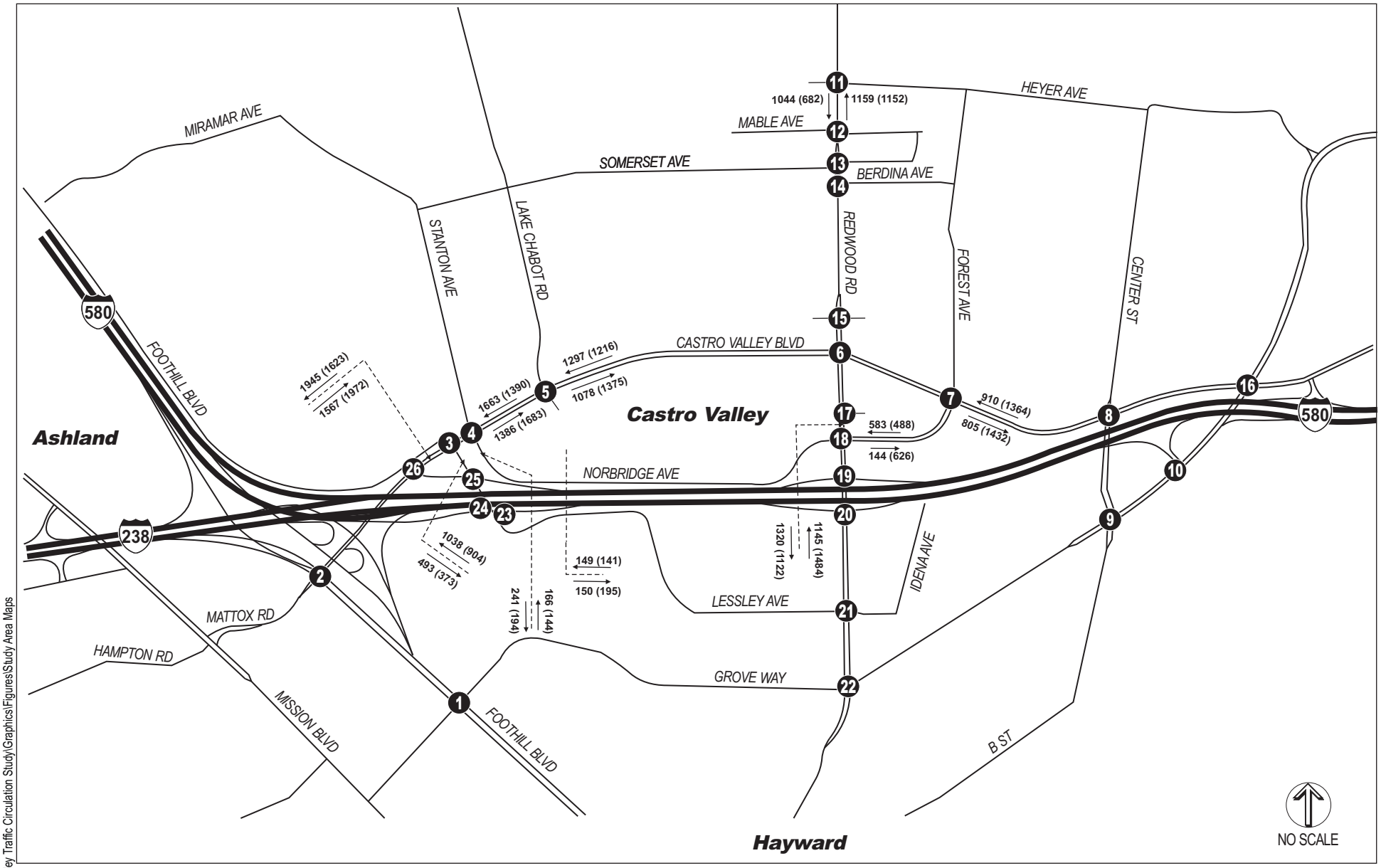
- (00) - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 12

Future Traffic Conditions Turning Movement Traffic Volumes - Scenario 4f

P:\P\12\12087-000 Menlo Park 151 Commonwealth\Figures\Figures 4.29.13



LEGEND

00 - Study Intersection

AM (PM) - Directional Peak Hour Traffic Volume

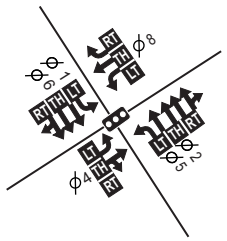
DKS

Figure 12A

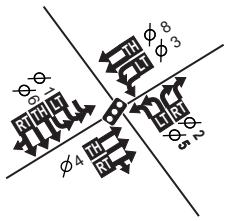
Future Conditions Traffic Volumes - Scenario 4f

P:\P\13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures\Study Area Maps

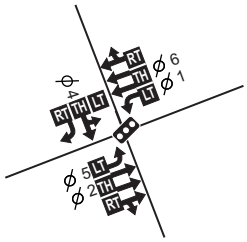
1. Foothill Blvd./Grove Way

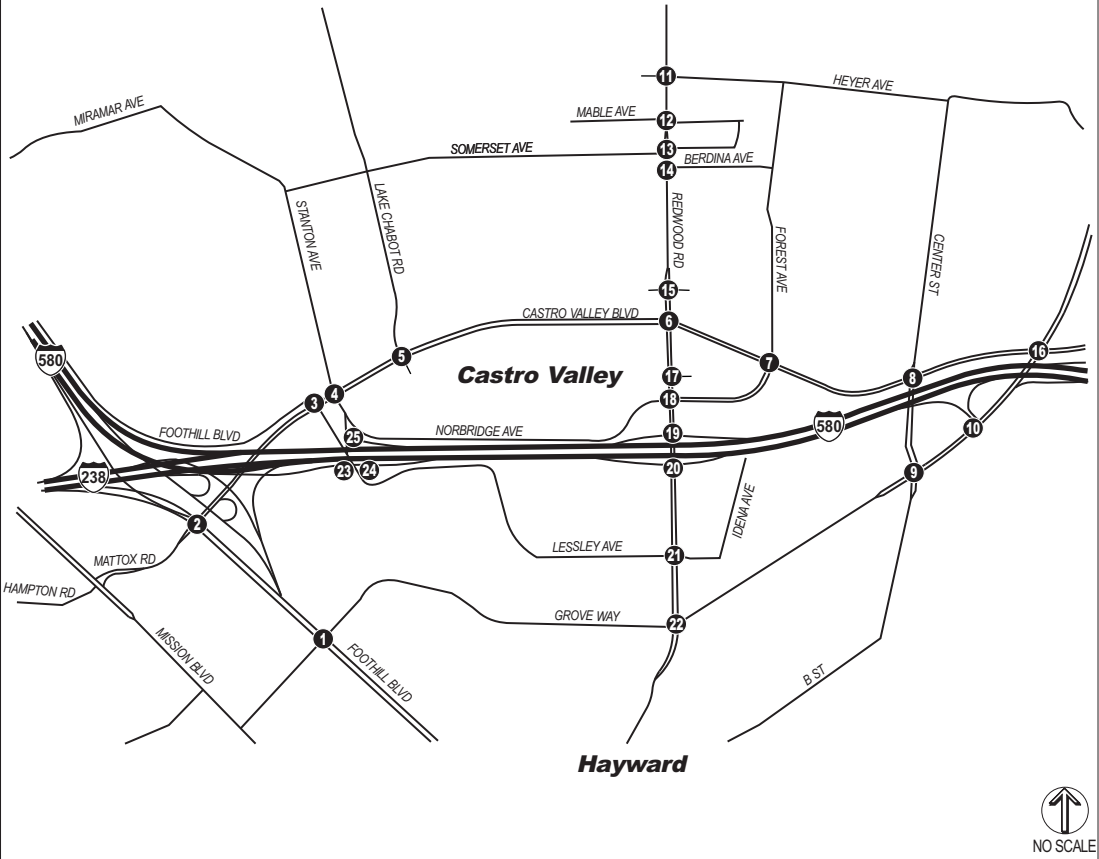


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

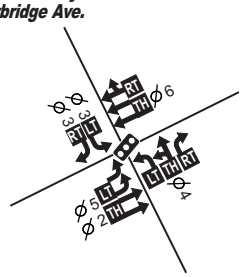


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

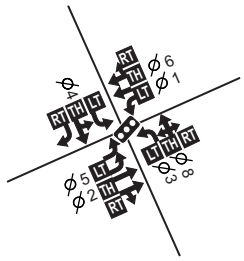




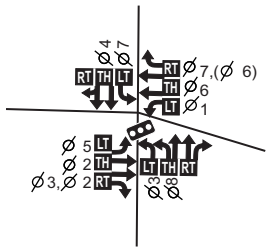
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



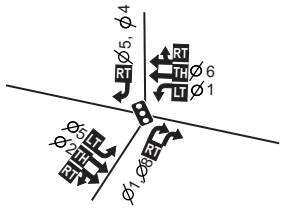
5. Castro Valley Blvd./Lake Chabot Rd.



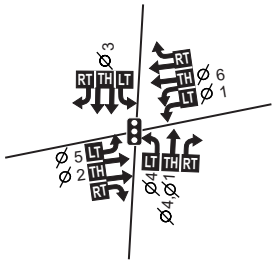
6. Castro Valley Blvd./Redwood Rd.



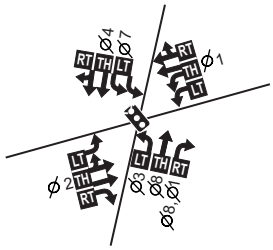
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



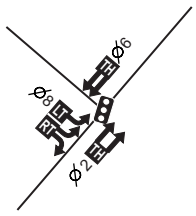
8. Castro Valley Blvd./Center St.



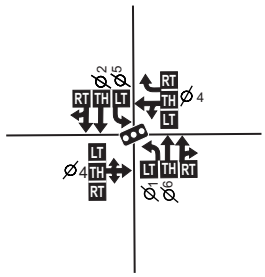
9. Grove Way/Center St.



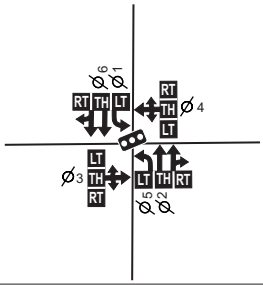
10. Grove Way/Interstate 580 EB Off-Ramp



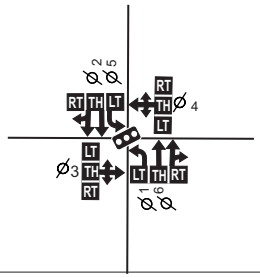
11. Redwood Rd./Heyer Ave.



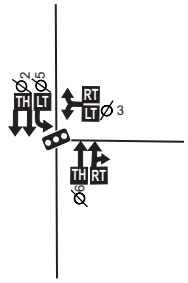
12. Redwood Rd./Mable Ave.



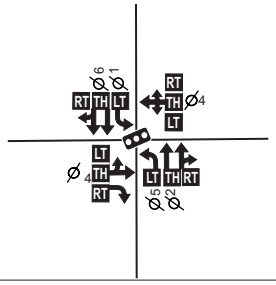
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

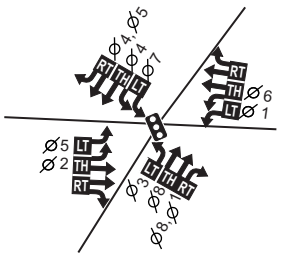
DKS

Figure 13

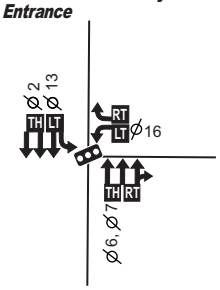
Future Lane Configuration and Traffic Signal Phasing - Scenario 1f

P:\P\13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures

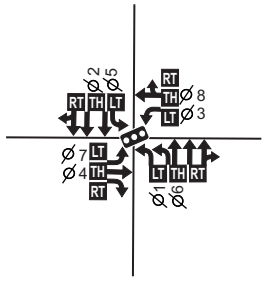
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



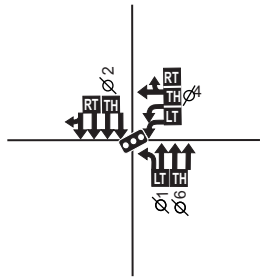
17. ***Redwood Rd./Castro Valley Plaza Entrance***



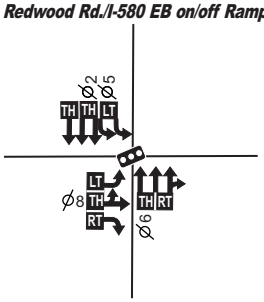
18. ***Redwood Rd./Norbridge Ave.***



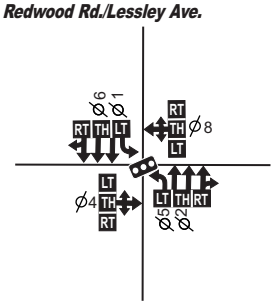
19. ***Redwood Rd./I-580 WB on/off Ramps***



20. ***Redwood Rd./I-580 EB on/off Ramps***

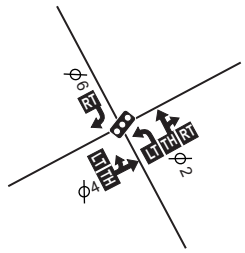


21. ***Redwood Rd./Lessley Ave.***

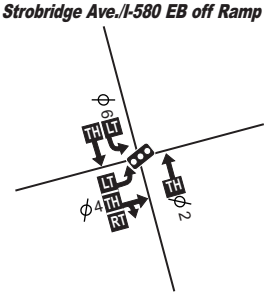


22. ***Redwood Rd./Grove Way***

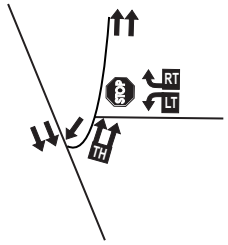
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 13

Future Lane Configuration and Traffic Signal Phasing - Scenario 1f

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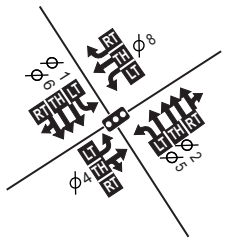
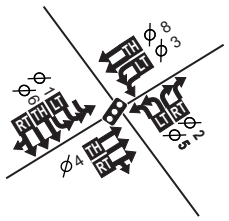
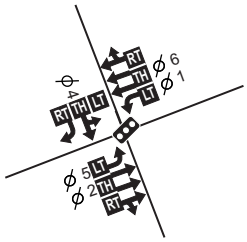
1. Foothill Blvd./Grove Way

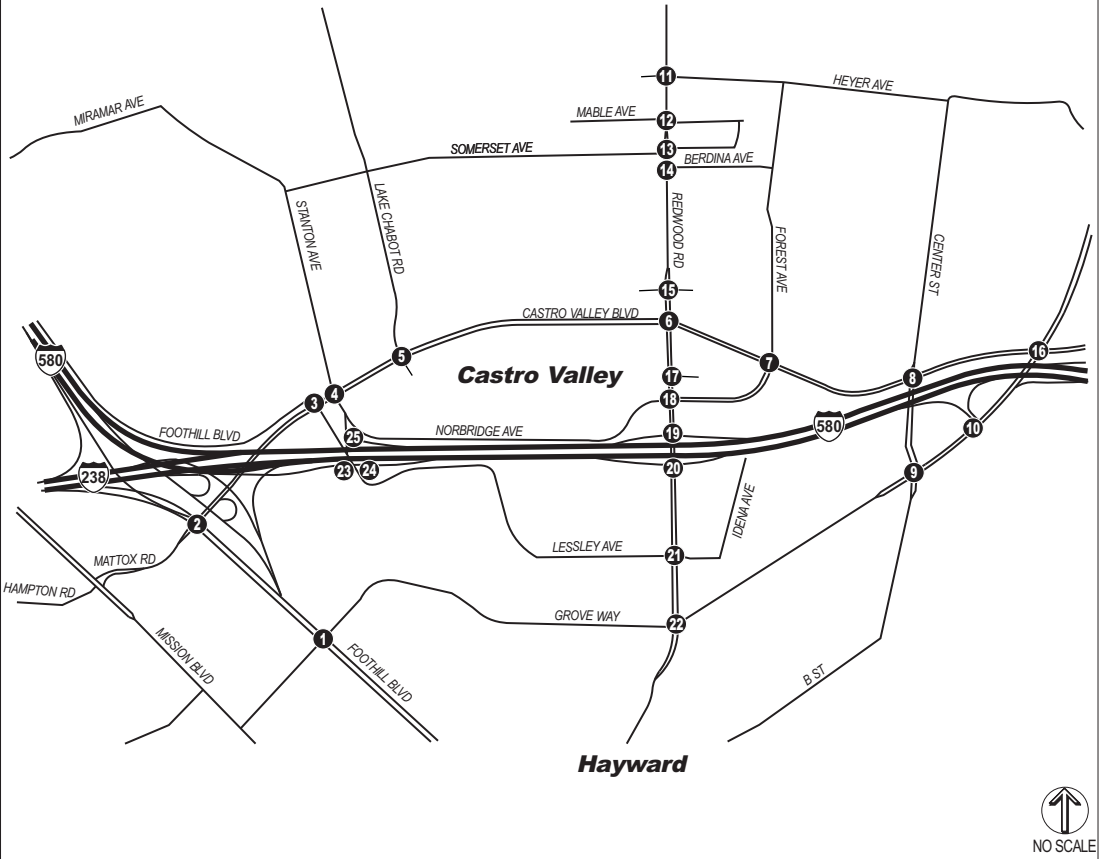


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

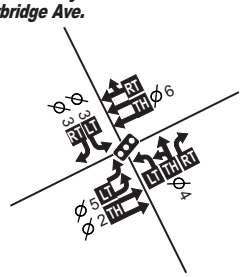


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

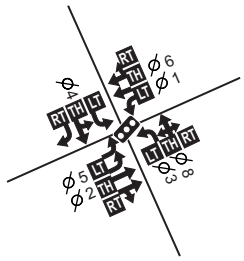




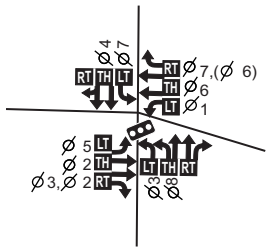
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



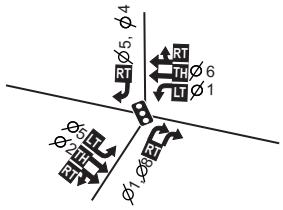
5. Castro Valley Blvd./Lake Chabot Rd.



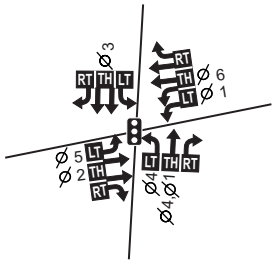
6. Castro Valley Blvd./Redwood Rd.



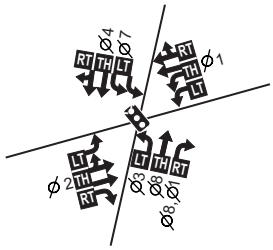
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



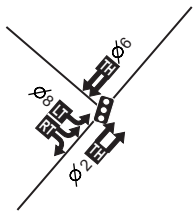
8. Castro Valley Blvd./Center St.



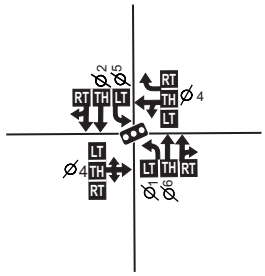
9. Grove Way/Center St.



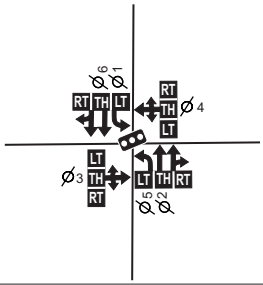
10. Grove Way/Interstate 580 EB Off-Ramp



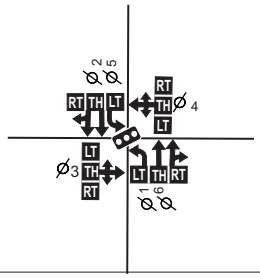
11. Redwood Rd./Heyer Ave.



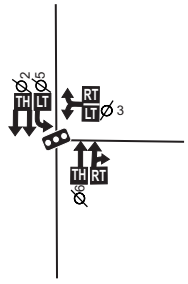
12. Redwood Rd./Mable Ave.



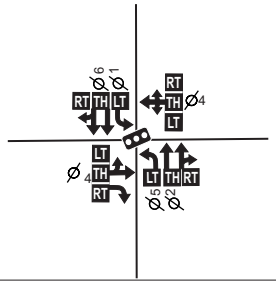
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

DKS

Figure 14

Future Lane Configuration and Traffic Signal Phasing - Scenario 2f

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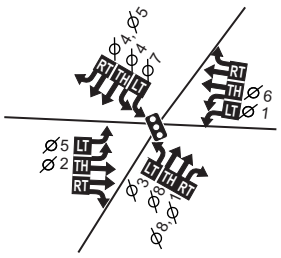
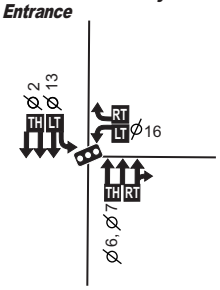
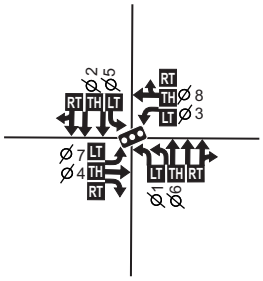
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



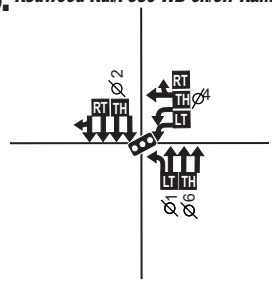
17. ***Redwood Rd./Castro Valley Plaza Entrance***



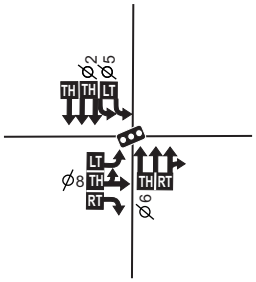
18. ***Redwood Rd./Norbridge Ave.***



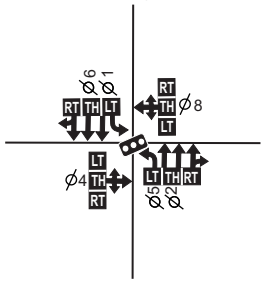
19. ***Redwood Rd./I-580 WB on/off Ramps***



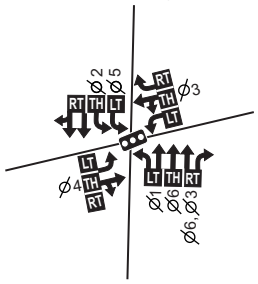
20. ***Redwood Rd./I-580 EB on/off Ramps***



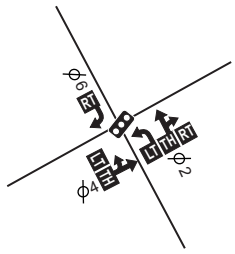
21. ***Redwood Rd./Lessley Ave.***



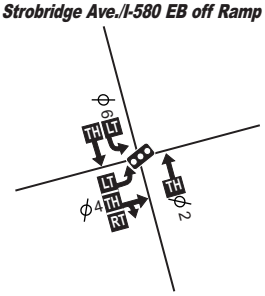
22. ***Redwood Rd./Grove Way***



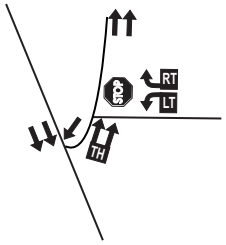
23. ***Strobridge Ave./Gary Dr.***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

00 - Study Intersection
ø x - Phase Number
- Lane Geometry
STOP - Stop Sign
- Traffic Signal

DKS

Figure 14

Future Lane Configuration and Traffic Signal Phasing - Scenario 2f

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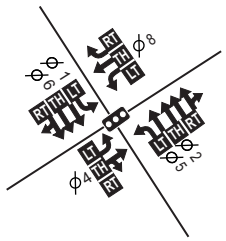
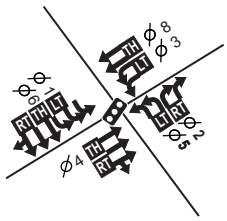
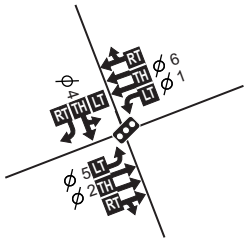
1. Foothill Blvd./Grove Way

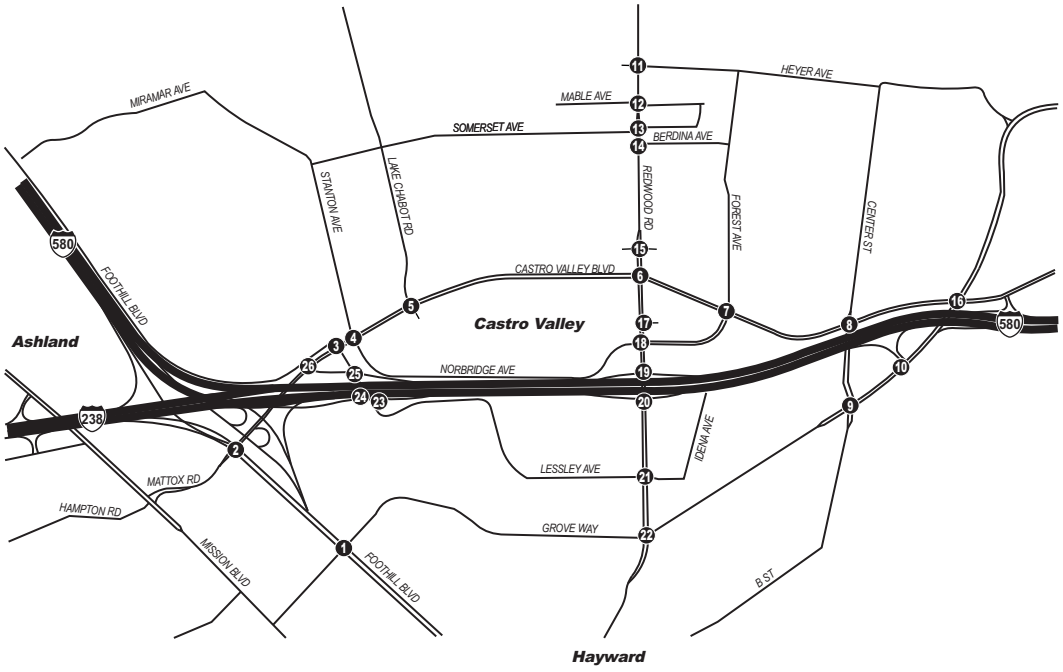


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp

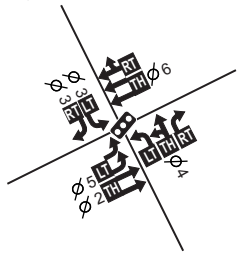


3. Castro Valley Blvd./John Dr./ Strobridge Ave.

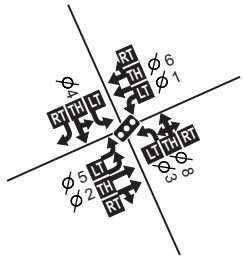




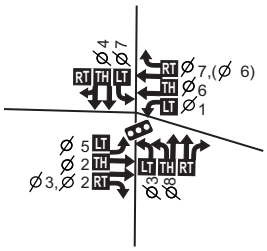
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



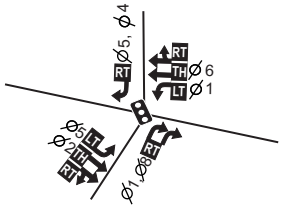
5. Castro Valley Blvd./Lake Chabot Rd.



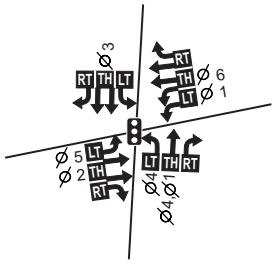
6. Castro Valley Blvd./Redwood Rd.



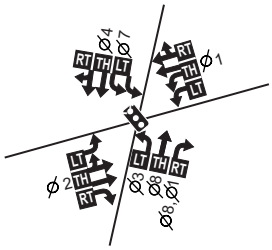
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



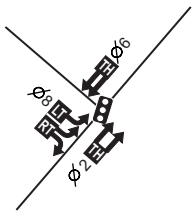
8. Castro Valley Blvd./Center St.



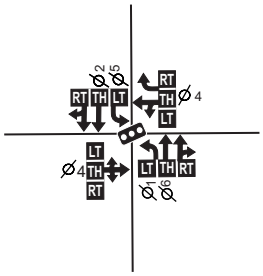
9. Grove Way/Center St.



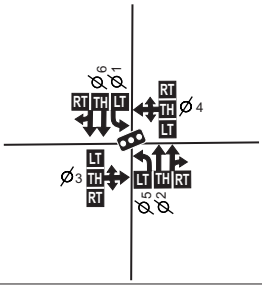
10. Grove Way/Interstate 580 EB Off-Ramp



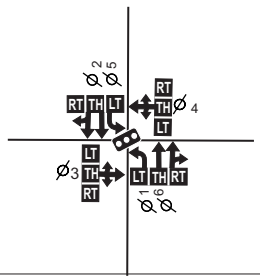
11. Redwood Rd./Heyer Ave.



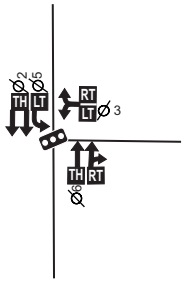
12. Redwood Rd./Mable Ave.



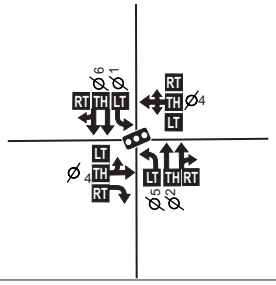
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

DKS

Figure 15

Future Lane Configuration and Traffic Signal Phasing - Scenario 3f

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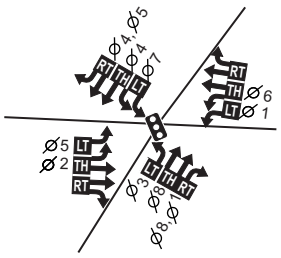
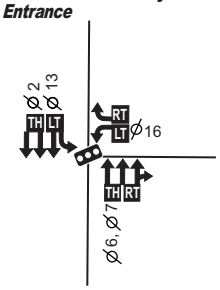
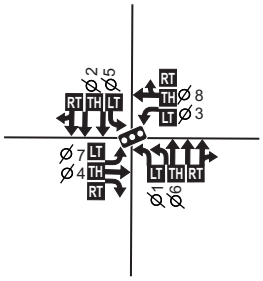
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



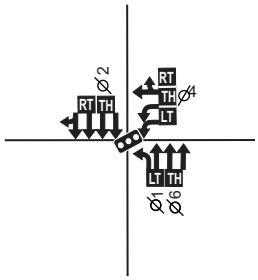
17. ***Redwood Rd./Castro Valley Plaza Entrance***



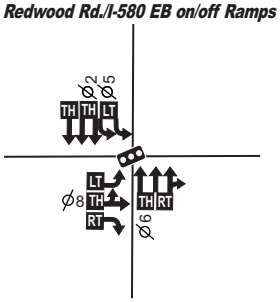
18. ***Redwood Rd./Norbridge Ave.***



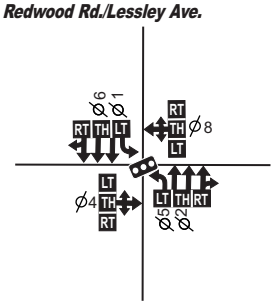
19. ***Redwood Rd./I-580 WB on/off Ramps***



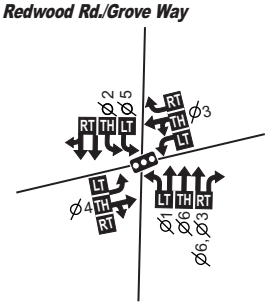
20. ***Redwood Rd./I-580 EB on/off Ramps***



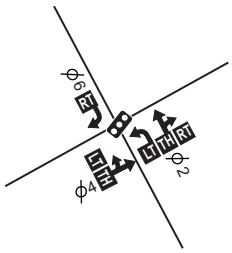
21. ***Redwood Rd./Lessley Ave.***



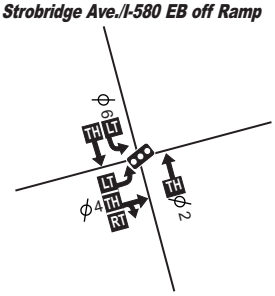
22. ***Redwood Rd./Grove Way***



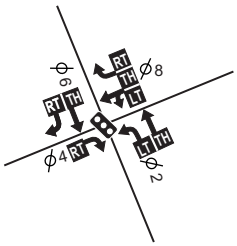
23. ***Strobridge Ave./Gary Dr.***



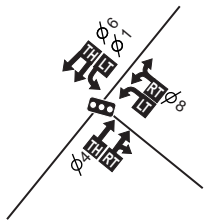
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- 00 - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 15

Future Lane Configuration and Traffic Signal Phasing - Scenario 3f

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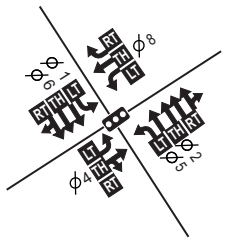
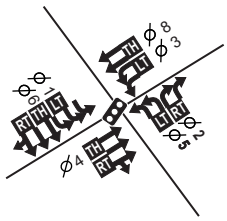
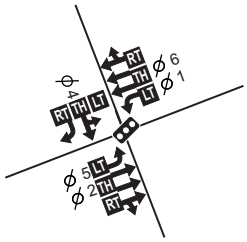
1. Foothill Blvd./Grove Way

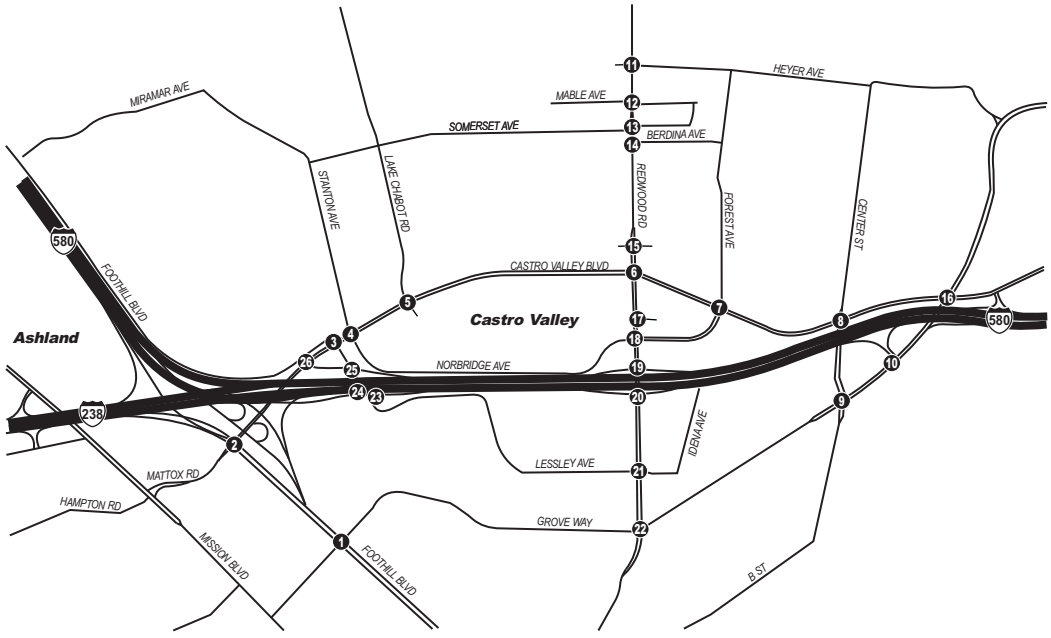


2. Castro Valley Blvd./Mattox Rd./ Foothill Blvd./I-238 Eastbound Off-Ramp



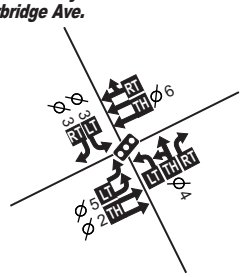
3. Castro Valley Blvd./John Dr./ Strobridge Ave.



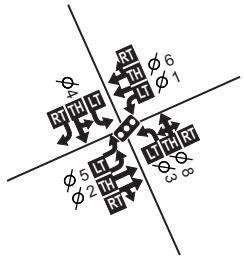


NO SCALE

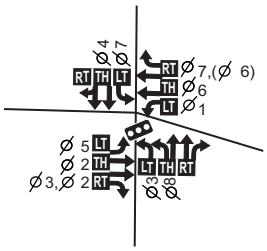
4. Castro Valley Blvd./Stanton Ave./ Norbridge Ave.



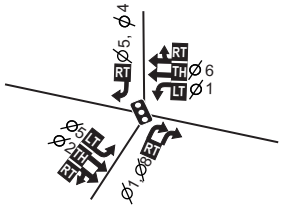
5. Castro Valley Blvd./Lake Chabot Rd.



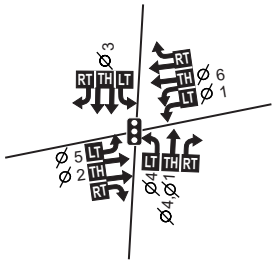
6. Castro Valley Blvd./Redwood Rd.



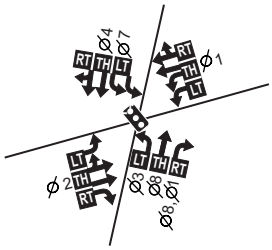
7. Castro Valley Blvd./Norbridge Ave./ Forest Ave.



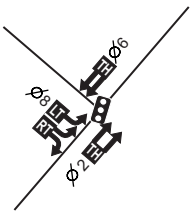
8. Castro Valley Blvd./Center St.



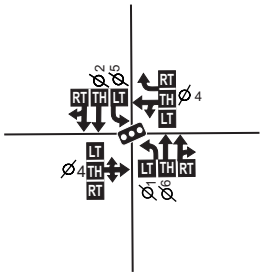
9. Grove Way/Center St.



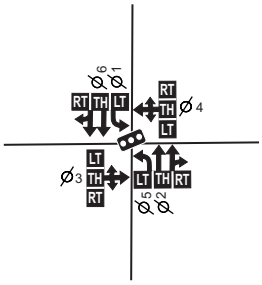
10. Grove Way/Interstate 580 EB Off-Ramp



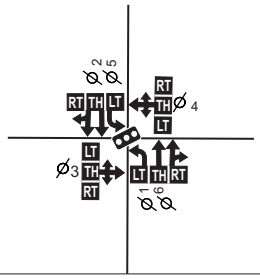
11. Redwood Rd./Heyer Ave.



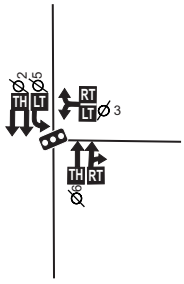
12. Redwood Rd./Mable Ave.



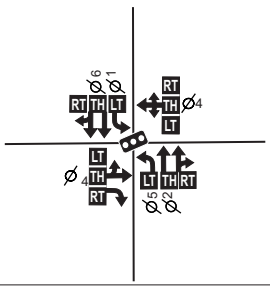
13. Redwood Rd./Somerset Ave.



14. Redwood Rd./Berdina Rd.



15. Redwood Rd./Safeway Driveway



LEGEND

00 - Study Intersection
- Lane Geometry
- Traffic Signal
ø x - Phase Number

DKS

Figure 16

Future Lane Configuration and Traffic Signal Phasing - Scenario 4f

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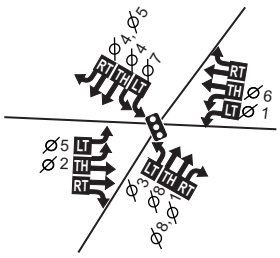
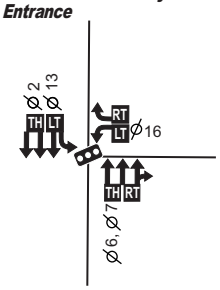
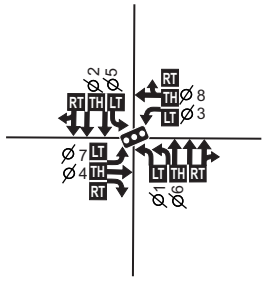
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



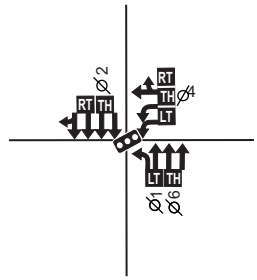
17. ***Redwood Rd./Castro Valley Plaza Entrance***



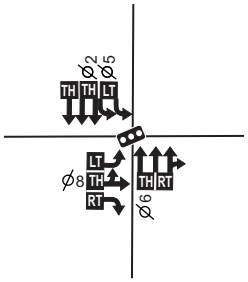
18. ***Redwood Rd./Norbridge Ave.***



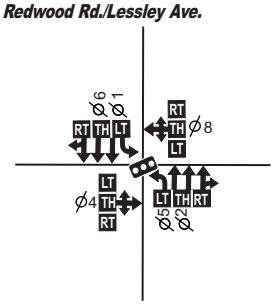
19. ***Redwood Rd./I-580 WB on/off Ramps***



20. ***Redwood Rd./I-580 EB on/off Ramps***

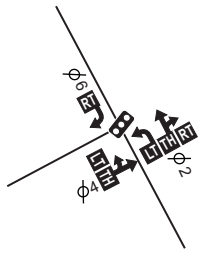


21. ***Redwood Rd./Lessley Ave.***

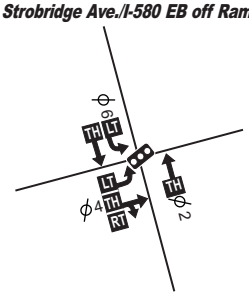


22. ***Redwood Rd./Grove Way***

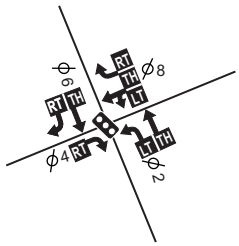
23. ***Strobridge Ave./Gary Dr.***



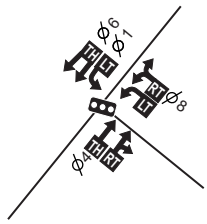
24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



26. ***Castro Valley Blvd./New Road***



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- Traffic Signal
- ø x - Phase Number
- STOP - Stop Sign

DKS

Figure 16

Future Lane Configuration and Traffic Signal Phasing - Scenario 4f

P:\P\12\12087-000 Menlo Park 151 Commonwealth\Figures\Figures 1.29.14

INTERSECTION LEVEL OF SERVICE ANALYSIS – FUTURE (2035) TRAFFIC CONDITIONS

Table 4 summarizes peak hour level of service (LOS) at all study intersections under Future Traffic Conditions. The existing lane configurations, signal timing, and phasing operations were assumed for the base analysis. Improvements are recommended where feasible to mitigate unacceptable intersection level of service expected with changes in traffic circulation pattern resulting from the roadway reconfiguration scenarios defined in this technical memorandum.

LOS worksheets are provided in **Appendix D**. Under Future Traffic Conditions, all study intersections are expected to operate at acceptable levels of service except for the various intersections listed under specific traffic scenarios listed below.

As shown in Table 4, the LOS for intersections operating at unacceptable conditions can be improved at some intersections with traffic signal optimization, which is a low cost improvement option. Other than the Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off ramp (Int. #2) and Castro Valley Boulevard/John Drive/Strobridge Avenue (Int. #3) intersections, all other intersections are expected to operate at LOS D or better with traffic signal optimization.

Scenario 1f (AM) - Existing roadway network configuration.

- Redwood Road/Mabel Avenue (Int. #12)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 1f (PM) - Existing roadway network configuration.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)
- Redwood Road/Grove Way (Int. #22)

Scenario 2f (AM) - Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

- Redwood Road/Mabel Avenue (Int. #12)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 2f (PM) - Existing roadway network configuration without southbound access restriction on Strobridge Avenue at Gary Drive.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)

Scenario 3f (AM)- New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)

With traffic signal optimization, intersection #2 is expected to continue to operate unacceptably at LOS E during the a.m. peak hour under Scenario 3f traffic conditions. A third southbound left-turn lane will need to be added to operate the intersection acceptably at LOS D or better. This will require extensive geometric modification to accommodate the lane addition. This improvement is not necessary with the removal of the southbound Strobridge Avenue restriction at Gary Drive as shown in the LOS results for Scenario 4f AM.

- Castro Valley Boulevard/John Drive/Strobridge Avenue (Int. #3)
- Castro Valley Boulevard/Redwood Road (Int. #6)
- Redwood Road/Mabel Avenue (Int. #12)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 3f (PM) - New roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)
- Redwood Road/Berdina Road (Int. #14)
- Castro Valley Boulevard/John Drive/Strobridge Avenue (Int. #3)

The Castro Valley Boulevard/John Drive/Strobridge Avenue intersection is expected to continue to operate unacceptably at LOS E with traffic signal optimization. However, with the optimization the intersection delay is expected to ***significantly*** reduce from approximately 279 sec/veh to 57 sec/vehicle. A second eastbound left-turn lane is needed to operate the intersection acceptable at LOS D or better. Without the addition of a second eastbound left-turn lane, four northbound lanes and two westbound left-turn lanes are needed to operate the intersection acceptably at LOS D or better, which does not appear to be feasible without the acquisition of additional right-of-way on both Castro Valley Boulevard and Strobridge Avenue.

Scenario 4f (AM) - New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)
- Castro Valley Boulevard/John Drive/Strobridge Avenue (Int. #3)
- Castro Valley Boulevard/Redwood Road (Int. #6)
- Redwood Road/Mabel Avenue (Int. #12)
- East Castro Valley Boulevard/Grove Way/Crow Canyon Road (Int. #16)

Scenario 4f (PM)- New roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario #3 without access restriction on Strobridge Avenue at Gary Drive.

- Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp (Int. #2)
- Castro Valley Boulevard/John Drive/Strobridge Avenue (Int. #3)

Similar to Scenario 3f (PM), the Castro Valley Boulevard/John Drive/Strobridge Avenue intersection is expected to continue to operate unacceptably at LOS E with traffic signal optimization. However, with the optimization the intersection delay is expected to ***significantly*** reduce from approximately 280 sec/veh to 58 sec/vehicle. A second eastbound left-turn lane is needed to operate the intersection acceptable at LOS D or better. Without the addition of a second eastbound left-turn lane, four northbound lanes and two westbound left-turn lanes are needed to operate the intersection acceptably at LOS D or better, which does not appear to be feasible without the acquisition of additional right-of-way on both Castro Valley Boulevard and Strobridge Avenue.

Table 4: Peak Hour Intersection Level of Service – Future (2035) Traffic Conditions

ID	Study Intersection	Control Type	Scenario 1f				Scenario 2f				Scenario 3f				Scenario 4f			
			A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Foothill Boulevard/Grove Way	Signal	25.3	C	36.2	D	27.0	C	37.8	D	25.8	C	32.9	C	25.6	C	35.3	D
2	Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp	Signal	38.5	D	**73.5**	**E**	45.8	D	**148.0**	**F**	**76.3**	**E**	**82.2**	**F**	**72.7**	**E**	**88.0**	**F**
	Recommended Improvement: Optimize traffic signal	"			43.1	D			51.5	D	**58.8**	**E**	51.0	D	53.4	D	53.4	D
3	Castro Valley Boulevard/John Drive/Strobridge Avenue	Signal	21.8	C	24.5	C	21.6	C	25.9	C	**232.7**	**F**	**278.2**	**F**	**234.3**	**F**	**280.0**	**F**
	Optimize traffic signal	"									48.3	D	**56.9**	**E**	44.5	D	**57.9**	**E**
	Recommended Improvement: Add one EBLT lane	"											49.2	D			45.9	D
4	Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue	Signal	35.8	D	35.0	D	36.8	D	34.6	C	28.8	C	28.8	C	31.1	C	22.8	C
5	Castro Valley Boulevard/Lake Chabot Road	Signal	42.9	D	38.7	D	46.5	D	35.2	D	**65.2**	**E**	40.4	D	52.2	D	36.1	D
	Recommended Improvement: Optimize traffic signal	"									40.4	D						
6	Castro Valley Boulevard/Redwood Road	Signal	44.6	D	51.5	D	43.1	D	52.7	D	**59.2**	**E**	49.4	D	**61.2**	**E**	48.3	D
	Recommended Improvement: Optimize traffic signal	"									52.7	D			49.8	D		
7	Castro Valley Boulevard/Norbridge Avenue/Forest Avenue	Signal	24.5	C	32.0	C	26.9	C	33.5	C	26.4	C	32.7	C	26.5	C	34.4	C
8	Castro Valley Boulevard/Center Street	Signal	45.0	D	38.2	D	37.7	D	38.6	D	38.1	D	38.0	D	38.3	D	37.9	D
9	Grove Way/Center Street	Signal	45.7	D	43.4	D	49.7	D	43.0	D	45.5	D	43.0	D	45.9	D	42.5	D
10	Grove Way/Interstate 580 EB off-ramp	Signal	21.8	C	35.0	D	26.9	C	29.0	C	31.5	C	17.7	B	22.2	C	17.5	B
11	Redwood Road/Heyer Avenue	Signal	27.9	C	30.1	C	31.0	C	29.9	C	50.9	D	37.3	D	45.5	D	31.4	C
12	Redwood Road/Mabel Avenue	Signal	**65.1**	**E**	10.8	B	**65.7**	**E**	10.8	B	**63.1**	**E**	11.2	B	**64.0**	**E**	10.9	B
	Recommended Improvement: Optimize traffic signal	"	36.5	D			31.7	C			32.9	C			33.5	C		
13	Redwood Road/Somerset Avenue	Signal	20.8	C	25.8	C	22.4	C	29.4	C	23.5	C	24.4	C	22.8	C	22.9	C
14	Redwood Road/Berdina Road	Signal	19.7	B	45.3	D	20.1	C	43.0	D	33.4	C	**68.4**	**E**	29.2	C	54.6	D
	Recommended Improvement: Optimize traffic signal	"											26.7	C				
15	Redwood Road/Safeway Driveway	Signal	9.8	A	12.1	B	9.6	A	12.1	B	9.8	A	12.0	B	9.8	A	11.9	B
16	East Castro Valley Boulevard/Grove Way/Crow Canyon Road	Signal	**67.5**	**E**	48.1	D	**67.9**	**E**	51.0	D	**68.8**	**E**	47.5	D	**69.0**	**E**	47.8	D
	Recommended Improvement: Optimize traffic signal	"	54.8	D			54.8	D			54.0	D			53.4	D		
17	Redwood Road/Castro Valley Plaza Entrance	Signal	10.2	B	19.2	B	10.7	B	18.0	B	15.2	B	16.2	B	16.3	B	16.7	B
18	Redwood Road/Norbridge Avenue	Signal	23.9	C	34.5	C	24.8	C	34.2	C	26.1	C	34.2	C	26.3	C	34.4	C
19	Redwood Road/I-580 WB on/off ramps	Signal	47.7	D	24.7	C	48.2	D	23.3	C	38.9	D	23.2	C	40.7	D	23.1	C
20	Redwood Road/I-580 EB on/off ramps	Signal	19.5	B	20.6	C	20.6	C	21.0	C	21.8	C	22.3	C	21.3	C	19.9	B
21	Redwood Road/Lessley Avenue	Signal	20.2	C	19.5	B	21.0	C	15.0	B	18.9	B	16.3	B	16.8	B	16.8	B
22	Redwood Road/Grove Way	Signal	44.1	D	**68.2**	**E**	45.5	D	43.9	D	40.9	D	47.8	D	42.8	D	40.0	D
	Recommended Improvement: Optimize traffic signal	"			50.4	D												
23	Strobridge Avenue/Interstate 580 EB on ramp	Signal	6.1	A	5.7	A	5.8	A	6.1	A	6.3	A	5.3	A	5.9	A	5.5	A
24	Strobridge Avenue/Interstate 580 EB off ramp	Signal	18.0	B	10.6	B	21.4	C	11.7	B	53.8	D	19.1	B	53.9	D	20.2	C
25	Strobridge Avenue/Interstate 580 WB off ramp	Stop	(14.2)	(B)	(17.7)	(C)	(14.6)	(B)	(16.0)	(C)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		Signal	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16.4	B	27.6	C	27.1	C	24.8	C
26	New Roadway/Castro Valley Boulevard	Signal	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16.0	B	28.1	C	15.3	B	33.3	C

Notes: LOS = Level of Service, X= Intersection level of service, X.X = Average intersection delay in seconds per vehicle, (Y.Y) = Delay to minor street, (Y) = Minor street LOS, **Bold** values indicate unacceptable LOS conditions

DISCUSSION OF THE FUTURE TRAFFIC CONDITIONS RESULTS

A comparison of the LOS results in Table 4 indicates that with traffic signal optimization all the study intersections are expected to operate acceptably at LOS D or better under Scenarios 1f and 2f traffic conditions. The results are similar for the two scenarios, which implies removing the southbound Strobridge Avenue restriction at Gary Drive is not expected to impact traffic circulation but will rather provide convenient access to the Baywood Area of Castro Valley for residents of that community.

Removal of southbound Strobridge Avenue access restriction at Gary Drive

During the a.m. peak period, the Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp intersection (Int. #2) is expected to continue to operate unacceptably at LOS E. As noted elsewhere in this report, a third southbound left-turn lane will need to be added to operate the intersection acceptably at LOS D or better. This will require extensive geometric modification to accommodate the lane addition. This improvement is not necessary with the removal of the southbound Strobridge Avenue restriction at Gary Drive as shown in the LOS results for Scenario 4f a.m., which operate acceptably at LOS D or better. Gary Drive

Removing the southbound Strobridge Avenue restriction at Gary Drive is expected to provide convenient traffic circulation for residents of the Baywood area to access their neighborhoods from the I-580 Westbound off ramp. It will also eliminate the need to make illegal southbound through movements at the intersection, which will enhance traffic safety. However, there is uncertainty about the potential for cut through traffic.

The results of travel time analysis indicate that constructing the new road that links the I-580 WB off ramp/Strobridge Avenue intersection to Castro Valley Boulevard is expected to provide a faster and convenient bypass of the traffic congestion at the Castro Valley Boulevard/Norbridge Avenue and Castro Valley Boulevard/Strobridge Avenue intersections and the Baywood Area to access Foothill Boulevard. Based on the results of the study, it has been concluded that to further relieve the potential for cut through traffic in Baywood Area, the proposed new roadway that links Strobridge Avenue and Castro Valley Boulevard should be pursued prior to removing the access restriction at Gary Drive. Alameda County will continue to work with Caltrans to acquire right-of-way for the new roadway.

Figure 17 shows the existing and Strobridge Avenue access restriction and access removal at Gary Drive.

Reconfiguration of Norbridge Avenue and Strobridge Avenue

All proposed traffic signal modifications and operational improvements associated with the reconfiguration of Norbridge Avenue and Strobridge Avenue discussed under the existing conditions also apply to the future (2035) conditions.

A comparison of the LOS results for all four future scenarios indicate that the Castro Valley Boulevard/John Drive/Strobridge Avenue intersection (Int. #3) is expected to slightly deteriorate in LOS (i.e. from LOS C to LOS D) with the proposed reconfiguration of the Norbridge Avenue and Strobridge Avenue couplet and the addition of a New Road connector from the Strobridge Avenue/I-580 Westbound off-ramp intersection. The intersection requires the addition of a second eastbound left-turn lane, which is feasible. Also, John Drive will need to be widened and realigned to accommodate the additional eastbound left-turn lane. Figure 18 shows the layout of the before and after improvements at the intersection.

However, the reconfiguration is expected to provide convenient traffic circulation and reduced travel time for motorists exiting I-580 at Strobridge to go elsewhere via Castro Valley Boulevard.

Strobridge Avenue/I-580 WB off Ramp Alternative Design Analysis

With the proposed re configuration of the Norbridge Avenue-Strobridge Avenue couplet and the New Road extension for the I-580 Westbound off ramp to Castro Valley Boulevard, there is the need to determine appropriate traffic control measures for the Strobridge Avenue/I-580 Westbound off ramp/New Road intersection.

LOS Analysis Results

Four control types were considered as follows: traffic signal; all-way stop control; two-way stop control; and yield control (i.e. roundabout). The future traffic forecast was used for the assessment. It was determined that the stop control is expected to operate the intersection unacceptably under future traffic conditions. While the yield control (roundabout) itself will operate acceptably at LOS C or better during the p.m., long traffic queuing is expected on the I-580 Westbound off ramp, which may cause traffic congestion on the I-580 freeway.

Of the four control options considered, it is recommended to install a traffic signal, which is expected to operate the intersection acceptably at LOS C or better. It is also expected that installing a traffic signal at the Strobridge Avenue/I-580 Westbound off ramp/New Road intersection will not impact the I-580 Westbound freeway operation. Figure 19 shows the existing layout and the proposed improvements at the intersection. Table 5 below contains the peak hour level of service comparison results for scenarios 3 and 4. The table does not contain the results of two-way stop control because of errors in the delay calculations resulting from expected volumes exceeding the 1,000 vph for the westbound and northbound approaches. In other words, a two-way stop controlled intersection operation would cause either the northbound or westbound approaches to have a volume/capacity ration greater than 3.0 and an average delay cannot be calculated by the synchro software (i.e. resulting in error in the delay equation calculations). **Appendix E** contains a memo of the detailed analysis.

Table 5: Peak Hour Intersection Level of Service Results Comparison

Design Option	Scenario 3 AM	Scenario 3 PM	Scenario 4 AM	Scenario 4 PM
Signalization	B (19.9)	C (25.1)	C (25.1)	C (27.0)
Multi-way stop-controlled	F (146.2)	F (176.0)	F (176.0)	F (213.4)
Roundabout	B (10.2)	C (21.0)*	C (13.8)	C (22.4)*

Notes:
*See roundabout section in Appendix E for more details.
C (#) = Level of Service (Average Intersection Delay in Seconds per Vehicle).

Queue Analysis Results

Table 6 below shows the expected queue length in feet. The existing length of the Strobridge Avenue/I-580 off-ramp is 1,075 feet.

Table 6: Strobridge Avenue/I-580 Westbound Off-Ramp Maximum Queue Length Results Comparison

Design Option	Scenario 3 AM	Scenario 3 PM	Scenario 4 AM	Scenario 4 PM
Signalization	340	390	460	435
Multi-way* stop-controlled	> 2,500	> 2,500	> 2,500	> 2,500
Roundabout	1,145	1,120	1,145	1,125

Note:
Queue length calculated using the HCM Exhibit 17-19 chart.

As shown in Table 6, of the three types of intersection control, signalization of the intersection is expected to result in the lowest expected queue length on the Strobridge Avenue/I-580 Westbound Off-Ramp. Installing a Multi-way stop control is expected to result in queuing in excess of 2,500 feet, which may impact the I-580 Westbound freeway operation.

In conclusion, signalizing the intersection is expected to be most beneficial. The stop control (two-way or multi-way) is expected to cause significant delays and installing a roundabout may cause potential traffic backups to the I-580 freeway during the PM peak hour.

Figure 17: Strobridge Avenue Access Restriction at Gary Drive Removal

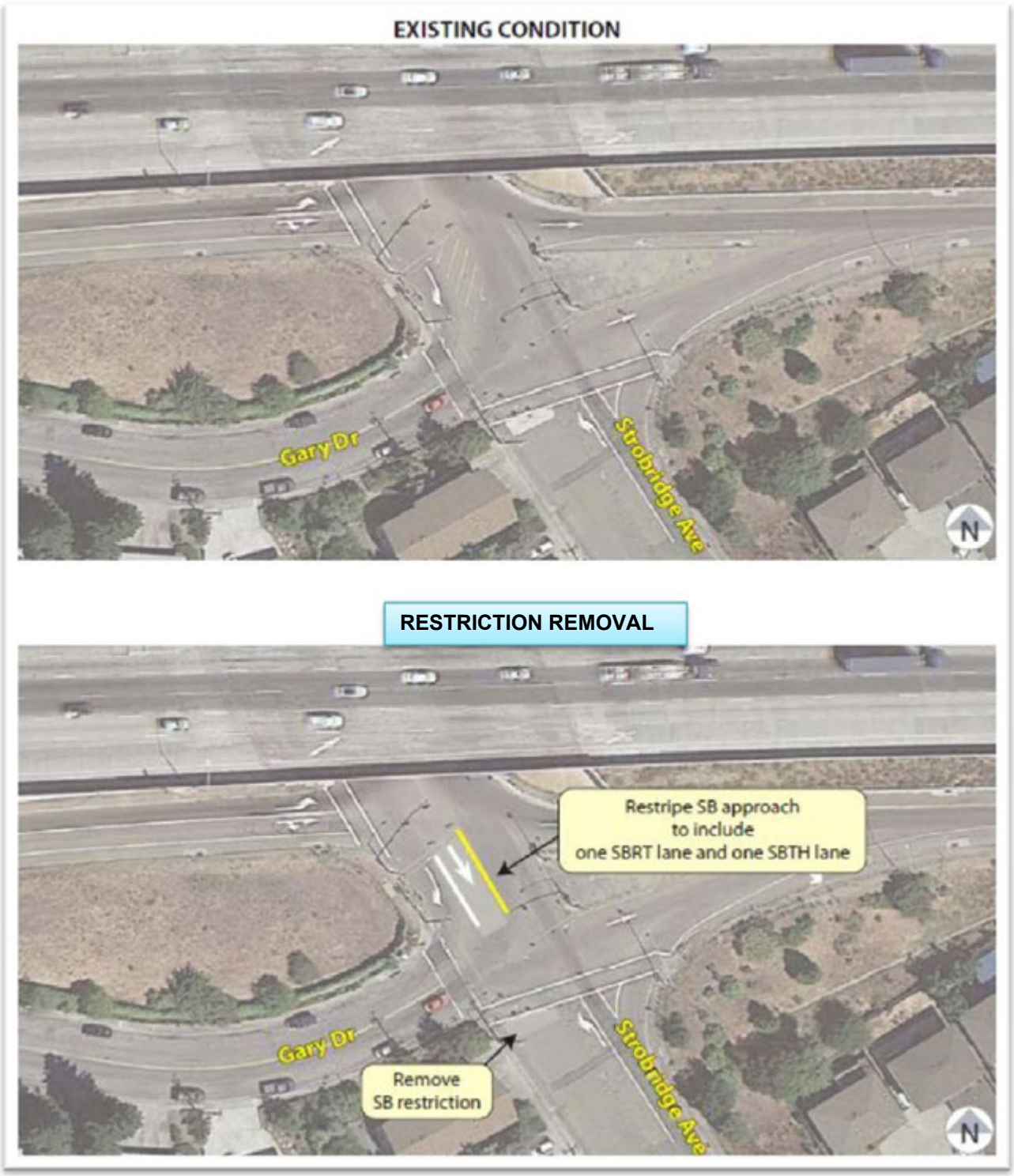


Figure 18: Castro Valley Boulevard/John Drive/Strobridge Avenue intersection improvements

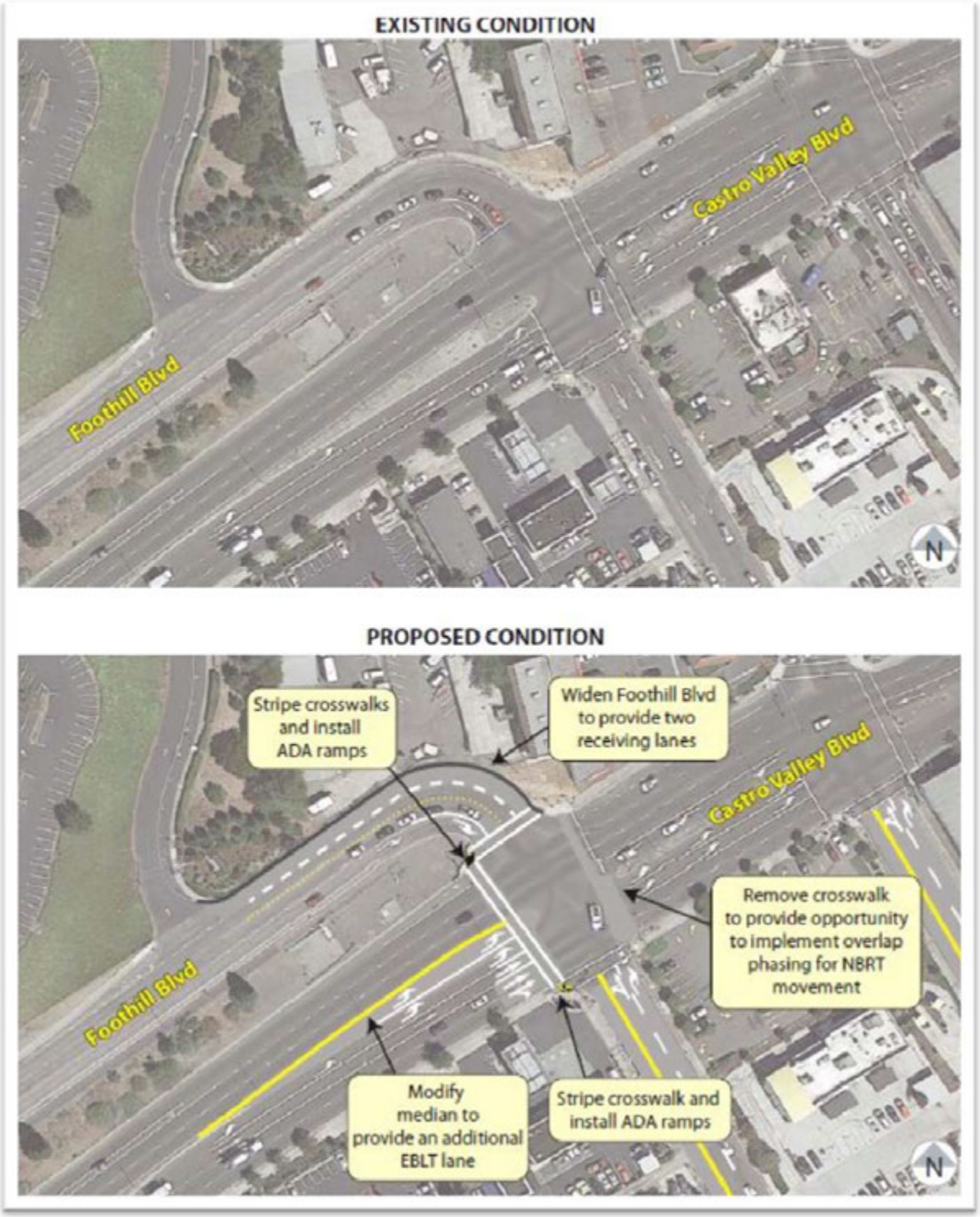
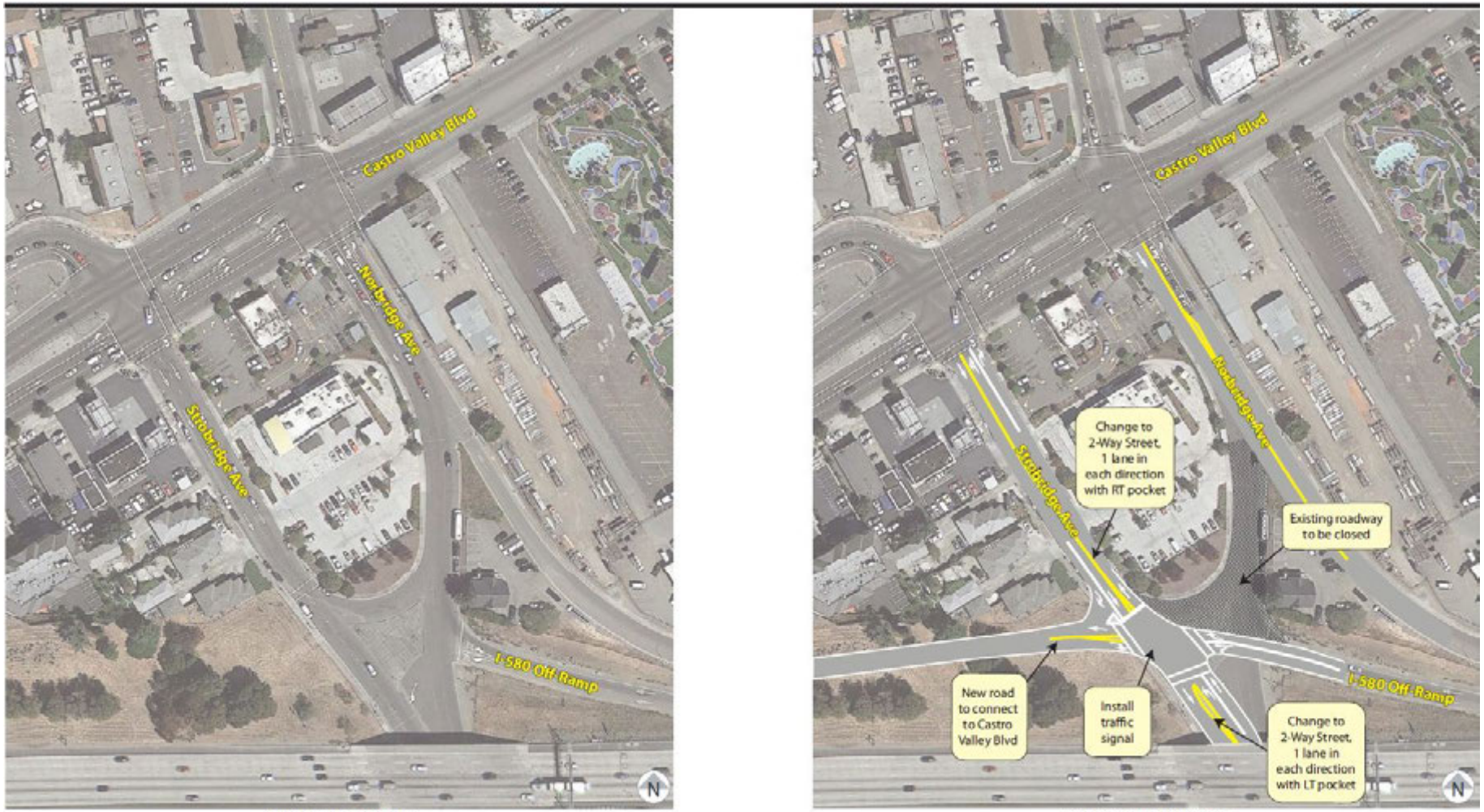


Figure 19: Strobridge Avenue/I-580 WB off ramp intersection improvements



Appendix A – Level of Service Methodology

APPENDIX A
LEVEL OF SERVICE

The description and procedures for calculating capacity and level of service are found in Transportation Research Board, Highway Capacity Manual 2000. Highway Capacity Manual 2000 represents the latest research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with level-of-service A representing the best operating conditions and level-of-service F the worst. Each level of service represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish service levels.

A general description of service levels for various types of facilities is shown in Table A-I

Table A-I: Level of Service Description

	Uninterrupted Flow	**Interrupted Flow**
Facility Type	Freeways Multi-lane Highways Two-lane Highways Urban Streets	Signalized Intersections Unsignalized Intersections Two-way Stop Control All-way Stop Control
LOS		
A	Free-flow	Very low delay.
B	Stable flow. Presence of other users noticeable.	Low delay.
C	Stable flow. Comfort and convenience starts to decline.	Acceptable delay.
D	High density stable flow.	Tolerable delay.
E	Unstable flow.	Limit of acceptable delay.
F	Forced or breakdown flow.	Unacceptable delay

Source: Highway Capacity Manual 2000

Urban Streets

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas.

Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials.
Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials, and unlike arterials their operation is not always dominated by traffic signals.
Downtown streets are signalized facilities that often resemble arterials. They not only move through traffic but also provide access to local businesses for passenger cars, transit buses, and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control. As a result, these factors also affect quality of service.

The street environment includes the geometric characteristics of the facility, the character of roadside activity and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway density, spacing between signalized intersections, existence of parking, level of pedestrian activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses, and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic control (including signals and signs) forces a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds, however, such controls are needed to establish right-of-way.

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service. The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections.

Level-of-service A describes primarily free-flow operations. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.

Level-of-service B describes reasonably unimpeded operations. The ability to maneuver within the traffic stream is only slightly restricted, and control delays at signalized intersections are not significant.

Level-of-service C describes stable operations, however, ability to maneuver and change lanes in midblock location may be more restricted than at level-of-service B. Longer queues, adverse signal coordination, or both may contribute to lower travel speeds.

Level-of-service D borders on a range in which in which small increases in flow may cause substantial increases in delay and decreases in travel speed. Level-of-service D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors.

Level-of-service E is characterized by significant delays and lower travel speeds. Such operations are caused by a combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.

Level-of-service F is characterized by urban street flow at extremely low speeds. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.

The methodology to determine level of service stratifies urban streets into four classifications. The classifications are complex, and are related to functional and design categories. Table A-II describes the functional and design categories, while Table A-III relates these to the urban street classification.

Once classified, the urban street is divided into segments for analysis. An urban street segment is a one-way section of street encompassing a series of blocks or links terminating at a signalized intersection. Adjacent segments of urban streets may be combined to form larger street sections, provided that the segments have similar demand flows and characteristics.

Levels of service are related to the average travel speed of vehicles along the urban street segment or section.

Travel times for existing conditions are obtained by field measurements. The maximum-car technique is used. The vehicle is driven at the posted speed limit unless impeded by actual traffic conditions. In the maximum-car technique, a safe level of vehicular operation is maintained by observing proper following distances and by changing speeds at reasonable rates of acceleration and deceleration. The maximum-car technique provides the best base for measuring traffic performance.

An observer records the travel time and locations and duration of delay. The beginning and ending points are the centers of intersections. Delays include times waiting in queues at signalized intersections. The travel speed is determined by dividing the length of the segment by the travel time. Once the travel speed on the arterial is determined, the level of service is found by comparing the speed to the criteria in Table A-IV. Level-of-service criteria vary for the different classifications of urban street, reflecting differences in driver expectations.

Table A-II: Functional and Design Categories for Urban Streets

Criterion	**Functional Category**			
	Principal Arterial		**Minor Arterial**	
Mobility function	Very important		Important	
Access function	Very minor		Substantial	
Points connected	Freeways, important activity centers, major traffic generators		Principal arterials	
Predominant trips served	Relatively long trips between major points and through trips entering, leaving, and passing through city		Trips of moderate length within relatively small geographical areas	
Criterion	**Design Category**			
	High-Speed	**Suburban**	**Intermediate**	**Urban**
Driveway access density	Very low density	Low density	Moderate density	High density
Arterial type	Multilane divided; undivided or two-lane with shoulders	Multilane divided: undivided or two-lane with shoulders	Multilane divided or undivided; one way, two lane	Undivided one way; two way, two or more lanes
Parking	No	No	Some	Usually
Separate left-turn lanes	Yes	Yes	Usually	Some
Signals per mile	0.5 to 2	1 to 5	4 to 10	6 to 12
Speed limits	45 to 55 mph	40 to 45 mph	30 to 40 mph	25 to 35 mph
Pedestrian activity	Very little	Little	Some	Usually
Roadside development	Low density	Low to medium density	Medium to moderate density	High density

Source: Highway Capacity Manual 2000

Table A-III: Urban Street Class based on Function and Design Categories

	Functional Category	
Design Category	**Principal Arterial**	**Minor Arterial**
High-Speed	I	Not applicable
Suburban	II	II
Intermediate	II	III or IV
Urban	III or IV	IV

Source: Highway Capacity Manual 2000

Table A-IV: Urban Street Levels of Service by Class

Urban Street Class	**I**	**II**	**III**	**IV**
Range of Free Flow Speeds (mph)	45 to 55	35 to 45	30 to 35	25 to 35
Typical Free Flow Speed (mph)	50	40	33	30
Level of Service	**Average Travel Speed (mph)**			
A	>42	>35	>30	>25
B	>34	>28	>24	>19
C	>27	>22	>18	>13
D	>21	>17	>14	>9
E	>16	>13	>10	>7
F	≤16	≤13	≤10	≤7

Source: Highway Capacity Manual 2000

Interrupted Flow

One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs. These all operate quite differently and have differing impacts on overall flow.

Signalized Intersections

The capacity of a highway is related primarily to the geometric characteristics of the facility, as well as to the composition of the traffic stream on the facility. Geometrics are a fixed, or non-varying, characteristic of a facility.

At the signalized intersection, an additional element is introduced into the concept of capacity: time allocation. A traffic signal essentially allocates time among conflicting traffic movements seeking use of the same physical space. The way in which time is allocated has a significant impact on the operation of the intersection and on the capacity of the intersection and its approaches.

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, *i. e.,* in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, level of service criteria for traffic signals are stated in terms of average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the ratio of green time to cycle length and the volume to capacity ratio for the lane group.

For each intersection analyzed the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A level of service designation is given to the control delay to better describe the level of operation. A description of levels of service for signalized intersections can be found in Table A-V

Table A-V: Description of Level of Service for Signalized Intersections

Level of Service	Description
A	Very low control delay, up to 10 seconds per vehicle. Progression is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression or short cycle lengths or both. More vehicles stop causing higher levels of delay.
C	Control delay greater than 20 and up to 35 seconds per vehicle. Higher delays are caused by fair progression or longer cycle lengths or both. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase doe not serve queued vehicles, and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestions becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Control delay greater than 55 and up to 80 seconds per vehicle. The limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.

Source: Highway Capacity Manual 2000

The use of control delay, which may also be referred to as signal delay, was introduced in the 1997 update to the *Highway Capacity Manual*, and represents a departure from previous updates. In the third edition, published in 1985 and the 1994 update to the third edition, delay only included stopped delay. Thus, the level of service criteria listed in Table A-V differs from earlier criteria.

Unsignalized Intersections

The current procedures on unsignalized intersections were first introduced in the 1997 update to the *Highway Capacity Manual* and represent a revision of the methodology published in the 1994 update to the 1985 *Highway Capacity Manual*. The revised procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, *i. e.,* in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

Two-Way Stop Controlled Intersections

Two-way stop controlled intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At two-way stop-controlled intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A level of service designation is given to the expected control delay for each minor movement. Level of service is not defined for the intersection as a whole. Control delay is the increased time of travel for a vehicle approaching and passing through a stop-controlled intersection, compared with a free-flow vehicle if it were not required

to slow or stop at the intersection. A description of levels of service for two-way stop-controlled intersections is found in Table A-VI.

Table A-VI: Description of Level of Service for Two-Way Stop Controlled Intersections

Level of Service	Description
A	Very low control delay less than 10 seconds per vehicle for each movement subject to delay.
B	Low control delay greater than 10 and up to 15 seconds per vehicle for each movement subject to delay.
C	Acceptable control delay greater than 15 and up to 25 seconds per vehicle for each movement subject to delay.
D	Tolerable control delay greater than 25 and up to 35 seconds per vehicle for each movement subject to delay.
E	Limit of tolerable control delay greater than 35 and up to 50 seconds per vehicle for each movement subject to delay.
F	Unacceptable control delay in excess of 50 seconds per vehicle for each movement subject to delay.

Source: Highway Capacity Manual 2000

Appendix B – Traffic Data Collection Technical Memorandum

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TECHNICAL MEMORANDUM

DATE: Tuesday, October 15, 2013

TO: Tam Nguyen, P.E. and Arthur Carrera, P.E., T.E., ACPWD

FROM: David Mahama, P.E. and Thomas Krakow, P.E., DKS

CC: Chi-Hsin Shao, T.E., AICP and Manoj Madhavan, CHS

SUBJECT: **Castro Valley Traffic Circulation Study – Traffic Data Collection Technical Memorandum**
P#13028-000 Task 200

TRAFFIC DATA COLLECTION

Introduction

This technical memorandum describes the traffic data compiled and collected for the Castro Valley Traffic Circulation Study. This data will be used as basis to analyze the study intersections under existing and future traffic conditions.

Data Compiled and Collected

The following data were obtained from County Staff:

1. Copy of the 2009 Castro Valley Traffic Circulation Study
2. Signal timing sheets for the study traffic intersections under County jurisdiction
3. The TJMAX Traffic Study Report
4. Request the ACTC Travel Demand Model
5. Shape files for GIS (ACPWA has provided files)
6. Past three years collision data for the study intersections located along Redwood Road (from Castro Valley Boulevard to Heyer Avenue)
7. Staff report pertaining to the Strobridge Avenue access restriction at Gary Drive

DKS conducted the turning movement counts during typical weekdays (Tuesday through Thursday) in February 2012 when schools were in session. Attachment A contains the vehicle, pedestrian, and bicycle counts for the study intersections.

The following data were collected:

1. Seven day (24-hour) traffic classification volume count
2. Weekday vehicle turning movement counts
3. Weekday Pedestrian and bike counts
4. Travel time runs for Redwood Road from Castro Valley Boulevard to Heyer Avenue (four runs each for a.m., midday, and p.m. peak)

The turning movement counts during typical weekdays (Tuesday through Thursday) in February 2012 when schools were in session. Table 1 shows the count locations for the A.M. and P.M. turning movement counts. Midday turning movement counts were conducted for five (5) intersections located near schools.

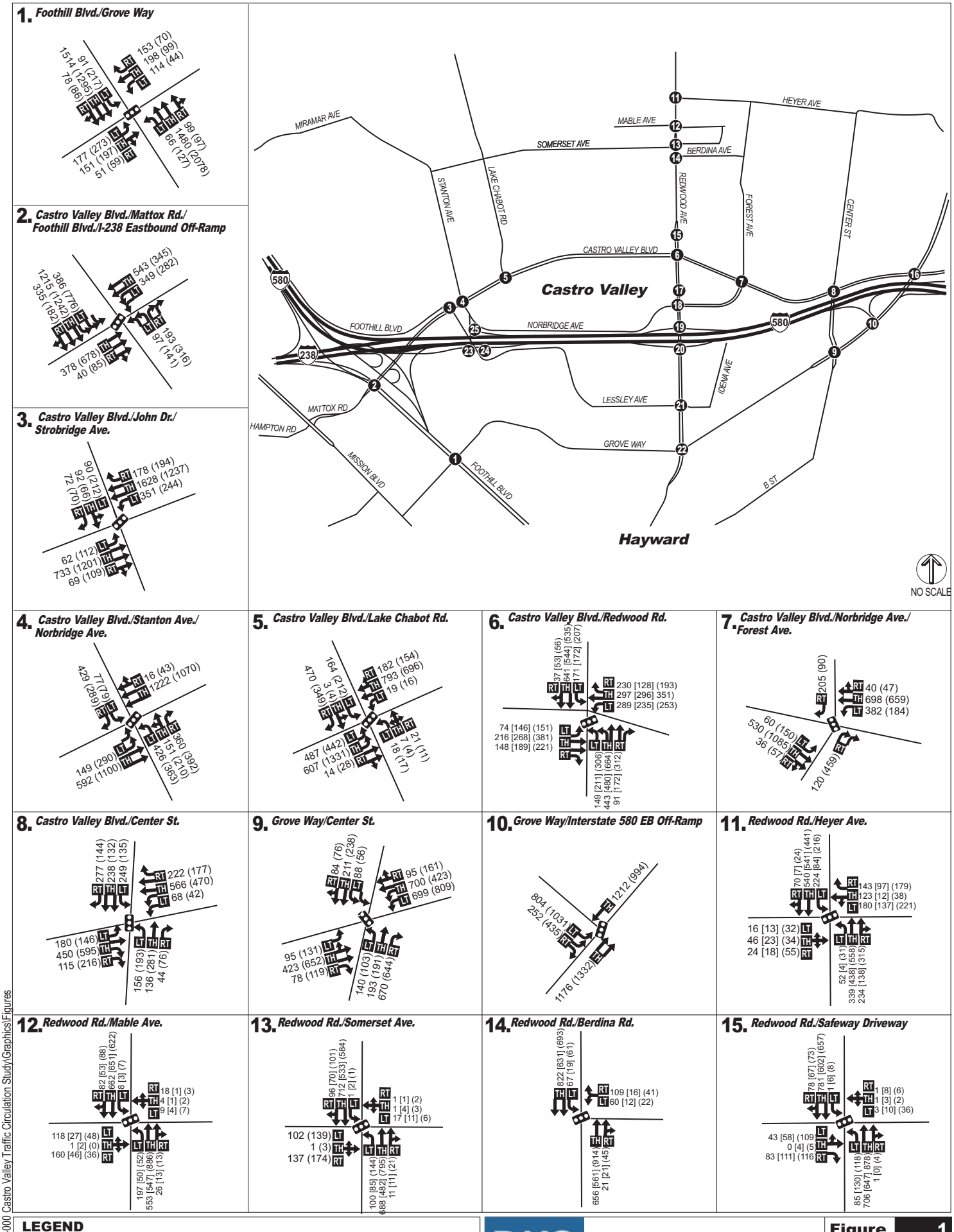
Table 1: List of Study Intersections and Locations for Turning Movement Counts

ID	Study Intersection	AM	Midday	PM	Remarks
1	Foothill Boulevard/Grove Way	X		X	
2	Castro Valley Boulevard/Mattox Road/Foothill Boulevard/I-238 Eastbound off-ramp	X		X	
3	Castro Valley Boulevard/John Drive/Strobridge Ave.	X		X	
4	Castro Valley Boulevard/Stanton Avenue/Norbridge Avenue	X		X	
5	Castro Valley Boulevard/Lake Chabot Road	X		X	
6	Castro Valley Boulevard/Redwood Road	X	X	X	Counts were recently conducted as part of the PASS project
7	Castro Valley Boulevard/Norbridge Avenue/Forest Avenue	X		X	
8	Castro Valley Boulevard/Center Street	X		X	Counts were recently conducted as part of the PASS project
9	Grove Way/Center Street	X		X	"
10	Grove Way/Interstate 580 EB off-ramp	X		X	"
11	Redwood Road/Heyer Avenue	X	X	X	
12	Redwood Road/Mable Avenue	X	X	X	
13	Redwood Road/Somerset Avenue	X	X	X	
14	Redwood Road/Berdina Road	X	X	X	
15	Redwood Road/Safeway Driveway	X	X	X	Counts were recently conducted as part of the PASS project
16	East Castro Valley Boulevard/Grove Way/Crow Canyon Road	X		X	"
17	Redwood Road/Castro Valley Plaza Entrance	X		X	"
18	Redwood Road/Norbridge Avenue	X		X	"
19	Redwood Road/I-580 WB on/off ramps	X		X	"
20	Redwood Road/I-580 EB on/off ramps	X		X	"
21	Redwood Road/Lessley Avenue	X		X	"
22	Redwood Road/Grove Way	X		X	"
23	Strobridge Avenue/Interstate 580 EB on ramp	X		X	
24	Strobridge Avenue/Interstate 580 EB off ramp	X		X	
25	Strobridge Avenue/Interstate 580 WB off ramp	X		X	

Locations for ADT Tube Counts

1. Castro Valley Boulevard between Norbridge Avenue/Forest Avenue and Marshall Street
2. Castro Valley Boulevard between Redwood Road and Lake Chabot Road
3. Strobridge Avenue between McDonalds Driveway and Castro Valley Boulevard
4. Norbridge Avenue between MacDonald Driveway and Castro Valley Boulevard
5. Norbridge Avenue between Walker Court and Nunes Avenue

Figure 1 shows a summary of the turning movement traffic volumes at each of the study intersections and the directional ADT for roadway segments in the study area. The traffic data is contained in Attachment A.



LEGEND

- (00) - Study Intersection
- ← - Lane Geometry
- - Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement
  Left•Thru•Right

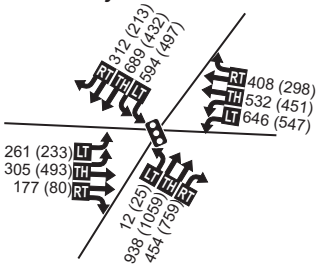
DKS

Figure 1

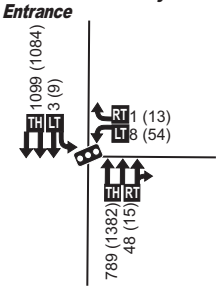
Existing Traffic Conditions Turning Movement Traffic Volumes

P:\P\13\13028-000 Castro Valley Traffic Circulation Study\Graphics\Figures

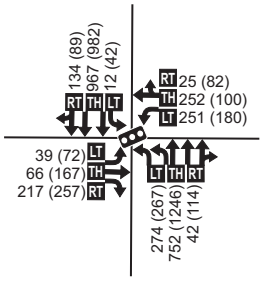
16. ***East Castro Valley Blvd./Grove Way/ Crow Canyon Rd.***



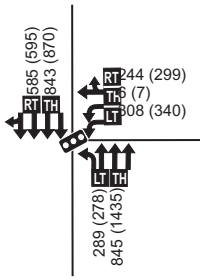
17. ***Redwood Rd./Castro Valley Plaza Entrance***



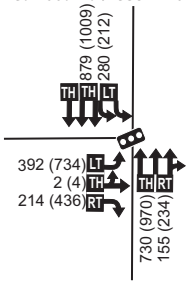
18. ***Redwood Rd./Norbridge Ave.***



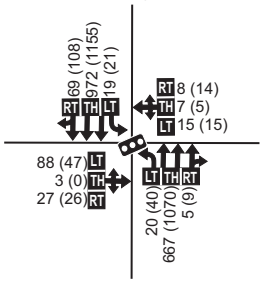
19. ***Redwood Rd./I-580 WB on/off Ramps***



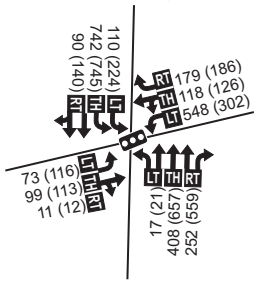
20. ***Redwood Rd./I-580 EB on/off Ramps***



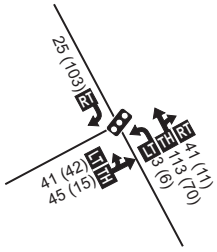
21. ***Redwood Rd./Lessley Ave.***



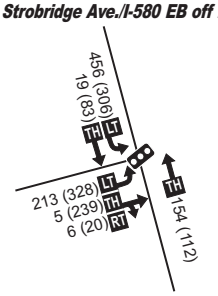
22. ***Redwood Rd./Grove Way***



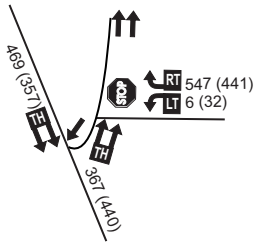
23. ***Strobridge Ave./I-580 EB on Ramp***



24. ***Strobridge Ave./I-580 EB off Ramp***



25. ***Strobridge Ave./I-580 WB off Ramp***



LEGEND

- 00 - Study Intersection
- Lane Geometry
- Traffic Signal
- *AM (PM)* - Peak Hour Traffic Volume
- LT TH RT - Volume Turn Movement Left•Thru•Right

DKS

Figure 1

Existing Traffic Conditions Turning Movement Traffic Volumes

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Tables 1 and 2 summarizes the a.m. peak hour, midday peak hour, and p.m. peak hour pedestrian and bicycle counts for the study intersections respectively. The electronic data in MS-Excel and Adobe PDF format is also contained in a Compact Diskette submitted with this technical memo.

Table 2: Existing Pedestrian Counts Summary

ID	*Intersection*	*Peak Period (1-hour counts)*	*South Crosswalk*	*North Crosswalk*	*East Crosswalk*	*West Crosswalk*	*Total*
1	Foothill Blvd/Grove Wy	A.M.	3	30	2	6	41
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	3	10	1	11	25
2	CVB/Mattox Rd/Foothill Blvd/I-238 EB off ramp	A.M.	2	2	2	0	6
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	6	1	0	2	9
3	CVB/John Dr/Strobridge Ave	A.M.	1	0	4	0	5
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	6	0	4	0	10
4	CVB/Stanton Ave/Norbridge Ave	A.M.	11	4	3	0	18
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	6	12	6	0	24
5	CVB/Lake Chabot Rd	A.M.	6	11	3	0	20
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	12	6	7	0	25
6	CVB/Redwood Rd	A.M.	12	11	7	35	65
		MIDDAY	16	20	15	45	96
		P.M.	13	15	5	32	65
7	CVB/Center St	A.M.	6	21	16	0	43
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	12	17	0	16	45
8	CVB/Center St	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
9	Grove Wy/Center St	A.M.	3	1	0	4	8
		MIDDAY	4	2	2	7	15
		P.M.	5	1	0	15	21
10	Grove Wy/I-580 EB off-ramp	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0

ID	Intersection	Peak Period (1-hour counts)	South Crosswalk	North Crosswalk	East Crosswalk	West Crosswalk	Total
11	Redwood Rd/Heyer Ave	A.M.	67	78	8	4	157
		MIDDAY	13	42	8	5	68
		P.M.	13	12	5	10	40
12	Redwood Rd/Mable Ave	A.M.	87	4	5	142	238
		MIDDAY	23	0	7	48	78
		P.M.	3	0	4	11	18
13	Redwood Rd/Somerset Ave	A.M.	10	15	54	34	113
		MIDDAY	3	0	8	12	23
		P.M.	3	2	9	41	55
14	Redwood Road/Berdina Rd	A.M.	9	0	11	40	60
		MIDDAY	1	0	8	46	55
		P.M.	2	0	11	23	36
15	Redwood Rd/Safeway Dwy	A.M.	6	0	9	38	53
		MIDDAY	28	0	8	26	62
		P.M.	19	0	8	18	45
16	East CVB/Grove Wy/Crow Canyon Rd	A.M.	0	6	2	0	8
		MIDDAY	1	1	1	0	3
		P.M.	0	3	0	0	3
17	Redwood Rd/Castro Valley Plaza Entrance	A.M.	0	3	8	0	11
		MIDDAY	0	13	11	0	24
		P.M.	0	16	14	28	58
18	Redwood Rd/Norbridge Ave	A.M.	29	8	9	24	70
		MIDDAY	13	17	5	30	65
		P.M.	28	19	19	35	101
19	Redwood Rd/I-580 WB on/off ramps	A.M.	0	0	5	27	32
		MIDDAY	0	0	7	28	35
		P.M.	0	0	8	26	34
20	Redwood Rd/I-580 EB on/off ramps	A.M.	0	0	8	6	14
		MIDDAY	0	0	6	8	14
		P.M.	0	0	13	23	36
21	Redwood Rd/Lessley Ave	A.M.	3	0	5	7	15
		MIDDAY	7	0	8	20	35
		P.M.	6	0	7	12	25

ID	Intersection	Peak Period (1-hour counts)	South Crosswalk	North Crosswalk	East Crosswalk	West Crosswalk	Total
22	Redwood Rd/Grove Wy	A.M.	6	4	2	9	21
		MIDDAY	10	19	5	5	39
		P.M.	14	11	12	10	47
23	Strobridge Ave/I-580 EB on-ramp	A.M.	0	0	6	1	7
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	5	0	5
24	Strobridge Ave/I-580 EB off-ramp	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
25	Strobridge Ave/I-580 WB off-ramp	A.M.	1	0	2	1	4
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	1	0	1

Note:
n/a = traffic counts are unavailable because the analysis did not include midday peak period.

Table 3: Existing Bicycle Counts Summary

ID	*Intersection*	*Peak Period (1-hour counts)*	*Southbound*	*Northbound*	*Eastbound*	*Westbound*	*Total*
1	Foothill Blvd/Grove Wy	A.M.	0	1	0	1	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	1	0	1	2
2	CVB/Mattox Rd/Foothill Blvd/I-238 EB off ramp	A.M.	1	0	1	2	4
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	1	1	2
3	CVB/John Dr/Strobridge Ave	A.M.	0	0	1	1	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	1	0	2	1	4
4	CVB/Stanton Ave/Norbridge Ave	A.M.	0	0	3	1	4
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	2	5	1	8
5	CVB/Lake Chabot Rd	A.M.	1	0	0	1	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	1	0	1	1	3
6	CVB/Redwood Rd	A.M.	1	0	1	4	6
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	8	5	13
7	CVB/Center St	A.M.	1	0	1	3	5
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	8	5	13
8	CVB/Center St	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
9	Grove Wy/Center St	A.M.	2	1	0	0	3
		MIDDAY	0	0	0	3	3
		P.M.	0	1	3	1	5
10	Grove Wy/I-580 EB off-ramp	A.M.	0	0	0	2	2
		MIDDAY	0	0	0	3	3
		P.M.	0	0	2	2	4
11	Redwood Rd/Heyer Ave	A.M.	1	2	0	2	5
		MIDDAY	2	1	2	2	7
		P.M.	1	4	1	2	8

ID	Intersection	Peak Period (1-hour counts)	Southbound	Northbound	Eastbound	Westbound	Total
12	Redwood Rd/Mable Ave	A.M.	1	1	2	6	10
		MIDDAY	1	1	0	0	2
		P.M.	1	5	0	0	6
13	Redwood Rd/Somerset Ave	A.M.	1	1	0	0	2
		MIDDAY	2	0	0	0	2
		P.M.	4	5	3	0	12
14	Redwood Road/Berdina Rd	A.M.	5	3	0	3	11
		MIDDAY	5	4	0	2	11
		P.M.	3	1	0	0	4
15	Redwood Rd/Safeway Dwy	A.M.	0	4	0	0	4
		MIDDAY	2	0	0	0	2
		P.M.	0	4	0	1	5
16	East CVB/Grove Wy/Crow Canyon Rd	A.M.	0	0	0	1	1
		MIDDAY	0	0	1	1	2
		P.M.	0	1	5	0	6
17	Redwood Rd/Castro Valley Plaza Entrance	A.M.	2	2	0	0	4
		MIDDAY	2	0	0	1	3
		P.M.	3	7	2	0	12
18	Redwood Rd/Norbridge Ave	A.M.	1	2	1	1	5
		MIDDAY	2	1	2	0	5
		P.M.	1	6	2	2	11
19	Redwood Rd/I-580 WB on/off ramps	A.M.	3	3	0	1	7
		MIDDAY	2	2	0	0	4
		P.M.	3	5	0	0	8
20	Redwood Rd/I-580 EB on/off ramps	A.M.	4	3	0	0	7
		MIDDAY	4	4	0	0	8
		P.M.	3	10	0	0	13
21	Redwood Rd/Lessley Ave	A.M.	5	1	0	0	6
		MIDDAY	4	3	1	0	8
		P.M.	5	8	0	0	13
22	Redwood Rd/Grove Wy	A.M.	0	1	0	0	1
		MIDDAY	2	2	0	0	4
		P.M.	3	4	0	3	10

ID	*Intersection*	*Peak Period (1-hour counts)*	*Southbound*	*Northbound*	*Eastbound*	*Westbound*	*Total*
23	Strobridge Ave/I-580 EB on-ramp	A.M.	0	0	1	0	1
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	2	0	0	0	2
24	Strobridge Ave/I-580 EB off-ramp	A.M.	0	0	0	0	0
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0
25	Strobridge Ave/I-580 WB off-ramp	A.M.	0	1	1	0	2
		MIDDAY	n/a	n/a	n/a	n/a	n/a
		P.M.	0	0	0	0	0

Note:
n/a = traffic counts are unavailable because the analysis did not include midday peak period.

Travel Time Survey

The results of the floating car surveys conducted under existing conditions for the segment of Redwood Road between Castro Valley Boulevard and Heyer Avenue are shown in Table 4. Existing conditions surveys are termed as "Before" survey. The results of the "Before" floating car surveys will be compared with the "After" floating car surveys that are to be conducted after implementation of the proposed signal timing plans. The floating car worksheets are contained in Appendix B.

A floating car run covers a one-way trip of the entire length of a study corridor. These runs capture the travel time, speed, stopping time, number of stops, and other delays on an individual directional roadway segment. The floating car survey data was analyzed to obtain overall averages of travel time, delay, speed, and free flow speed for the entire length of each corridor.

Table 4: Redwood Road between Castro Valley Boulevard and Heyer Avenue, Weekday "Before" Travel Time Survey Results

Peak Period	*Direction*	*Average Travel Time [min:sec]*	*Average Signal Delay [min:sec]*	*Average # of stops*	*Probability of stopping [%]*	*Average Speed[1] [mph]*	*Average Free Flow Speed[2] [mph]*
A.M.	Northbound	2:52	1:12	2.25	38	15.12	23.55
	Southbound	4:21	2:48	2.75	46	9.15	25.05
Midday	Northbound	1:41	0:15	1.00	17	24.09	27.22
	Southbound	2:32	1:04	2.25	38	16.40	26.50
P.M.	Northbound	2:20	0:50	1.75	29	17.15	25.83
	Southbound	2:06	0:34	1.00	17	19.81	25.41

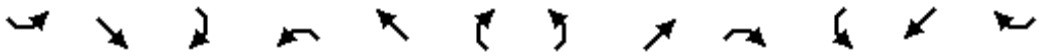
Notes: [1]Average speed along the corridor including stop delays.
[2]Average free flow speed along the corridor excluding stop delays.

Attachment A – Traffic Volume Counts

- Seven-day (24-hour) traffic classification volume counts
- Turning movement counts (vehicle, pedestrian, and bicycle)
- See enclosed Compact Diskette for electronic traffic data in MS Excel and PDF format

(Contained in a separate compact diskette submitted separately to City staff due to the size of the traffic data)

Appendix C – Level of Service Worksheets: Existing Traffic Conditions



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	91	1514	78	66	1480	99	177	151	51	114	198	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5088		1770	6336		1721	1785		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.46	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1787	5088		1770	6336		836	1785		840	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	94	1561	80	68	1526	102	182	156	53	118	204	158
RTOR Reduction (vph)	0	3	0	0	5	0	0	11	0	0	0	112
Lane Group Flow (vph)	94	1638	0	68	1623	0	182	198	0	118	204	46
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	11.7	70.7		8.8	68.3		28.2	28.2		28.2	28.2	28.2
Effective Green, g (s)	11.7	70.7		8.8	68.3		28.2	28.2		28.2	28.2	28.2
Actuated g/C Ratio	0.10	0.59		0.07	0.57		0.23	0.23		0.23	0.23	0.23
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	174	2998		130	3606		196	419		197	438	352
v/s Ratio Prot	c0.05	c0.32		0.04	0.26			0.11			0.11	
v/s Ratio Perm							c0.22			0.14		0.03
v/c Ratio	0.54	0.55		0.52	0.45		0.93	0.47		0.60	0.47	0.13
Uniform Delay, d1	51.6	14.9		53.6	15.0		44.9	39.5		40.9	39.4	36.2
Progression Factor	0.99	0.69		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	0.6		3.8	0.4		44.0	0.8		4.8	0.8	0.2
Delay (s)	53.5	10.8		57.3	15.4		88.9	40.3		45.7	40.2	36.4
Level of Service	D	B		E	B		F	D		D	D	D
Approach Delay (s)		13.1			17.1			62.9			40.3	
Approach LOS		B			B			E			D	

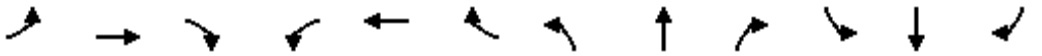
Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.4
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	386	1215	335	97	0	193	0	378	40	349	543	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4920		3273		2656		4908		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4920		3273		2656		4908		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	402	1266	349	101	0	201	0	394	42	364	566	0
RTOR Reduction (vph)	0	37	0	0	0	106	0	11	0	0	0	0
Lane Group Flow (vph)	402	1578	0	101	0	95	0	425	0	364	566	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.9	62.9		9.0		57.0		16.0		16.1	36.1	
Effective Green, g (s)	14.9	62.9		9.0		57.0		16.0		16.1	36.1	
Actuated g/C Ratio	0.12	0.52		0.08		0.48		0.13		0.13	0.30	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	620	2579		245		1262		654		465	1075	
v/s Ratio Prot	c0.08	c0.32		0.03		0.04		c0.09		c0.10	0.16	
v/s Ratio Perm												
v/c Ratio	0.65	0.61		0.41		0.08		0.65		0.78	0.53	
Uniform Delay, d1	50.1	20.0		53.0		17.2		49.3		50.3	34.9	
Progression Factor	1.00	1.00		1.25		0.04		1.00		1.00	1.00	
Incremental Delay, d2	2.3	1.1		1.0		0.1		2.2		8.4	0.5	
Delay (s)	52.4	21.1		67.2		0.8		51.6		58.6	35.3	
Level of Service	D	C		E		A		D		E	D	
Approach Delay (s)		27.3			23.0			51.6			44.4	
Approach LOS		C			C			D			D	

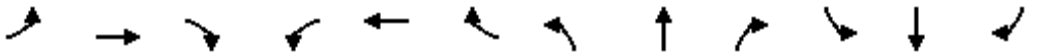
Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	733	69	351	1628	178	0	0	0	90	92	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (prot)	1719	4870		1770	5000						1800	1568
Flt Permitted	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (perm)	1719	4870		1770	5000						1800	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	764	72	366	1696	185	0	0	0	94	96	75
RTOR Reduction (vph)	0	10	0	0	10	0	0	0	0	0	0	56
Lane Group Flow (vph)	65	826	0	366	1871	0	0	0	0	0	190	19
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	7.8	43.1		24.4	59.2						26.0	26.0
Effective Green, g (s)	7.8	43.1		24.4	59.2						26.0	26.0
Actuated g/C Ratio	0.07	0.41		0.23	0.56						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	128	1999		411	2819						446	388
v/s Ratio Prot	0.04	0.17		c0.21	c0.37						c0.11	
v/s Ratio Perm												0.01
v/c Ratio	0.51	0.41		0.89	0.66						0.43	0.05
Uniform Delay, d1	46.8	22.0		39.0	16.0						33.2	30.1
Progression Factor	1.00	1.00		1.30	0.62						1.00	1.00
Incremental Delay, d2	2.3	0.6		15.9	0.9						3.0	0.2
Delay (s)	49.1	22.6		66.8	10.8						36.2	30.3
Level of Service	D	C		E	B						D	C
Approach Delay (s)		24.5			19.9			0.0			34.5	
Approach LOS		C			B			A			C	

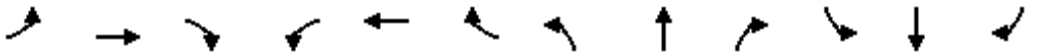
Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	592	0	0	1222	16	426	151	360	77	0	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			1.00		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (prot)	3367	3471			5074		1681	1728	1559	1770		1583
Flt Permitted	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (perm)	3367	3471			5074		1681	1728	1559	1770		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	157	623	0	0	1286	17	448	159	379	81	0	452
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	267	0	0	269
Lane Group Flow (vph)	157	623	0	0	1302	0	300	307	112	81	0	183
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot						Split		Perm	Prot		custom
Protected Phases	5	2			6		4	4		3		3
Permitted Phases									4			
Actuated Green, G (s)	9.3	55.5			42.7		22.2	22.2	22.2	15.3		15.3
Effective Green, g (s)	9.3	55.5			42.7		22.2	22.2	22.2	15.3		15.3
Actuated g/C Ratio	0.09	0.53			0.41		0.21	0.21	0.21	0.15		0.15
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	298	1835			2063		355	365	330	258		231
v/s Ratio Prot	c0.05	0.18			c0.26		c0.18	0.18		0.05		c0.12
v/s Ratio Perm									0.07			
v/c Ratio	0.53	0.34			0.63		0.85	0.84	0.34	0.31		0.79
Uniform Delay, d1	45.7	14.2			24.9		39.7	39.7	35.2	40.2		43.3
Progression Factor	1.34	0.63			1.45		1.02	1.02	1.09	1.00		1.00
Incremental Delay, d2	0.7	0.5			1.0		16.4	15.7	0.5	0.5		16.3
Delay (s)	61.8	9.4			37.0		56.9	56.1	39.0	40.7		59.6
Level of Service	E	A			D		E	E	D	D		E
Approach Delay (s)		20.0			37.0			49.8			56.7	
Approach LOS		B			D			D			E	

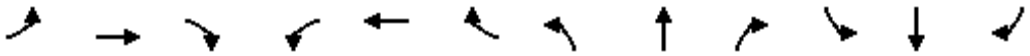
Intersection Summary			
HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	487	607	14	19	793	182	18	7	21	164	3	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3424		1752	3390		1681	1563		1659	1666	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.73	0.73	1.00
Satd. Flow (perm)	3335	3424		1752	3390		1681	1559		1283	1273	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	535	667	15	21	871	200	20	8	23	180	3	516
RTOR Reduction (vph)	0	1	0	0	15	0	0	15	0	0	0	373
Lane Group Flow (vph)	535	681	0	21	1056	0	18	18	0	92	91	143
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.8	54.7		2.8	37.7		3.0	36.0		29.0	29.0	29.0
Effective Green, g (s)	19.8	54.7		2.8	37.7		3.0	36.0		29.0	29.0	29.0
Actuated g/C Ratio	0.19	0.52		0.03	0.36		0.03	0.34		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	629	1784		47	1217		48	535		354	352	433
v/s Ratio Prot	c0.16	0.20		0.01	c0.31		c0.01	0.00				
v/s Ratio Perm								0.01		0.07	0.07	c0.09
v/c Ratio	0.85	0.38		0.45	0.87		0.38	0.03		0.26	0.26	0.33
Uniform Delay, d1	41.2	15.0		50.3	31.3		50.1	22.9		29.6	29.6	30.3
Progression Factor	1.07	1.37		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.8	0.6		2.5	8.5		3.6	0.0		0.3	0.3	0.3
Delay (s)	53.7	21.2		52.8	39.8		53.6	23.0		29.9	29.9	30.6
Level of Service	D	C		D	D		D	C		C	C	C
Approach Delay (s)		35.5			40.0			33.8			30.4	
Approach LOS		D			D			C			C	

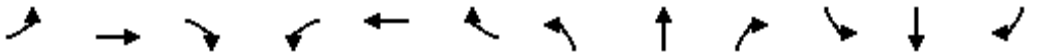
Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	216	148	289	297	230	149	443	91	171	641	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1504	1770	3539	1551	3367	3471	1519	1787	3533	
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)	1719	3438	1504	1770	3539	1551	3367	3471	1519	1787	3533	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	89	260	178	348	358	277	180	534	110	206	772	45
RTOR Reduction (vph)	0	0	42	0	0	57	0	0	86	0	4	0
Lane Group Flow (vph)	89	260	136	348	358	220	180	534	24	206	813	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	11.9	40.7	52.2	26.9	55.7	75.1	11.5	28.0	28.0	19.4	35.9	
Effective Green, g (s)	11.9	40.7	52.2	26.9	55.7	75.1	11.5	28.0	28.0	19.4	35.9	
Actuated g/C Ratio	0.09	0.31	0.40	0.21	0.43	0.58	0.09	0.22	0.22	0.15	0.28	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	157	1076	644	366	1516	896	298	748	327	267	976	
v/s Ratio Prot	0.05	0.08	0.02	c0.20	0.10	c0.04	0.05	c0.15		0.12	c0.23	
v/s Ratio Perm			0.07			0.10			0.02			
v/c Ratio	0.57	0.24	0.21	0.95	0.24	0.25	0.60	0.71	0.07	0.77	0.83	
Uniform Delay, d1	56.6	33.2	25.4	50.9	23.6	13.5	57.1	47.3	40.6	53.2	44.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.64	0.33	1.00	1.00	
Incremental Delay, d2	2.8	0.5	0.1	34.1	0.4	0.1	2.3	3.0	0.1	11.8	6.1	
Delay (s)	59.4	33.7	25.5	85.0	24.0	13.6	40.8	33.3	13.4	65.0	50.3	
Level of Service	E	C	C	F	C	B	D	C	B	E	D	
Approach Delay (s)		35.3			42.6			32.3			53.3	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	42.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

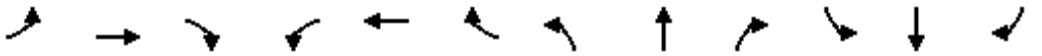
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	530	36	382	698	40	0	0	120	0	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3431		1770	3496				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3431		1770	3496				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	72	639	43	460	841	48	0	0	145	0	0	247
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	93	0	0	108
Lane Group Flow (vph)	72	680	0	460	886	0	0	0	52	0	0	139
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	34.1	75.9		38.2	80.0				46.6			42.5
Effective Green, g (s)	34.1	75.9		38.2	80.0				46.6			42.5
Actuated g/C Ratio	0.26	0.58		0.29	0.62				0.36			0.33
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	455	2003		520	2151				999			532
v/s Ratio Prot	0.04	c0.20		c0.26	c0.25				0.02			c0.09
v/s Ratio Perm												
v/c Ratio	0.16	0.34		0.88	0.41				0.05			0.26
Uniform Delay, d1	36.9	14.0		43.8	12.9				27.3			32.2
Progression Factor	1.00	1.00		1.00	1.00				2.18			1.00
Incremental Delay, d2	0.1	0.5		15.9	0.6				0.0			0.1
Delay (s)	37.0	14.5		59.7	13.5				59.3			32.3
Level of Service	D	B		E	B				E			C
Approach Delay (s)		16.6			29.2			59.3			32.3	
Approach LOS		B			C			E			C	

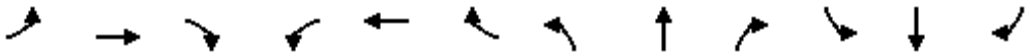
Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.5
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	450	115	68	566	222	156	136	44	249	238	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	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	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	202	506	129	76	636	249	175	153	49	280	267	311
RTOR Reduction (vph)	0	0	67	0	0	153	0	0	38	0	0	246
Lane Group Flow (vph)	202	506	62	76	636	96	157	171	11	280	267	65
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	19.9	62.8	62.8	7.1	50.0	50.0	17.0	17.0	28.1	27.1	27.1	27.1
Effective Green, g (s)	19.9	62.8	62.8	7.1	50.0	50.0	17.0	17.0	28.1	27.1	27.1	27.1
Actuated g/C Ratio	0.15	0.48	0.48	0.05	0.38	0.38	0.13	0.13	0.22	0.21	0.21	0.21
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	271	1710	765	187	1361	609	220	230	602	369	388	330
v/s Ratio Prot	c0.11	0.14		0.02	c0.18		0.09	c0.10	0.00	c0.16	0.14	
v/s Ratio Perm			0.04			0.06						0.04
v/c Ratio	0.75	0.30	0.08	0.41	0.47	0.16	0.71	0.74	0.02	0.76	0.69	0.20
Uniform Delay, d1	52.6	20.3	18.1	59.4	30.0	26.2	54.2	54.4	40.1	48.4	47.5	42.5
Progression Factor	1.00	1.00	1.00	1.15	0.55	0.14	0.98	0.98	1.76	1.00	1.00	1.00
Incremental Delay, d2	9.3	0.4	0.2	1.3	1.0	0.5	10.4	12.2	0.0	8.7	5.0	0.3
Delay (s)	62.0	20.7	18.3	69.7	17.6	4.1	63.6	65.4	70.7	57.0	52.6	42.8
Level of Service	E	C	B	E	B	A	E	E	E	E	D	D
Approach Delay (s)		30.3			18.2			65.3			50.5	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	423	78	699	700	95	140	193	670	88	211	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3321	1527	3467	3505		1787	1881	1599	3433	3358	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3321	1527	3467	3505		1787	1881	1599	3433	3358	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	445	82	736	737	100	147	203	705	93	222	88
RTOR Reduction (vph)	0	0	59	0	8	0	0	0	70	0	33	0
Lane Group Flow (vph)	90	455	23	736	829	0	147	203	635	93	277	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	36.1	36.1	36.1	41.8	41.8		12.8	28.7	70.5	7.9	23.8	
Effective Green, g (s)	36.1	36.1	36.1	41.8	41.8		12.8	28.7	70.5	7.9	23.8	
Actuated g/C Ratio	0.28	0.28	0.28	0.32	0.32		0.10	0.22	0.54	0.06	0.18	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	438	922	424	1115	1127		176	415	867	209	615	
v/s Ratio Prot	0.06	c0.14		0.21	c0.24		c0.08	0.11	c0.40	0.03	c0.08	
v/s Ratio Perm			0.01									
v/c Ratio	0.21	0.49	0.05	0.66	0.74		0.84	0.49	0.73	0.44	0.45	
Uniform Delay, d1	36.0	39.3	34.4	38.0	39.2		57.6	44.2	22.6	58.9	47.3	
Progression Factor	1.00	1.00	1.00	0.91	0.91		1.00	1.00	1.00	1.03	1.07	
Incremental Delay, d2	1.1	1.9	0.2	1.3	2.2		26.5	0.3	2.8	0.5	0.2	
Delay (s)	37.0	41.2	34.7	35.7	37.9		84.1	44.6	25.4	61.0	50.7	
Level of Service	D	D	C	D	D		F	D	C	E	D	
Approach Delay (s)		39.7			36.8			37.3			53.1	
Approach LOS		D			D			D			D	

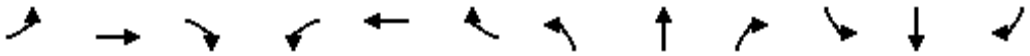
Intersection Summary			
HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1176	1212	0	804	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1251	1289	0	855	268
RTOR Reduction (vph)	0	0	0	0	0	53
Lane Group Flow (vph)	0	1251	1289	0	855	215
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		34.6	34.6		21.6	21.6
Effective Green, g (s)		34.6	34.6		21.6	21.6
Actuated g/C Ratio		0.53	0.53		0.33	0.33
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1884	1902		1141	526
v/s Ratio Prot		0.35	c0.36		c0.25	0.14
v/s Ratio Perm						
v/c Ratio		0.66	0.68		0.75	0.41
Uniform Delay, d1		11.0	11.1		19.3	16.8
Progression Factor		0.71	0.89		1.00	1.00
Incremental Delay, d2		1.5	1.7		2.6	0.4
Delay (s)		9.2	11.6		21.9	17.1
Level of Service		A	B		C	B
Approach Delay (s)		9.2	11.6		20.8	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		

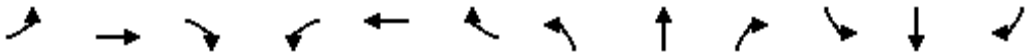
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	46	24	180	123	143	52	399	234	224	540	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.92	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.97	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1764			1774	1471	1752	3268		1787	3501	
Flt Permitted		0.92			0.78	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1631			1429	1471	1752	3268		1787	3501	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	19	55	29	214	146	170	62	475	279	267	643	83
RTOR Reduction (vph)	0	14	0	0	0	51	0	97	0	0	9	0
Lane Group Flow (vph)	0	89	0	0	360	119	62	657	0	267	717	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		24.3			24.3	24.3	4.7	21.7		15.4	32.4	
Effective Green, g (s)		24.3			24.3	24.3	4.7	21.7		15.4	32.4	
Actuated g/C Ratio		0.33			0.33	0.33	0.06	0.30		0.21	0.44	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		544			476	490	113	973		378	1556	
v/s Ratio Prot							0.04	c0.20		c0.15	0.20	
v/s Ratio Perm		0.05			c0.25	0.08						
v/c Ratio		0.16			0.76	0.24	0.55	0.68		0.71	0.46	
Uniform Delay, d1		17.1			21.7	17.6	33.1	22.5		26.7	14.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			6.7	0.3	2.9	1.7		4.9	0.2	
Delay (s)		17.3			28.4	17.9	36.0	24.2		31.5	14.3	
Level of Service		B			C	B	D	C		C	B	
Approach Delay (s)		17.3			25.0			25.1			18.9	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	72.9	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

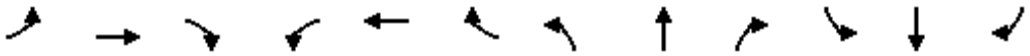
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1591			1630		1752	3476		1770	3347	
Flt Permitted		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1591			1630		1752	3476		1770	3347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	42	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	286	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		20.0			3.5		15.8	48.2		1.0	33.4	
Effective Green, g (s)		20.0			3.5		15.8	48.2		1.0	33.4	
Actuated g/C Ratio		0.22			0.04		0.18	0.53		0.01	0.37	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		353			63		307	1857		20	1239	
v/s Ratio Prot		c0.18			c0.01		c0.13	0.20		0.01	c0.26	
v/s Ratio Perm												
v/c Ratio		0.81			0.27		0.76	0.37		0.45	0.70	
Uniform Delay, d1		33.3			42.1		35.4	12.2		44.3	24.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.5			0.8		9.0	0.1		5.8	1.7	
Delay (s)		45.8			42.9		44.4	12.2		50.1	25.8	
Level of Service		D			D		D	B		D	C	
Approach Delay (s)		45.8			42.9			20.4			26.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



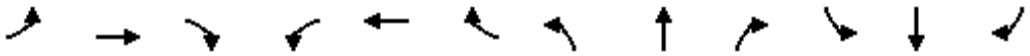
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	1	137	17	1	1	100	688	11	1	712	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Frt		0.92			0.99		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1689			1792		1752	3490		1752	3406	
Flt Permitted		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1651			1873		1752	3490		1752	3406	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	115	1	154	19	1	1	112	773	12	1	800	108
RTOR Reduction (vph)	0	44	0	0	1	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	226	0	0	20	0	112	784	0	1	900	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		17.9			2.4		8.5	28.0		12.3	31.8	
Effective Green, g (s)		17.9			2.4		8.5	28.0		12.3	31.8	
Actuated g/C Ratio		0.23			0.03		0.11	0.36		0.16	0.41	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		381			58		192	1259		278	1396	
v/s Ratio Prot							c0.06	0.22		c0.00	c0.26	
v/s Ratio Perm		c0.14			c0.01							
v/c Ratio		0.59			0.35		0.58	0.62		0.00	0.64	
Uniform Delay, d1		26.6			36.8		32.9	20.4		27.5	18.4	
Progression Factor		1.00			1.00		0.82	0.33		1.00	1.00	
Incremental Delay, d2		3.7			1.3		3.7	0.7		0.0	0.9	
Delay (s)		30.3			38.1		30.5	7.4		27.5	19.3	
Level of Service		C			D		C	A		C	B	
Approach Delay (s)		30.3			38.1			10.2			19.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	20.5
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	109	656	21	67	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1688		3451		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1688		3451		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	69	125	754	24	77	945
RTOR Reduction (vph)	60	0	2	0	0	0
Lane Group Flow (vph)	134	0	776	0	77	945
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	17.9		28.0		12.3	31.8
Effective Green, g (s)	17.9		28.0		12.3	31.8
Actuated g/C Ratio	0.23		0.36		0.16	0.41
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	389		1245		283	1465
v/s Ratio Prot	c0.08		0.22		c0.04	c0.26
v/s Ratio Perm						
v/c Ratio	0.34		0.62		0.27	0.65
Uniform Delay, d1	24.9		20.5		28.7	18.4
Progression Factor	1.00		1.00		0.74	0.38
Incremental Delay, d2	1.1		0.8		0.2	0.7
Delay (s)	26.1		21.3		21.5	7.6
Level of Service	C		C		C	A
Approach Delay (s)	26.1		21.3			8.7
Approach LOS	C		C			A

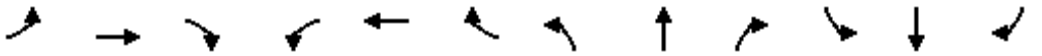
Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	19.4
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	0	83	3	1	1	85	706	1	1	781	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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		0.98		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1557		1792		1770	3538		1787	3498	
Flt Permitted		0.75	1.00		0.84		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1404	1557		1555		1770	3538		1787	3498	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	54	0	105	4	1	1	108	894	1	1	989	99
RTOR Reduction (vph)	0	0	91	0	1	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	54	14	0	5	0	108	895	0	1	1081	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Effective Green, g (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Actuated g/C Ratio		0.13	0.13		0.13		0.14	0.65		0.01	0.52	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		182	202		201		251	2308		25	1836	
v/s Ratio Prot							c0.06	0.25		0.00	c0.31	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.30	0.07		0.03		0.43	0.39		0.04	0.59	
Uniform Delay, d1		22.2	21.6		21.4		22.1	4.6		27.4	9.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.2		0.1		1.6	0.1		0.7	0.3	
Delay (s)		23.8	21.8		21.5		23.7	4.7		28.1	9.5	
Level of Service		C	C		C		C	A		C	A	
Approach Delay (s)		22.5			21.5			6.7			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

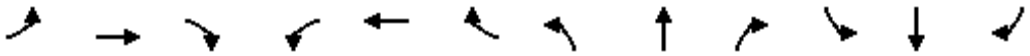


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	305	177	646	532	408	12	938	454	594	689	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	278	324	188	687	566	434	13	998	483	632	733	332
RTOR Reduction (vph)	0	0	135	0	0	243	0	0	51	0	0	79
Lane Group Flow (vph)	278	324	53	687	566	191	13	998	432	632	733	253
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.8	16.4	16.4	30.9	32.5	32.5	2.6	33.0	63.9	32.7	63.1	82.4
Effective Green, g (s)	14.8	16.4	16.4	30.9	32.5	32.5	2.6	33.0	63.9	32.7	63.1	82.4
Actuated g/C Ratio	0.11	0.13	0.13	0.24	0.25	0.25	0.02	0.25	0.49	0.25	0.49	0.63
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	395	451	202	816	885	388	35	898	778	854	1735	1014
v/s Ratio Prot	0.08	c0.09		c0.20	0.16		0.01	c0.28	0.27	c0.19	0.21	0.16
v/s Ratio Perm			0.03			0.12						
v/c Ratio	0.70	0.72	0.26	0.84	0.64	0.49	0.37	1.11	0.56	0.74	0.42	0.25
Uniform Delay, d1	55.5	54.6	51.3	47.2	43.5	41.7	62.9	48.5	23.1	44.7	21.7	10.4
Progression Factor	0.99	0.98	1.25	1.00	1.00	1.00	1.03	0.97	1.02	1.00	1.00	1.00
Incremental Delay, d2	4.3	4.2	0.2	7.6	1.1	0.4	1.9	62.8	0.4	3.0	0.8	0.0
Delay (s)	59.0	57.8	64.2	54.8	44.6	42.1	66.9	109.7	24.0	47.8	22.4	10.4
Level of Service	E	E	E	D	D	D	E	F	C	D	C	B
Approach Delay (s)		59.7			48.1			81.6			29.5	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM Average Control Delay	53.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	1	789	48	3	1099
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5029		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5029		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	1	917	56	3	1278
RTOR Reduction (vph)	0	1	3	0	0	0
Lane Group Flow (vph)	9	0	970	0	3	1278
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	2.6	2.6	72.7		2.3	57.2
Effective Green, g (s)	2.6	2.6	72.7		2.3	57.2
Actuated g/C Ratio	0.02	0.02	0.56		0.02	0.44
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	36	32	2812		31	2237
v/s Ratio Prot	c0.00		c0.19		0.00	c0.25
v/s Ratio Perm		0.00				
v/c Ratio	0.25	0.00	0.34		0.10	0.57
Uniform Delay, d1	62.7	62.4	15.6		62.8	27.2
Progression Factor	1.00	1.00	0.14		0.70	0.48
Incremental Delay, d2	2.6	0.0	0.0		0.4	0.8
Delay (s)	65.4	62.4	2.2		44.3	13.8
Level of Service	E	E	A		D	B
Approach Delay (s)	65.1		2.2			13.9
Approach LOS	E		A			B

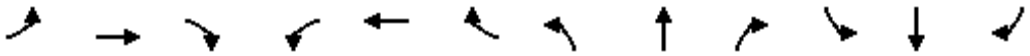
Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	54.4
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	66	217	251	252	25	274	752	42	12	967	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1484	1787	1852		3433	5033		1770	4964	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1484	1787	1852		3433	5033		1770	4964	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	44	75	247	285	286	28	311	855	48	14	1099	152
RTOR Reduction (vph)	0	0	216	0	2	0	0	3	0	0	11	0
Lane Group Flow (vph)	44	75	31	285	312	0	311	900	0	14	1240	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	8.0	16.3	16.3	25.0	26.7		16.0	64.7		2.7	57.2	
Effective Green, g (s)	8.0	16.3	16.3	25.0	26.7		16.0	64.7		2.7	57.2	
Actuated g/C Ratio	0.06	0.13	0.13	0.19	0.21		0.12	0.50		0.02	0.44	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	108	231	186	344	380		423	2505		37	2184	
v/s Ratio Prot	0.03	0.04		c0.16	c0.17		c0.09	0.18		0.01	c0.25	
v/s Ratio Perm			0.02									
v/c Ratio	0.41	0.32	0.17	0.83	0.82		0.74	0.36		0.38	0.57	
Uniform Delay, d1	58.7	51.8	50.8	50.4	49.4		55.0	20.0		62.8	27.2	
Progression Factor	1.00	1.00	1.00	0.55	0.51		1.05	0.89		1.42	0.07	
Incremental Delay, d2	0.9	0.6	0.3	11.8	10.5		5.4	0.4		2.0	0.9	
Delay (s)	59.6	52.4	51.1	39.2	35.7		63.2	18.2		91.2	2.8	
Level of Service	E	D	D	D	D		E	B		F	A	
Approach Delay (s)		52.4			37.4			29.8			3.7	
Approach LOS		D			D			C			A	

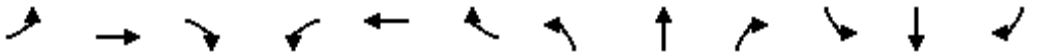
Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	308	6	244	289	845	0	0	843	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1622		1770	5085			5873	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1622		1770	5085			5873	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	342	7	271	321	939	0	0	937	650
RTOR Reduction (vph)	0	0	0	0	157	0	0	0	0	0	168	0
Lane Group Flow (vph)	0	0	0	342	121	0	321	939	0	0	1419	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				10.8	10.8		15.1	47.7			29.6	
Effective Green, g (s)				10.8	10.8		15.1	47.7			29.6	
Actuated g/C Ratio				0.17	0.17		0.23	0.73			0.46	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				582	270		411	3732			2674	
v/s Ratio Prot				c0.10	0.07		c0.18	0.18			c0.24	
v/s Ratio Perm												
v/c Ratio				0.59	0.45		0.78	0.25			0.53	
Uniform Delay, d1				25.0	24.4		23.4	2.8			12.7	
Progression Factor				1.00	1.00		1.12	1.53			0.93	
Incremental Delay, d2				1.0	0.4		8.0	0.1			0.6	
Delay (s)				26.0	24.9		34.2	4.5			12.5	
Level of Service				C	C		C	A			B	
Approach Delay (s)		0.0			25.5			12.0			12.5	
Approach LOS		A			C			B			B	

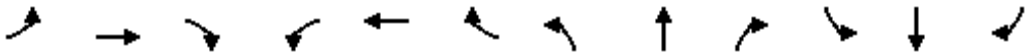
Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	392	2	214	0	0	0	0	730	155	280	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	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	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4934		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4934		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	445	2	243	0	0	0	0	830	176	318	999	0
RTOR Reduction (vph)	0	0	98	0	0	0	0	46	0	0	0	0
Lane Group Flow (vph)	222	225	145	0	0	0	0	960	0	318	999	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	13.6	13.6	13.6					30.7		10.2	44.9	
Effective Green, g (s)	13.6	13.6	13.6					30.7		10.2	44.9	
Actuated g/C Ratio	0.21	0.21	0.21					0.47		0.16	0.69	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	352	353	331					2330		544	3548	
v/s Ratio Prot	0.13	c0.13						c0.19		c0.09	0.19	
v/s Ratio Perm			0.09									
v/c Ratio	0.63	0.64	0.44					0.41		0.58	0.28	
Uniform Delay, d1	23.4	23.5	22.4					11.2		25.4	3.9	
Progression Factor	1.00	1.00	1.00					0.95		1.24	0.25	
Incremental Delay, d2	2.7	2.8	0.3					0.5		1.4	0.2	
Delay (s)	26.1	26.2	22.7					11.2		32.8	1.1	
Level of Service	C	C	C					B		C	A	
Approach Delay (s)		24.9			0.0			11.2			8.8	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

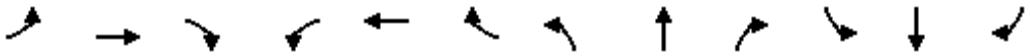
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	3	27	15	7	8	20	667	5	19	972	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.96		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1782		1770	5079		1787	5073	
Flt Permitted		0.76			0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1381			1597		1770	5079		1787	5073	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	94	3	29	16	7	9	21	710	5	20	1034	73
RTOR Reduction (vph)	0	19	0	0	8	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	107	0	0	24	0	21	714	0	20	1100	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		8.4			8.4		1.4	43.8		1.3	43.7	
Effective Green, g (s)		8.4			8.4		1.4	43.8		1.3	43.7	
Actuated g/C Ratio		0.13			0.13		0.02	0.67		0.02	0.67	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		178			206		38	3422		36	3411	
v/s Ratio Prot							c0.01	0.14		0.01	c0.22	
v/s Ratio Perm		c0.08			0.02							
v/c Ratio		0.60			0.12		0.55	0.21		0.56	0.32	
Uniform Delay, d1		26.7			25.0		31.5	4.0		31.6	4.5	
Progression Factor		1.00			1.00		1.04	0.65		0.99	0.95	
Incremental Delay, d2		3.9			0.1		9.4	0.1		9.8	0.2	
Delay (s)		30.6			25.1		42.3	2.8		41.1	4.5	
Level of Service		C			C		D	A		D	A	
Approach Delay (s)		30.6			25.1			3.9			5.1	
Approach LOS		C			C			A			A	

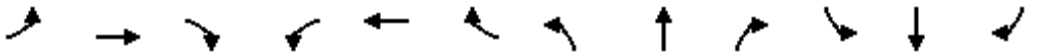
Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	99	11	548	118	179	17	408	252	110	742	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	1796		1681	1714	1558	1752	5036	1568	3467	3496	
Flt Permitted	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1796		1681	1714	1558	1752	5036	1568	3467	3496	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	108	12	596	128	195	18	443	274	120	807	101
RTOR Reduction (vph)	0	4	0	0	0	119	0	0	0	0	5	0
Lane Group Flow (vph)	79	116	0	358	366	76	18	443	274	120	903	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	12.9	12.9		32.9	32.9	32.9	2.9	60.3	96.7	8.9	66.3	
Effective Green, g (s)	12.9	12.9		32.9	32.9	32.9	2.9	60.3	96.7	8.9	66.3	
Actuated g/C Ratio	0.10	0.10		0.25	0.25	0.25	0.02	0.46	0.74	0.07	0.51	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	172	178		425	434	394	39	2336	1166	237	1783	
v/s Ratio Prot	0.05	c0.06		0.21	c0.21		0.01	0.09	0.17	c0.03	c0.26	
v/s Ratio Perm						0.05						
v/c Ratio	0.46	0.65		0.84	0.84	0.19	0.46	0.19	0.23	0.51	0.51	
Uniform Delay, d1	55.3	56.4		46.1	46.1	38.1	62.8	20.5	5.2	58.4	21.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.79	
Incremental Delay, d2	0.7	6.4		13.5	13.4	0.1	3.1	0.2	0.0	0.6	1.0	
Delay (s)	56.0	62.8		59.6	59.5	38.2	65.9	20.7	5.2	61.1	17.7	
Level of Service	E	E		E	E	D	E	C	A	E	B	
Approach Delay (s)		60.1			55.0			16.0			22.7	
Approach LOS		E			E			B			C	

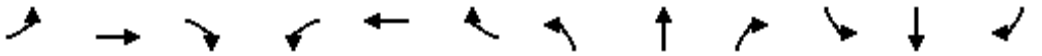
Intersection Summary			
HCM Average Control Delay	33.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	45	0	0	0	0	3	113	41	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.96				0.86
Flt Protected		0.98					0.95	1.00				1.00
Satd. Flow (prot)		1856					1770	1788				1644
Flt Permitted		0.98					0.95	1.00				1.00
Satd. Flow (perm)		1856					1770	1788				1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	49	0	0	0	0	3	123	45	0	0	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	0	10
Lane Group Flow (vph)	0	94	0	0	0	0	3	151	0	0	0	17
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		2.9					17.8	17.8				17.8
Effective Green, g (s)		2.9					17.8	17.8				17.8
Actuated g/C Ratio		0.10					0.62	0.62				0.62
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		188					1098	1109				1020
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.05					0.00					0.01
v/c Ratio		0.50					0.00	0.14				0.02
Uniform Delay, d1		12.2					2.1	2.3				2.1
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		2.1					0.0	0.1				0.0
Delay (s)		14.3					2.1	2.3				2.1
Level of Service		B					A	A				A
Approach Delay (s)		14.3			0.0			2.3			2.1	
Approach LOS		B			A			A			A	

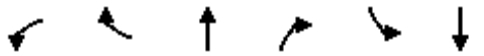
Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	28.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	5	6	0	0	0	0	154	0	456	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.91						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1700						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.65	1.00	
Satd. Flow (perm)	1770	1700						1863		1214	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	5	7	0	0	0	0	167	0	496	21	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	232	7	0	0	0	0	0	167	0	496	21	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	8.7	8.7						20.9		20.9	20.9	
Effective Green, g (s)	8.7	8.7						20.9		20.9	20.9	
Actuated g/C Ratio	0.23	0.23						0.56		0.56	0.56	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	410	393						1036		675	1036	
v/s Ratio Prot		0.00						0.09			0.01	
v/s Ratio Perm	c0.13									c0.41		
v/c Ratio	0.57	0.02						0.16		0.73	0.02	
Uniform Delay, d1	12.8	11.1						4.1		6.3	3.8	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.0						0.1		4.2	0.0	
Delay (s)	14.6	11.2						4.1		10.4	3.8	
Level of Service	B	B						A		B	A	
Approach Delay (s)		14.4			0.0			4.1			10.2	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	547	367	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	582	390	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	390	195			390	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	390	195			390	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	28			100	
cM capacity (veh/h)	586	813			1165	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	6	582	195	195
Volume Left	6	0	0	0
Volume Right	0	582	0	0
cSH	586	813	1700	1700
Volume to Capacity	0.01	0.72	0.11	0.11
Queue Length 95th (ft)	1	155	0	0
Control Delay (s)	11.2	19.7	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	19.6		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	11.8		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	217	1295	86	127	2078	97	273	197	59	44	99	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.97		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	5068		1787	6421		1765	1809		1783	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.66	1.00		0.39	1.00	1.00
Satd. Flow (perm)	1787	5068		1787	6421		1235	1809		727	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	228	1363	91	134	2187	102	287	207	62	46	104	74
RTOR Reduction (vph)	0	4	0	0	4	0	0	10	0	0	0	54
Lane Group Flow (vph)	228	1450	0	134	2285	0	287	259	0	46	104	20
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	20.5	61.1		14.3	55.4		32.3	32.3		32.3	32.3	32.3
Effective Green, g (s)	20.5	61.1		14.3	55.4		32.3	32.3		32.3	32.3	32.3
Actuated g/C Ratio	0.17	0.51		0.12	0.46		0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	305	2580		213	2964		332	487		196	506	419
v/s Ratio Prot	c0.13	0.29		0.07	c0.36			0.14			0.06	
v/s Ratio Perm							c0.23			0.06		0.01
v/c Ratio	0.75	0.56		0.63	0.77		0.86	0.53		0.23	0.21	0.05
Uniform Delay, d1	47.3	20.2		50.3	27.0		41.8	37.4		34.2	33.9	32.5
Progression Factor	0.76	0.80		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.9	0.7		5.7	2.0		20.2	1.1		0.6	0.2	0.0
Delay (s)	43.6	16.9		56.0	29.0		61.9	38.5		34.8	34.1	32.5
Level of Service	D	B		E	C		E	D		C	C	C
Approach Delay (s)		20.5			30.5			50.6			33.7	
Approach LOS		C			C			D			C	

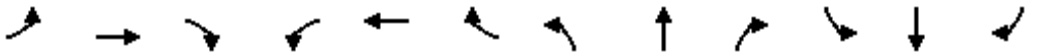
Intersection Summary			
HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	776	1242	182	141	0	316	0	678	85	282	345	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5027		3467		2814		5088		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5027		3467		2814		5088		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	808	1294	190	147	0	329	0	706	89	294	359	0
RTOR Reduction (vph)	0	16	0	0	0	203	0	14	0	0	0	0
Lane Group Flow (vph)	808	1468	0	147	0	126	0	781	0	294	359	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	19.3	57.9		7.4		46.0		23.8		14.9	42.7	
Effective Green, g (s)	19.3	57.9		7.4		46.0		23.8		14.9	42.7	
Actuated g/C Ratio	0.16	0.48		0.06		0.38		0.20		0.12	0.36	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	811	2426		214		1079		1009		430	1272	
v/s Ratio Prot	c0.16	c0.29		0.04		0.04		c0.15		c0.08	0.10	
v/s Ratio Perm												
v/c Ratio	1.00	0.61		0.69		0.12		0.77		0.68	0.28	
Uniform Delay, d1	50.3	22.7		55.2		23.9		45.6		50.3	27.7	
Progression Factor	1.00	1.00		1.14		1.27		1.00		1.00	1.00	
Incremental Delay, d2	30.5	1.1		6.1		0.1		3.8		4.5	0.1	
Delay (s)	80.8	23.8		69.2		30.5		49.3		54.8	27.8	
Level of Service	F	C		E		C		D		D	C	
Approach Delay (s)		43.9			42.5			49.3			39.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	44.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

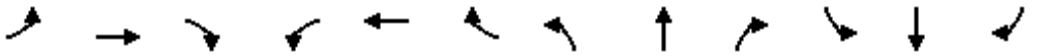
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	1201	109	244	1237	194	0	0	0	212	66	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.98						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (prot)	1787	5062		1787	5031						1794	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (perm)	1787	5062		1787	5031						1794	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	120	1291	117	262	1330	209	0	0	0	228	71	75
RTOR Reduction (vph)	0	9	0	0	18	0	0	0	0	0	0	56
Lane Group Flow (vph)	120	1399	0	262	1521	0	0	0	0	0	299	19
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	11.7	47.5		20.0	55.3						26.0	26.0
Effective Green, g (s)	11.7	47.5		20.0	55.3						26.0	26.0
Actuated g/C Ratio	0.11	0.45		0.19	0.53						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	199	2290		340	2650						444	392
v/s Ratio Prot	0.07	c0.28		c0.15	0.30						c0.17	
v/s Ratio Perm												0.01
v/c Ratio	0.60	0.61		0.77	0.57						0.67	0.05
Uniform Delay, d1	44.4	21.8		40.3	16.9						35.7	30.1
Progression Factor	1.00	1.00		1.35	0.63						1.00	1.00
Incremental Delay, d2	4.3	1.2		8.2	0.7						7.9	0.2
Delay (s)	48.7	23.0		62.6	11.4						43.6	30.3
Level of Service	D	C		E	B						D	C
Approach Delay (s)		25.0			18.8			0.0			40.9	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

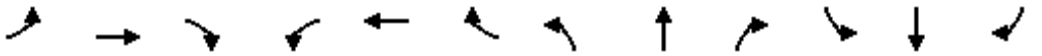
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	1100	0	0	1070	43	363	210	392	79	0	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99	1.00	0.95		1.00
Satd. Flow (prot)	3467	3574			5100		1698	1763	1567	1787		1599
Flt Permitted	0.95	1.00			1.00		0.95	0.99	1.00	0.95		1.00
Satd. Flow (perm)	3467	3574			5100		1698	1763	1567	1787		1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	299	1134	0	0	1103	44	374	216	404	81	0	298
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	178	0	0	270
Lane Group Flow (vph)	299	1134	0	0	1144	0	292	298	226	81	0	28
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot						Split		Perm	Prot		custom
Protected Phases	5	2			6		4	4		3		3
Permitted Phases									4			
Actuated Green, G (s)	13.4	58.4			41.5		24.6	24.6	24.6	10.0		10.0
Effective Green, g (s)	13.4	58.4			41.5		24.6	24.6	24.6	10.0		10.0
Actuated g/C Ratio	0.13	0.56			0.40		0.23	0.23	0.23	0.10		0.10
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	442	1988			2016		398	413	367	170		152
v/s Ratio Prot	c0.09	c0.32			0.22		c0.17	0.17		c0.05		0.02
v/s Ratio Perm									0.14			
v/c Ratio	0.68	0.57			0.57		0.73	0.72	0.61	0.48		0.19
Uniform Delay, d1	43.7	15.1			24.8		37.2	37.0	36.0	45.0		43.8
Progression Factor	1.31	0.75			1.41		1.02	1.02	1.04	1.00		1.00
Incremental Delay, d2	2.5	0.9			1.0		6.5	5.7	2.6	1.5		0.4
Delay (s)	59.9	12.2			35.8		44.2	43.4	40.0	46.6		44.2
Level of Service	E	B			D		D	D	D	D		D
Approach Delay (s)		22.2			35.8			42.3			44.7	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

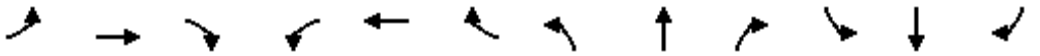
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	442	1331	28	16	696	154	17	4	11	212	4	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.95	1.00
Satd. Flow (prot)	3467	3559		1787	3465		1715	1599		1684	1691	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.75	0.73	1.00
Satd. Flow (perm)	3467	3559		1787	3465		1715	1591		1322	1296	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	456	1372	29	16	718	159	18	4	11	219	4	360
RTOR Reduction (vph)	0	1	0	0	14	0	0	7	0	0	0	260
Lane Group Flow (vph)	456	1400	0	16	863	0	16	10	0	112	111	100
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	17.8	54.7		2.6	39.5		2.9	36.2		29.3	29.3	29.3
Effective Green, g (s)	17.8	54.7		2.6	39.5		2.9	36.2		29.3	29.3	29.3
Actuated g/C Ratio	0.17	0.52		0.02	0.38		0.03	0.34		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	588	1854		44	1304		47	549		369	362	446
v/s Ratio Prot	c0.13	c0.39		0.01	0.25		c0.01	0.00				
v/s Ratio Perm								0.01		0.08	c0.09	0.06
v/c Ratio	0.78	0.76		0.36	0.66		0.34	0.02		0.30	0.31	0.23
Uniform Delay, d1	41.7	19.9		50.4	27.2		50.1	22.7		29.8	29.8	29.1
Progression Factor	1.11	1.28		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.1	2.5		1.9	2.7		3.1	0.0		0.3	0.4	0.2
Delay (s)	51.2	28.0		52.2	29.9		53.2	22.7		30.2	30.2	29.3
Level of Service	D	C		D	C		D	C		C	C	C
Approach Delay (s)		33.7			30.3			37.5			29.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

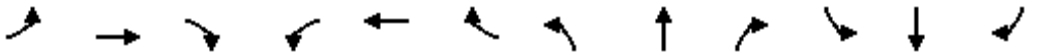
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	381	221	253	351	193	306	664	312	207	535	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1566	1787	3574	1562	3467	3574	1567	1787	3504	
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)	1787	3574	1566	1787	3574	1562	3467	3574	1567	1787	3504	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	157	397	230	264	366	201	319	692	325	216	557	58
RTOR Reduction (vph)	0	0	57	0	0	83	0	0	247	0	7	0
Lane Group Flow (vph)	157	397	173	264	366	118	319	692	78	216	608	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	22.9	47.1	72.2	22.9	47.1	68.4	25.1	33.7	33.7	21.3	29.9	
Effective Green, g (s)	22.9	47.1	72.2	22.9	47.1	68.4	25.1	33.7	33.7	21.3	29.9	
Actuated g/C Ratio	0.16	0.34	0.52	0.16	0.34	0.49	0.18	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	292	1202	847	292	1202	763	622	860	377	272	748	
v/s Ratio Prot	0.09	c0.11	0.04	c0.15	0.10	0.02	0.09	c0.19		0.12	c0.17	
v/s Ratio Perm			0.07			0.05			0.05			
v/c Ratio	0.54	0.33	0.20	0.90	0.30	0.15	0.51	0.80	0.21	0.79	0.81	
Uniform Delay, d1	53.7	34.7	18.4	57.5	34.3	19.8	51.9	50.1	42.5	57.2	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.66	0.66	0.61	1.00	1.00	
Incremental Delay, d2	1.0	0.7	0.0	28.6	0.7	0.0	0.3	4.9	0.2	13.8	6.6	
Delay (s)	54.7	35.4	18.4	86.1	35.0	19.8	34.7	38.0	26.0	71.0	59.0	
Level of Service	D	D	B	F	C	B	C	D	C	E	E	
Approach Delay (s)		34.3			47.6			34.3			62.1	
Approach LOS		C			D			C			E	

Intersection Summary			
HCM Average Control Delay	43.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

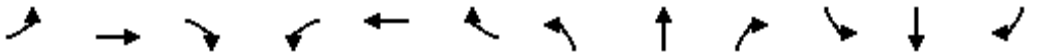
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1085	57	184	659	47	0	0	459	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3538		1770	3487				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3538		1770	3487				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	165	1192	63	202	724	52	0	0	504	0	0	99
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	30	0	0	52
Lane Group Flow (vph)	165	1253	0	202	772	0	0	0	474	0	0	47
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	40.9	87.3		20.3	66.7				45.2			65.8
Effective Green, g (s)	40.9	87.3		20.3	66.7				45.2			65.8
Actuated g/C Ratio	0.29	0.62		0.15	0.48				0.32			0.47
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	522	2206		257	1661				909			765
v/s Ratio Prot	0.09	c0.35		c0.11	0.22				c0.17			0.03
v/s Ratio Perm												
v/c Ratio	0.32	0.57		0.79	0.46				0.52			0.06
Uniform Delay, d1	38.6	15.4		57.8	24.6				38.6			20.2
Progression Factor	1.00	1.00		1.00	1.00				1.36			1.00
Incremental Delay, d2	0.1	1.1		13.5	0.9				0.2			0.0
Delay (s)	38.8	16.4		71.3	25.6				52.9			20.3
Level of Service	D	B		E	C				D			C
Approach Delay (s)		19.0			35.0			52.9			20.3	
Approach LOS		B			D			D			C	

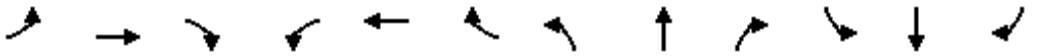
Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	595	216	42	470	177	193	261	76	135	132	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	160	654	237	46	516	195	212	287	84	148	145	158
RTOR Reduction (vph)	0	0	113	0	0	113	0	0	59	0	0	138
Lane Group Flow (vph)	160	654	124	46	516	82	191	308	25	148	145	20
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.0	68.4	68.4	7.3	58.7	58.7	30.6	30.6	41.9	17.7	17.7	17.7
Effective Green, g (s)	17.0	68.4	68.4	7.3	58.7	58.7	30.6	30.6	41.9	17.7	17.7	17.7
Actuated g/C Ratio	0.12	0.49	0.49	0.05	0.42	0.42	0.22	0.22	0.30	0.13	0.13	0.13
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	215	1729	773	179	1484	664	367	386	834	224	236	200
v/s Ratio Prot	c0.09	c0.18		0.01	c0.15		0.11	c0.17	0.01	c0.08	0.08	
v/s Ratio Perm			0.08			0.05						0.01
v/c Ratio	0.74	0.38	0.16	0.26	0.35	0.12	0.52	0.80	0.03	0.66	0.61	0.10
Uniform Delay, d1	59.4	22.5	19.9	63.7	27.6	24.9	48.2	51.8	34.7	58.3	57.9	54.1
Progression Factor	1.00	1.00	1.00	1.14	0.55	0.27	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.6	0.4	0.7	0.6	0.4	1.3	10.9	0.0	7.1	4.7	0.2
Delay (s)	70.9	23.1	20.3	73.5	15.8	7.0	49.6	62.7	34.7	65.4	62.6	54.3
Level of Service	E	C	C	E	B	A	D	E	C	E	E	D
Approach Delay (s)		29.7			17.1			54.4			60.6	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	36.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	652	119	809	423	161	103	191	644	56	238	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3420	1564	3467	3413		1787	1881	1599	3467	3394	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3420	1564	3467	3413		1787	1881	1599	3467	3394	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	136	679	124	843	441	168	107	199	671	58	248	79
RTOR Reduction (vph)	0	0	72	0	27	0	0	0	48	0	22	0
Lane Group Flow (vph)	122	693	52	843	582	0	107	199	623	58	305	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	40.3	40.3	40.3	43.9	43.9		12.7	34.5	78.4	5.8	27.6	
Effective Green, g (s)	40.3	40.3	40.3	43.9	43.9		12.7	34.5	78.4	5.8	27.6	
Actuated g/C Ratio	0.29	0.29	0.29	0.31	0.31		0.09	0.25	0.56	0.04	0.20	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	468	984	450	1087	1070		162	464	895	144	669	
v/s Ratio Prot	0.08	c0.20		c0.24	0.17		0.06	0.11	c0.39	0.02	c0.09	
v/s Ratio Perm			0.03									
v/c Ratio	0.26	0.70	0.12	0.78	0.54		0.66	0.43	0.70	0.40	0.46	
Uniform Delay, d1	38.4	44.5	36.7	43.6	39.8		61.6	44.4	22.2	65.4	49.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	4.2	0.5	3.5	0.6		7.6	0.2	1.9	0.7	0.2	
Delay (s)	39.7	48.7	37.2	47.1	40.3		69.1	44.7	24.1	66.1	49.8	
Level of Service	D	D	D	D	D		E	D	C	E	D	
Approach Delay (s)		46.1			44.3			33.2			52.2	
Approach LOS		D			D			C			D	

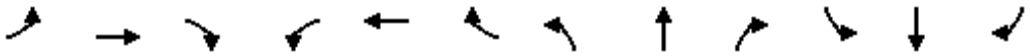
Intersection Summary			
HCM Average Control Delay	42.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1332	994	0	1031	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1388	1035	0	1074	453
RTOR Reduction (vph)	0	0	0	0	0	97
Lane Group Flow (vph)	0	1388	1035	0	1074	356
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		37.1	37.1		19.1	19.1
Effective Green, g (s)		37.1	37.1		19.1	19.1
Actuated g/C Ratio		0.57	0.57		0.29	0.29
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2040	2040		1019	470
v/s Ratio Prot		c0.39	0.29		c0.31	0.22
v/s Ratio Perm						
v/c Ratio		0.68	0.51		1.05	0.76
Uniform Delay, d1		9.8	8.4		22.9	20.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	0.9		43.5	6.6
Delay (s)		11.6	9.3		66.5	27.4
Level of Service		B	A		E	C
Approach Delay (s)		11.6	9.3		54.9	
Approach LOS		B	A		D	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	106.4%	ICU Level of Service	G
Analysis Period (min)	15		

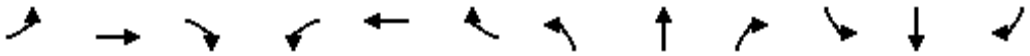
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	34	55	221	38	179	31	558	315	216	441	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738			1790	1560	1787	3345		1787	3539	
Flt Permitted		0.87			0.67	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1535			1241	1560	1787	3345		1787	3539	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	38	62	248	43	201	35	627	354	243	496	27
RTOR Reduction (vph)	0	31	0	0	0	78	0	83	0	0	3	0
Lane Group Flow (vph)	0	105	0	0	291	123	35	898	0	243	520	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		23.1			23.1	23.1	3.8	27.1		14.9	38.2	
Effective Green, g (s)		23.1			23.1	23.1	3.8	27.1		14.9	38.2	
Actuated g/C Ratio		0.30			0.30	0.30	0.05	0.35		0.19	0.50	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		463			374	470	89	1183		348	1765	
v/s Ratio Prot							0.02	c0.27		c0.14	0.15	
v/s Ratio Perm		0.07			c0.23	0.08						
v/c Ratio		0.23			0.78	0.26	0.39	0.76		0.70	0.29	
Uniform Delay, d1		20.0			24.4	20.3	35.3	21.9		28.8	11.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			9.8	0.3	1.0	2.7		4.9	0.1	
Delay (s)		20.3			34.2	20.6	36.3	24.6		33.6	11.4	
Level of Service		C			C	C	D	C		C	B	
Approach Delay (s)		20.3			28.6			25.0			18.4	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

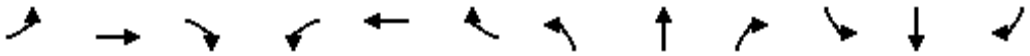
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	36	7	2	3	52	886	13	7	622	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1725			1651		1787	3565		1785	3492	
Flt Permitted		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1725			1651		1787	3565		1785	3492	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	56	0	42	8	2	3	60	1030	15	8	723	102
RTOR Reduction (vph)	0	27	0	0	3	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	71	0	0	10	0	60	1045	0	8	819	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		5.9			0.9		4.3	35.1		0.8	31.6	
Effective Green, g (s)		5.9			0.9		4.3	35.1		0.8	31.6	
Actuated g/C Ratio		0.10			0.01		0.07	0.58		0.01	0.52	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		169			25		128	2079		24	1833	
v/s Ratio Prot		c0.04			c0.01		c0.03	c0.29		0.00	0.23	
v/s Ratio Perm												
v/c Ratio		0.42			0.40		0.47	0.50		0.33	0.45	
Uniform Delay, d1		25.5			29.4		26.9	7.4		29.4	8.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			3.8		1.0	0.1		3.0	0.1	
Delay (s)		26.2			33.2		27.8	7.5		32.4	9.0	
Level of Service		C			C		C	A		C	A	
Approach Delay (s)		26.2			33.2			8.6			9.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

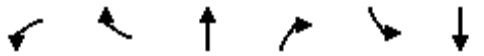
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	3	174	6	3	2	144	795	21	1	584	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1802		1787	3557		1787	3470	
Flt Permitted		0.73			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1251			1851		1787	3557		1787	3470	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	142	3	178	6	3	2	147	811	21	1	596	103
RTOR Reduction (vph)	0	36	0	0	2	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	287	0	0	9	0	147	831	0	1	687	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		25.8			1.0		12.8	26.7		10.7	24.6	
Effective Green, g (s)		25.8			1.0		12.8	26.7		10.7	24.6	
Actuated g/C Ratio		0.32			0.01		0.16	0.33		0.13	0.30	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		397			23		282	1170		235	1051	
v/s Ratio Prot							c0.08	c0.23		0.00	0.20	
v/s Ratio Perm		c0.23			c0.00							
v/c Ratio		0.72			0.39		0.52	0.71		0.00	0.65	
Uniform Delay, d1		24.5			39.8		31.4	23.9		30.6	24.6	
Progression Factor		1.00			1.00		0.65	0.28		1.00	1.00	
Incremental Delay, d2		7.8			4.0		1.0	1.1		0.0	1.3	
Delay (s)		32.3			43.8		21.3	7.7		30.6	25.9	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		32.3			43.8			9.7			25.9	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

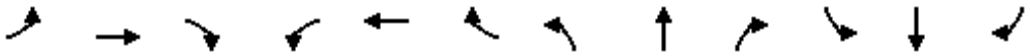
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	22	41	914	45	61	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1702		3541		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1702		3541		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	22	42	933	46	62	707
RTOR Reduction (vph)	29	0	3	0	0	0
Lane Group Flow (vph)	35	0	976	0	62	707
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	25.8		26.7		10.7	24.6
Effective Green, g (s)	25.8		26.7		10.7	24.6
Actuated g/C Ratio	0.32		0.33		0.13	0.30
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	541		1164		235	1083
v/s Ratio Prot	c0.02		c0.28		c0.03	0.20
v/s Ratio Perm						
v/c Ratio	0.07		0.84		0.26	0.65
Uniform Delay, d1	19.3		25.3		31.7	24.6
Progression Factor	1.00		1.00		0.82	0.33
Incremental Delay, d2	0.1		5.3		0.2	1.1
Delay (s)	19.4		30.6		26.2	9.1
Level of Service	B		C		C	A
Approach Delay (s)	19.4		30.6			10.5
Approach LOS	B		C			B

Intersection Summary			
HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	81.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

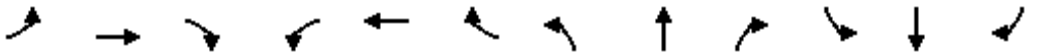
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	5	116	36	2	6	118	878	4	8	657	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1813	1573		1775		1787	3571		1787	3502	
Flt Permitted		0.70	1.00		0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1332	1573		1380		1787	3571		1787	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	114	5	121	38	2	6	123	915	4	8	684	76
RTOR Reduction (vph)	0	0	95	0	5	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	119	26	0	41	0	123	919	0	8	751	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Effective Green, g (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Actuated g/C Ratio		0.21	0.21		0.21		0.16	0.56		0.02	0.42	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		284	335		294		283	1989		33	1461	
v/s Ratio Prot							c0.07	0.26		0.00	c0.21	
v/s Ratio Perm		c0.09	0.02		0.03							
v/c Ratio		0.42	0.08		0.14		0.43	0.46		0.24	0.51	
Uniform Delay, d1		18.5	17.1		17.4		20.7	7.2		26.3	11.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	0.2		0.4		1.5	0.2		3.8	0.1	
Delay (s)		20.2	17.3		17.7		22.2	7.4		30.1	11.9	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		18.7			17.7			9.1			12.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

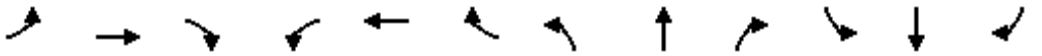
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	493	80	547	451	298	25	1059	759	497	432	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1571	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1571	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	251	530	86	588	485	320	27	1139	816	534	465	229
RTOR Reduction (vph)	0	0	71	0	0	171	0	0	9	0	0	101
Lane Group Flow (vph)	251	530	15	588	485	149	27	1139	807	534	465	128
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.1	24.7	24.7	33.9	44.5	44.5	4.7	44.5	78.4	19.9	59.7	78.3
Effective Green, g (s)	14.1	24.7	24.7	33.9	44.5	44.5	4.7	44.5	78.4	19.9	59.7	78.3
Actuated g/C Ratio	0.10	0.18	0.18	0.24	0.32	0.32	0.03	0.32	0.56	0.14	0.43	0.56
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	349	631	282	840	1136	499	60	1136	895	483	1524	894
v/s Ratio Prot	0.07	c0.15		0.17	0.14		0.02	c0.32	c0.50	c0.16	0.13	0.08
v/s Ratio Perm			0.01			0.10						
v/c Ratio	0.72	0.84	0.05	0.70	0.43	0.30	0.45	1.00	0.90	1.11	0.31	0.14
Uniform Delay, d1	61.0	55.7	47.9	48.4	37.7	36.0	66.4	47.8	27.4	60.0	26.5	14.8
Progression Factor	0.82	0.84	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	8.8	0.0	2.1	0.1	0.1	1.9	27.3	11.9	72.9	0.5	0.0
Delay (s)	55.8	55.5	72.1	50.5	37.8	36.1	68.3	75.1	39.3	133.0	27.0	14.8
Level of Service	E	E	E	D	D	D	E	E	D	F	C	B
Approach Delay (s)		57.2			42.8			60.3			70.8	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

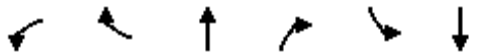
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	493	80	547	451	298	25	1059	759	497	432	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	251	530	86	588	485	320	27	1139	816	534	465	229
RTOR Reduction (vph)	0	0	71	0	0	221	0	0	13	0	0	78
Lane Group Flow (vph)	251	530	15	588	485	99	27	1139	803	534	465	151
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.1	24.7	24.7	27.3	37.9	37.9	4.5	46.7	74.0	24.3	66.5	85.1
Effective Green, g (s)	14.1	24.7	24.7	27.3	37.9	37.9	4.5	46.7	74.0	24.3	66.5	85.1
Actuated g/C Ratio	0.10	0.18	0.18	0.20	0.27	0.27	0.03	0.33	0.53	0.17	0.48	0.61
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	349	631	282	676	968	425	57	1192	845	589	1698	972
v/s Ratio Prot	0.07	c0.15		0.17	0.14		0.02	c0.32	c0.50	c0.16	0.13	0.09
v/s Ratio Perm			0.01			0.06						
v/c Ratio	0.72	0.84	0.05	0.87	0.50	0.23	0.47	0.96	0.95	0.91	0.27	0.16
Uniform Delay, d1	61.0	55.7	47.9	54.6	43.1	39.7	66.6	45.6	31.3	56.7	22.2	11.9
Progression Factor	0.82	0.84	1.53	1.00	1.00	1.00	1.04	0.97	1.03	1.00	1.00	1.00
Incremental Delay, d2	5.5	8.8	0.0	11.2	0.1	0.1	1.5	12.9	14.7	17.2	0.4	0.0
Delay (s)	55.8	55.7	73.4	65.8	43.2	39.8	71.0	57.1	46.9	74.0	22.6	11.9
Level of Service	E	E	E	E	D	D	E	E	D	E	C	B
Approach Delay (s)		57.5			52.0			53.1			42.9	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	51.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

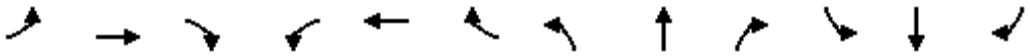
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	13	1382	15	9	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5124		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5124		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	57	14	1470	16	10	1153
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	57	1	1486	0	10	1153
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	7.8	7.8	80.9		2.7	64.1
Effective Green, g (s)	7.8	7.8	80.9		2.7	64.1
Actuated g/C Ratio	0.06	0.06	0.58		0.02	0.46
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	101	87	2961		34	2352
v/s Ratio Prot	c0.03		c0.29		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.56	0.01	0.50		0.29	0.49
Uniform Delay, d1	64.4	62.4	17.6		67.7	26.5
Progression Factor	1.00	1.00	0.14		0.78	0.56
Incremental Delay, d2	5.7	0.0	0.0		1.6	0.7
Delay (s)	70.2	62.5	2.5		54.1	15.5
Level of Service	E	E	A		D	B
Approach Delay (s)	68.7		2.5			15.8
Approach LOS	E		A			B

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	46.1
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

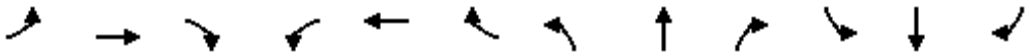
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	167	257	180	100	82	267	1246	114	42	982	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.93		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1496	1787	1723		3467	5038		1787	5044	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1496	1787	1723		3467	5038		1787	5044	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	77	180	276	194	108	88	287	1340	123	45	1056	96
RTOR Reduction (vph)	0	0	182	0	22	0	0	6	0	0	7	0
Lane Group Flow (vph)	77	180	94	194	174	0	287	1457	0	45	1145	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	14.9	26.2	26.2	19.5	19.0		14.7	66.0		6.6	64.1	
Effective Green, g (s)	14.9	26.2	26.2	19.5	19.0		14.7	66.0		6.6	64.1	
Actuated g/C Ratio	0.11	0.19	0.19	0.14	0.14		0.10	0.47		0.05	0.46	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	188	349	280	249	234		364	2375		84	2309	
v/s Ratio Prot	0.04	c0.10		c0.11	c0.10		c0.08	c0.29		0.03	c0.23	
v/s Ratio Perm			0.06									
v/c Ratio	0.41	0.52	0.34	0.78	0.75		0.79	0.61		0.54	0.50	
Uniform Delay, d1	58.4	51.2	49.3	58.2	58.2		61.1	27.5		65.2	26.6	
Progression Factor	1.00	1.00	1.00	1.14	1.52		1.00	1.00		1.54	0.09	
Incremental Delay, d2	0.5	1.0	0.5	12.6	11.1		10.0	1.2		2.9	0.7	
Delay (s)	59.0	52.2	49.9	79.1	99.3		71.1	28.7		103.3	3.2	
Level of Service	E	D	D	E	F		E	C		F	A	
Approach Delay (s)		52.0			89.3			35.7			7.0	
Approach LOS		D			F			D			A	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

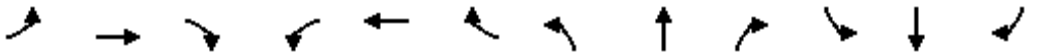
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	340	7	299	278	1435	0	0	870	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5933	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5933	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	351	7	308	287	1479	0	0	897	613
RTOR Reduction (vph)	0	0	0	0	52	0	0	0	0	0	173	0
Lane Group Flow (vph)	0	0	0	351	263	0	287	1479	0	0	1337	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				13.3	13.3		14.2	45.2			28.0	
Effective Green, g (s)				13.3	13.3		14.2	45.2			28.0	
Actuated g/C Ratio				0.20	0.20		0.22	0.70			0.43	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				709	328		390	3571			2556	
v/s Ratio Prot				0.10	c0.16		c0.16	0.29			c0.23	
v/s Ratio Perm												
v/c Ratio				0.50	0.80		0.74	0.41			0.52	
Uniform Delay, d1				22.9	24.6		23.7	4.2			13.6	
Progression Factor				1.00	1.00		1.00	1.14			1.00	
Incremental Delay, d2				0.2	12.5		4.7	0.3			0.8	
Delay (s)				23.1	37.1		28.3	5.1			14.4	
Level of Service				C	D		C	A			B	
Approach Delay (s)		0.0			29.7			8.9			14.4	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	734	4	436	0	0	0	0	970	234	212	1009	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4959		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4959		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	765	4	454	0	0	0	0	1010	244	221	1051	0
RTOR Reduction (vph)	0	0	80	0	0	0	0	61	0	0	0	0
Lane Group Flow (vph)	382	387	374	0	0	0	0	1193	0	221	1051	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	18.2	18.2	18.2					28.5		7.8	40.3	
Effective Green, g (s)	18.2	18.2	18.2					28.5		7.8	40.3	
Actuated g/C Ratio	0.28	0.28	0.28					0.44		0.12	0.62	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	475	477	448					2174		420	3216	
v/s Ratio Prot	0.23	0.23						c0.24		c0.06	0.20	
v/s Ratio Perm			c0.23									
v/c Ratio	0.80	0.81	0.83					0.55		0.53	0.33	
Uniform Delay, d1	21.7	21.8	22.0					13.5		26.9	5.9	
Progression Factor	1.00	1.00	1.00					1.00		1.16	0.56	
Incremental Delay, d2	9.0	9.6	12.1					1.0		1.0	0.2	
Delay (s)	30.8	31.4	34.1					14.5		32.3	3.5	
Level of Service	C	C	C					B		C	A	
Approach Delay (s)		32.2			0.0			14.5			8.5	
Approach LOS		C			A			B			A	

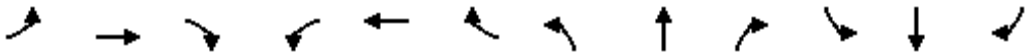
Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	0	26	15	5	14	40	1070	9	21	1155	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99			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	
Frt		0.95			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1742			1751		1787	5127		1787	5050	
Flt Permitted		0.78			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1408			1574		1787	5127		1787	5050	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	51	0	28	16	5	15	43	1151	10	23	1242	116
RTOR Reduction (vph)	0	26	0	0	14	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	53	0	0	22	0	43	1160	0	23	1351	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		6.2			6.2		4.3	49.7		2.6	48.0	
Effective Green, g (s)		6.2			6.2		4.3	49.7		2.6	48.0	
Actuated g/C Ratio		0.09			0.09		0.06	0.71		0.04	0.69	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		125			139		110	3640		66	3463	
v/s Ratio Prot							c0.02	0.23		0.01	c0.27	
v/s Ratio Perm		c0.04			0.01							
v/c Ratio		0.43			0.16		0.39	0.32		0.35	0.39	
Uniform Delay, d1		30.2			29.5		31.6	3.8		32.9	4.7	
Progression Factor		1.00			1.00		1.11	0.79		1.00	1.00	
Incremental Delay, d2		0.9			0.2		0.8	0.2		1.2	0.3	
Delay (s)		31.1			29.7		36.0	3.2		34.0	5.1	
Level of Service		C			C		D	A		C	A	
Approach Delay (s)		31.1			29.7			4.4			5.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

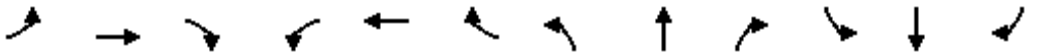
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	113	12	302	126	186	21	657	559	224	745	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	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	0.98	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1849		1698	1751	1560	1787	5136	1599	3467	3459	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1849		1698	1751	1560	1787	5136	1599	3467	3459	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	120	13	321	134	198	22	699	595	238	793	149
RTOR Reduction (vph)	0	4	0	0	0	156	0	0	0	0	7	0
Lane Group Flow (vph)	123	129	0	225	230	42	22	699	595	238	935	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	14.2	14.2		29.9	29.9	29.9	4.4	66.9	100.3	14.0	76.5	
Effective Green, g (s)	14.2	14.2		29.9	29.9	29.9	4.4	66.9	100.3	14.0	76.5	
Actuated g/C Ratio	0.10	0.10		0.21	0.21	0.21	0.03	0.48	0.72	0.10	0.55	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	181	188		363	374	333	56	2454	1146	347	1890	
v/s Ratio Prot	0.07	c0.07		c0.13	0.13		0.01	0.14	c0.37	c0.07	0.27	
v/s Ratio Perm						0.03						
v/c Ratio	0.68	0.69		0.62	0.61	0.13	0.39	0.28	0.52	0.69	0.49	
Uniform Delay, d1	60.7	60.8		49.9	49.8	44.5	66.5	22.1	9.0	60.9	19.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.86	
Incremental Delay, d2	7.7	8.1		2.2	2.1	0.1	1.7	0.3	0.2	4.2	0.9	
Delay (s)	68.4	68.8		52.1	52.0	44.6	68.1	22.4	9.1	59.7	17.8	
Level of Service	E	E		D	D	D	E	C	A	E	B	
Approach Delay (s)		68.6			49.8			17.2			26.2	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	30.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

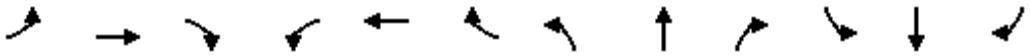
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	15	0	0	0	0	6	70	11	0	0	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.98				0.86
Flt Protected		0.96					0.95	1.00				1.00
Satd. Flow (prot)		1833					1787	1844				1644
Flt Permitted		0.96					0.95	1.00				1.00
Satd. Flow (perm)		1833					1787	1844				1644
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	17	0	0	0	0	7	78	12	0	0	114
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	0	40
Lane Group Flow (vph)	0	64	0	0	0	0	7	86	0	0	0	74
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		2.6					19.5	19.5				19.5
Effective Green, g (s)		2.6					19.5	19.5				19.5
Actuated g/C Ratio		0.09					0.65	0.65				0.65
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		158					1158	1195				1065
v/s Ratio Prot								c0.05				
v/s Ratio Perm		0.03					0.00					0.04
v/c Ratio		0.41					0.01	0.07				0.07
Uniform Delay, d1		13.0					1.9	2.0				2.0
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		1.7					0.0	0.0				0.0
Delay (s)		14.7					1.9	2.0				2.0
Level of Service		B					A	A				A
Approach Delay (s)		14.7			0.0			2.0			2.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	30.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		

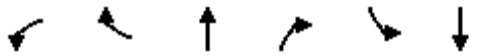
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	239	20	0	0	0	0	112	0	306	83	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1860						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.68	1.00	
Satd. Flow (perm)	1787	1860						1881		1262	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	364	266	22	0	0	0	0	124	0	340	92	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	364	280	0	0	0	0	0	124	0	340	92	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.5	12.5						13.7		13.7	13.7	
Effective Green, g (s)	12.5	12.5						13.7		13.7	13.7	
Actuated g/C Ratio	0.37	0.37						0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	653	680						754		506	746	
v/s Ratio Prot		0.15						0.07			0.05	
v/s Ratio Perm	c0.20									c0.27		
v/c Ratio	0.56	0.41						0.16		0.67	0.12	
Uniform Delay, d1	8.6	8.1						6.6		8.4	6.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.4						0.1		3.5	0.1	
Delay (s)	9.7	8.5						6.7		11.9	6.5	
Level of Service	A	A						A		B	A	
Approach Delay (s)		9.2			0.0			6.7			10.8	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	34.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	32	441	440	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	33	455	454	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	454	227			454	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	454	227			454	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	42			100	
cM capacity (veh/h)	540	782			1103	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	33	455	227	227
Volume Left	33	0	0	0
Volume Right	0	455	0	0
cSH	540	782	1700	1700
Volume to Capacity	0.06	0.58	0.13	0.13
Queue Length 95th (ft)	5	95	0	0
Control Delay (s)	12.1	15.8	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	15.5		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	86	1478	77	67	1417	95	173	149	52	123	216	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5087		1770	6336		1723	1783		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.43	1.00		0.46	1.00	1.00
Satd. Flow (perm)	1787	5087		1770	6336		777	1783		847	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	89	1524	79	69	1461	98	178	154	54	127	223	164
RTOR Reduction (vph)	0	3	0	0	5	0	0	12	0	0	0	106
Lane Group Flow (vph)	89	1600	0	69	1554	0	178	196	0	127	223	58
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	11.3	70.5		8.8	68.5		28.4	28.4		28.4	28.4	28.4
Effective Green, g (s)	11.3	70.5		8.8	68.5		28.4	28.4		28.4	28.4	28.4
Actuated g/C Ratio	0.09	0.59		0.07	0.57		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	168	2989		130	3617		184	422		200	441	354
v/s Ratio Prot	c0.05	c0.31		0.04	0.25			0.11			0.12	
v/s Ratio Perm							c0.23			0.15		0.04
v/c Ratio	0.53	0.54		0.53	0.43		0.97	0.46		0.64	0.51	0.16
Uniform Delay, d1	51.8	14.9		53.6	14.6		45.3	39.3		41.1	39.7	36.4
Progression Factor	0.96	0.73		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.6		4.1	0.4		56.2	0.8		6.4	0.9	0.2
Delay (s)	52.5	11.4		57.7	15.0		101.6	40.1		47.6	40.6	36.6
Level of Service	D	B		E	B		F	D		D	D	D
Approach Delay (s)		13.6			16.8			68.4			41.1	
Approach LOS		B			B			E			D	

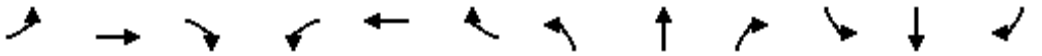
Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.4
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	381	1178	337	89	0	173	0	375	39	334	539	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4916		3273		2656		4909		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4916		3273		2656		4909		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	397	1227	351	93	0	180	0	391	41	348	561	0
RTOR Reduction (vph)	0	38	0	0	0	94	0	11	0	0	0	0
Lane Group Flow (vph)	397	1540	0	93	0	86	0	421	0	348	561	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.8	63.5		8.8		57.5		15.9		15.8	35.7	
Effective Green, g (s)	14.8	63.5		8.8		57.5		15.9		15.8	35.7	
Actuated g/C Ratio	0.12	0.53		0.07		0.48		0.13		0.13	0.30	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	615	2601		240		1273		650		456	1063	
v/s Ratio Prot	c0.08	c0.31		0.03		0.03		c0.09		c0.10	0.16	
v/s Ratio Perm												
v/c Ratio	0.65	0.59		0.39		0.07		0.65		0.76	0.53	
Uniform Delay, d1	50.1	19.4		53.0		16.8		49.4		50.3	35.1	
Progression Factor	1.00	1.00		1.24		0.05		1.00		1.00	1.00	
Incremental Delay, d2	2.3	1.0		1.0		0.1		2.2		7.4	0.5	
Delay (s)	52.4	20.4		66.6		0.9		51.6		57.7	35.6	
Level of Service	D	C		E		A		D		E	D	
Approach Delay (s)		26.8			23.3			51.6			44.1	
Approach LOS		C			C			D			D	

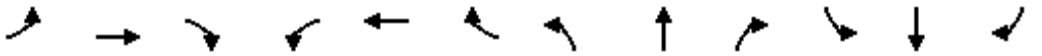
Intersection Summary			
HCM Average Control Delay	33.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	727	72	356	1628	178	0	0	0	91	95	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (prot)	1719	4867		1770	5000						1801	1568
Flt Permitted	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (perm)	1719	4867		1770	5000						1801	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	71	757	75	371	1696	185	0	0	0	95	99	74
RTOR Reduction (vph)	0	11	0	0	11	0	0	0	0	0	0	56
Lane Group Flow (vph)	71	821	0	371	1870	0	0	0	0	0	194	18
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	8.1	42.9		24.6	58.9						26.0	26.0
Effective Green, g (s)	8.1	42.9		24.6	58.9						26.0	26.0
Actuated g/C Ratio	0.08	0.41		0.23	0.56						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	133	1989		415	2805						446	388
v/s Ratio Prot	0.04	0.17		c0.21	c0.37						c0.11	
v/s Ratio Perm												0.01
v/c Ratio	0.53	0.41		0.89	0.67						0.43	0.05
Uniform Delay, d1	46.6	22.1		38.9	16.2						33.3	30.1
Progression Factor	1.00	1.00		1.30	0.62						1.00	1.00
Incremental Delay, d2	3.2	0.6		16.2	0.9						3.1	0.2
Delay (s)	49.8	22.7		66.7	11.0						36.4	30.3
Level of Service	D	C		E	B						D	C
Approach Delay (s)		24.9			20.2			0.0			34.7	
Approach LOS		C			C			A			C	

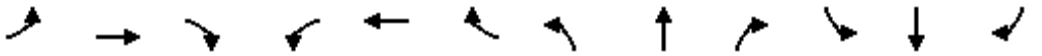
Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	592	0	0	1222	16	426	151	360	79	0	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			1.00		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (prot)	3367	3471			5074		1681	1728	1559	1770		1583
Flt Permitted	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (perm)	3367	3471			5074		1681	1728	1559	1770		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	157	623	0	0	1286	17	448	159	379	83	0	452
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	264	0	0	269
Lane Group Flow (vph)	157	623	0	0	1302	0	300	307	115	83	0	183
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot						Split		Perm	Prot		custom
Protected Phases	5	2			6		4	4		3		3
Permitted Phases									4			
Actuated Green, G (s)	9.3	55.5			42.7		22.2	22.2	22.2	15.3		15.3
Effective Green, g (s)	9.3	55.5			42.7		22.2	22.2	22.2	15.3		15.3
Actuated g/C Ratio	0.09	0.53			0.41		0.21	0.21	0.21	0.15		0.15
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	298	1835			2063		355	365	330	258		231
v/s Ratio Prot	c0.05	0.18			c0.26		c0.18	0.18		0.05		c0.12
v/s Ratio Perm									0.07			
v/c Ratio	0.53	0.34			0.63		0.85	0.84	0.35	0.32		0.79
Uniform Delay, d1	45.7	14.2			24.9		39.7	39.7	35.2	40.2		43.3
Progression Factor	1.33	0.63			1.45		1.02	1.02	1.09	1.00		1.00
Incremental Delay, d2	0.7	0.5			1.0		16.4	15.7	0.5	0.5		16.3
Delay (s)	61.7	9.5			37.0		56.9	56.2	38.9	40.7		59.6
Level of Service	E	A			D		E	E	D	D		E
Approach Delay (s)		20.0			37.0			49.8			56.6	
Approach LOS		B			D			D			E	

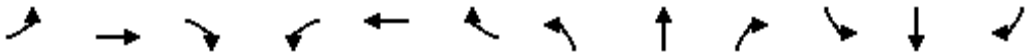
Intersection Summary			
HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	487	607	14	19	793	179	18	7	21	164	3	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3424		1752	3392		1681	1563		1659	1666	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.73	0.73	1.00
Satd. Flow (perm)	3335	3424		1752	3392		1681	1559		1283	1273	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	535	667	15	21	871	197	20	8	23	180	3	516
RTOR Reduction (vph)	0	1	0	0	15	0	0	15	0	0	0	373
Lane Group Flow (vph)	535	681	0	21	1053	0	18	18	0	92	91	143
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.8	54.7		2.8	37.7		3.0	36.0		29.0	29.0	29.0
Effective Green, g (s)	19.8	54.7		2.8	37.7		3.0	36.0		29.0	29.0	29.0
Actuated g/C Ratio	0.19	0.52		0.03	0.36		0.03	0.34		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	629	1784		47	1218		48	535		354	352	433
v/s Ratio Prot	c0.16	0.20		0.01	c0.31		c0.01	0.00				
v/s Ratio Perm								0.01		0.07	0.07	c0.09
v/c Ratio	0.85	0.38		0.45	0.86		0.38	0.03		0.26	0.26	0.33
Uniform Delay, d1	41.2	15.0		50.3	31.3		50.1	22.9		29.6	29.6	30.3
Progression Factor	1.07	1.37		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.8	0.6		2.5	8.3		3.6	0.0		0.3	0.3	0.3
Delay (s)	53.7	21.2		52.8	39.6		53.6	23.0		29.9	29.9	30.6
Level of Service	D	C		D	D		D	C		C	C	C
Approach Delay (s)		35.5			39.8			33.8			30.4	
Approach LOS		D			D			C			C	

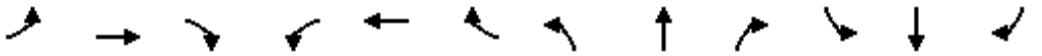
Intersection Summary			
HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	207	138	266	271	226	146	466	93	164	593	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1504	1770	3539	1551	3367	3471	1519	1787	3534	
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)	1719	3438	1504	1770	3539	1551	3367	3471	1519	1787	3534	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	88	249	166	320	327	272	176	561	112	198	714	41
RTOR Reduction (vph)	0	0	50	0	0	54	0	0	89	0	4	0
Lane Group Flow (vph)	88	249	116	320	327	218	176	561	23	198	751	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	10.9	43.4	55.5	25.9	58.4	77.2	12.1	26.9	26.9	18.8	33.6	
Effective Green, g (s)	10.9	43.4	55.5	25.9	58.4	77.2	12.1	26.9	26.9	18.8	33.6	
Actuated g/C Ratio	0.08	0.33	0.43	0.20	0.45	0.59	0.09	0.21	0.21	0.14	0.26	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	144	1148	683	353	1590	921	313	718	314	258	913	
v/s Ratio Prot	0.05	0.07	0.02	c0.18	0.09	c0.03	0.05	c0.16		0.11	c0.21	
v/s Ratio Perm			0.06			0.11			0.02			
v/c Ratio	0.61	0.22	0.17	0.91	0.21	0.24	0.56	0.78	0.07	0.77	0.82	
Uniform Delay, d1	57.5	31.1	23.0	50.9	21.7	12.5	56.4	48.8	41.5	53.5	45.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.64	0.37	1.00	1.00	
Incremental Delay, d2	5.3	0.4	0.0	25.3	0.3	0.0	1.3	5.2	0.1	11.6	5.9	
Delay (s)	62.8	31.5	23.1	76.2	22.0	12.5	38.9	36.6	15.3	65.1	51.3	
Level of Service	E	C	C	E	C	B	D	D	B	E	D	
Approach Delay (s)		34.2			38.1			34.3			54.2	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM Average Control Delay	41.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

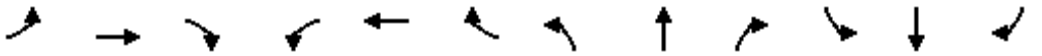
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	517	38	397	655	40	0	0	119	0	0	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3428		1770	3494				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3428		1770	3494				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	72	623	46	478	789	48	0	0	143	0	0	237
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	90	0	0	119
Lane Group Flow (vph)	72	666	0	478	833	0	0	0	53	0	0	118
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	36.2	74.6		39.6	78.0				47.9			44.5
Effective Green, g (s)	36.2	74.6		39.6	78.0				47.9			44.5
Actuated g/C Ratio	0.28	0.57		0.30	0.60				0.37			0.34
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	483	1967		539	2096				1027			557
v/s Ratio Prot	0.04	c0.19		c0.27	c0.24				0.02			c0.07
v/s Ratio Perm												
v/c Ratio	0.15	0.34		0.89	0.40				0.05			0.21
Uniform Delay, d1	35.3	14.7		43.1	13.7				26.4			30.3
Progression Factor	1.00	1.00		1.00	1.00				3.59			1.00
Incremental Delay, d2	0.1	0.5		15.7	0.6				0.0			0.1
Delay (s)	35.4	15.1		58.8	14.2				94.8			30.4
Level of Service	D	B		E	B				F			C
Approach Delay (s)		17.1			30.4			94.8			30.4	
Approach LOS		B			C			F			C	

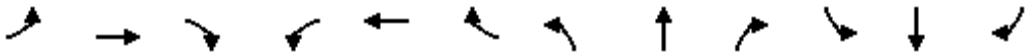
Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.5
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	433	101	58	530	210	153	130	43	200	212	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	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	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	197	487	113	65	596	236	172	146	48	225	238	315
RTOR Reduction (vph)	0	0	55	0	0	138	0	0	38	0	0	256
Lane Group Flow (vph)	197	487	58	65	596	98	155	163	10	225	238	59
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	19.4	66.6	66.6	6.7	53.9	53.9	16.5	16.5	27.2	24.2	24.2	24.2
Effective Green, g (s)	19.4	66.6	66.6	6.7	53.9	53.9	16.5	16.5	27.2	24.2	24.2	24.2
Actuated g/C Ratio	0.15	0.51	0.51	0.05	0.41	0.41	0.13	0.13	0.21	0.19	0.19	0.19
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	264	1813	811	177	1467	656	213	223	583	329	347	295
v/s Ratio Prot	c0.11	0.14		0.02	c0.17		0.09	c0.09	0.00	0.13	c0.13	
v/s Ratio Perm			0.04			0.06						0.04
v/c Ratio	0.75	0.27	0.07	0.37	0.41	0.15	0.73	0.73	0.02	0.68	0.69	0.20
Uniform Delay, d1	52.9	17.9	16.0	59.6	26.8	23.7	54.6	54.6	40.8	49.3	49.4	44.7
Progression Factor	1.00	1.00	1.00	1.24	0.52	0.12	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.4	0.2	1.2	0.8	0.4	11.7	11.6	0.0	5.8	5.5	0.3
Delay (s)	62.6	18.3	16.2	75.3	14.8	3.2	66.3	66.3	40.8	55.1	54.9	45.0
Level of Service	E	B	B	E	B	A	E	E	D	E	D	D
Approach Delay (s)		28.9			16.1			62.9			51.0	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	428	76	738	603	96	143	188	705	78	182	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3322	1527	3467	3494		1787	1881	1599	3433	3358	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3322	1527	3467	3494		1787	1881	1599	3433	3358	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	94	451	80	777	635	101	151	198	742	82	192	76
RTOR Reduction (vph)	0	0	58	0	10	0	0	0	74	0	33	0
Lane Group Flow (vph)	85	460	22	777	726	0	151	198	668	82	235	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	36.1	36.1	36.1	41.5	41.5		12.9	29.4	70.9	7.5	24.0	
Effective Green, g (s)	36.1	36.1	36.1	41.5	41.5		12.9	29.4	70.9	7.5	24.0	
Actuated g/C Ratio	0.28	0.28	0.28	0.32	0.32		0.10	0.23	0.55	0.06	0.18	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	438	922	424	1107	1115		177	425	872	198	620	
v/s Ratio Prot	0.05	c0.14		0.22	0.21		c0.08	0.11	c0.42	0.02	c0.07	
v/s Ratio Perm			0.01									
v/c Ratio	0.19	0.50	0.05	0.70	0.65		0.85	0.47	0.77	0.41	0.38	
Uniform Delay, d1	35.8	39.4	34.4	38.8	38.0		57.6	43.5	23.1	59.1	46.5	
Progression Factor	1.00	1.00	1.00	0.89	0.88		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	1.9	0.2	1.7	1.2		29.7	0.3	3.7	0.5	0.1	
Delay (s)	36.8	41.3	34.6	36.1	34.5		87.4	43.8	26.7	59.6	46.6	
Level of Service	D	D	C	D	C		F	D	C	E	D	
Approach Delay (s)		39.8			35.3			38.2			49.7	
Approach LOS		D			D			D			D	

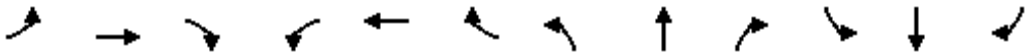
Intersection Summary			
HCM Average Control Delay	38.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1207	1232	0	774	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1284	1311	0	823	266
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	0	1284	1311	0	823	214
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		35.3	35.3		20.9	20.9
Effective Green, g (s)		35.3	35.3		20.9	20.9
Actuated g/C Ratio		0.54	0.54		0.32	0.32
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1922	1941		1104	509
v/s Ratio Prot		0.36	c0.37		c0.24	0.14
v/s Ratio Perm						
v/c Ratio		0.67	0.68		0.75	0.42
Uniform Delay, d1		10.6	10.7		19.7	17.3
Progression Factor		0.72	0.90		1.00	1.00
Incremental Delay, d2		1.4	1.6		2.6	0.4
Delay (s)		9.1	11.2		22.3	17.7
Level of Service		A	B		C	B
Approach Delay (s)		9.1	11.2		21.2	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	109.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	36	17	174	126	148	52	407	241	231	514	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.92	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.97	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1773			1773	1471	1752	3267		1787	3496	
Flt Permitted		0.92			0.80	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1653			1461	1471	1752	3267		1787	3496	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	14	43	20	207	150	176	62	485	287	275	612	85
RTOR Reduction (vph)	0	13	0	0	0	55	0	98	0	0	10	0
Lane Group Flow (vph)	0	64	0	0	357	121	62	674	0	275	687	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.9			22.9	22.9	4.6	22.3		15.8	33.5	
Effective Green, g (s)		22.9			22.9	22.9	4.6	22.3		15.8	33.5	
Actuated g/C Ratio		0.32			0.32	0.32	0.06	0.31		0.22	0.46	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		522			461	465	111	1005		389	1615	
v/s Ratio Prot							0.04	c0.21		c0.15	0.20	
v/s Ratio Perm		0.04			c0.24	0.08						
v/c Ratio		0.12			0.77	0.26	0.56	0.67		0.71	0.43	
Uniform Delay, d1		17.7			22.5	18.5	33.0	21.9		26.2	13.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			7.9	0.3	3.4	1.6		4.7	0.1	
Delay (s)		17.8			30.4	18.8	36.4	23.5		31.0	13.2	
Level of Service		B			C	B	D	C		C	B	
Approach Delay (s)		17.8			26.6			24.5			18.2	
Approach LOS		B			C			C			B	

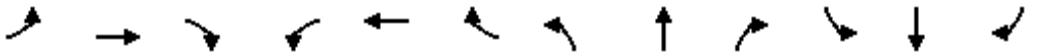
Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.94			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1609			1596		1752	3476		1770	3339	
Flt Permitted		0.50			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		828			1267		1752	3476		1770	3339	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	40	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	288	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.0	48.2		1.1	33.3	
Effective Green, g (s)		25.3			3.9		16.0	48.2		1.1	33.3	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		218			51		292	1745		20	1158	
v/s Ratio Prot							c0.13	0.20		0.01	c0.26	
v/s Ratio Perm		c0.35			c0.01							
v/c Ratio		1.32			0.33		0.79	0.39		0.45	0.75	
Uniform Delay, d1		35.4			44.8		38.4	14.8		47.1	27.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		173.3			1.4		13.0	0.1		5.8	2.6	
Delay (s)		208.7			46.2		51.4	14.9		52.9	30.2	
Level of Service		F			D		D	B		D	C	
Approach Delay (s)		208.7			46.2			24.2			30.5	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM Average Control Delay	55.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

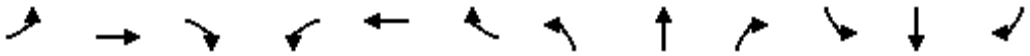
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1591			1598		1752	3476		1770	3347	
Flt Permitted		0.98			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1591			1269		1752	3476		1770	3347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	42	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	286	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		20.0			3.6		15.8	48.3		1.0	33.5	
Effective Green, g (s)		20.0			3.6		15.8	48.3		1.0	33.5	
Actuated g/C Ratio		0.22			0.04		0.17	0.53		0.01	0.37	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		352			51		306	1857		20	1240	
v/s Ratio Prot		c0.18					c0.13	0.20		0.01	c0.26	
v/s Ratio Perm					c0.01							
v/c Ratio		0.81			0.33		0.76	0.37		0.45	0.70	
Uniform Delay, d1		33.4			42.2		35.5	12.2		44.4	24.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.7			1.4		9.2	0.1		5.8	1.7	
Delay (s)		46.1			43.6		44.7	12.3		50.2	25.9	
Level of Service		D			D		D	B		D	C	
Approach Delay (s)		46.1			43.6			20.5			26.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



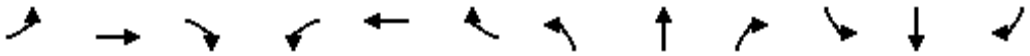
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	1	134	17	1	6	101	699	11	1	673	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.96		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.95		1.00	1.00		1.00	1.00	
Frt		0.92			0.96		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1689			1618		1752	3490		1752	3402	
Flt Permitted		0.85			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1459			1675		1752	3490		1752	3402	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	117	1	151	19	1	7	113	785	12	1	756	106
RTOR Reduction (vph)	0	42	0	0	7	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	227	0	0	20	0	113	796	0	1	854	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		19.6			2.4		8.7	27.5		12.4	31.2	
Effective Green, g (s)		19.6			2.4		8.7	27.5		12.4	31.2	
Actuated g/C Ratio		0.25			0.03		0.11	0.35		0.16	0.40	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		362			51		193	1216		275	1345	
v/s Ratio Prot							c0.06	0.23		c0.00	c0.25	
v/s Ratio Perm		c0.16			c0.01							
v/c Ratio		0.63			0.40		0.59	0.65		0.00	0.64	
Uniform Delay, d1		26.4			37.5		33.4	21.7		28.0	19.3	
Progression Factor		1.00			1.00		0.80	0.35		1.00	1.00	
Incremental Delay, d2		4.7			1.8		3.6	0.9		0.0	0.9	
Delay (s)		31.1			39.4		30.3	8.4		28.0	20.1	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		31.1			39.4			11.2			20.1	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	20.5
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	109	656	21	67	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1688		3451		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1688		3451		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	69	125	754	24	77	945
RTOR Reduction (vph)	60	0	2	0	0	0
Lane Group Flow (vph)	134	0	776	0	77	945
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	19.6		27.5		12.4	31.2
Effective Green, g (s)	19.6		27.5		12.4	31.2
Actuated g/C Ratio	0.25		0.35		0.16	0.40
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	419		1203		281	1413
v/s Ratio Prot	c0.08		0.22		c0.04	c0.26
v/s Ratio Perm						
v/c Ratio	0.32		0.65		0.27	0.67
Uniform Delay, d1	24.2		21.6		29.3	19.6
Progression Factor	1.00		1.00		0.75	0.40
Incremental Delay, d2	0.9		1.1		0.2	0.9
Delay (s)	25.1		22.7		22.1	8.9
Level of Service	C		C		C	A
Approach Delay (s)	25.1		22.7			9.8
Approach LOS	C		C			A

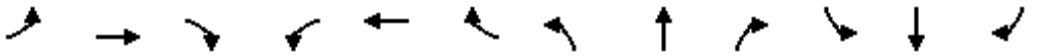
Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	19.4
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	0	83	3	1	0	85	706	1	1	781	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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	0.99	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1557		1821		1770	3538		1787	3498	
Flt Permitted		0.75	1.00		0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1405	1557		1545		1770	3538		1787	3498	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	54	0	105	4	1	0	108	894	1	1	989	99
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	54	14	0	5	0	108	895	0	1	1081	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Effective Green, g (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Actuated g/C Ratio		0.13	0.13		0.13		0.14	0.65		0.01	0.52	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		182	202		200		251	2308		25	1836	
v/s Ratio Prot							c0.06	0.25		0.00	c0.31	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.30	0.07		0.03		0.43	0.39		0.04	0.59	
Uniform Delay, d1		22.2	21.6		21.4		22.1	4.6		27.4	9.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.2		0.1		1.6	0.1		0.7	0.3	
Delay (s)		23.8	21.8		21.5		23.7	4.7		28.1	9.5	
Level of Service		C	C		C		C	A		C	A	
Approach Delay (s)		22.5			21.5			6.7			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

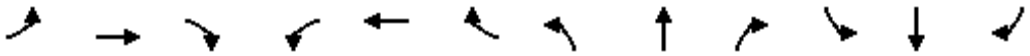


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	263	300	113	679	496	411	11	948	448	585	725	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	280	319	120	722	528	437	12	1009	477	622	771	310
RTOR Reduction (vph)	0	0	105	0	0	240	0	0	51	0	0	85
Lane Group Flow (vph)	280	319	15	722	528	197	12	1009	426	622	771	225
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.9	16.0	16.0	32.4	33.5	33.5	2.6	32.8	65.2	31.8	62.0	81.4
Effective Green, g (s)	14.9	16.0	16.0	32.4	33.5	33.5	2.6	32.8	65.2	31.8	62.0	81.4
Actuated g/C Ratio	0.11	0.12	0.12	0.25	0.26	0.26	0.02	0.25	0.50	0.24	0.48	0.63
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	397	440	197	856	912	400	35	893	794	831	1705	1001
v/s Ratio Prot	0.08	c0.09		c0.21	0.15		0.01	c0.29	0.27	c0.18	0.22	0.14
v/s Ratio Perm			0.01			0.13						
v/c Ratio	0.71	0.72	0.07	0.84	0.58	0.49	0.34	1.13	0.54	0.75	0.45	0.22
Uniform Delay, d1	55.4	54.9	50.5	46.4	42.1	41.0	62.9	48.6	22.1	45.4	22.7	10.6
Progression Factor	0.97	0.97	1.49	1.00	1.00	1.00	1.05	0.97	1.02	1.00	1.00	1.00
Incremental Delay, d2	4.4	4.8	0.1	7.3	0.6	0.3	1.7	70.0	0.3	3.3	0.9	0.0
Delay (s)	58.0	57.9	75.2	53.7	42.7	41.4	67.5	117.3	22.7	48.7	23.5	10.6
Level of Service	E	E	E	D	D	D	E	F	C	D	C	B
Approach Delay (s)		60.8			47.1			86.8			30.4	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM Average Control Delay	54.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	2	789	48	3	1099
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5029		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5029		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	2	917	56	3	1278
RTOR Reduction (vph)	0	2	3	0	0	0
Lane Group Flow (vph)	9	0	970	0	3	1278
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	2.6	2.6	72.4		1.3	55.5
Effective Green, g (s)	2.6	2.6	72.4		1.3	55.5
Actuated g/C Ratio	0.02	0.02	0.56		0.01	0.43
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	36	32	2801		18	2171
v/s Ratio Prot	c0.00		c0.19		0.00	c0.25
v/s Ratio Perm		0.00				
v/c Ratio	0.25	0.00	0.35		0.17	0.59
Uniform Delay, d1	62.7	62.4	15.8		63.8	28.5
Progression Factor	1.00	1.00	0.22		0.67	0.44
Incremental Delay, d2	2.6	0.0	0.0		1.3	1.0
Delay (s)	65.4	62.4	3.6		44.0	13.6
Level of Service	E	E	A		D	B
Approach Delay (s)	64.8		3.6			13.7
Approach LOS	E		A			B

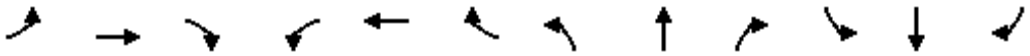
Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	55.7
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	66	212	254	260	26	277	771	42	11	968	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1484	1787	1851		3433	5034		1770	4969	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1484	1787	1851		3433	5034		1770	4969	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	45	75	241	289	295	30	315	876	48	12	1100	145
RTOR Reduction (vph)	0	0	201	0	3	0	0	3	0	0	10	0
Lane Group Flow (vph)	45	75	40	289	322	0	315	921	0	12	1235	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	5.5	15.0	15.0	25.2	28.1		18.8	66.9		2.6	55.5	
Effective Green, g (s)	5.5	15.0	15.0	25.2	28.1		18.8	66.9		2.6	55.5	
Actuated g/C Ratio	0.04	0.12	0.12	0.19	0.22		0.14	0.51		0.02	0.43	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	74	213	171	346	400		496	2591		35	2121	
v/s Ratio Prot	0.03	0.04		c0.16	c0.17		c0.09	0.18		0.01	c0.25	
v/s Ratio Perm			0.03									
v/c Ratio	0.61	0.35	0.24	0.84	0.80		0.64	0.36		0.34	0.58	
Uniform Delay, d1	61.2	53.0	52.3	50.4	48.3		52.4	18.7		62.9	28.4	
Progression Factor	1.00	1.00	1.00	0.57	0.46		1.01	0.92		1.40	0.03	
Incremental Delay, d2	9.3	0.7	0.5	12.0	8.5		1.9	0.4		1.8	1.0	
Delay (s)	70.5	53.8	52.8	40.6	31.0		55.0	17.6		89.9	1.9	
Level of Service	E	D	D	D	C		D	B		F	A	
Approach Delay (s)		55.2			35.5			27.1			2.8	
Approach LOS		E			D			C			A	

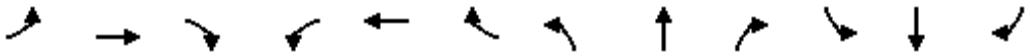
Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	267	6	237	295	853	0	0	844	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1622		1770	5085			5870	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1622		1770	5085			5870	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	297	7	263	328	948	0	0	938	656
RTOR Reduction (vph)	0	0	0	0	157	0	0	0	0	0	167	0
Lane Group Flow (vph)	0	0	0	297	113	0	328	948	0	0	1427	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				10.0	10.0		15.3	48.5			30.2	
Effective Green, g (s)				10.0	10.0		15.3	48.5			30.2	
Actuated g/C Ratio				0.15	0.15		0.24	0.75			0.46	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				539	250		417	3794			2727	
v/s Ratio Prot				c0.08	0.07		c0.19	0.19			c0.24	
v/s Ratio Perm												
v/c Ratio				0.55	0.45		0.79	0.25			0.52	
Uniform Delay, d1				25.4	25.0		23.3	2.6			12.3	
Progression Factor				1.00	1.00		1.11	1.50			0.93	
Incremental Delay, d2				0.7	0.5		8.1	0.1			0.6	
Delay (s)				26.1	25.5		33.9	4.0			12.0	
Level of Service				C	C		C	A			B	
Approach Delay (s)		0.0			25.8			11.7			12.0	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	395	2	196	0	0	0	0	753	148	254	857	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	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	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4944		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4944		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	449	2	223	0	0	0	0	856	168	289	974	0
RTOR Reduction (vph)	0	0	104	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	224	227	119	0	0	0	0	984	0	289	974	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	13.6	13.6	13.6					31.3		9.6	44.9	
Effective Green, g (s)	13.6	13.6	13.6					31.3		9.6	44.9	
Actuated g/C Ratio	0.21	0.21	0.21					0.48		0.15	0.69	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	352	353	331					2381		512	3548	
v/s Ratio Prot	0.13	c0.13						c0.20		c0.08	0.19	
v/s Ratio Perm			0.07									
v/c Ratio	0.64	0.64	0.36					0.41		0.56	0.27	
Uniform Delay, d1	23.4	23.5	22.0					10.9		25.8	3.8	
Progression Factor	1.00	1.00	1.00					1.17		1.27	0.25	
Incremental Delay, d2	2.8	3.0	0.2					0.5		1.2	0.2	
Delay (s)	26.2	26.5	22.2					13.3		33.9	1.1	
Level of Service	C	C	C					B		C	A	
Approach Delay (s)		25.0			0.0			13.3			8.6	
Approach LOS		C			A			B			A	

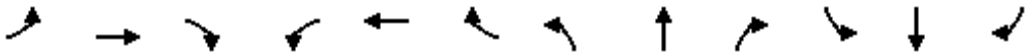
Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	4	28	14	6	8	18	655	6	20	846	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.96		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1753			1777		1770	5078		1787	5077	
Flt Permitted		0.76			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1385			1597		1770	5078		1787	5077	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	4	30	15	6	9	19	697	6	21	900	60
RTOR Reduction (vph)	0	18	0	0	8	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	115	0	0	22	0	19	702	0	21	953	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		8.7			8.7		1.3	43.5		1.3	43.5	
Effective Green, g (s)		8.7			8.7		1.3	43.5		1.3	43.5	
Actuated g/C Ratio		0.13			0.13		0.02	0.67		0.02	0.67	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		185			214		35	3398		36	3398	
v/s Ratio Prot							0.01	0.14		c0.01	c0.19	
v/s Ratio Perm		c0.08			0.01							
v/c Ratio		0.62			0.10		0.54	0.21		0.58	0.28	
Uniform Delay, d1		26.6			24.7		31.6	4.1		31.6	4.4	
Progression Factor		1.00			1.00		1.01	0.60		1.25	0.56	
Incremental Delay, d2		4.6			0.1		8.8	0.1		14.1	0.2	
Delay (s)		31.2			24.8		40.8	2.6		53.7	2.6	
Level of Service		C			C		D	A		D	A	
Approach Delay (s)		31.2			24.8			3.6			3.7	
Approach LOS		C			C			A			A	

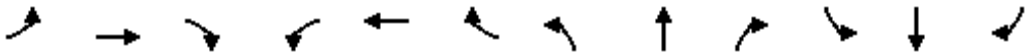
Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	106	11	567	105	186	14	390	247	100	658	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	1798		1681	1711	1558	1752	5036	1568	3467	3506	
Flt Permitted	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1798		1681	1711	1558	1752	5036	1568	3467	3506	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	115	12	616	114	202	15	424	268	109	715	76
RTOR Reduction (vph)	0	4	0	0	0	122	0	0	0	0	4	0
Lane Group Flow (vph)	83	123	0	363	367	80	15	424	268	109	787	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	13.4	13.4		32.7	32.7	32.7	2.8	60.4	96.6	8.5	66.1	
Effective Green, g (s)	13.4	13.4		32.7	32.7	32.7	2.8	60.4	96.6	8.5	66.1	
Actuated g/C Ratio	0.10	0.10		0.25	0.25	0.25	0.02	0.46	0.74	0.07	0.51	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	179	185		423	430	392	38	2340	1165	227	1783	
v/s Ratio Prot	0.05	c0.07		c0.22	0.21		0.01	0.08	0.17	c0.03	c0.22	
v/s Ratio Perm						0.05						
v/c Ratio	0.46	0.67		0.86	0.85	0.20	0.39	0.18	0.23	0.48	0.44	
Uniform Delay, d1	54.9	56.2		46.4	46.4	38.4	62.8	20.3	5.2	58.6	20.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.68	
Incremental Delay, d2	0.7	6.9		15.2	14.6	0.1	2.4	0.2	0.0	0.6	0.8	
Delay (s)	55.6	63.0		61.6	60.9	38.5	65.2	20.5	5.2	63.1	14.5	
Level of Service	E	E		E	E	D	E	C	A	E	B	
Approach Delay (s)		60.1			56.3			15.7			20.4	
Approach LOS		E			E			B			C	

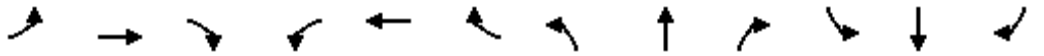
Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	40	0	0	0	0	3	113	41	0	64	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	
Lane Util. Factor		1.00					1.00	1.00			1.00	
Frt		1.00					1.00	0.96			0.96	
Flt Protected		0.97					0.95	1.00			1.00	
Satd. Flow (prot)		1852					1770	1788			1829	
Flt Permitted		0.97					0.69	1.00			1.00	
Satd. Flow (perm)		1852					1293	1788			1829	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	43	0	0	0	0	3	123	45	0	70	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	10	0
Lane Group Flow (vph)	0	90	0	0	0	0	3	151	0	0	87	0
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					
Protected Phases		4						2			6	
Permitted Phases	4						2					
Actuated Green, G (s)		2.9					18.1	18.1			18.1	
Effective Green, g (s)		2.9					18.1	18.1			18.1	
Actuated g/C Ratio		0.10					0.62	0.62			0.62	
Clearance Time (s)		4.0					4.0	4.0			4.0	
Vehicle Extension (s)		3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)		185					807	1116			1142	
v/s Ratio Prot								c0.08			0.05	
v/s Ratio Perm		0.05					0.00					
v/c Ratio		0.49					0.00	0.14			0.08	
Uniform Delay, d1		12.3					2.1	2.2			2.2	
Progression Factor		1.00					1.00	1.00			1.00	
Incremental Delay, d2		2.0					0.0	0.1			0.0	
Delay (s)		14.4					2.1	2.3			2.2	
Level of Service		B					A	A			A	
Approach Delay (s)		14.4			0.0			2.3			2.2	
Approach LOS		B			A			A			A	

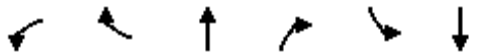
Intersection Summary			
HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	29.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	3	29	0	0	0	0	156	0	454	60	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.86						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1607						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.65	1.00	
Satd. Flow (perm)	1770	1607						1863		1210	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	3	32	0	0	0	0	170	0	493	65	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	232	10	0	0	0	0	0	170	0	493	65	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	8.7	8.7						20.5		20.5	20.5	
Effective Green, g (s)	8.7	8.7						20.5		20.5	20.5	
Actuated g/C Ratio	0.23	0.23						0.55		0.55	0.55	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	414	376						1027		667	1027	
v/s Ratio Prot		0.01						0.09			0.03	
v/s Ratio Perm	c0.13									c0.41		
v/c Ratio	0.56	0.03						0.17		0.74	0.06	
Uniform Delay, d1	12.6	11.0						4.1		6.3	3.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.0						0.1		4.3	0.0	
Delay (s)	14.3	11.0						4.2		10.6	3.9	
Level of Service	B	B						A		B	A	
Approach Delay (s)		13.9			0.0			4.2			9.8	
Approach LOS		B			A			A			A	

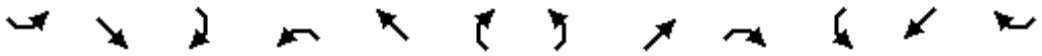
Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	37.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	45	547	369	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	48	582	393	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	393	196			393	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393	196			393	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	28			100	
cM capacity (veh/h)	584	812			1163	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	48	582	196	196
Volume Left	48	0	0	0
Volume Right	0	582	0	0
cSH	584	812	1700	1700
Volume to Capacity	0.08	0.72	0.12	0.12
Queue Length 95th (ft)	7	156	0	0
Control Delay (s)	11.7	19.8	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	19.2		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	11.8		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	203	1275	74	121	2065	100	276	207	65	62	122	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5076		1787	6419		1767	1807		1783	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.63	1.00		0.38	1.00	1.00
Satd. Flow (perm)	1787	5076		1787	6419		1167	1807		707	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	214	1342	78	127	2174	105	291	218	68	65	128	95
RTOR Reduction (vph)	0	4	0	0	4	0	0	10	0	0	0	68
Lane Group Flow (vph)	214	1416	0	127	2275	0	291	276	0	65	128	27
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	19.6	59.9		13.9	54.7		33.9	33.9		33.9	33.9	33.9
Effective Green, g (s)	19.6	59.9		13.9	54.7		33.9	33.9		33.9	33.9	33.9
Actuated g/C Ratio	0.16	0.50		0.12	0.46		0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	292	2534		207	2926		330	510		200	531	440
v/s Ratio Prot	c0.12	0.28		0.07	c0.35			0.15			0.07	
v/s Ratio Perm							c0.25			0.09		0.02
v/c Ratio	0.73	0.56		0.61	0.78		0.88	0.54		0.33	0.24	0.06
Uniform Delay, d1	47.7	20.9		50.5	27.5		41.1	36.5		34.0	33.1	31.4
Progression Factor	0.75	0.81		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.7	0.7		5.3	2.1		23.0	1.2		1.0	0.2	0.1
Delay (s)	43.6	17.8		55.8	29.6		64.1	37.6		35.0	33.4	31.5
Level of Service	D	B		E	C		E	D		C	C	C
Approach Delay (s)		21.1			31.0			51.0			33.1	
Approach LOS		C			C			D			C	

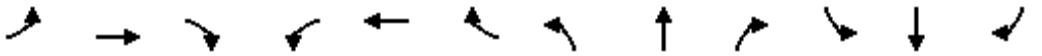
Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	764	1189	177	161	0	365	0	688	84	262	326	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5026		3467		2814		5090		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5026		3467		2814		5090		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	796	1239	184	168	0	380	0	717	88	273	340	0
RTOR Reduction (vph)	0	16	0	0	0	235	0	13	0	0	0	0
Lane Group Flow (vph)	796	1407	0	168	0	145	0	792	0	273	340	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	19.6	57.3		8.2		45.9		24.1		14.4	42.5	
Effective Green, g (s)	19.6	57.3		8.2		45.9		24.1		14.4	42.5	
Actuated g/C Ratio	0.16	0.48		0.07		0.38		0.20		0.12	0.35	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	823	2400		237		1076		1022		416	1266	
v/s Ratio Prot	c0.16	c0.28		0.05		0.05		c0.16		c0.08	0.10	
v/s Ratio Perm												
v/c Ratio	0.97	0.59		0.71		0.14		0.78		0.66	0.27	
Uniform Delay, d1	49.9	22.7		54.7		24.1		45.4		50.4	27.7	
Progression Factor	1.00	1.00		1.15		1.25		1.00		1.00	1.00	
Incremental Delay, d2	23.4	1.1		6.4		0.2		3.7		3.7	0.1	
Delay (s)	73.2	23.8		69.2		30.4		49.1		54.1	27.8	
Level of Service	E	C		E		C		D		D	C	
Approach Delay (s)		41.5			42.3			49.1			39.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	42.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

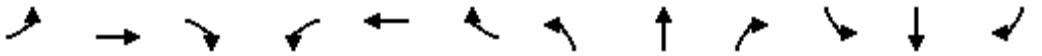
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1135	112	261	1237	212	0	0	0	208	71	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.98						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (prot)	1787	5056		1787	5023						1796	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (perm)	1787	5056		1787	5023						1796	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	127	1220	120	281	1330	228	0	0	0	224	76	74
RTOR Reduction (vph)	0	10	0	0	21	0	0	0	0	0	0	56
Lane Group Flow (vph)	127	1330	0	281	1537	0	0	0	0	0	300	18
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	12.0	46.6		20.9	55.0						26.0	26.0
Effective Green, g (s)	12.0	46.6		20.9	55.0						26.0	26.0
Actuated g/C Ratio	0.11	0.44		0.20	0.52						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	204	2244		356	2631						445	392
v/s Ratio Prot	0.07	0.26		c0.16	c0.31						c0.17	
v/s Ratio Perm												0.01
v/c Ratio	0.62	0.59		0.79	0.58						0.67	0.05
Uniform Delay, d1	44.3	22.0		40.0	17.2						35.7	30.1
Progression Factor	1.00	1.00		1.34	0.62						1.00	1.00
Incremental Delay, d2	5.0	1.2		8.9	0.8						7.9	0.2
Delay (s)	49.4	23.2		62.6	11.5						43.6	30.3
Level of Service	D	C		E	B						D	C
Approach Delay (s)		25.5			19.3			0.0			41.0	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

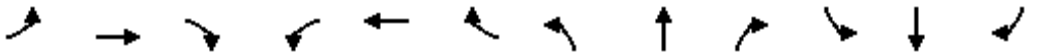
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	991	0	0	1087	44	365	215	386	78	0	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99	1.00	0.95		1.00
Satd. Flow (prot)	3467	3574			5100		1698	1763	1567	1787		1599
Flt Permitted	0.95	1.00			1.00		0.95	0.99	1.00	0.95		1.00
Satd. Flow (perm)	3467	3574			5100		1698	1763	1567	1787		1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	299	1022	0	0	1121	45	376	222	398	80	0	300
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	188	0	0	272
Lane Group Flow (vph)	299	1022	0	0	1162	0	293	305	210	80	0	28
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot						Split		Perm	Prot		custom
Protected Phases	5	2			6		4	4		3		3
Permitted Phases									4			
Actuated Green, G (s)	13.4	58.2			41.3		24.9	24.9	24.9	9.9		9.9
Effective Green, g (s)	13.4	58.2			41.3		24.9	24.9	24.9	9.9		9.9
Actuated g/C Ratio	0.13	0.55			0.39		0.24	0.24	0.24	0.09		0.09
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	442	1981			2006		403	418	372	168		151
v/s Ratio Prot	c0.09	0.29			c0.23		0.17	c0.17		c0.04		0.02
v/s Ratio Perm									0.13			
v/c Ratio	0.68	0.52			0.58		0.73	0.73	0.57	0.48		0.19
Uniform Delay, d1	43.7	14.6			25.0		36.9	36.9	35.3	45.1		43.8
Progression Factor	1.31	0.75			1.41		1.01	1.01	1.03	1.00		1.00
Incremental Delay, d2	2.6	0.8			1.0		6.0	5.9	1.6	1.5		0.4
Delay (s)	59.9	11.7			36.2		43.3	43.2	38.1	46.6		44.3
Level of Service	E	B			D		D	D	D	D		D
Approach Delay (s)		22.6			36.2			41.2			44.8	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

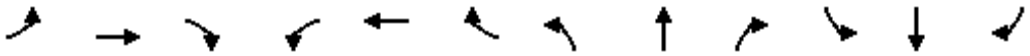
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	442	1131	28	16	716	151	17	4	11	208	4	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.95	1.00
Satd. Flow (prot)	3467	3557		1787	3469		1715	1599		1684	1691	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.75	0.73	1.00
Satd. Flow (perm)	3467	3557		1787	3469		1715	1591		1322	1298	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	456	1166	29	16	738	156	18	4	11	214	4	364
RTOR Reduction (vph)	0	1	0	0	13	0	0	7	0	0	0	262
Lane Group Flow (vph)	456	1194	0	16	881	0	16	10	0	109	109	102
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	17.8	54.7		2.6	39.5		2.9	36.2		29.3	29.3	29.3
Effective Green, g (s)	17.8	54.7		2.6	39.5		2.9	36.2		29.3	29.3	29.3
Actuated g/C Ratio	0.17	0.52		0.02	0.38		0.03	0.34		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	588	1853		44	1305		47	549		369	362	446
v/s Ratio Prot	c0.13	c0.34		0.01	0.25		c0.01	0.00				
v/s Ratio Perm								0.01		0.08	c0.08	0.06
v/c Ratio	0.78	0.64		0.36	0.68		0.34	0.02		0.30	0.30	0.23
Uniform Delay, d1	41.7	18.1		50.4	27.4		50.1	22.7		29.7	29.8	29.1
Progression Factor	1.11	1.28		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.1	1.5		1.9	2.8		3.1	0.0		0.3	0.3	0.2
Delay (s)	51.3	24.7		52.2	30.2		53.2	22.7		30.1	30.1	29.3
Level of Service	D	C		D	C		D	C		C	C	C
Approach Delay (s)		32.1			30.6			37.5			29.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

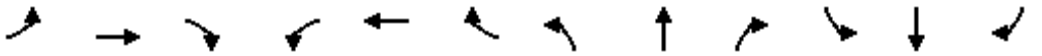
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	367	221	253	352	194	304	662	309	201	535	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3505	
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)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	382	230	264	367	202	317	690	322	209	557	57
RTOR Reduction (vph)	0	0	57	0	0	85	0	0	244	0	6	0
Lane Group Flow (vph)	153	382	173	264	367	117	317	690	78	209	608	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	22.9	47.7	72.2	22.9	47.7	68.4	24.5	33.7	33.7	20.7	29.9	
Effective Green, g (s)	22.9	47.7	72.2	22.9	47.7	68.4	24.5	33.7	33.7	20.7	29.9	
Actuated g/C Ratio	0.16	0.34	0.52	0.16	0.34	0.49	0.18	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	292	1218	847	292	1218	763	607	860	377	264	749	
v/s Ratio Prot	0.09	c0.11	0.04	c0.15	0.10	0.02	0.09	c0.19		0.12	c0.17	
v/s Ratio Perm			0.07			0.05			0.05			
v/c Ratio	0.52	0.31	0.20	0.90	0.30	0.15	0.52	0.80	0.21	0.79	0.81	
Uniform Delay, d1	53.6	34.1	18.4	57.5	33.9	19.8	52.4	50.0	42.5	57.6	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	4.40	1.00	1.00	
Incremental Delay, d2	0.8	0.7	0.0	28.6	0.6	0.0	0.3	4.8	0.2	14.0	6.5	
Delay (s)	54.3	34.7	18.4	86.1	34.5	19.8	42.8	45.5	187.1	71.5	58.9	
Level of Service	D	C	B	F	C	B	D	D	F	E	E	
Approach Delay (s)		33.7			47.3			79.1			62.1	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM Average Control Delay	59.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

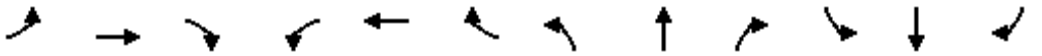
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	367	221	253	352	194	304	662	309	201	535	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1567	1787	3574	1560	3467	3574	1567	1787	3505	
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)	1787	3574	1567	1787	3574	1560	3467	3574	1567	1787	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	382	230	264	367	202	317	690	322	209	557	57
RTOR Reduction (vph)	0	0	68	0	0	79	0	0	245	0	6	0
Lane Group Flow (vph)	153	382	162	264	367	123	317	690	77	209	608	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	16.3	43.2	67.6	27.5	54.4	75.3	24.4	33.4	33.4	20.9	29.9	
Effective Green, g (s)	16.3	43.2	67.6	27.5	54.4	75.3	24.4	33.4	33.4	20.9	29.9	
Actuated g/C Ratio	0.12	0.31	0.48	0.20	0.39	0.54	0.17	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	208	1103	796	351	1389	839	604	853	374	267	749	
v/s Ratio Prot	c0.09	c0.11	0.04	c0.15	0.10	0.02	0.09	c0.19		0.12	c0.17	
v/s Ratio Perm			0.07			0.06			0.05			
v/c Ratio	0.74	0.35	0.20	0.75	0.26	0.15	0.52	0.81	0.21	0.78	0.81	
Uniform Delay, d1	59.8	37.5	20.8	53.0	29.2	16.2	52.5	50.3	42.7	57.4	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.58	2.60	1.00	1.00	
Incremental Delay, d2	11.0	0.9	0.0	7.9	0.5	0.0	0.3	5.1	0.2	12.9	6.5	
Delay (s)	70.8	38.3	20.8	60.9	29.6	16.3	31.1	34.0	111.2	70.2	58.9	
Level of Service	E	D	C	E	C	B	C	C	F	E	E	
Approach Delay (s)		39.6			36.3			52.0			61.8	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

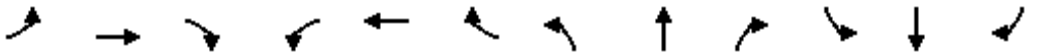
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	168	1052	57	186	660	53	0	0	480	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3537		1770	3482				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3537		1770	3482				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	185	1156	63	204	725	58	0	0	527	0	0	99
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	33	0	0	53
Lane Group Flow (vph)	185	1217	0	204	779	0	0	0	494	0	0	46
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	39.9	86.5		20.4	67.0				46.0			65.5
Effective Green, g (s)	39.9	86.5		20.4	67.0				46.0			65.5
Actuated g/C Ratio	0.28	0.62		0.15	0.48				0.33			0.47
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	509	2185		258	1666				925			761
v/s Ratio Prot	0.10	c0.34		c0.12	0.22				c0.18			0.03
v/s Ratio Perm												
v/c Ratio	0.36	0.56		0.79	0.47				0.53			0.06
Uniform Delay, d1	39.9	15.6		57.7	24.5				38.3			20.4
Progression Factor	1.00	1.00		1.00	1.00				0.85			1.00
Incremental Delay, d2	0.2	1.0		14.2	0.9				0.3			0.0
Delay (s)	40.1	16.6		71.9	25.5				32.7			20.4
Level of Service	D	B		E	C				C			C
Approach Delay (s)		19.7			35.1			32.7			20.4	
Approach LOS		B			D			C			C	

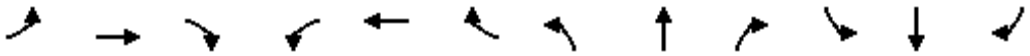
Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	756	215	42	564	177	195	265	76	105	133	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	160	831	236	46	620	195	214	291	84	115	146	159
RTOR Reduction (vph)	0	0	87	0	0	112	0	0	59	0	0	140
Lane Group Flow (vph)	160	831	149	46	620	83	193	312	25	115	146	19
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.3	69.5	69.5	7.2	59.4	59.4	30.5	30.5	41.7	16.8	16.8	16.8
Effective Green, g (s)	17.3	69.5	69.5	7.2	59.4	59.4	30.5	30.5	41.7	16.8	16.8	16.8
Actuated g/C Ratio	0.12	0.50	0.50	0.05	0.42	0.42	0.22	0.22	0.30	0.12	0.12	0.12
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	219	1757	786	177	1502	672	366	384	830	212	224	190
v/s Ratio Prot	c0.09	c0.23		0.01	c0.18		0.11	c0.18	0.01	0.06	c0.08	
v/s Ratio Perm			0.09			0.05						0.01
v/c Ratio	0.73	0.47	0.19	0.26	0.41	0.12	0.53	0.81	0.03	0.54	0.65	0.10
Uniform Delay, d1	59.1	23.2	19.6	63.8	28.1	24.5	48.4	52.0	34.8	58.0	58.8	54.9
Progression Factor	1.00	1.00	1.00	1.18	0.44	0.27	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.3	0.9	0.5	0.7	0.8	0.3	1.4	12.3	0.0	2.8	6.6	0.2
Delay (s)	69.4	24.1	20.1	76.2	13.2	6.8	49.8	64.4	34.8	60.8	65.4	55.1
Level of Service	E	C	C	E	B	A	D	E	C	E	E	E
Approach Delay (s)		29.2			15.1			55.4			60.3	
Approach LOS		C			B			E			E	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	638	118	810	426	163	103	192	629	55	238	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3420	1564	3467	3412		1787	1881	1599	3467	3392	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3420	1564	3467	3412		1787	1881	1599	3467	3392	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	138	665	123	844	444	170	107	200	655	57	248	80
RTOR Reduction (vph)	0	0	73	0	27	0	0	0	50	0	23	0
Lane Group Flow (vph)	124	679	50	844	587	0	107	200	605	57	305	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	40.7	40.7	40.7	44.4	44.4		12.7	33.6	78.0	5.8	26.7	
Effective Green, g (s)	40.7	40.7	40.7	44.4	44.4		12.7	33.6	78.0	5.8	26.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.09	0.24	0.56	0.04	0.19	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	473	994	455	1100	1082		162	451	891	144	647	
v/s Ratio Prot	0.08	c0.20		c0.24	0.17		0.06	0.11	c0.38	0.02	c0.09	
v/s Ratio Perm			0.03									
v/c Ratio	0.26	0.68	0.11	0.77	0.54		0.66	0.44	0.68	0.40	0.47	
Uniform Delay, d1	38.1	43.9	36.4	43.1	39.4		61.6	45.2	22.1	65.4	50.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	3.8	0.5	3.3	0.6		7.6	0.3	1.6	0.7	0.2	
Delay (s)	39.5	47.7	36.9	46.4	40.0		69.1	45.5	23.7	66.0	50.6	
Level of Service	D	D	D	D	D		E	D	C	E	D	
Approach Delay (s)		45.2			43.7			33.3			52.9	
Approach LOS		D			D			C			D	

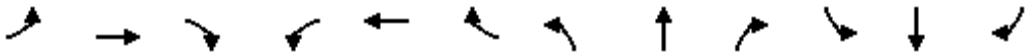
Intersection Summary			
HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1314	996	0	1049	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1369	1038	0	1093	460
RTOR Reduction (vph)	0	0	0	0	0	95
Lane Group Flow (vph)	0	1369	1038	0	1093	365
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		36.6	36.6		19.6	19.6
Effective Green, g (s)		36.6	36.6		19.6	19.6
Actuated g/C Ratio		0.56	0.56		0.30	0.30
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2012	2012		1045	482
v/s Ratio Prot		c0.38	0.29		c0.32	0.23
v/s Ratio Perm						
v/c Ratio		0.68	0.52		1.05	0.76
Uniform Delay, d1		10.1	8.7		22.7	20.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	0.9		40.6	6.4
Delay (s)		11.9	9.7		63.3	26.9
Level of Service		B	A		E	C
Approach Delay (s)		11.9	9.7		52.5	
Approach LOS		B	A		D	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	33	54	218	41	179	34	570	317	215	441	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738			1791	1560	1787	3347		1787	3536	
Flt Permitted		0.87			0.67	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1531			1250	1560	1787	3347		1787	3536	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	37	61	245	46	201	38	640	356	242	496	29
RTOR Reduction (vph)	0	32	0	0	0	79	0	80	0	0	3	0
Lane Group Flow (vph)	0	102	0	0	291	122	38	916	0	242	522	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.9			22.9	22.9	3.9	27.4		14.9	38.4	
Effective Green, g (s)		22.9			22.9	22.9	3.9	27.4		14.9	38.4	
Actuated g/C Ratio		0.30			0.30	0.30	0.05	0.36		0.19	0.50	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		457			373	466	91	1196		347	1770	
v/s Ratio Prot							0.02	c0.27		c0.14	0.15	
v/s Ratio Perm		0.07			c0.23	0.08						
v/c Ratio		0.22			0.78	0.26	0.42	0.77		0.70	0.29	
Uniform Delay, d1		20.2			24.6	20.5	35.3	21.8		28.8	11.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			10.1	0.3	1.1	2.9		4.9	0.1	
Delay (s)		20.5			34.7	20.8	36.4	24.7		33.7	11.3	
Level of Service		C			C	C	D	C		C	B	
Approach Delay (s)		20.5			29.0			25.1			18.3	
Approach LOS		C			C			C			B	

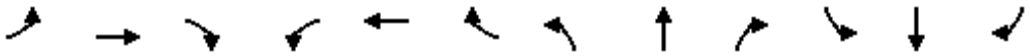
Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	36	7	2	3	52	886	13	7	622	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1725			1651		1787	3565		1785	3491	
Flt Permitted		0.76			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1349			1702		1787	3565		1785	3491	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	56	0	42	8	2	3	60	1030	15	8	723	102
RTOR Reduction (vph)	0	27	0	0	3	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	71	0	0	10	0	60	1045	0	8	819	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		6.5			0.9		4.3	35.5		0.8	32.0	
Effective Green, g (s)		6.5			0.9		4.3	35.5		0.8	32.0	
Actuated g/C Ratio		0.11			0.01		0.07	0.58		0.01	0.52	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		143			25		126	2068		23	1825	
v/s Ratio Prot							c0.03	c0.29		0.00	0.23	
v/s Ratio Perm		c0.05			c0.01							
v/c Ratio		0.50			0.40		0.48	0.51		0.35	0.45	
Uniform Delay, d1		25.8			29.9		27.4	7.6		29.9	9.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			3.8		1.0	0.1		3.3	0.1	
Delay (s)		26.8			33.7		28.4	7.8		33.2	9.2	
Level of Service		C			C		C	A		C	A	
Approach Delay (s)		26.8			33.7			8.9			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

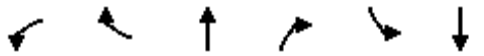
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	3	174	6	3	2	145	808	21	1	580	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.97		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1758		1787	3557		1787	3469	
Flt Permitted		0.73			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1250			1806		1787	3557		1787	3469	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	144	3	178	6	3	2	148	824	21	1	592	103
RTOR Reduction (vph)	0	36	0	0	2	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	289	0	0	9	0	148	844	0	1	683	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		25.7			1.0		12.8	26.7		10.7	24.6	
Effective Green, g (s)		25.7			1.0		12.8	26.7		10.7	24.6	
Actuated g/C Ratio		0.32			0.01		0.16	0.33		0.13	0.30	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		396			22		282	1171		236	1052	
v/s Ratio Prot							c0.08	c0.24		0.00	0.20	
v/s Ratio Perm		c0.23			c0.00							
v/c Ratio		0.73			0.41		0.52	0.72		0.00	0.65	
Uniform Delay, d1		24.6			39.8		31.4	23.9		30.6	24.5	
Progression Factor		1.00			1.00		0.65	0.28		1.00	1.00	
Incremental Delay, d2		8.0			4.5		1.0	1.2		0.0	1.2	
Delay (s)		32.7			44.2		21.5	8.0		30.6	25.7	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		32.7			44.2			10.0			25.7	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

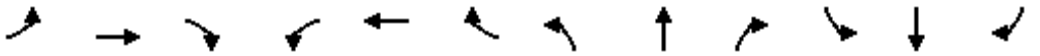
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	22	41	914	45	61	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1702		3541		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1702		3541		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	22	42	933	46	62	707
RTOR Reduction (vph)	29	0	3	0	0	0
Lane Group Flow (vph)	35	0	976	0	62	707
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	25.7		26.7		10.7	24.6
Effective Green, g (s)	25.7		26.7		10.7	24.6
Actuated g/C Ratio	0.32		0.33		0.13	0.30
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	539		1166		236	1084
v/s Ratio Prot	c0.02		c0.28		c0.03	0.20
v/s Ratio Perm						
v/c Ratio	0.07		0.84		0.26	0.65
Uniform Delay, d1	19.3		25.2		31.7	24.5
Progression Factor	1.00		1.00		0.82	0.33
Incremental Delay, d2	0.1		5.3		0.2	1.1
Delay (s)	19.4		30.5		26.2	9.1
Level of Service	B		C		C	A
Approach Delay (s)	19.4		30.5			10.5
Approach LOS	B		C			B

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

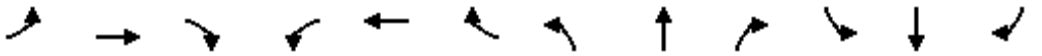
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	5	116	36	2	6	118	878	4	8	657	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1813	1573		1775		1787	3571		1787	3502	
Flt Permitted		0.70	1.00		0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1332	1573		1380		1787	3571		1787	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	114	5	121	38	2	6	123	915	4	8	684	76
RTOR Reduction (vph)	0	0	95	0	5	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	119	26	0	41	0	123	919	0	8	751	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Effective Green, g (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Actuated g/C Ratio		0.21	0.21		0.21		0.16	0.56		0.02	0.42	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		284	335		294		283	1989		33	1461	
v/s Ratio Prot							c0.07	0.26		0.00	c0.21	
v/s Ratio Perm		c0.09	0.02		0.03							
v/c Ratio		0.42	0.08		0.14		0.43	0.46		0.24	0.51	
Uniform Delay, d1		18.5	17.1		17.4		20.7	7.2		26.3	11.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	0.2		0.4		1.5	0.2		3.8	0.1	
Delay (s)		20.2	17.3		17.7		22.2	7.4		30.1	11.9	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		18.7			17.7			9.1			12.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

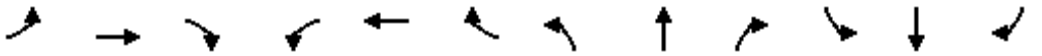
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	333	492	80	549	584	299	25	1063	761	497	433	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	358	529	86	590	628	322	27	1143	818	534	466	231
RTOR Reduction (vph)	0	0	71	0	0	167	0	0	9	0	0	99
Lane Group Flow (vph)	358	529	15	590	628	155	27	1143	809	534	466	132
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	16.2	24.7	24.7	34.0	42.5	42.5	4.7	44.5	78.5	19.8	59.6	80.3
Effective Green, g (s)	16.2	24.7	24.7	34.0	42.5	42.5	4.7	44.5	78.5	19.8	59.6	80.3
Actuated g/C Ratio	0.12	0.18	0.18	0.24	0.30	0.30	0.03	0.32	0.56	0.14	0.43	0.57
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	401	631	282	842	1085	477	60	1136	897	480	1522	917
v/s Ratio Prot	0.10	c0.15		0.17	0.18		0.02	c0.32	c0.51	c0.16	0.13	0.08
v/s Ratio Perm			0.01			0.10						
v/c Ratio	0.89	0.84	0.05	0.70	0.58	0.32	0.45	1.01	0.90	1.11	0.31	0.14
Uniform Delay, d1	61.0	55.7	47.9	48.4	41.2	37.7	66.4	47.8	27.3	60.1	26.5	13.9
Progression Factor	0.77	0.79	1.36	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.6	8.5	0.0	2.2	0.5	0.1	1.9	28.2	11.9	75.5	0.5	0.0
Delay (s)	66.9	52.3	65.4	50.5	41.7	37.8	68.3	76.0	39.3	135.6	27.1	13.9
Level of Service	E	D	E	D	D	D	E	E	D	F	C	B
Approach Delay (s)		58.8			44.2			60.8			71.7	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM Average Control Delay	58.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

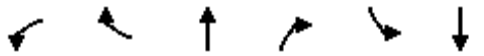
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	333	492	80	549	584	299	25	1063	761	497	433	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	358	529	86	590	628	322	27	1143	818	534	466	231
RTOR Reduction (vph)	0	0	71	0	0	191	0	0	10	0	0	61
Lane Group Flow (vph)	358	529	15	590	628	131	27	1143	808	534	466	170
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	16.9	24.6	24.6	27.9	35.6	35.6	4.5	48.0	75.9	22.5	66.0	87.4
Effective Green, g (s)	16.9	24.6	24.6	27.9	35.6	35.6	4.5	48.0	75.9	22.5	66.0	87.4
Actuated g/C Ratio	0.12	0.18	0.18	0.20	0.25	0.25	0.03	0.34	0.54	0.16	0.47	0.62
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	419	628	281	691	909	399	57	1225	867	546	1685	998
v/s Ratio Prot	0.10	c0.15		0.17	0.18		0.02	c0.32	c0.51	c0.16	0.13	0.11
v/s Ratio Perm			0.01			0.08						
v/c Ratio	0.85	0.84	0.05	0.85	0.69	0.33	0.47	0.93	0.93	0.98	0.28	0.17
Uniform Delay, d1	60.3	55.8	48.0	54.1	47.2	42.5	66.6	44.4	29.7	58.5	22.5	11.1
Progression Factor	0.80	0.83	1.55	1.00	1.00	1.00	1.04	0.92	0.86	1.00	1.00	1.00
Incremental Delay, d2	14.0	8.9	0.0	9.7	1.8	0.2	1.5	10.0	11.7	32.4	0.4	0.0
Delay (s)	62.0	55.4	74.3	63.8	49.1	42.7	70.7	51.0	37.2	90.9	22.9	11.1
Level of Service	E	E	E	E	D	D	E	D	D	F	C	B
Approach Delay (s)		59.5			53.4			45.6			50.2	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	51.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	13	1382	15	9	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5124		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5124		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	57	14	1470	16	10	1153
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	57	1	1486	0	10	1153
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.2	8.2	80.7		1.7	66.7
Effective Green, g (s)	8.2	8.2	80.7		1.7	66.7
Actuated g/C Ratio	0.06	0.06	0.58		0.01	0.48
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	106	91	2954		22	2447
v/s Ratio Prot	c0.03		c0.29		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.54	0.01	0.50		0.45	0.47
Uniform Delay, d1	64.1	62.1	17.7		68.7	24.7
Progression Factor	1.00	1.00	0.18		0.93	0.96
Incremental Delay, d2	4.0	0.0	0.0		4.8	0.6
Delay (s)	68.1	62.1	3.2		68.6	24.3
Level of Service	E	E	A		E	C
Approach Delay (s)	66.9		3.2			24.7
Approach LOS	E		A			C

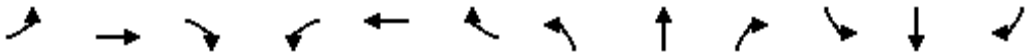
Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	46.9
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	176	250	180	101	82	270	1245	123	44	1007	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.93		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1495	1787	1724		3467	5032		1787	5047	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1495	1787	1724		3467	5032		1787	5047	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	189	269	194	109	88	290	1339	132	47	1083	94
RTOR Reduction (vph)	0	0	194	0	22	0	0	5	0	0	5	0
Lane Group Flow (vph)	75	189	75	194	175	0	290	1466	0	47	1172	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	9.2	21.3	21.3	19.3	19.2		17.2	71.5		7.2	66.7	
Effective Green, g (s)	9.2	21.3	21.3	19.3	19.2		17.2	71.5		7.2	66.7	
Actuated g/C Ratio	0.07	0.15	0.15	0.14	0.14		0.12	0.51		0.05	0.48	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	116	283	227	246	236		426	2570		92	2405	
v/s Ratio Prot	0.04	c0.10		c0.11	0.10		c0.08	c0.29		0.03	c0.23	
v/s Ratio Perm			0.05									
v/c Ratio	0.65	0.67	0.33	0.79	0.74		0.68	0.57		0.51	0.49	
Uniform Delay, d1	63.8	56.0	53.0	58.4	58.0		58.8	23.6		64.7	25.0	
Progression Factor	1.00	1.00	1.00	0.79	0.97		1.09	0.82		1.38	0.31	
Incremental Delay, d2	8.9	5.3	0.6	13.8	10.5		3.2	0.8		1.8	0.6	
Delay (s)	72.7	61.3	53.6	59.7	66.8		67.0	20.3		90.9	8.5	
Level of Service	E	E	D	E	E		E	C		F	A	
Approach Delay (s)		59.0			63.3			28.0			11.7	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

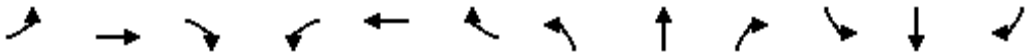
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	324	7	296	280	1441	0	0	847	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5920	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5920	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	334	7	305	289	1486	0	0	873	608
RTOR Reduction (vph)	0	0	0	0	43	0	0	0	0	0	159	0
Lane Group Flow (vph)	0	0	0	334	269	0	289	1486	0	0	1322	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				14.6	14.6		14.5	48.9			31.4	
Effective Green, g (s)				14.6	14.6		14.5	48.9			31.4	
Actuated g/C Ratio				0.21	0.21		0.21	0.70			0.45	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				723	335		370	3588			2656	
v/s Ratio Prot				0.10	c0.17		c0.16	0.29			c0.22	
v/s Ratio Perm												
v/c Ratio				0.46	0.80		0.78	0.41			0.50	
Uniform Delay, d1				24.3	26.3		26.2	4.5			13.7	
Progression Factor				1.00	1.00		0.96	1.15			1.54	
Incremental Delay, d2				0.2	12.4		7.5	0.3			0.6	
Delay (s)				24.4	38.7		32.8	5.4			21.7	
Level of Service				C	D		C	A			C	
Approach Delay (s)		0.0			31.3			9.9			21.7	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

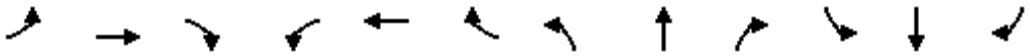
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	751	5	411	0	0	0	0	970	298	263	908	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4921		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4921		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	782	5	428	0	0	0	0	1010	310	274	946	0
RTOR Reduction (vph)	0	0	79	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	391	396	349	0	0	0	0	1247	0	274	946	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	20.9	20.9	20.9					29.7		8.9	42.6	
Effective Green, g (s)	20.9	20.9	20.9					29.7		8.9	42.6	
Actuated g/C Ratio	0.30	0.30	0.30					0.42		0.13	0.61	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	507	508	477					2088		445	3157	
v/s Ratio Prot	0.23	c0.23						c0.25		c0.08	0.18	
v/s Ratio Perm			0.22									
v/c Ratio	0.77	0.78	0.73					0.60		0.62	0.30	
Uniform Delay, d1	22.4	22.4	22.0					15.5		28.9	6.6	
Progression Factor	1.00	1.00	1.00					1.12		1.20	1.15	
Incremental Delay, d2	6.5	6.8	5.0					1.2		2.3	0.2	
Delay (s)	28.9	29.2	27.0					18.7		37.1	7.7	
Level of Service	C	C	C					B		D	A	
Approach Delay (s)		28.3			0.0			18.7			14.3	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

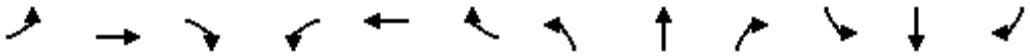
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	0	30	17	2	15	17	1136	10	21	1097	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99			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	
Frt		0.95			0.94		1.00	1.00		1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1740			1739		1787	5127		1787	5103	
Flt Permitted		0.79			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1412			1528		1787	5127		1787	5103	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	55	0	32	18	2	16	18	1222	11	23	1180	40
RTOR Reduction (vph)	0	29	0	0	15	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	58	0	0	21	0	18	1232	0	23	1217	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		6.5			6.5		1.3	49.4		2.6	50.7	
Effective Green, g (s)		6.5			6.5		1.3	49.4		2.6	50.7	
Actuated g/C Ratio		0.09			0.09		0.02	0.71		0.04	0.72	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		131			142		33	3618		66	3696	
v/s Ratio Prot							0.01	c0.24		c0.01	0.24	
v/s Ratio Perm		c0.04			0.01							
v/c Ratio		0.44			0.15		0.55	0.34		0.35	0.33	
Uniform Delay, d1		30.0			29.2		34.1	4.0		32.9	3.5	
Progression Factor		1.00			1.00		1.05	0.79		0.95	1.08	
Incremental Delay, d2		0.9			0.2		9.2	0.2		1.1	0.2	
Delay (s)		30.9			29.4		44.8	3.4		32.2	4.0	
Level of Service		C			C		D	A		C	A	
Approach Delay (s)		30.9			29.4			4.0			4.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

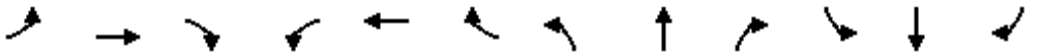
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	123	13	303	122	195	20	786	548	214	727	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	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	0.98	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1849		1698	1749	1560	1787	5136	1599	3467	3462	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1849		1698	1749	1560	1787	5136	1599	3467	3462	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	143	131	14	322	130	207	21	836	583	228	773	140
RTOR Reduction (vph)	0	4	0	0	0	164	0	0	0	0	7	0
Lane Group Flow (vph)	143	141	0	222	230	43	21	836	583	228	906	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	15.7	15.7		29.0	29.0	29.0	4.3	66.8	99.3	13.5	76.0	
Effective Green, g (s)	15.7	15.7		29.0	29.0	29.0	4.3	66.8	99.3	13.5	76.0	
Actuated g/C Ratio	0.11	0.11		0.21	0.21	0.21	0.03	0.48	0.71	0.10	0.54	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	200	207		352	362	323	55	2451	1134	334	1879	
v/s Ratio Prot	c0.08	0.08		0.13	c0.13		0.01	0.16	c0.36	c0.07	0.26	
v/s Ratio Perm						0.03						
v/c Ratio	0.71	0.68		0.63	0.64	0.13	0.38	0.34	0.51	0.68	0.48	
Uniform Delay, d1	60.0	59.8		50.6	50.7	45.2	66.5	22.9	9.3	61.2	19.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	
Incremental Delay, d2	9.7	7.2		2.7	2.7	0.1	1.6	0.4	0.2	4.4	0.9	
Delay (s)	69.6	67.0		53.3	53.3	45.3	68.2	23.2	9.5	65.5	17.8	
Level of Service	E	E		D	D	D	E	C	A	E	B	
Approach Delay (s)		68.3			50.8			18.3			27.3	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	13	0	0	0	0	6	74	14	0	116	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.98			1.00	0.85
Flt Protected		0.96					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1829					1787	1835			1900	1615
Flt Permitted		0.96					0.67	1.00			1.00	1.00
Satd. Flow (perm)		1829					1269	1835			1900	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	14	0	0	0	0	7	82	16	0	129	114
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	0	39
Lane Group Flow (vph)	0	63	0	0	0	0	7	92	0	0	129	75
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		2.6					20.2	20.2			20.2	20.2
Effective Green, g (s)		2.6					20.2	20.2			20.2	20.2
Actuated g/C Ratio		0.08					0.66	0.66			0.66	0.66
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		154					832	1203			1246	1059
v/s Ratio Prot								0.05			c0.07	
v/s Ratio Perm		0.03					0.01					0.05
v/c Ratio		0.41					0.01	0.08			0.10	0.07
Uniform Delay, d1		13.4					1.8	1.9			2.0	1.9
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		1.8					0.0	0.0			0.0	0.0
Delay (s)		15.1					1.8	1.9			2.0	1.9
Level of Service		B					A	A			A	A
Approach Delay (s)		15.1			0.0			1.9			2.0	
Approach LOS		B			A			A			A	

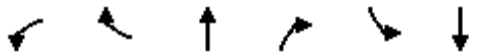
Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	30.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	273	20	0	0	0	0	118	0	306	199	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1862						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.67	1.00	
Satd. Flow (perm)	1787	1862						1881		1254	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	367	303	22	0	0	0	0	131	0	340	221	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	367	318	0	0	0	0	0	131	0	340	221	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.6	12.6						13.5		13.5	13.5	
Effective Green, g (s)	12.6	12.6						13.5		13.5	13.5	
Actuated g/C Ratio	0.37	0.37						0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	660	688						745		496	738	
v/s Ratio Prot		0.17						0.07			0.12	
v/s Ratio Perm	c0.21									c0.27		
v/c Ratio	0.56	0.46						0.18		0.69	0.30	
Uniform Delay, d1	8.5	8.2						6.7		8.5	7.1	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.5						0.1		3.9	0.2	
Delay (s)	9.6	8.7						6.8		12.4	7.3	
Level of Service	A	A						A		B	A	
Approach Delay (s)		9.1			0.0			6.8			10.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	34.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

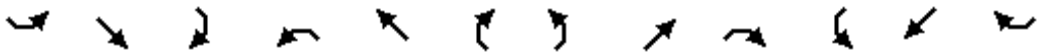
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	106	435	448	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	109	448	462	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	462	231			462	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	462	231			462	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	42			100	
cM capacity (veh/h)	534	778			1096	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	109	448	231	231
Volume Left	109	0	0	0
Volume Right	0	448	0	0
cSH	534	778	1700	1700
Volume to Capacity	0.20	0.58	0.14	0.14
Queue Length 95th (ft)	19	94	0	0
Control Delay (s)	13.5	15.7	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	15.3		0.0	
Approach LOS	C			

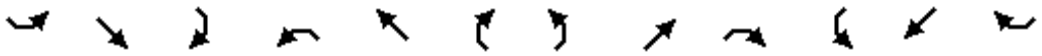
Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	102	1649	78	66	1480	94	179	151	49	81	198	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5091		1770	6340		1721	1787		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.46	1.00		0.46	1.00	1.00
Satd. Flow (perm)	1787	5091		1770	6340		841	1787		852	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	105	1700	80	68	1526	97	185	156	51	84	204	160
RTOR Reduction (vph)	0	2	0	0	5	0	0	11	0	0	0	113
Lane Group Flow (vph)	105	1778	0	68	1618	0	185	196	0	84	204	47
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.4	70.4		8.8	67.3		28.5	28.5		28.5	28.5	28.5
Effective Green, g (s)	12.4	70.4		8.8	67.3		28.5	28.5		28.5	28.5	28.5
Actuated g/C Ratio	0.10	0.59		0.07	0.56		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	185	2987		130	3556		200	424		202	442	355
v/s Ratio Prot	c0.06	c0.35		0.04	0.26			0.11			0.11	
v/s Ratio Perm							c0.22			0.10		0.03
v/c Ratio	0.57	0.60		0.52	0.45		0.93	0.46		0.42	0.46	0.13
Uniform Delay, d1	51.2	15.7		53.6	15.5		44.7	39.2		38.7	39.2	36.0
Progression Factor	1.01	0.49		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.4		3.8	0.4		42.7	0.8		1.4	0.8	0.2
Delay (s)	53.5	8.0		57.3	16.0		87.4	40.0		40.1	39.9	36.2
Level of Service	D	A		E	B		F	D		D	D	D
Approach Delay (s)		10.5			17.6			62.4			38.6	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	366	1215	335	97	0	193	0	385	38	684	550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4920		3273		2656		4912		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4920		3273		2656		4912		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	381	1266	349	101	0	201	0	401	40	712	573	0
RTOR Reduction (vph)	0	38	0	0	0	106	0	10	0	0	0	0
Lane Group Flow (vph)	381	1577	0	101	0	95	0	431	0	712	573	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.4	61.9		9.0		56.5		16.1		17.0	37.1	
Effective Green, g (s)	14.4	61.9		9.0		56.5		16.1		17.0	37.1	
Actuated g/C Ratio	0.12	0.52		0.08		0.47		0.13		0.14	0.31	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	599	2538		245		1251		659		491	1105	
v/s Ratio Prot	c0.08	c0.32		0.03		0.04		c0.09		c0.21	0.16	
v/s Ratio Perm												
v/c Ratio	0.64	0.62		0.41		0.08		0.65		1.45	0.52	
Uniform Delay, d1	50.3	20.7		53.0		17.4		49.3		51.5	34.1	
Progression Factor	1.00	1.00		1.23		0.05		1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.2		1.0		0.1		2.3		213.7	0.4	
Delay (s)	52.5	21.9		66.2		1.0		51.6		265.2	34.5	
Level of Service	D	C		E		A		D		F	C	
Approach Delay (s)		27.7			22.8			51.6			162.4	
Approach LOS		C			C			D			F	

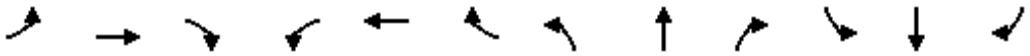
Intersection Summary			
HCM Average Control Delay	73.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	366	1215	335	97	0	193	0	385	38	684	550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4920		3273		2656		4912		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4920		3273		2656		4912		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	381	1266	349	101	0	201	0	401	40	712	573	0
RTOR Reduction (vph)	0	37	0	0	0	130	0	10	0	0	0	0
Lane Group Flow (vph)	381	1578	0	101	0	71	0	431	0	712	573	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	16.0	53.1		5.0		42.1		16.1		29.8	49.9	
Effective Green, g (s)	16.0	53.1		5.0		42.1		16.1		29.8	49.9	
Actuated g/C Ratio	0.13	0.44		0.04		0.35		0.13		0.25	0.42	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	665	2177		136		932		659		861	1486	
v/s Ratio Prot	c0.08	c0.32		0.03		0.03		c0.09		c0.21	0.16	
v/s Ratio Perm												
v/c Ratio	0.57	0.72		0.74		0.08		0.65		0.83	0.39	
Uniform Delay, d1	48.8	27.5		56.9		26.0		49.3		42.7	24.4	
Progression Factor	1.00	1.00		1.00		1.10		1.00		1.00	1.00	
Incremental Delay, d2	1.2	2.1		18.2		0.1		2.3		6.6	0.2	
Delay (s)	50.0	29.6		75.2		28.8		51.6		49.2	24.6	
Level of Service	D	C		E		C		D		D	C	
Approach Delay (s)		33.5			44.3			51.6			38.2	
Approach LOS		C			D			D			D	

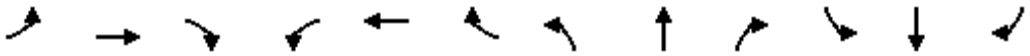
Intersection Summary			
HCM Average Control Delay	37.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	876	25	351	1522	123	160	55	471	90	92	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.99			0.94	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4916		1770	5020			1628	1504	1752	1723	
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4916		1770	5020			1628	1504	1752	1723	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	912	26	366	1585	128	167	57	491	94	96	75
RTOR Reduction (vph)	0	2	0	0	7	0	0	20	289	0	25	0
Lane Group Flow (vph)	65	936	0	366	1706	0	0	351	55	94	146	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Split		Prot	Split		
Protected Phases	5	2		1	6		8	8	8	4	4	
Permitted Phases												
Actuated Green, G (s)	8.2	39.4		29.1	59.8			18.6	18.6	13.4	13.4	
Effective Green, g (s)	8.2	39.4		29.1	59.8			18.6	18.6	13.4	13.4	
Actuated g/C Ratio	0.07	0.34		0.25	0.52			0.16	0.16	0.12	0.12	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	122	1670		444	2588			261	241	202	199	
v/s Ratio Prot	0.04	0.19		c0.21	c0.34			c0.22	0.04	0.05	c0.08	
v/s Ratio Perm												
v/c Ratio	0.53	0.56		0.82	0.66			1.34	0.23	0.47	0.73	
Uniform Delay, d1	52.1	31.2		41.0	20.6			48.7	42.4	48.0	49.6	
Progression Factor	1.04	0.94		1.44	0.71			1.12	2.10	1.00	1.00	
Incremental Delay, d2	3.0	1.2		9.6	1.1			176.6	0.4	1.2	12.4	
Delay (s)	57.4	30.5		68.5	15.6			231.2	89.4	49.2	62.0	
Level of Service	E	C		E	B			F	F	D	E	
Approach Delay (s)		32.3			24.9			163.0			57.5	
Approach LOS		C			C			F			E	

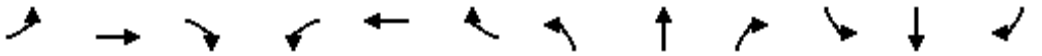
Intersection Summary			
HCM Average Control Delay	53.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1163	55	79	1436	16	79	15	55	65	12	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3367	3448		1770	5076			1788	1558	1770	1591	
Flt Permitted	0.95	1.00		0.20	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3367	3448		367	5076			1788	1558	1770	1591	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1224	58	83	1512	17	83	16	58	68	13	442
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	52	0	280	0
Lane Group Flow (vph)	158	1280	0	83	1528	0	0	99	6	68	175	0
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Perm			Split		Perm	Split		
Protected Phases	5	2			6		4	4		3	3	
Permitted Phases				6					4			
Actuated Green, G (s)	10.3	77.1		63.3	63.3			11.3	11.3	15.6	15.6	
Effective Green, g (s)	10.3	77.1		63.3	63.3			11.3	11.3	15.6	15.6	
Actuated g/C Ratio	0.09	0.66		0.55	0.55			0.10	0.10	0.13	0.13	
Clearance Time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	299	2292		200	2770			174	152	238	214	
v/s Ratio Prot	0.05	c0.37			0.30			c0.06		0.04	c0.11	
v/s Ratio Perm				0.23					0.00			
v/c Ratio	0.53	0.56		0.41	0.55			0.57	0.04	0.29	0.82	
Uniform Delay, d1	50.5	10.4		15.5	17.1			50.0	47.4	45.2	48.8	
Progression Factor	1.31	0.54		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.8		6.2	0.8			3.4	0.1	0.5	20.3	
Delay (s)	67.0	6.4		21.7	17.9			53.5	47.5	45.7	69.1	
Level of Service	E	A		C	B			D	D	D	E	
Approach Delay (s)		13.0			18.1			51.3			66.0	
Approach LOS		B			B			D			E	

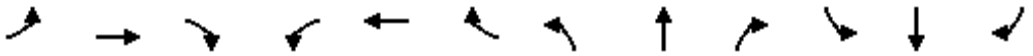
Intersection Summary			
HCM Average Control Delay	24.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	487	607	14	20	1048	184	21	6	20	155	3	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3424		1752	3413		1681	1559		1659	1666	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.74	0.73	1.00
Satd. Flow (perm)	3335	3424		1752	3413		1681	1555		1285	1282	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	535	667	15	22	1152	202	23	7	22	170	3	595
RTOR Reduction (vph)	0	1	0	0	11	0	0	14	0	0	0	432
Lane Group Flow (vph)	535	681	0	22	1343	0	21	17	0	87	86	163
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.8	54.8		2.9	37.9		3.1	35.8		28.7	28.7	28.7
Effective Green, g (s)	19.8	54.8		2.9	37.9		3.1	35.8		28.7	28.7	28.7
Actuated g/C Ratio	0.19	0.52		0.03	0.36		0.03	0.34		0.27	0.27	0.27
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	629	1787		48	1232		50	530		351	350	429
v/s Ratio Prot	c0.16	0.20		0.01	c0.39		c0.01	0.00				
v/s Ratio Perm								0.01		0.07	0.07	c0.10
v/c Ratio	0.85	0.38		0.46	1.09		0.42	0.03		0.25	0.25	0.38
Uniform Delay, d1	41.2	15.0		50.3	33.5		50.1	23.0		29.7	29.7	30.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.3	0.6		2.5	53.9		4.1	0.0		0.3	0.3	0.4
Delay (s)	51.5	15.6		52.8	87.4		54.2	23.1		30.0	30.0	31.3
Level of Service	D	B		D	F		D	C		C	C	C
Approach Delay (s)		31.4			86.9			35.6			31.0	
Approach LOS		C			F			D			C	

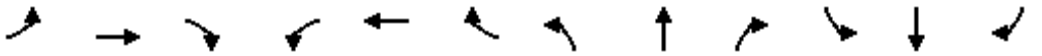
Intersection Summary			
HCM Average Control Delay	53.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	196	107	193	402	226	151	488	99	186	558	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	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)	1719	3438	1505	1770	3539	1552	3367	3471	1519	1787	3498	
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)	1719	3438	1505	1770	3539	1552	3367	3471	1519	1787	3498	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	94	236	129	233	484	272	182	588	119	224	672	77
RTOR Reduction (vph)	0	0	73	0	0	48	0	0	95	0	7	0
Lane Group Flow (vph)	94	236	56	233	484	224	182	588	24	224	742	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	10.5	42.2	56.0	25.5	57.2	77.9	13.8	26.6	26.6	20.7	33.5	
Effective Green, g (s)	10.5	42.2	56.0	25.5	57.2	77.9	13.8	26.6	26.6	20.7	33.5	
Actuated g/C Ratio	0.08	0.32	0.43	0.20	0.44	0.60	0.11	0.20	0.20	0.16	0.26	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	139	1116	689	347	1557	930	357	710	311	285	901	
v/s Ratio Prot	0.05	0.07	0.01	c0.13	c0.14	0.04	0.05	c0.17		0.13	c0.21	
v/s Ratio Perm			0.03			0.11			0.02			
v/c Ratio	0.68	0.21	0.08	0.67	0.31	0.24	0.51	0.83	0.08	0.79	0.82	
Uniform Delay, d1	58.1	31.8	21.8	48.4	23.6	12.2	54.9	49.5	41.8	52.5	45.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.64	0.44	1.00	1.00	
Incremental Delay, d2	9.8	0.4	0.0	4.0	0.5	0.0	0.4	7.5	0.1	12.3	6.0	
Delay (s)	67.9	32.3	21.8	52.4	24.1	12.2	36.0	39.3	18.3	64.9	51.5	
Level of Service	E	C	C	D	C	B	D	D	B	E	D	
Approach Delay (s)		36.6			27.5			35.8			54.6	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	39.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

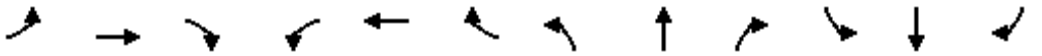
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	498	37	412	708	41	0	0	116	0	0	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3427		1770	3496				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3427		1770	3496				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	71	600	45	496	853	49	0	0	140	0	0	240
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	87	0	0	106
Lane Group Flow (vph)	71	642	0	496	899	0	0	0	53	0	0	134
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	34.0	73.5		40.8	80.3				49.0			42.2
Effective Green, g (s)	34.0	73.5		40.8	80.3				49.0			42.2
Actuated g/C Ratio	0.26	0.57		0.31	0.62				0.38			0.32
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	454	1938		556	2159				1050			528
v/s Ratio Prot	0.04	c0.19		c0.28	c0.26				0.02			c0.08
v/s Ratio Perm												
v/c Ratio	0.16	0.33		0.89	0.42				0.05			0.25
Uniform Delay, d1	37.0	15.1		42.5	12.8				25.7			32.3
Progression Factor	1.00	1.00		1.00	1.00				7.10			1.00
Incremental Delay, d2	0.1	0.5		16.1	0.6				0.0			0.1
Delay (s)	37.0	15.6		58.6	13.4				182.6			32.4
Level of Service	D	B		E	B				F			C
Approach Delay (s)		17.7			29.4			182.6			32.4	
Approach LOS		B			C			F			C	

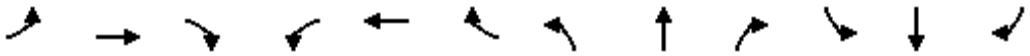
Intersection Summary			
HCM Average Control Delay	34.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.5
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	451	115	65	559	223	163	137	45	249	238	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	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	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	197	507	129	73	628	251	183	154	51	280	267	315
RTOR Reduction (vph)	0	0	67	0	0	154	0	0	40	0	0	249
Lane Group Flow (vph)	197	507	62	73	628	97	165	172	11	280	267	66
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	19.4	62.7	62.7	7.0	50.3	50.3	17.1	17.1	28.1	27.2	27.2	27.2
Effective Green, g (s)	19.4	62.7	62.7	7.0	50.3	50.3	17.1	17.1	28.1	27.2	27.2	27.2
Actuated g/C Ratio	0.15	0.48	0.48	0.05	0.39	0.39	0.13	0.13	0.22	0.21	0.21	0.21
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	264	1707	763	185	1369	612	221	232	602	370	390	331
v/s Ratio Prot	c0.11	0.14		0.02	c0.18		c0.10	0.10	0.00	c0.16	0.14	
v/s Ratio Perm			0.04			0.06						0.04
v/c Ratio	0.75	0.30	0.08	0.39	0.46	0.16	0.75	0.74	0.02	0.76	0.68	0.20
Uniform Delay, d1	52.9	20.3	18.1	59.5	29.7	26.0	54.4	54.3	40.1	48.3	47.4	42.4
Progression Factor	1.00	1.00	1.00	1.16	0.54	0.13	0.97	0.97	1.70	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.4	0.2	1.3	1.0	0.5	12.8	12.0	0.0	8.6	4.9	0.3
Delay (s)	62.6	20.8	18.3	70.3	17.0	3.8	65.6	64.6	68.1	56.9	52.4	42.7
Level of Service	E	C	B	E	B	A	E	E	E	E	D	D
Approach Delay (s)		30.3			17.6			65.5			50.3	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	416	78	764	652	102	130	195	677	88	219	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3321	1527	3467	3496		1787	1881	1599	3433	3369	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3321	1527	3467	3496		1787	1881	1599	3433	3369	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	438	82	804	686	107	137	205	713	93	231	84
RTOR Reduction (vph)	0	0	59	0	9	0	0	0	71	0	29	0
Lane Group Flow (vph)	88	448	23	804	784	0	137	205	642	93	286	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	36.1	36.1	36.1	41.8	41.8		12.4	28.7	70.5	7.9	24.2	
Effective Green, g (s)	36.1	36.1	36.1	41.8	41.8		12.4	28.7	70.5	7.9	24.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.32	0.32		0.10	0.22	0.54	0.06	0.19	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	438	922	424	1115	1124		170	415	867	209	627	
v/s Ratio Prot	0.06	c0.13		0.23	0.22		c0.08	0.11	c0.40	0.03	c0.08	
v/s Ratio Perm			0.01									
v/c Ratio	0.20	0.49	0.05	0.72	0.70		0.81	0.49	0.74	0.44	0.46	
Uniform Delay, d1	35.9	39.2	34.4	39.0	38.6		57.6	44.3	22.7	58.9	47.0	
Progression Factor	1.00	1.00	1.00	0.90	0.90		1.00	1.00	1.00	1.04	1.08	
Incremental Delay, d2	1.0	1.8	0.2	2.0	1.6		22.4	0.3	3.0	0.5	0.2	
Delay (s)	36.9	41.0	34.7	37.2	36.3		80.0	44.6	25.7	61.6	51.2	
Level of Service	D	D	C	D	D		F	D	C	E	D	
Approach Delay (s)		39.6			36.7			36.5			53.6	
Approach LOS		D			D			D			D	

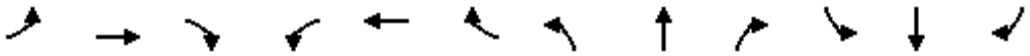
Intersection Summary			
HCM Average Control Delay	39.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1178	1266	0	805	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1253	1347	0	856	268
RTOR Reduction (vph)	0	0	0	0	0	49
Lane Group Flow (vph)	0	1253	1347	0	856	219
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		35.8	35.8		20.4	20.4
Effective Green, g (s)		35.8	35.8		20.4	20.4
Actuated g/C Ratio		0.55	0.55		0.31	0.31
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1949	1968		1077	497
v/s Ratio Prot		0.35	c0.38		c0.25	0.14
v/s Ratio Perm						
v/c Ratio		0.64	0.68		0.79	0.44
Uniform Delay, d1		10.2	10.5		20.4	17.8
Progression Factor		0.70	0.88		1.00	1.00
Incremental Delay, d2		1.3	1.6		4.0	0.5
Delay (s)		8.4	10.9		24.4	18.2
Level of Service		A	B		C	B
Approach Delay (s)		8.4	10.9		22.9	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		

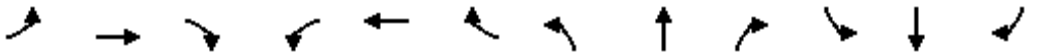
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	31	16	182	126	146	52	395	237	226	528	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.92	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.97	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1767			1771	1472	1752	3265		1787	3500	
Flt Permitted		0.92			0.79	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1647			1436	1472	1752	3265		1787	3500	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	13	37	19	217	150	174	62	470	282	269	629	83
RTOR Reduction (vph)	0	13	0	0	0	52	0	102	0	0	9	0
Lane Group Flow (vph)	0	56	0	0	367	122	62	651	0	269	703	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		23.5			23.5	23.5	4.6	21.6		15.4	32.4	
Effective Green, g (s)		23.5			23.5	23.5	4.6	21.6		15.4	32.4	
Actuated g/C Ratio		0.33			0.33	0.33	0.06	0.30		0.21	0.45	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		538			469	480	112	980		382	1575	
v/s Ratio Prot							0.04	c0.20		c0.15	0.20	
v/s Ratio Perm		0.03			c0.26	0.08						
v/c Ratio		0.10			0.78	0.25	0.55	0.66		0.70	0.45	
Uniform Delay, d1		16.9			21.9	17.8	32.7	22.0		26.2	13.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			8.3	0.3	3.3	1.5		4.8	0.1	
Delay (s)		17.0			30.2	18.1	36.0	23.6		31.0	13.8	
Level of Service		B			C	B	D	C		C	B	
Approach Delay (s)		17.0			26.3			24.5			18.5	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

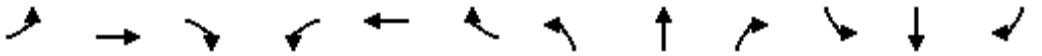
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.94			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1609			1596		1752	3476		1770	3339	
Flt Permitted		0.50			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		828			1267		1752	3476		1770	3339	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	40	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	288	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.0	48.2		1.1	33.3	
Effective Green, g (s)		25.3			3.9		16.0	48.2		1.1	33.3	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		218			51		292	1745		20	1158	
v/s Ratio Prot							c0.13	0.20		0.01	c0.26	
v/s Ratio Perm		c0.35			c0.01							
v/c Ratio		1.32			0.33		0.79	0.39		0.45	0.75	
Uniform Delay, d1		35.4			44.8		38.4	14.8		47.1	27.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		173.3			1.4		13.0	0.1		5.8	2.6	
Delay (s)		208.7			46.2		51.4	14.9		52.9	30.2	
Level of Service		F			D		D	B		D	C	
Approach Delay (s)		208.7			46.2			24.2			30.5	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM Average Control Delay	55.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

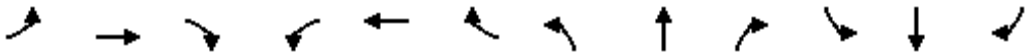
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1591			1598		1752	3476		1770	3347	
Flt Permitted		0.98			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1591			1269		1752	3476		1770	3347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	42	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	286	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		20.0			3.6		15.8	48.3		1.0	33.5	
Effective Green, g (s)		20.0			3.6		15.8	48.3		1.0	33.5	
Actuated g/C Ratio		0.22			0.04		0.17	0.53		0.01	0.37	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		352			51		306	1857		20	1240	
v/s Ratio Prot		c0.18					c0.13	0.20		0.01	c0.26	
v/s Ratio Perm					c0.01							
v/c Ratio		0.81			0.33		0.76	0.37		0.45	0.70	
Uniform Delay, d1		33.4			42.2		35.5	12.2		44.4	24.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.7			1.4		9.2	0.1		5.8	1.7	
Delay (s)		46.1			43.6		44.7	12.3		50.2	25.9	
Level of Service		D			D		D	B		D	C	
Approach Delay (s)		46.1			43.6			20.5			26.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



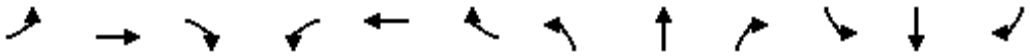
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	1	134	17	1	0	95	687	11	1	699	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.94		1.00	1.00		1.00	1.00	
Frt		0.92			1.00		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1686			1700		1752	3490		1752	3411	
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1684			1781		1752	3490		1752	3411	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	112	1	151	19	1	0	107	772	12	1	785	101
RTOR Reduction (vph)	0	46	0	0	0	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	218	0	0	20	0	107	783	0	1	879	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		17.3			2.4		8.2	27.3		12.0	31.1	
Effective Green, g (s)		17.3			2.4		8.2	27.3		12.0	31.1	
Actuated g/C Ratio		0.23			0.03		0.11	0.36		0.16	0.41	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		383			56		189	1254		277	1396	
v/s Ratio Prot							c0.06	0.22		c0.00	c0.26	
v/s Ratio Perm		c0.13			c0.01							
v/c Ratio		0.57			0.36		0.57	0.62		0.00	0.63	
Uniform Delay, d1		26.1			36.0		32.2	20.1		27.0	17.9	
Progression Factor		1.00			1.00		0.82	0.32		1.00	1.00	
Incremental Delay, d2		3.3			1.4		3.2	0.7		0.0	0.8	
Delay (s)		29.3			37.5		29.5	7.1		27.0	18.6	
Level of Service		C			D		C	A		C	B	
Approach Delay (s)		29.3			37.5			9.8			18.7	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	109	656	21	67	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1688		3451		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1688		3451		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	69	125	754	24	77	945
RTOR Reduction (vph)	62	0	2	0	0	0
Lane Group Flow (vph)	132	0	776	0	77	945
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	17.3		27.3		12.0	31.1
Effective Green, g (s)	17.3		27.3		12.0	31.1
Actuated g/C Ratio	0.23		0.36		0.16	0.41
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	384		1240		282	1463
v/s Ratio Prot	c0.08		0.22		c0.04	c0.26
v/s Ratio Perm						
v/c Ratio	0.34		0.63		0.27	0.65
Uniform Delay, d1	24.6		20.1		28.2	18.0
Progression Factor	1.00		1.00		0.76	0.39
Incremental Delay, d2	1.1		0.9		0.2	0.7
Delay (s)	25.7		21.0		21.5	7.8
Level of Service	C		C		C	A
Approach Delay (s)	25.7		21.0			8.8
Approach LOS	C		C			A

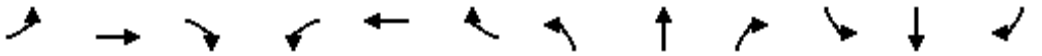
Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	19.4
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	0	83	3	1	0	85	706	1	1	781	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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	0.99	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1557		1821		1770	3538		1787	3498	
Flt Permitted		0.75	1.00		0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1405	1557		1545		1770	3538		1787	3498	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	54	0	105	4	1	0	108	894	1	1	989	99
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	54	14	0	5	0	108	895	0	1	1081	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Effective Green, g (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Actuated g/C Ratio		0.13	0.13		0.13		0.14	0.65		0.01	0.52	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		182	202		200		251	2308		25	1836	
v/s Ratio Prot							c0.06	0.25		0.00	c0.31	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.30	0.07		0.03		0.43	0.39		0.04	0.59	
Uniform Delay, d1		22.2	21.6		21.4		22.1	4.6		27.4	9.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.2		0.1		1.6	0.1		0.7	0.3	
Delay (s)		23.8	21.8		21.5		23.7	4.7		28.1	9.5	
Level of Service		C	C		C		C	A		C	A	
Approach Delay (s)		22.5			21.5			6.7			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

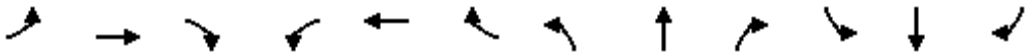


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	262	306	177	673	532	413	12	956	449	583	716	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	279	326	188	716	566	439	13	1017	478	620	762	322
RTOR Reduction (vph)	0	0	131	0	0	239	0	0	49	0	0	81
Lane Group Flow (vph)	279	326	57	716	566	200	13	1017	429	620	762	241
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.9	16.4	16.4	32.2	33.7	33.7	2.6	33.1	65.3	31.3	61.8	81.2
Effective Green, g (s)	14.9	16.4	16.4	32.2	33.7	33.7	2.6	33.1	65.3	31.3	61.8	81.2
Actuated g/C Ratio	0.11	0.13	0.13	0.25	0.26	0.26	0.02	0.25	0.50	0.24	0.48	0.62
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	397	451	202	850	917	402	35	901	795	818	1699	999
v/s Ratio Prot	0.08	c0.09		c0.21	0.16		0.01	c0.29	0.27	c0.18	0.21	0.15
v/s Ratio Perm			0.04			0.13						
v/c Ratio	0.70	0.72	0.28	0.84	0.62	0.50	0.37	1.13	0.54	0.76	0.45	0.24
Uniform Delay, d1	55.4	54.6	51.5	46.5	42.5	40.9	62.9	48.5	22.1	45.8	22.7	10.8
Progression Factor	0.98	0.98	1.22	1.00	1.00	1.00	1.02	0.97	1.05	1.00	1.00	1.00
Incremental Delay, d2	4.3	4.5	0.3	7.3	0.9	0.4	1.9	69.3	0.3	3.6	0.9	0.0
Delay (s)	58.6	58.1	63.0	53.8	43.3	41.3	65.9	116.1	23.4	49.4	23.6	10.8
Level of Service	E	E	E	D	D	D	E	F	C	D	C	B
Approach Delay (s)		59.4			47.2			86.3			30.6	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM Average Control Delay	54.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	5	779	48	3	915
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5029		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5029		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	6	906	56	3	1064
RTOR Reduction (vph)	0	6	3	0	0	0
Lane Group Flow (vph)	9	0	959	0	3	1064
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	2.6	2.6	71.3		1.3	53.6
Effective Green, g (s)	2.6	2.6	71.3		1.3	53.6
Actuated g/C Ratio	0.02	0.02	0.55		0.01	0.41
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	36	32	2758		18	2097
v/s Ratio Prot	c0.00		c0.19		0.00	c0.21
v/s Ratio Perm		0.00				
v/c Ratio	0.25	0.00	0.35		0.17	0.51
Uniform Delay, d1	62.7	62.4	16.4		63.8	28.4
Progression Factor	1.00	1.00	0.22		0.69	0.40
Incremental Delay, d2	2.6	0.0	0.0		1.4	0.8
Delay (s)	65.4	62.5	3.7		45.1	12.2
Level of Service	E	E	A		D	B
Approach Delay (s)	64.2		3.7			12.3
Approach LOS	E		A			B

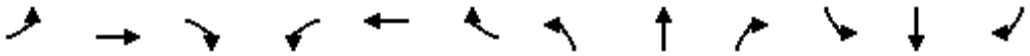
Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	56.8
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	68	211	255	275	27	282	760	41	10	797	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1485	1787	1852		3433	5034		1770	4959	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1485	1787	1852		3433	5034		1770	4959	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	45	77	240	290	312	31	320	864	47	11	906	132
RTOR Reduction (vph)	0	0	201	0	3	0	0	3	0	0	12	0
Lane Group Flow (vph)	45	77	39	290	340	0	320	908	0	11	1026	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	5.7	16.4	16.4	25.2	29.3		19.3	65.6		2.5	53.6	
Effective Green, g (s)	5.7	16.4	16.4	25.2	29.3		19.3	65.6		2.5	53.6	
Actuated g/C Ratio	0.04	0.13	0.13	0.19	0.23		0.15	0.50		0.02	0.41	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	77	233	187	346	417		510	2540		34	2045	
v/s Ratio Prot	0.03	0.04		c0.16	c0.18		c0.09	0.18		0.01	c0.21	
v/s Ratio Perm			0.03									
v/c Ratio	0.58	0.33	0.21	0.84	0.82		0.63	0.36		0.32	0.50	
Uniform Delay, d1	61.0	51.8	51.0	50.4	47.8		52.0	19.5		62.9	28.3	
Progression Factor	1.00	1.00	1.00	0.59	0.45		1.00	0.89		1.43	0.02	
Incremental Delay, d2	7.1	0.6	0.4	12.0	8.7		1.7	0.4		1.8	0.8	
Delay (s)	68.1	52.4	51.4	41.7	30.0		53.7	17.7		91.9	1.4	
Level of Service	E	D	D	D	C		D	B		F	A	
Approach Delay (s)		53.7			35.4			27.1			2.3	
Approach LOS		D			D			C			A	

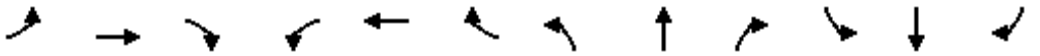
Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	292	5	241	258	842	0	0	771	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1621		1770	5085			5898	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1621		1770	5085			5898	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	324	6	268	287	936	0	0	857	547
RTOR Reduction (vph)	0	0	0	0	158	0	0	0	0	0	150	0
Lane Group Flow (vph)	0	0	0	324	116	0	287	936	0	0	1254	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				10.6	10.6		14.3	47.9			30.6	
Effective Green, g (s)				10.6	10.6		14.3	47.9			30.6	
Actuated g/C Ratio				0.16	0.16		0.22	0.74			0.47	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				571	264		389	3747			2777	
v/s Ratio Prot				c0.09	0.07		c0.16	0.18			c0.21	
v/s Ratio Perm												
v/c Ratio				0.57	0.44		0.74	0.25			0.45	
Uniform Delay, d1				25.1	24.5		23.6	2.8			11.6	
Progression Factor				1.00	1.00		1.12	1.52			0.77	
Incremental Delay, d2				0.8	0.4		5.7	0.1			0.5	
Delay (s)				25.9	24.9		32.2	4.3			9.3	
Level of Service				C	C		C	A			A	
Approach Delay (s)		0.0			25.4			10.9			9.3	
Approach LOS		A			C			B			A	

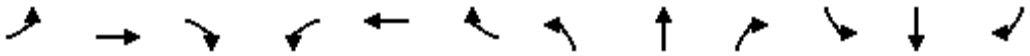
Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	389	2	212	0	0	0	0	711	157	270	793	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	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	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4930		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4930		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	442	2	241	0	0	0	0	808	178	307	901	0
RTOR Reduction (vph)	0	0	123	0	0	0	0	49	0	0	0	0
Lane Group Flow (vph)	221	223	118	0	0	0	0	937	0	307	901	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	13.5	13.5	13.5					31.0		10.0	45.0	
Effective Green, g (s)	13.5	13.5	13.5					31.0		10.0	45.0	
Actuated g/C Ratio	0.21	0.21	0.21					0.48		0.15	0.69	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	349	350	329					2351		533	3556	
v/s Ratio Prot	0.13	c0.13						c0.19		c0.09	0.18	
v/s Ratio Perm			0.07									
v/c Ratio	0.63	0.64	0.36					0.40		0.58	0.25	
Uniform Delay, d1	23.5	23.5	22.0					11.0		25.5	3.7	
Progression Factor	1.00	1.00	1.00					1.07		1.26	0.26	
Incremental Delay, d2	2.8	2.8	0.2					0.5		1.4	0.2	
Delay (s)	26.2	26.3	22.3					12.3		33.5	1.1	
Level of Service	C	C	C					B		C	A	
Approach Delay (s)		24.9			0.0			12.3			9.4	
Approach LOS		C			A			B			A	

Intersection Summary				
HCM Average Control Delay	14.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5	
Intersection Capacity Utilization	59.9%	ICU Level of Service	B	
Analysis Period (min)	15			

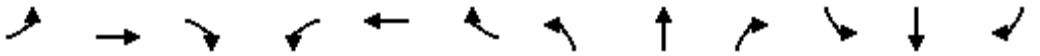
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	2	16	16	8	9	21	676	6	20	896	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.96		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1785		1770	5078		1787	5071	
Flt Permitted		0.76			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1378			1620		1770	5078		1787	5071	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	55	2	17	17	9	10	22	719	6	21	953	70
RTOR Reduction (vph)	0	16	0	0	9	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	58	0	0	27	0	22	724	0	21	1016	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		5.2			5.2		1.4	47.0		1.3	46.9	
Effective Green, g (s)		5.2			5.2		1.4	47.0		1.3	46.9	
Actuated g/C Ratio		0.08			0.08		0.02	0.72		0.02	0.72	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		110			130		38	3672		36	3659	
v/s Ratio Prot							c0.01	0.14		0.01	c0.20	
v/s Ratio Perm		c0.04			0.02							
v/c Ratio		0.53			0.21		0.58	0.20		0.58	0.28	
Uniform Delay, d1		28.7			28.0		31.5	2.9		31.6	3.2	
Progression Factor		1.00			1.00		1.00	0.60		1.42	0.57	
Incremental Delay, d2		2.4			0.3		12.4	0.1		14.2	0.2	
Delay (s)		31.2			28.3		43.8	1.9		59.0	2.0	
Level of Service		C			C		D	A		E	A	
Approach Delay (s)		31.2			28.3			3.1			3.1	
Approach LOS		C			C			A			A	

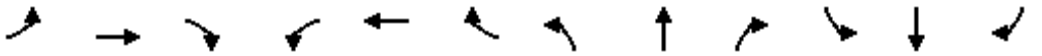
Intersection Summary			
HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	100	11	551	74	182	11	418	250	102	708	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00	
Frt	1.00	0.99		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)	1736	1796		1681	1704	1558	1752	5036	1568	3467	3524	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1796		1681	1704	1558	1752	5036	1568	3467	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	109	12	599	80	198	12	454	272	111	770	59
RTOR Reduction (vph)	0	4	0	0	0	129	0	0	0	0	3	0
Lane Group Flow (vph)	83	117	0	335	344	69	12	454	272	111	826	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	12.9	12.9		31.7	31.7	31.7	2.6	61.8	97.0	8.6	67.8	
Effective Green, g (s)	12.9	12.9		31.7	31.7	31.7	2.6	61.8	97.0	8.6	67.8	
Actuated g/C Ratio	0.10	0.10		0.24	0.24	0.24	0.02	0.48	0.75	0.07	0.52	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	172	178		410	416	380	35	2394	1170	229	1838	
v/s Ratio Prot	0.05	c0.07		0.20	c0.20		0.01	0.09	0.17	c0.03	c0.23	
v/s Ratio Perm						0.04						
v/c Ratio	0.48	0.66		0.82	0.83	0.18	0.34	0.19	0.23	0.48	0.45	
Uniform Delay, d1	55.4	56.4		46.4	46.6	38.9	62.9	19.7	5.1	58.6	19.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.08	0.72	
Incremental Delay, d2	0.8	6.6		11.3	12.1	0.1	2.1	0.2	0.0	0.6	0.8	
Delay (s)	56.2	63.0		57.8	58.6	39.0	65.0	19.8	5.1	63.9	14.7	
Level of Service	E	E		E	E	D	E	B	A	E	B	
Approach Delay (s)		60.2			53.9			15.1			20.6	
Approach LOS		E			D			B			C	

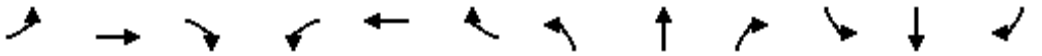
Intersection Summary			
HCM Average Control Delay	32.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	45	0	0	0	0	3	113	41	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.96				0.86
Flt Protected		0.98					0.95	1.00				1.00
Satd. Flow (prot)		1856					1770	1788				1644
Flt Permitted		0.98					0.95	1.00				1.00
Satd. Flow (perm)		1856					1770	1788				1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	49	0	0	0	0	3	123	45	0	0	33
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	0	13
Lane Group Flow (vph)	0	94	0	0	0	0	3	151	0	0	0	20
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		2.9					17.8	17.8				17.8
Effective Green, g (s)		2.9					17.8	17.8				17.8
Actuated g/C Ratio		0.10					0.62	0.62				0.62
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		188					1098	1109				1020
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.05					0.00					0.01
v/c Ratio		0.50					0.00	0.14				0.02
Uniform Delay, d1		12.2					2.1	2.3				2.1
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		2.1					0.0	0.1				0.0
Delay (s)		14.3					2.1	2.3				2.1
Level of Service		B					A	A				A
Approach Delay (s)		14.3			0.0			2.3			2.1	
Approach LOS		B			A			A			A	

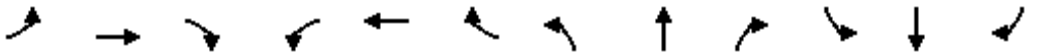
Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	28.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	5	6	0	0	0	0	154	0	456	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.91						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1700						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.65	1.00	
Satd. Flow (perm)	1770	1700						1863		1214	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	5	7	0	0	0	0	167	0	496	26	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	232	7	0	0	0	0	0	167	0	496	26	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	8.7	8.7						20.9		20.9	20.9	
Effective Green, g (s)	8.7	8.7						20.9		20.9	20.9	
Actuated g/C Ratio	0.23	0.23						0.56		0.56	0.56	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	410	393						1036		675	1036	
v/s Ratio Prot		0.00						0.09			0.01	
v/s Ratio Perm	c0.13									c0.41		
v/c Ratio	0.57	0.02						0.16		0.73	0.03	
Uniform Delay, d1	12.8	11.1						4.1		6.3	3.8	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.0						0.1		4.2	0.0	
Delay (s)	14.6	11.2						4.1		10.4	3.8	
Level of Service	B	B						A		B	A	
Approach Delay (s)		14.4			0.0			4.1			10.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

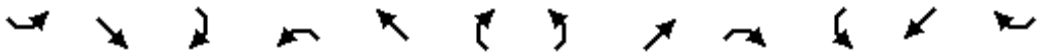


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	89	11	526	420	90	277	0	0	380	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1861	1583	1770	1863			1863	1583
Flt Permitted			1.00		1.00	1.00	0.42	1.00			1.00	1.00
Satd. Flow (perm)			1611		1861	1583	783	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	97	12	572	457	98	301	0	0	413	30
RTOR Reduction (vph)	0	0	59	0	0	269	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	38	0	584	188	98	301	0	0	413	14
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			22.9		22.9	22.9	27.1	27.1			27.1	27.1
Effective Green, g (s)			22.9		22.9	22.9	27.1	27.1			27.1	27.1
Actuated g/C Ratio			0.39		0.39	0.39	0.47	0.47			0.47	0.47
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			636		735	625	366	870			870	740
v/s Ratio Prot								0.16			c0.22	
v/s Ratio Perm			0.02		0.31	0.12	0.13					0.01
v/c Ratio			0.06		0.79	0.30	0.27	0.35			0.47	0.02
Uniform Delay, d1			10.9		15.5	12.1	9.4	9.8			10.6	8.3
Progression Factor			1.00		1.00	1.00	1.00	1.00			2.08	3.23
Incremental Delay, d2			0.0		5.9	0.3	1.8	1.1			1.5	0.0
Delay (s)			10.9		21.4	12.3	11.2	10.9			23.5	26.9
Level of Service			B		C	B	B	B			C	C
Approach Delay (s)		10.9			17.4			11.0			23.7	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	619	25	938	64	25	1334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3428		3505		1770	3539
Flt Permitted	0.95		1.00		0.21	1.00
Satd. Flow (perm)	3428		3505		393	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	673	27	1020	70	27	1450
RTOR Reduction (vph)	5	0	8	0	0	0
Lane Group Flow (vph)	695	0	1082	0	27	1450
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	15.1		34.9		34.9	34.9
Effective Green, g (s)	15.1		34.9		34.9	34.9
Actuated g/C Ratio	0.26		0.60		0.60	0.60
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	892		2109		236	2130
v/s Ratio Prot			0.31			c0.41
v/s Ratio Perm	c0.20				0.07	
v/c Ratio	0.78		0.51		0.11	0.68
Uniform Delay, d1	19.9		6.7		4.9	7.8
Progression Factor	1.57		1.00		0.94	1.34
Incremental Delay, d2	3.4		0.9		0.7	1.3
Delay (s)	34.6		7.5		5.3	11.7
Level of Service	C		A		A	B
Approach Delay (s)	34.6		7.5			11.6
Approach LOS	C		A			B

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	217	1295	88	126	2078	94	279	198	63	42	90	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5067		1787	6422		1765	1806		1783	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.68	1.00		0.38	1.00	1.00
Satd. Flow (perm)	1787	5067		1787	6422		1265	1806		718	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	228	1363	93	133	2187	99	294	208	66	44	95	66
RTOR Reduction (vph)	0	4	0	0	4	0	0	10	0	0	0	48
Lane Group Flow (vph)	228	1452	0	133	2282	0	294	264	0	44	95	18
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	20.5	60.8		14.3	55.1		32.6	32.6		32.6	32.6	32.6
Effective Green, g (s)	20.5	60.8		14.3	55.1		32.6	32.6		32.6	32.6	32.6
Actuated g/C Ratio	0.17	0.51		0.12	0.46		0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	305	2567		213	2949		344	491		195	511	423
v/s Ratio Prot	c0.13	0.29		0.07	c0.36			0.15			0.05	
v/s Ratio Perm							c0.23			0.06		0.01
v/c Ratio	0.75	0.57		0.62	0.77		0.85	0.54		0.23	0.19	0.04
Uniform Delay, d1	47.3	20.5		50.3	27.2		41.5	37.3		33.9	33.5	32.2
Progression Factor	0.78	0.75		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	0.7		5.6	2.0		18.3	1.1		0.6	0.2	0.0
Delay (s)	44.2	16.0		55.9	29.3		59.7	38.4		34.5	33.7	32.2
Level of Service	D	B		E	C		E	D		C	C	C
Approach Delay (s)		19.8			30.7			49.4			33.4	
Approach LOS		B			C			D			C	

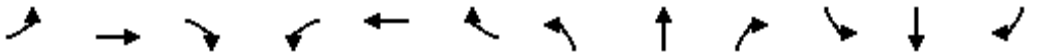
Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	771	1242	182	141	0	316	0	680	85	341	416	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5027		3467		2814		5088		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5027		3467		2814		5088		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	803	1294	190	147	0	329	0	708	89	355	433	0
RTOR Reduction (vph)	0	16	0	0	0	203	0	14	0	0	0	0
Lane Group Flow (vph)	803	1468	0	147	0	126	0	783	0	355	433	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	18.4	57.3		7.1		46.0		23.7		15.9	43.6	
Effective Green, g (s)	18.4	57.3		7.1		46.0		23.7		15.9	43.6	
Actuated g/C Ratio	0.15	0.48		0.06		0.38		0.20		0.13	0.36	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	773	2400		205		1079		1005		459	1299	
v/s Ratio Prot	c0.16	c0.29		0.04		0.04		c0.15		c0.10	0.12	
v/s Ratio Perm												
v/c Ratio	1.04	0.61		0.72		0.12		0.78		0.77	0.33	
Uniform Delay, d1	50.8	23.1		55.5		23.9		45.7		50.3	27.7	
Progression Factor	1.00	1.00		1.14		1.28		1.00		1.00	1.00	
Incremental Delay, d2	42.9	1.2		7.8		0.1		3.9		7.9	0.2	
Delay (s)	93.7	24.3		71.1		30.6		49.6		58.2	27.8	
Level of Service	F	C		E		C		D		E	C	
Approach Delay (s)		48.7			43.1			49.6			41.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	46.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

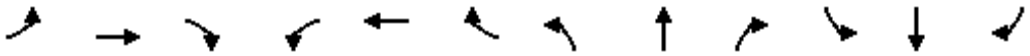
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	1203	50	244	947	195	94	49	377	212	76	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	0.99		1.00	0.97			0.93	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5096		1787	5004			1618	1504	1770	1729	
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1787	5096		1787	5004			1618	1504	1770	1729	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	141	1294	54	262	1018	210	101	53	405	228	82	75
RTOR Reduction (vph)	0	3	0	0	25	0	0	25	212	0	32	0
Lane Group Flow (vph)	141	1345	0	262	1203	0	0	263	59	228	125	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	16.0	37.8		17.5	38.8			25.3	25.3	19.9	19.9	
Effective Green, g (s)	16.0	37.8		17.5	38.8			25.3	25.3	19.9	19.9	
Actuated g/C Ratio	0.14	0.33		0.15	0.33			0.22	0.22	0.17	0.17	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	246	1661		270	1674			353	328	304	297	
v/s Ratio Prot	0.08	c0.26		c0.15	0.24			c0.16		c0.13	0.07	
v/s Ratio Perm									0.04			
v/c Ratio	0.57	0.81		0.97	0.72			0.74	0.18	0.75	0.42	
Uniform Delay, d1	46.8	35.8		49.0	33.8			42.3	36.9	45.7	42.9	
Progression Factor	0.84	0.95		0.85	0.66			0.95	1.57	1.00	1.00	
Incremental Delay, d2	1.9	3.1		43.7	2.4			7.9	0.3	9.5	0.7	
Delay (s)	41.0	37.2		85.4	24.6			48.0	58.1	55.2	43.6	
Level of Service	D	D		F	C			D	E	E	D	
Approach Delay (s)		37.5			35.3			52.9			50.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	40.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

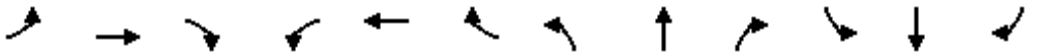
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	1485	65	69	1070	43	79	15	44	79	51	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3467	3548		1787	5099			1805	1564	1787	1642	
Flt Permitted	0.95	1.00		0.13	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3467	3548		237	5099			1805	1564	1787	1642	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	299	1531	67	71	1103	44	81	15	45	81	53	298
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	41	0	197	0
Lane Group Flow (vph)	299	1596	0	71	1145	0	0	96	4	81	154	0
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Perm			Split		Perm	Split		
Protected Phases	5	2			6		4	4		3	3	
Permitted Phases				6					4			
Actuated Green, G (s)	14.6	77.5		59.4	59.4			11.0	11.0	15.5	15.5	
Effective Green, g (s)	14.6	77.5		59.4	59.4			11.0	11.0	15.5	15.5	
Actuated g/C Ratio	0.13	0.67		0.51	0.51			0.09	0.09	0.13	0.13	
Clearance Time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	436	2370		121	2611			171	148	239	219	
v/s Ratio Prot	0.09	c0.45			0.22			c0.05		0.05	c0.09	
v/s Ratio Perm				0.30					0.00			
v/c Ratio	0.69	0.67		0.59	0.44			0.56	0.03	0.34	0.70	
Uniform Delay, d1	48.5	11.6		19.7	17.8			50.2	47.7	45.6	48.1	
Progression Factor	1.18	0.64		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	1.0		19.2	0.5			3.4	0.1	0.6	9.2	
Delay (s)	59.8	8.5		38.9	18.3			53.6	47.7	46.2	57.2	
Level of Service	E	A		D	B			D	D	D	E	
Approach Delay (s)		16.6			19.5			51.7			55.2	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

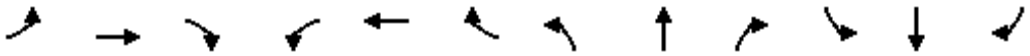
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	440	1340	29	16	696	154	38	4	11	219	4	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	0.95	1.00
Satd. Flow (prot)	3467	3559		1787	3465		1715	1641		1684	1691	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.93		0.74	0.72	1.00
Satd. Flow (perm)	3467	3559		1787	3465		1715	1555		1311	1273	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	454	1381	30	16	718	159	39	4	11	226	4	367
RTOR Reduction (vph)	0	1	0	0	14	0	0	7	0	0	0	273
Lane Group Flow (vph)	454	1410	0	16	863	0	28	19	0	115	115	94
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	17.8	55.5		2.6	40.3		4.6	35.4		26.8	26.8	26.8
Effective Green, g (s)	17.8	55.5		2.6	40.3		4.6	35.4		26.8	26.8	26.8
Actuated g/C Ratio	0.17	0.53		0.02	0.38		0.04	0.34		0.26	0.26	0.26
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	588	1881		44	1330		75	528		335	325	408
v/s Ratio Prot	c0.13	c0.40		0.01	0.25		c0.02	0.00				
v/s Ratio Perm								0.01		0.09	c0.09	0.06
v/c Ratio	0.77	0.75		0.36	0.65		0.37	0.04		0.34	0.35	0.23
Uniform Delay, d1	41.7	19.3		50.4	26.5		48.8	23.3		31.9	32.0	30.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.7	2.8		1.9	2.5		2.3	0.0		0.4	0.5	0.2
Delay (s)	47.4	22.1		52.2	29.0		51.1	23.4		32.4	32.5	31.1
Level of Service	D	C		D	C		D	C		C	C	C
Approach Delay (s)		28.3			29.4			37.7			31.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	29.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

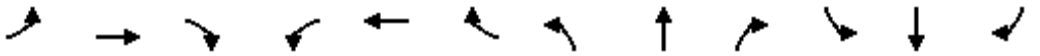
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	390	230	253	352	192	281	664	312	204	536	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3505	
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)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	162	406	240	264	367	200	293	692	325	212	558	57
RTOR Reduction (vph)	0	0	57	0	0	80	0	0	247	0	6	0
Lane Group Flow (vph)	162	406	183	264	367	120	293	692	78	212	609	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	22.9	47.4	72.2	22.9	47.4	68.3	24.8	33.8	33.8	20.9	29.9	
Effective Green, g (s)	22.9	47.4	72.2	22.9	47.4	68.3	24.8	33.8	33.8	20.9	29.9	
Actuated g/C Ratio	0.16	0.34	0.52	0.16	0.34	0.49	0.18	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	292	1210	847	292	1210	762	614	863	378	267	749	
v/s Ratio Prot	0.09	c0.11	0.04	c0.15	0.10	0.02	0.08	c0.19		0.12	c0.17	
v/s Ratio Perm			0.08			0.05			0.05			
v/c Ratio	0.55	0.34	0.22	0.90	0.30	0.16	0.48	0.80	0.21	0.79	0.81	
Uniform Delay, d1	53.9	34.5	18.5	57.5	34.1	19.9	51.8	49.9	42.4	57.5	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	4.50	1.00	1.00	
Incremental Delay, d2	1.3	0.7	0.0	28.6	0.6	0.0	0.2	4.8	0.2	14.0	6.6	
Delay (s)	55.2	35.3	18.5	86.1	34.8	19.9	42.0	45.4	190.8	71.5	58.9	
Level of Service	E	D	B	F	C	B	D	D	F	E	E	
Approach Delay (s)		34.3			47.5			80.7			62.2	
Approach LOS		C			D			F			E	

Intersection Summary			
HCM Average Control Delay	59.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

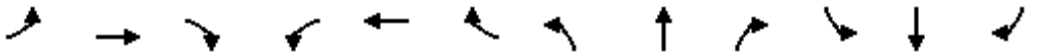
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	390	230	253	352	192	281	664	312	204	536	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1566	1787	3574	1560	3467	3574	1567	1787	3505	
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)	1787	3574	1566	1787	3574	1560	3467	3574	1567	1787	3505	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	162	406	240	264	367	200	293	692	325	212	558	57
RTOR Reduction (vph)	0	0	58	0	0	74	0	0	247	0	6	0
Lane Group Flow (vph)	162	406	182	264	367	126	293	692	78	212	609	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	17.0	45.8	70.6	24.5	53.3	74.2	24.8	33.8	33.8	20.9	29.9	
Effective Green, g (s)	17.0	45.8	70.6	24.5	53.3	74.2	24.8	33.8	33.8	20.9	29.9	
Actuated g/C Ratio	0.12	0.33	0.50	0.18	0.38	0.53	0.18	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	217	1169	829	313	1361	827	614	863	378	267	749	
v/s Ratio Prot	c0.09	c0.11	0.04	c0.15	0.10	0.02	0.08	c0.19		0.12	c0.17	
v/s Ratio Perm			0.08			0.06			0.05			
v/c Ratio	0.75	0.35	0.22	0.84	0.27	0.15	0.48	0.80	0.21	0.79	0.81	
Uniform Delay, d1	59.4	35.8	19.3	55.9	29.9	16.8	51.8	49.9	42.4	57.5	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.57	0.57	2.54	1.00	1.00	
Incremental Delay, d2	11.5	0.8	0.0	17.6	0.5	0.0	0.2	4.8	0.2	14.0	6.6	
Delay (s)	71.0	36.6	19.4	73.5	30.4	16.9	29.7	33.1	108.1	71.5	58.9	
Level of Service	E	D	B	E	C	B	C	C	F	E	E	
Approach Delay (s)		38.4			40.8			50.9			62.2	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

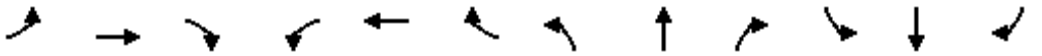
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	1095	63	212	630	47	0	0	428	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3535		1770	3485				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3535		1770	3485				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	145	1203	69	233	692	52	0	0	470	0	0	99
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	28	0	0	52
Lane Group Flow (vph)	145	1270	0	233	740	0	0	0	442	0	0	47
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	43.6	86.2		22.8	65.4				46.3			67.1
Effective Green, g (s)	43.6	86.2		22.8	65.4				46.3			67.1
Actuated g/C Ratio	0.31	0.62		0.16	0.47				0.33			0.48
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	557	2177		288	1628				931			780
v/s Ratio Prot	0.08	c0.36		c0.13	0.21				c0.16			0.03
v/s Ratio Perm												
v/c Ratio	0.26	0.58		0.81	0.45				0.47			0.06
Uniform Delay, d1	36.1	16.1		56.5	25.2				37.2			19.6
Progression Factor	1.00	1.00		1.00	1.00				0.81			1.00
Incremental Delay, d2	0.1	1.2		14.5	0.9				0.1			0.0
Delay (s)	36.2	17.3		71.0	26.1				30.1			19.6
Level of Service	D	B		E	C				C			B
Approach Delay (s)		19.2			36.8			30.1			19.6	
Approach LOS		B			D			C			B	

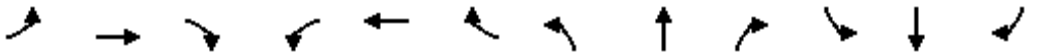
Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	594	219	42	478	177	199	272	76	132	135	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	160	653	241	46	525	195	219	299	84	145	148	157
RTOR Reduction (vph)	0	0	116	0	0	115	0	0	58	0	0	137
Lane Group Flow (vph)	160	653	125	46	525	80	197	321	26	145	148	20
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.1	67.4	67.4	7.2	57.5	57.5	31.9	31.9	43.1	17.5	17.5	17.5
Effective Green, g (s)	17.1	67.4	67.4	7.2	57.5	57.5	31.9	31.9	43.1	17.5	17.5	17.5
Actuated g/C Ratio	0.12	0.48	0.48	0.05	0.41	0.41	0.23	0.23	0.31	0.12	0.12	0.12
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	216	1704	762	177	1454	650	383	402	858	221	233	198
v/s Ratio Prot	c0.09	c0.18		0.01	c0.15		0.12	c0.18	0.01	c0.08	0.08	
v/s Ratio Perm			0.08			0.05						0.01
v/c Ratio	0.74	0.38	0.16	0.26	0.36	0.12	0.51	0.80	0.03	0.66	0.64	0.10
Uniform Delay, d1	59.3	23.1	20.4	63.8	28.5	25.6	47.3	51.0	33.8	58.4	58.2	54.3
Progression Factor	1.00	1.00	1.00	1.16	0.55	0.30	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	0.7	0.5	0.7	0.7	0.4	1.2	10.6	0.0	6.8	5.6	0.2
Delay (s)	70.6	23.7	20.9	74.5	16.2	8.1	48.4	61.6	33.9	65.2	63.8	54.5
Level of Service	E	C	C	E	B	A	D	E	C	E	E	D
Approach Delay (s)		30.2			17.7			53.4			61.0	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	36.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	630	118	814	429	169	106	203	642	56	244	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3420	1564	3467	3409		1787	1881	1599	3467	3394	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3420	1564	3467	3409		1787	1881	1599	3467	3394	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	141	656	123	848	447	176	110	211	669	58	254	81
RTOR Reduction (vph)	0	0	74	0	28	0	0	0	50	0	22	0
Lane Group Flow (vph)	127	670	49	848	595	0	110	211	619	58	313	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	40.3	40.3	40.3	44.1	44.1		13.0	34.3	78.4	5.8	27.1	
Effective Green, g (s)	40.3	40.3	40.3	44.1	44.1		13.0	34.3	78.4	5.8	27.1	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.09	0.24	0.56	0.04	0.19	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	468	984	450	1092	1074		166	461	895	144	657	
v/s Ratio Prot	0.08	c0.20		c0.24	0.17		0.06	0.11	c0.39	0.02	c0.09	
v/s Ratio Perm			0.03									
v/c Ratio	0.27	0.68	0.11	0.78	0.55		0.66	0.46	0.69	0.40	0.48	
Uniform Delay, d1	38.5	44.2	36.6	43.5	39.8		61.4	44.9	22.1	65.4	50.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	3.8	0.5	3.5	0.6		7.5	0.3	1.9	0.7	0.2	
Delay (s)	39.9	48.0	37.1	47.0	40.4		68.9	45.2	24.0	66.1	50.4	
Level of Service	D	D	D	D	D		E	D	C	E	D	
Approach Delay (s)		45.4			44.2			33.5			52.7	
Approach LOS		D			D			C			D	

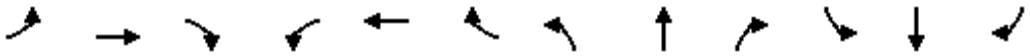
Intersection Summary			
HCM Average Control Delay	42.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1317	997	0	1040	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1372	1039	0	1083	459
RTOR Reduction (vph)	0	0	0	0	0	95
Lane Group Flow (vph)	0	1372	1039	0	1083	364
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		36.8	36.8		19.4	19.4
Effective Green, g (s)		36.8	36.8		19.4	19.4
Actuated g/C Ratio		0.57	0.57		0.30	0.30
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2023	2023		1035	477
v/s Ratio Prot		c0.38	0.29		c0.31	0.23
v/s Ratio Perm						
v/c Ratio		0.68	0.51		1.05	0.76
Uniform Delay, d1		9.9	8.6		22.8	20.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	0.9		40.9	6.8
Delay (s)		11.8	9.6		63.7	27.5
Level of Service		B	A		E	C
Approach Delay (s)		11.8	9.6		52.9	
Approach LOS		B	A		D	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	106.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	34	55	221	36	179	29	553	310	216	443	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738			1789	1560	1787	3346		1787	3540	
Flt Permitted		0.87			0.66	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1536			1238	1560	1787	3346		1787	3540	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	36	38	62	248	40	201	33	621	348	243	498	26
RTOR Reduction (vph)	0	31	0	0	0	79	0	82	0	0	3	0
Lane Group Flow (vph)	0	105	0	0	288	122	33	887	0	243	521	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.9			22.9	22.9	3.7	26.8		14.9	38.0	
Effective Green, g (s)		22.9			22.9	22.9	3.7	26.8		14.9	38.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.05	0.35		0.20	0.50	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		462			373	469	87	1178		350	1768	
v/s Ratio Prot							0.02	c0.27		c0.14	0.15	
v/s Ratio Perm		0.07			c0.23	0.08						
v/c Ratio		0.23			0.77	0.26	0.38	0.75		0.69	0.29	
Uniform Delay, d1		20.0			24.2	20.2	35.1	21.7		28.5	11.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			9.5	0.3	1.0	2.6		4.8	0.1	
Delay (s)		20.2			33.8	20.5	36.1	24.4		33.2	11.3	
Level of Service		C			C	C	D	C		C	B	
Approach Delay (s)		20.2			28.3			24.8			18.2	
Approach LOS		C			C			C			B	

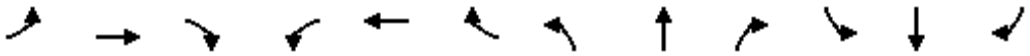
Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	36	7	2	3	52	886	13	7	622	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1725			1651		1787	3565		1785	3491	
Flt Permitted		0.76			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1349			1702		1787	3565		1785	3491	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	56	0	42	8	2	3	60	1030	15	8	723	102
RTOR Reduction (vph)	0	27	0	0	3	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	71	0	0	10	0	60	1045	0	8	819	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		6.5			0.9		4.3	35.5		0.8	32.0	
Effective Green, g (s)		6.5			0.9		4.3	35.5		0.8	32.0	
Actuated g/C Ratio		0.11			0.01		0.07	0.58		0.01	0.52	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		143			25		126	2068		23	1825	
v/s Ratio Prot							c0.03	c0.29		0.00	0.23	
v/s Ratio Perm		c0.05			c0.01							
v/c Ratio		0.50			0.40		0.48	0.51		0.35	0.45	
Uniform Delay, d1		25.8			29.9		27.4	7.6		29.9	9.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			3.8		1.0	0.1		3.3	0.1	
Delay (s)		26.8			33.7		28.4	7.8		33.2	9.2	
Level of Service		C			C		C	A		C	A	
Approach Delay (s)		26.8			33.7			8.9			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

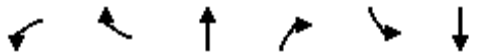
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	140	3	177	6	3	2	143	782	21	1	587	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.97		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1759		1787	3557		1787	3470	
Flt Permitted		0.73			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1253			1807		1787	3557		1787	3470	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	143	3	181	6	3	2	146	798	21	1	599	103
RTOR Reduction (vph)	0	37	0	0	2	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	290	0	0	9	0	146	818	0	1	690	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		25.7			1.0		12.7	26.7		10.6	24.6	
Effective Green, g (s)		25.7			1.0		12.7	26.7		10.6	24.6	
Actuated g/C Ratio		0.32			0.01		0.16	0.33		0.13	0.30	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		398			22		280	1172		234	1054	
v/s Ratio Prot							c0.08	c0.23		0.00	0.20	
v/s Ratio Perm		c0.23			c0.00							
v/c Ratio		0.73			0.41		0.52	0.70		0.00	0.65	
Uniform Delay, d1		24.6			39.7		31.4	23.6		30.6	24.5	
Progression Factor		1.00			1.00		0.65	0.28		1.00	1.00	
Incremental Delay, d2		8.0			4.5		1.0	1.0		0.0	1.3	
Delay (s)		32.5			44.2		21.3	7.5		30.6	25.8	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		32.5			44.2			9.6			25.8	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

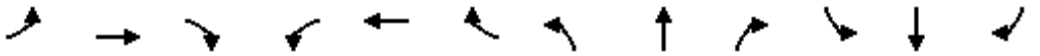
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	22	41	914	45	61	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1702		3541		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1702		3541		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	22	42	933	46	62	707
RTOR Reduction (vph)	29	0	3	0	0	0
Lane Group Flow (vph)	35	0	976	0	62	707
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	25.7		26.7		10.6	24.6
Effective Green, g (s)	25.7		26.7		10.6	24.6
Actuated g/C Ratio	0.32		0.33		0.13	0.30
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	540		1167		234	1085
v/s Ratio Prot	c0.02		c0.28		c0.03	0.20
v/s Ratio Perm						
v/c Ratio	0.07		0.84		0.26	0.65
Uniform Delay, d1	19.3		25.1		31.7	24.5
Progression Factor	1.00		1.00		0.82	0.33
Incremental Delay, d2	0.1		5.3		0.2	1.1
Delay (s)	19.4		30.4		26.2	9.1
Level of Service	B		C		C	A
Approach Delay (s)	19.4		30.4			10.5
Approach LOS	B		C			B

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

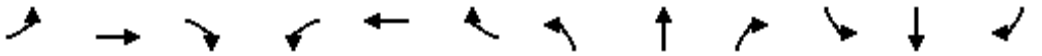
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	5	116	36	2	6	118	878	4	8	657	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1813	1573		1775		1787	3571		1787	3502	
Flt Permitted		0.70	1.00		0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1332	1573		1380		1787	3571		1787	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	114	5	121	38	2	6	123	915	4	8	684	76
RTOR Reduction (vph)	0	0	95	0	5	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	119	26	0	41	0	123	919	0	8	751	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Effective Green, g (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Actuated g/C Ratio		0.21	0.21		0.21		0.16	0.56		0.02	0.42	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		284	335		294		283	1989		33	1461	
v/s Ratio Prot							c0.07	0.26		0.00	c0.21	
v/s Ratio Perm		c0.09	0.02		0.03							
v/c Ratio		0.42	0.08		0.14		0.43	0.46		0.24	0.51	
Uniform Delay, d1		18.5	17.1		17.4		20.7	7.2		26.3	11.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	0.2		0.4		1.5	0.2		3.8	0.1	
Delay (s)		20.2	17.3		17.7		22.2	7.4		30.1	11.9	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		18.7			17.7			9.1			12.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

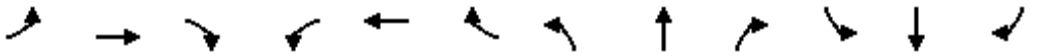
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	490	79	547	460	299	25	1062	760	498	432	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1571	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1571	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	251	527	85	588	495	322	27	1142	817	535	465	228
RTOR Reduction (vph)	0	0	70	0	0	171	0	0	9	0	0	100
Lane Group Flow (vph)	251	527	15	588	495	151	27	1142	808	535	465	128
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.1	24.6	24.6	34.0	44.5	44.5	4.7	44.5	78.5	19.9	59.7	78.3
Effective Green, g (s)	14.1	24.6	24.6	34.0	44.5	44.5	4.7	44.5	78.5	19.9	59.7	78.3
Actuated g/C Ratio	0.10	0.18	0.18	0.24	0.32	0.32	0.03	0.32	0.56	0.14	0.43	0.56
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	349	628	281	842	1136	499	60	1136	897	483	1524	894
v/s Ratio Prot	0.07	c0.15		0.17	0.14		0.02	c0.32	c0.51	c0.16	0.13	0.08
v/s Ratio Perm			0.01			0.10						
v/c Ratio	0.72	0.84	0.05	0.70	0.44	0.30	0.45	1.01	0.90	1.11	0.31	0.14
Uniform Delay, d1	61.0	55.8	48.0	48.3	37.8	36.1	66.4	47.8	27.3	60.0	26.5	14.8
Progression Factor	0.81	0.83	1.45	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	8.8	0.0	2.1	0.1	0.1	1.9	28.0	11.8	73.7	0.5	0.0
Delay (s)	55.1	54.9	69.7	50.4	37.9	36.2	68.3	75.7	39.1	133.7	27.0	14.8
Level of Service	E	D	E	D	D	D	E	E	D	F	C	B
Approach Delay (s)		56.4			42.7			60.6			71.2	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM Average Control Delay	57.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	490	79	547	460	299	25	1062	760	498	432	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	251	527	85	588	495	322	27	1142	817	535	465	228
RTOR Reduction (vph)	0	0	70	0	0	194	0	0	10	0	0	77
Lane Group Flow (vph)	251	527	15	588	495	128	27	1142	807	535	465	151
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.1	24.5	24.5	28.0	38.4	38.4	4.5	48.0	76.0	22.5	66.0	84.6
Effective Green, g (s)	14.1	24.5	24.5	28.0	38.4	38.4	4.5	48.0	76.0	22.5	66.0	84.6
Actuated g/C Ratio	0.10	0.18	0.18	0.20	0.27	0.27	0.03	0.34	0.54	0.16	0.47	0.60
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	349	625	280	693	980	431	57	1225	868	546	1685	966
v/s Ratio Prot	0.07	c0.15		0.17	0.14		0.02	c0.32	c0.50	c0.16	0.13	0.09
v/s Ratio Perm			0.01			0.08						
v/c Ratio	0.72	0.84	0.05	0.85	0.51	0.30	0.47	0.93	0.93	0.98	0.28	0.16
Uniform Delay, d1	61.0	55.9	48.1	54.0	42.8	40.1	66.6	44.4	29.5	58.5	22.5	12.1
Progression Factor	0.81	0.85	1.55	1.00	1.00	1.00	1.04	0.96	1.02	1.00	1.00	1.00
Incremental Delay, d2	5.5	9.3	0.0	9.1	0.1	0.1	1.5	10.0	11.3	32.8	0.4	0.0
Delay (s)	55.1	56.7	74.6	63.1	42.9	40.3	70.6	52.6	41.3	91.4	22.9	12.1
Level of Service	E	E	E	E	D	D	E	D	D	F	C	B
Approach Delay (s)		58.0			50.8			48.2			50.7	
Approach LOS		E			D			D			D	

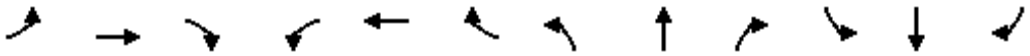
Intersection Summary			
HCM Average Control Delay	51.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	13	1400	15	9	1076
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5124		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5124		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	57	14	1489	16	10	1145
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	57	1	1505	0	10	1145
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.2	8.2	80.7		1.7	64.0
Effective Green, g (s)	8.2	8.2	80.7		1.7	64.0
Actuated g/C Ratio	0.06	0.06	0.58		0.01	0.46
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	106	91	2954		22	2348
v/s Ratio Prot	c0.03		c0.29		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.54	0.01	0.51		0.45	0.49
Uniform Delay, d1	64.1	62.1	17.8		68.7	26.5
Progression Factor	1.00	1.00	0.17		0.94	0.94
Incremental Delay, d2	4.0	0.0	0.0		4.8	0.6
Delay (s)	68.1	62.1	3.0		69.4	25.7
Level of Service	E	E	A		E	C
Approach Delay (s)	66.9		3.0			26.1
Approach LOS	E		A			C

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	46.9
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

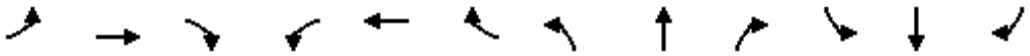
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	149	250	175	112	78	293	1268	102	39	999	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1495	1787	1736		3467	5049		1787	5042	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1495	1787	1736		3467	5049		1787	5042	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	74	160	269	188	120	84	315	1363	110	42	1074	99
RTOR Reduction (vph)	0	0	196	0	19	0	0	4	0	0	6	0
Lane Group Flow (vph)	74	160	73	188	185	0	315	1469	0	42	1167	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	9.3	22.1	22.1	19.0	19.6		19.4	71.4		6.8	64.0	
Effective Green, g (s)	9.3	22.1	22.1	19.0	19.6		19.4	71.4		6.8	64.0	
Actuated g/C Ratio	0.07	0.16	0.16	0.14	0.14		0.14	0.51		0.05	0.46	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	118	294	236	243	243		480	2575		87	2305	
v/s Ratio Prot	0.04	0.09		c0.11	c0.11		c0.09	c0.29		0.02	c0.23	
v/s Ratio Perm			0.05									
v/c Ratio	0.63	0.54	0.31	0.77	0.76		0.66	0.57		0.48	0.51	
Uniform Delay, d1	63.7	54.3	52.2	58.4	58.0		57.1	23.7		64.9	26.8	
Progression Factor	1.00	1.00	1.00	0.75	0.97		1.09	0.83		1.37	0.30	
Incremental Delay, d2	7.3	1.6	0.5	12.2	11.8		2.3	0.9		1.4	0.7	
Delay (s)	70.9	55.9	52.7	55.9	67.8		64.6	20.5		90.5	8.9	
Level of Service	E	E	D	E	E		E	C		F	A	
Approach Delay (s)		56.4			62.1			28.2			11.7	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

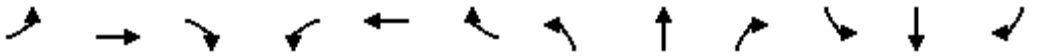
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	343	7	293	271	1370	0	0	876	548
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5954	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5954	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	354	7	302	279	1412	0	0	903	565
RTOR Reduction (vph)	0	0	0	0	51	0	0	0	0	0	141	0
Lane Group Flow (vph)	0	0	0	354	258	0	279	1412	0	0	1327	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				14.2	14.2		14.2	49.3			32.1	
Effective Green, g (s)				14.2	14.2		14.2	49.3			32.1	
Actuated g/C Ratio				0.20	0.20		0.20	0.70			0.46	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				703	326		363	3617			2730	
v/s Ratio Prot				0.10	c0.16		c0.16	0.27			c0.22	
v/s Ratio Perm												
v/c Ratio				0.50	0.79		0.77	0.39			0.49	
Uniform Delay, d1				24.8	26.5		26.3	4.2			13.2	
Progression Factor				1.00	1.00		0.93	1.19			1.54	
Incremental Delay, d2				0.2	11.6		6.8	0.3			0.5	
Delay (s)				25.0	38.1		31.2	5.3			20.9	
Level of Service				C	D		C	A			C	
Approach Delay (s)		0.0			31.1			9.5			20.9	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

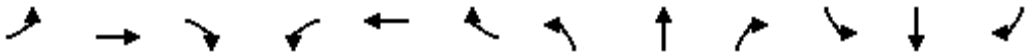
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	725	6	482	0	0	0	0	916	327	270	949	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4895		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4895		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	755	6	502	0	0	0	0	954	341	281	989	0
RTOR Reduction (vph)	0	0	69	0	0	0	0	87	0	0	0	0
Lane Group Flow (vph)	377	384	433	0	0	0	0	1208	0	281	989	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	22.0	22.0	22.0					29.1		8.4	41.5	
Effective Green, g (s)	22.0	22.0	22.0					29.1		8.4	41.5	
Actuated g/C Ratio	0.31	0.31	0.31					0.42		0.12	0.59	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	534	535	503					2035		420	3075	
v/s Ratio Prot	0.22	0.23						c0.25		c0.08	0.19	
v/s Ratio Perm			c0.27									
v/c Ratio	0.71	0.72	0.86					0.59		0.67	0.32	
Uniform Delay, d1	21.1	21.3	22.6					15.9		29.5	7.2	
Progression Factor	1.00	1.00	1.00					1.07		1.24	1.13	
Incremental Delay, d2	3.5	3.8	13.6					1.2		3.6	0.2	
Delay (s)	24.6	25.1	36.1					18.2		40.1	8.3	
Level of Service	C	C	D					B		D	A	
Approach Delay (s)		29.3			0.0			18.2			15.4	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

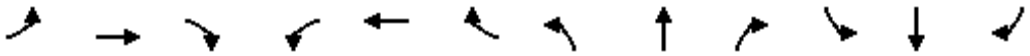
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	0	24	16	6	15	46	1134	9	20	1175	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99			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	
Frt		0.95			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1743			1754		1787	5128		1787	5041	
Flt Permitted		0.78			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1404			1582		1787	5128		1787	5041	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	48	0	26	17	6	16	49	1219	10	22	1263	133
RTOR Reduction (vph)	0	24	0	0	15	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	50	0	0	24	0	49	1228	0	22	1385	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		6.1			6.1		4.5	49.8		2.6	47.9	
Effective Green, g (s)		6.1			6.1		4.5	49.8		2.6	47.9	
Actuated g/C Ratio		0.09			0.09		0.06	0.71		0.04	0.68	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		122			138		115	3648		66	3449	
v/s Ratio Prot							c0.03	0.24		0.01	c0.27	
v/s Ratio Perm		c0.04			0.02							
v/c Ratio		0.41			0.18		0.43	0.34		0.33	0.40	
Uniform Delay, d1		30.3			29.6		31.5	3.8		32.9	4.8	
Progression Factor		1.00			1.00		1.16	0.68		0.95	1.16	
Incremental Delay, d2		0.8			0.2		0.9	0.2		1.0	0.3	
Delay (s)		31.1			29.8		37.6	2.8		32.1	5.9	
Level of Service		C			C		D	A		C	A	
Approach Delay (s)		31.1			29.8			4.2			6.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

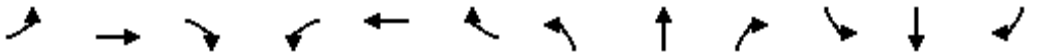
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	107	12	303	128	195	22	811	555	220	755	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1847		1698	1751	1560	1787	5136	1599	3467	3458	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1847		1698	1751	1560	1787	5136	1599	3467	3458	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	127	114	13	322	136	207	23	863	590	234	803	152
RTOR Reduction (vph)	0	4	0	0	0	163	0	0	0	0	7	0
Lane Group Flow (vph)	127	123	0	225	233	44	23	863	590	234	948	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	14.4	14.4		29.5	29.5	29.5	4.4	67.3	100.3	13.8	76.7	
Effective Green, g (s)	14.4	14.4		29.5	29.5	29.5	4.4	67.3	100.3	13.8	76.7	
Actuated g/C Ratio	0.10	0.10		0.21	0.21	0.21	0.03	0.48	0.72	0.10	0.55	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	184	190		358	369	329	56	2469	1146	342	1894	
v/s Ratio Prot	c0.07	0.07		0.13	c0.13		0.01	0.17	c0.37	c0.07	0.27	
v/s Ratio Perm						0.03						
v/c Ratio	0.69	0.65		0.63	0.63	0.13	0.41	0.35	0.51	0.68	0.50	
Uniform Delay, d1	60.6	60.4		50.3	50.3	44.9	66.5	22.7	8.9	61.0	19.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.92	
Incremental Delay, d2	8.7	5.6		2.5	2.6	0.1	1.8	0.4	0.2	4.2	0.9	
Delay (s)	69.3	66.0		52.7	52.9	44.9	68.3	23.1	9.1	62.2	19.0	
Level of Service	E	E		D	D	D	E	C	A	E	B	
Approach Delay (s)		67.7			50.4			18.2			27.5	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	30.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

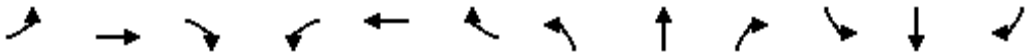
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	15	0	0	0	0	6	157	11	0	0	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.99				0.86
Flt Protected		0.96					0.95	1.00				1.00
Satd. Flow (prot)		1833					1787	1863				1644
Flt Permitted		0.96					0.95	1.00				1.00
Satd. Flow (perm)		1833					1787	1863				1644
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	17	0	0	0	0	7	174	12	0	0	114
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	0	39
Lane Group Flow (vph)	0	64	0	0	0	0	7	183	0	0	0	75
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		2.7					20.4	20.4				20.4
Effective Green, g (s)		2.7					20.4	20.4				20.4
Actuated g/C Ratio		0.09					0.66	0.66				0.66
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		159					1172	1222				1078
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.03					0.00					0.05
v/c Ratio		0.40					0.01	0.15				0.07
Uniform Delay, d1		13.4					1.8	2.0				1.9
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		1.7					0.0	0.1				0.0
Delay (s)		15.1					1.8	2.1				2.0
Level of Service		B					A	A				A
Approach Delay (s)		15.1			0.0			2.1			2.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	4.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	31.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

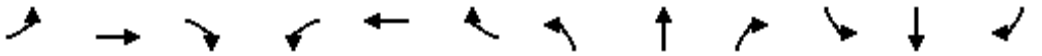
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	239	20	0	0	0	0	199	0	331	83	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1860						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.62	1.00	
Satd. Flow (perm)	1787	1860						1881		1155	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	367	266	22	0	0	0	0	221	0	368	92	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	367	280	0	0	0	0	0	221	0	368	92	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.7	12.7						14.9		14.9	14.9	
Effective Green, g (s)	12.7	12.7						14.9		14.9	14.9	
Actuated g/C Ratio	0.36	0.36						0.42		0.42	0.42	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	637	664						787		483	780	
v/s Ratio Prot		0.15						0.12			0.05	
v/s Ratio Perm	c0.21									c0.32		
v/c Ratio	0.58	0.42						0.28		0.76	0.12	
Uniform Delay, d1	9.3	8.7						6.8		8.8	6.3	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4						0.2		7.0	0.1	
Delay (s)	10.5	9.1						7.0		15.8	6.4	
Level of Service	B	A						A		B	A	
Approach Delay (s)		9.9			0.0			7.0			13.9	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	35.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	64	62	320	199	166	363	0	0	288	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1848	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.54	1.00			1.00	1.00
Satd. Flow (perm)			1611		1848	1583	1008	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	70	67	348	216	180	395	0	0	313	27
RTOR Reduction (vph)	0	0	48	0	0	147	0	0	0	0	0	12
Lane Group Flow (vph)	0	0	22	0	415	69	180	395	0	0	313	15
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			18.6		18.6	18.6	31.4	31.4			31.4	31.4
Effective Green, g (s)			18.6		18.6	18.6	31.4	31.4			31.4	31.4
Actuated g/C Ratio			0.32		0.32	0.32	0.54	0.54			0.54	0.54
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			517		593	508	546	1009			1009	857
v/s Ratio Prot								c0.21			0.17	
v/s Ratio Perm			0.01		0.22	0.04	0.18					0.01
v/c Ratio			0.04		0.70	0.14	0.33	0.39			0.31	0.02
Uniform Delay, d1			13.6		17.3	14.0	7.4	7.7			7.3	6.2
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.12	1.82
Incremental Delay, d2			0.0		3.6	0.1	1.6	1.1			0.4	0.0
Delay (s)			13.6		20.9	14.1	9.0	8.9			8.6	11.2
Level of Service			B		C	B	A	A			A	B
Approach Delay (s)		13.6			18.6			8.9			8.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	487	24	1360	59	5	757
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3425		3517		1770	3539
Flt Permitted	0.95		1.00		0.11	1.00
Satd. Flow (perm)	3425		3517		206	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	529	26	1478	64	5	823
RTOR Reduction (vph)	7	0	5	0	0	0
Lane Group Flow (vph)	548	0	1537	0	5	823
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	13.9		36.1		36.1	36.1
Effective Green, g (s)	13.9		36.1		36.1	36.1
Actuated g/C Ratio	0.24		0.62		0.62	0.62
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	821		2189		128	2203
v/s Ratio Prot			c0.44			0.23
v/s Ratio Perm	c0.16				0.02	
v/c Ratio	0.67		0.70		0.04	0.37
Uniform Delay, d1	20.0		7.3		4.2	5.4
Progression Factor	0.79		1.00		1.30	1.04
Incremental Delay, d2	1.9		1.9		0.4	0.3
Delay (s)	17.6		9.3		5.9	6.0
Level of Service	B		A		A	A
Approach Delay (s)	17.6		9.3			6.0
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	102	1650	77	68	1482	89	180	153	52	90	207	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5092		1770	6343		1722	1784		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.45	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1787	5092		1770	6343		818	1784		842	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	105	1701	79	70	1528	92	186	158	54	93	213	123
RTOR Reduction (vph)	0	3	0	0	5	0	0	11	0	0	0	83
Lane Group Flow (vph)	105	1777	0	70	1615	0	186	201	0	93	213	40
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.4	69.9		8.9	66.9		28.9	28.9		28.9	28.9	28.9
Effective Green, g (s)	12.4	69.9		8.9	66.9		28.9	28.9		28.9	28.9	28.9
Actuated g/C Ratio	0.10	0.58		0.07	0.56		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	185	2966		131	3536		197	430		203	449	360
v/s Ratio Prot	c0.06	c0.35		0.04	0.25			0.11			0.11	
v/s Ratio Perm							c0.23			0.11		0.03
v/c Ratio	0.57	0.60		0.53	0.46		0.94	0.47		0.46	0.47	0.11
Uniform Delay, d1	51.2	16.1		53.6	15.8		44.8	39.0		38.9	39.0	35.5
Progression Factor	1.00	0.53		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.5		4.1	0.4		48.0	0.8		1.6	0.8	0.1
Delay (s)	53.2	9.1		57.7	16.2		92.8	39.8		40.5	39.8	35.7
Level of Service	D	A		E	B		F	D		D	D	D
Approach Delay (s)		11.5			17.9			64.5			38.8	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	365	1216	338	97	0	194	0	385	40	614	550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4919		3273		2656		4909		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4919		3273		2656		4909		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	380	1267	352	101	0	202	0	401	42	640	573	0
RTOR Reduction (vph)	0	38	0	0	0	107	0	11	0	0	0	0
Lane Group Flow (vph)	380	1581	0	101	0	95	0	432	0	640	573	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.4	61.9		9.0		56.5		16.1		17.0	37.1	
Effective Green, g (s)	14.4	61.9		9.0		56.5		16.1		17.0	37.1	
Actuated g/C Ratio	0.12	0.52		0.08		0.47		0.13		0.14	0.31	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	599	2537		245		1251		659		491	1105	
v/s Ratio Prot	c0.08	c0.32		0.03		0.04		c0.09		c0.18	0.16	
v/s Ratio Perm												
v/c Ratio	0.63	0.62		0.41		0.08		0.66		1.30	0.52	
Uniform Delay, d1	50.3	20.7		53.0		17.4		49.3		51.5	34.1	
Progression Factor	1.00	1.00		1.24		0.04		1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.2		1.0		0.1		2.4		150.8	0.4	
Delay (s)	52.5	21.9		66.7		0.9		51.7		202.3	34.5	
Level of Service	D	C		E		A		D		F	C	
Approach Delay (s)		27.7			22.8			51.7			123.0	
Approach LOS		C			C			D			F	

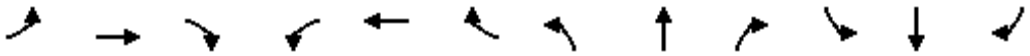
Intersection Summary			
HCM Average Control Delay	59.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	365	1216	338	97	0	194	0	385	40	614	550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4919		3273		2656		4909		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4919		3273		2656		4909		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	380	1267	352	101	0	202	0	401	42	640	573	0
RTOR Reduction (vph)	0	36	0	0	0	126	0	11	0	0	0	0
Lane Group Flow (vph)	380	1583	0	101	0	76	0	432	0	640	573	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	15.7	52.9		7.7		44.9		16.1		27.3	47.4	
Effective Green, g (s)	15.7	52.9		7.7		44.9		16.1		27.3	47.4	
Actuated g/C Ratio	0.13	0.44		0.06		0.37		0.13		0.23	0.39	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	653	2168		210		994		659		789	1412	
v/s Ratio Prot	c0.08	c0.32		0.03		0.03		c0.09		c0.18	0.16	
v/s Ratio Perm												
v/c Ratio	0.58	0.73		0.48		0.08		0.66		0.81	0.41	
Uniform Delay, d1	49.1	27.7		54.2		24.2		49.3		43.9	26.2	
Progression Factor	1.00	1.00		1.00		1.12		1.00		1.00	1.00	
Incremental Delay, d2	1.3	2.2		1.6		0.1		2.4		6.3	0.2	
Delay (s)	50.4	29.9		55.9		27.2		51.7		50.3	26.3	
Level of Service	D	C		E		C		D		D	C	
Approach Delay (s)		33.8			36.8			51.7			39.0	
Approach LOS		C			D			D			D	

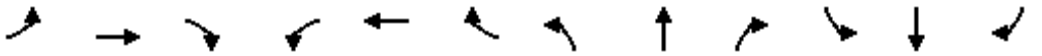
Intersection Summary			
HCM Average Control Delay	37.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



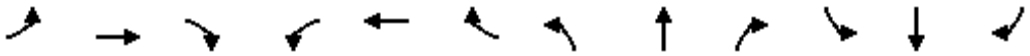
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	878	25	351	1522	125	161	55	470	90	127	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.99			0.94	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4916		1770	5019			1633	1504	1752	1742	
Flt Permitted	0.95	1.00		0.95	1.00			0.75	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4916		1770	5019			1250	1504	1752	1742	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	915	26	366	1585	130	168	57	490	94	132	78
RTOR Reduction (vph)	0	2	0	0	7	0	0	17	312	0	17	0
Lane Group Flow (vph)	65	939	0	366	1708	0	0	340	46	94	193	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Perm		Perm	Split		
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases							8		8			
Actuated Green, G (s)	8.5	41.0		26.5	58.5			16.0	16.0	26.0	26.0	
Effective Green, g (s)	8.5	41.0		26.5	58.5			16.0	16.0	26.0	26.0	
Actuated g/C Ratio	0.07	0.33		0.21	0.47			0.13	0.13	0.21	0.21	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	117	1612		375	2349			160	193	364	362	
v/s Ratio Prot	0.04	0.19		c0.21	c0.34					0.05	c0.11	
v/s Ratio Perm								c0.27	0.03			
v/c Ratio	0.56	0.58		0.98	0.73			2.13	0.24	0.26	0.53	
Uniform Delay, d1	56.4	34.9		48.9	26.8			54.5	49.0	41.4	44.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.5	1.5		39.7	2.0			527.9	0.6	1.7	5.6	
Delay (s)	60.9	36.4		88.7	28.8			582.4	49.7	43.1	49.7	
Level of Service	E	D		F	C			F	D	D	D	
Approach Delay (s)		38.0			39.3			315.6			47.6	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM Average Control Delay	87.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	878	25	351	1522	125	161	55	470	90	127	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.99			0.94	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4916		1770	5019			1628	1504	1752	1742	
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4916		1770	5019			1628	1504	1752	1742	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	915	26	366	1585	130	168	57	490	94	132	78
RTOR Reduction (vph)	0	2	0	0	8	0	0	23	287	0	20	0
Lane Group Flow (vph)	65	939	0	366	1707	0	0	349	56	94	190	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	7.8	20.2		34.3	46.2			17.0	17.0	18.0	18.0	
Effective Green, g (s)	7.8	20.2		34.3	46.2			17.0	17.0	18.0	18.0	
Actuated g/C Ratio	0.07	0.19		0.33	0.44			0.16	0.16	0.17	0.17	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	128	946		578	2208			264	244	300	299	
v/s Ratio Prot	0.04	c0.19		0.21	c0.34			c0.21		0.05	c0.11	
v/s Ratio Perm									0.04			
v/c Ratio	0.51	0.99		0.63	0.77			1.32	0.23	0.31	0.64	
Uniform Delay, d1	46.8	42.3		30.0	25.0			44.0	38.3	38.1	40.5	
Progression Factor	1.00	1.00		0.67	0.59			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	27.4		1.7	2.3			169.5	0.5	2.7	9.9	
Delay (s)	49.1	69.8		21.7	17.1			213.5	38.8	40.8	50.4	
Level of Service	D	E		C	B			F	D	D	D	
Approach Delay (s)		68.4			17.9			129.7			47.4	
Approach LOS		E			B			F			D	

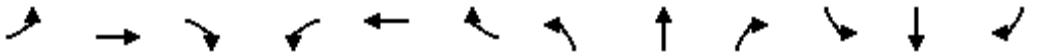
Intersection Summary			
HCM Average Control Delay	51.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1160	59	79	1455	16	79	15	55	65	12	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3367	3446		1770	5076			1788	1559	1770	1591	
Flt Permitted	0.95	1.00		0.20	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3367	3446		377	5076			1788	1559	1770	1591	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1221	62	83	1532	17	83	16	58	68	13	442
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	52	0	394	0
Lane Group Flow (vph)	158	1281	0	83	1549	0	0	99	6	68	61	0
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Perm			Split		Perm	Split		
Protected Phases	5	2			6		4	4		3	3	
Permitted Phases				6					4			
Actuated Green, G (s)	9.3	71.0		58.2	58.2			10.7	10.7	11.3	11.3	
Effective Green, g (s)	9.3	71.0		58.2	58.2			10.7	10.7	11.3	11.3	
Actuated g/C Ratio	0.09	0.68		0.55	0.55			0.10	0.10	0.11	0.11	
Clearance Time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	298	2330		209	2814			182	159	190	171	
v/s Ratio Prot	0.05	c0.37			0.31			c0.06		c0.04	0.04	
v/s Ratio Perm				0.22					0.00			
v/c Ratio	0.53	0.55		0.40	0.55			0.54	0.04	0.36	0.35	
Uniform Delay, d1	45.8	8.8		13.4	15.0			44.8	42.5	43.5	43.5	
Progression Factor	1.00	1.00		1.87	1.77			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.9		2.4	0.3			2.6	0.1	0.8	0.9	
Delay (s)	46.7	9.7		27.4	26.9			47.4	42.6	44.3	44.4	
Level of Service	D	A		C	C			D	D	D	D	
Approach Delay (s)		13.8			27.0			45.6			44.4	
Approach LOS		B			C			D			D	

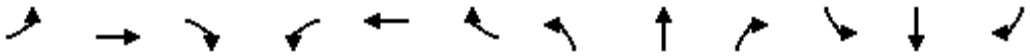
Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	471	639	14	20	1058	185	21	6	20	155	3	542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3425		1752	3414		1681	1559		1659	1666	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.74	0.73	1.00
Satd. Flow (perm)	3335	3425		1752	3414		1681	1555		1285	1282	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	518	702	15	22	1163	203	23	7	22	170	3	596
RTOR Reduction (vph)	0	1	0	0	11	0	0	14	0	0	0	433
Lane Group Flow (vph)	518	716	0	22	1355	0	21	17	0	87	86	163
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.4	54.8		2.9	38.3		3.1	35.8		28.7	28.7	28.7
Effective Green, g (s)	19.4	54.8		2.9	38.3		3.1	35.8		28.7	28.7	28.7
Actuated g/C Ratio	0.18	0.52		0.03	0.36		0.03	0.34		0.27	0.27	0.27
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	616	1788		48	1245		50	530		351	350	429
v/s Ratio Prot	c0.16	0.21		0.01	c0.40		c0.01	0.00				
v/s Ratio Perm								0.01		0.07	0.07	c0.10
v/c Ratio	0.84	0.40		0.46	1.09		0.42	0.03		0.25	0.25	0.38
Uniform Delay, d1	41.3	15.2		50.3	33.4		50.1	23.0		29.7	29.7	30.9
Progression Factor	1.13	0.75		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.6		2.5	53.2		4.1	0.0		0.3	0.3	0.4
Delay (s)	55.3	12.0		52.8	86.5		54.2	23.1		30.0	30.0	31.3
Level of Service	E	B		D	F		D	C		C	C	C
Approach Delay (s)		30.2			86.0			35.6			31.0	
Approach LOS		C			F			D			C	

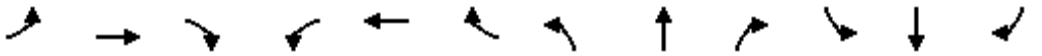
Intersection Summary			
HCM Average Control Delay	52.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	196	104	187	407	225	193	408	71	187	551	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	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)	1719	3438	1505	1770	3539	1551	3367	3471	1519	1787	3494	
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)	1719	3438	1505	1770	3539	1551	3367	3471	1519	1787	3494	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	95	236	125	225	490	271	233	492	86	225	664	80
RTOR Reduction (vph)	0	0	71	0	0	53	0	0	69	0	8	0
Lane Group Flow (vph)	95	236	54	225	490	218	233	492	17	225	736	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	10.5	42.8	56.1	25.5	57.8	78.5	13.3	26.0	26.0	20.7	33.4	
Effective Green, g (s)	10.5	42.8	56.1	25.5	57.8	78.5	13.3	26.0	26.0	20.7	33.4	
Actuated g/C Ratio	0.08	0.33	0.43	0.20	0.44	0.60	0.10	0.20	0.20	0.16	0.26	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	139	1132	690	347	1573	937	344	694	304	285	898	
v/s Ratio Prot	0.06	0.07	0.01	c0.13	c0.14	0.04	0.07	c0.14		0.13	c0.21	
v/s Ratio Perm			0.03			0.10			0.01			
v/c Ratio	0.68	0.21	0.08	0.65	0.31	0.23	0.68	0.71	0.06	0.79	0.82	
Uniform Delay, d1	58.1	31.4	21.7	48.1	23.3	11.9	56.3	48.5	42.1	52.6	45.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.64	0.30	1.00	1.00	
Incremental Delay, d2	10.5	0.4	0.0	3.1	0.5	0.0	4.0	3.0	0.1	12.5	5.8	
Delay (s)	68.7	31.8	21.8	51.2	23.8	11.9	41.8	33.8	12.7	65.1	51.2	
Level of Service	E	C	C	D	C	B	D	C	B	E	D	
Approach Delay (s)		36.7			26.8			33.9			54.4	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM Average Control Delay	38.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

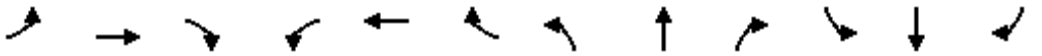
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	496	38	418	704	41	0	0	117	0	0	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3426		1770	3496				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3426		1770	3496				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	71	598	46	504	848	49	0	0	141	0	0	239
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	87	0	0	107
Lane Group Flow (vph)	71	641	0	504	894	0	0	0	54	0	0	132
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	34.3	72.8		41.5	80.0				49.7			42.5
Effective Green, g (s)	34.3	72.8		41.5	80.0				49.7			42.5
Actuated g/C Ratio	0.26	0.56		0.32	0.62				0.38			0.33
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	458	1919		565	2151				1065			532
v/s Ratio Prot	0.04	c0.19		c0.28	c0.26				0.02			c0.08
v/s Ratio Perm												
v/c Ratio	0.16	0.33		0.89	0.42				0.05			0.25
Uniform Delay, d1	36.7	15.5		42.1	12.9				25.3			32.0
Progression Factor	1.00	1.00		1.00	1.00				7.47			1.00
Incremental Delay, d2	0.1	0.5		15.9	0.6				0.0			0.1
Delay (s)	36.8	15.9		58.0	13.5				188.8			32.1
Level of Service	D	B		E	B				F			C
Approach Delay (s)		18.0			29.5			188.8			32.1	
Approach LOS		B			C			F			C	

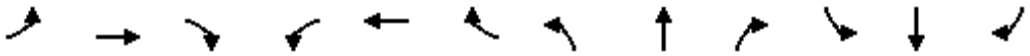
Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.5
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	466	92	65	579	225	165	139	45	249	204	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	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	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1760	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	197	524	103	73	651	253	185	156	51	280	229	336
RTOR Reduction (vph)	0	0	53	0	0	155	0	0	40	0	0	266
Lane Group Flow (vph)	197	524	50	73	651	98	166	175	11	280	229	70
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	19.4	62.8	62.8	7.0	50.4	50.4	17.3	17.3	28.3	26.9	26.9	26.9
Effective Green, g (s)	19.4	62.8	62.8	7.0	50.4	50.4	17.3	17.3	28.3	26.9	26.9	26.9
Actuated g/C Ratio	0.15	0.48	0.48	0.05	0.39	0.39	0.13	0.13	0.22	0.21	0.21	0.21
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	264	1710	765	185	1372	614	224	234	607	366	385	328
v/s Ratio Prot	c0.11	0.15		0.02	c0.18		0.10	c0.10	0.00	c0.16	0.12	
v/s Ratio Perm			0.03			0.06						0.04
v/c Ratio	0.75	0.31	0.07	0.39	0.47	0.16	0.74	0.75	0.02	0.77	0.59	0.21
Uniform Delay, d1	52.9	20.4	17.9	59.5	29.9	26.0	54.2	54.3	39.9	48.6	46.6	42.8
Progression Factor	1.00	1.00	1.00	1.15	0.56	0.14	0.97	0.97	1.73	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.5	0.2	1.3	1.1	0.5	12.4	12.3	0.0	9.2	2.5	0.3
Delay (s)	62.6	20.9	18.1	69.9	17.7	4.2	65.0	65.0	69.0	57.8	49.1	43.1
Level of Service	E	C	B	E	B	A	E	E	E	E	D	D
Approach Delay (s)		30.5			18.1			65.5			49.6	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	36.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	96	415	76	723	666	101	133	198	671	72	173	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3321	1527	3467	3498		1787	1881	1599	3433	3365	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3321	1527	3467	3498		1787	1881	1599	3433	3365	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	101	437	80	761	701	106	140	208	706	76	182	68
RTOR Reduction (vph)	0	0	57	0	9	0	0	0	80	0	31	0
Lane Group Flow (vph)	91	447	23	761	798	0	140	208	626	76	219	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	37.2	37.2	37.2	42.2	42.2		12.5	28.8	71.0	6.3	22.6	
Effective Green, g (s)	37.2	37.2	37.2	42.2	42.2		12.5	28.8	71.0	6.3	22.6	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.10	0.22	0.55	0.05	0.17	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	452	950	437	1125	1136		172	417	873	166	585	
v/s Ratio Prot	0.06	c0.13		0.22	0.23		c0.08	0.11	c0.39	0.02	c0.06	
v/s Ratio Perm			0.01									
v/c Ratio	0.20	0.47	0.05	0.68	0.70		0.81	0.50	0.72	0.46	0.37	
Uniform Delay, d1	35.1	38.3	33.6	38.0	38.4		57.6	44.3	22.0	60.2	47.4	
Progression Factor	1.00	1.00	1.00	0.88	0.88		1.00	1.00	1.00	1.00	1.03	
Incremental Delay, d2	1.0	1.7	0.2	1.4	1.7		23.5	0.3	2.4	0.7	0.1	
Delay (s)	36.1	39.9	33.9	34.8	35.5		81.1	44.6	24.4	61.1	49.3	
Level of Service	D	D	C	C	D		F	D	C	E	D	
Approach Delay (s)		38.6			35.1			35.9			52.0	
Approach LOS		D			D			D			D	

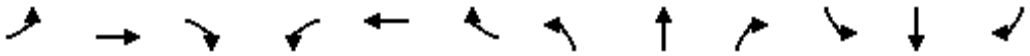
Intersection Summary			
HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1177	1245	0	780	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1252	1324	0	830	261
RTOR Reduction (vph)	0	0	0	0	0	50
Lane Group Flow (vph)	0	1252	1324	0	830	211
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		35.3	35.3		20.9	20.9
Effective Green, g (s)		35.3	35.3		20.9	20.9
Actuated g/C Ratio		0.54	0.54		0.32	0.32
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1922	1941		1104	509
v/s Ratio Prot		0.35	c0.37		c0.24	0.13
v/s Ratio Perm						
v/c Ratio		0.65	0.68		0.75	0.41
Uniform Delay, d1		10.5	10.8		19.7	17.3
Progression Factor		0.71	0.90		1.00	1.00
Incremental Delay, d2		1.4	1.6		2.8	0.4
Delay (s)		8.8	11.3		22.5	17.7
Level of Service		A	B		C	B
Approach Delay (s)		8.8	11.3		21.4	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		

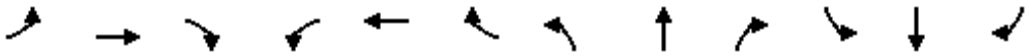
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	32	16	182	126	146	52	394	235	224	527	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.92	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.97	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1769			1771	1473	1752	3266		1787	3500	
Flt Permitted		0.92			0.79	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1650			1438	1473	1752	3266		1787	3500	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	13	38	19	217	150	174	62	469	280	267	627	83
RTOR Reduction (vph)	0	13	0	0	0	52	0	101	0	0	9	0
Lane Group Flow (vph)	0	57	0	0	367	122	62	648	0	267	701	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		23.5			23.5	23.5	4.6	21.5		15.3	32.2	
Effective Green, g (s)		23.5			23.5	23.5	4.6	21.5		15.3	32.2	
Actuated g/C Ratio		0.33			0.33	0.33	0.06	0.30		0.21	0.45	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		540			471	482	112	978		381	1570	
v/s Ratio Prot							0.04	c0.20		c0.15	0.20	
v/s Ratio Perm		0.03			c0.26	0.08						
v/c Ratio		0.11			0.78	0.25	0.55	0.66		0.70	0.45	
Uniform Delay, d1		16.8			21.8	17.7	32.6	22.0		26.1	13.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			8.0	0.3	3.3	1.5		4.7	0.1	
Delay (s)		16.9			29.8	18.0	35.9	23.5		30.8	13.8	
Level of Service		B			C	B	D	C		C	B	
Approach Delay (s)		16.9			26.0			24.5			18.5	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	11.5
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

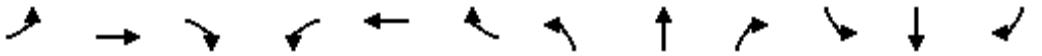
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.94			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1609			1596		1752	3476		1770	3339	
Flt Permitted		0.50			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		828			1267		1752	3476		1770	3339	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	40	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	288	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.0	48.2		1.1	33.3	
Effective Green, g (s)		25.3			3.9		16.0	48.2		1.1	33.3	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		218			51		292	1745		20	1158	
v/s Ratio Prot							c0.13	0.20		0.01	c0.26	
v/s Ratio Perm		c0.35			c0.01							
v/c Ratio		1.32			0.33		0.79	0.39		0.45	0.75	
Uniform Delay, d1		35.4			44.8		38.4	14.8		47.1	27.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		173.3			1.4		13.0	0.1		5.8	2.6	
Delay (s)		208.7			46.2		51.4	14.9		52.9	30.2	
Level of Service		F			D		D	B		D	C	
Approach Delay (s)		208.7			46.2			24.2			30.5	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM Average Control Delay	55.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

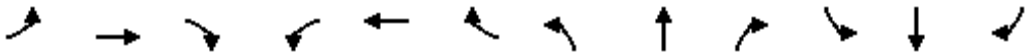
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	1	160	9	4	18	197	553	26	8	662	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.92		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1591			1598		1752	3476		1770	3347	
Flt Permitted		0.98			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1591			1269		1752	3476		1770	3347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	139	1	188	11	5	21	232	651	31	9	779	96
RTOR Reduction (vph)	0	42	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	286	0	0	17	0	232	680	0	9	868	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		20.0			3.6		15.8	48.3		1.0	33.5	
Effective Green, g (s)		20.0			3.6		15.8	48.3		1.0	33.5	
Actuated g/C Ratio		0.22			0.04		0.17	0.53		0.01	0.37	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		352			51		306	1857		20	1240	
v/s Ratio Prot		c0.18					c0.13	0.20		0.01	c0.26	
v/s Ratio Perm					c0.01							
v/c Ratio		0.81			0.33		0.76	0.37		0.45	0.70	
Uniform Delay, d1		33.4			42.2		35.5	12.2		44.4	24.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.7			1.4		9.2	0.1		5.8	1.7	
Delay (s)		46.1			43.6		44.7	12.3		50.2	25.9	
Level of Service		D			D		D	B		D	C	
Approach Delay (s)		46.1			43.6			20.5			26.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

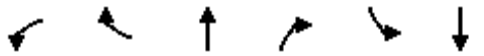
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	1	134	17	1	0	95	685	11	1	699	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.94		1.00	1.00		1.00	1.00	
Frt		0.92			1.00		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1686			1700		1752	3490		1752	3411	
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1684			1781		1752	3490		1752	3411	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	112	1	151	19	1	0	107	770	12	1	785	101
RTOR Reduction (vph)	0	46	0	0	0	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	218	0	0	20	0	107	781	0	1	879	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		17.3			2.4		8.2	27.3		12.0	31.1	
Effective Green, g (s)		17.3			2.4		8.2	27.3		12.0	31.1	
Actuated g/C Ratio		0.23			0.03		0.11	0.36		0.16	0.41	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		383			56		189	1254		277	1396	
v/s Ratio Prot							c0.06	0.22		c0.00	c0.26	
v/s Ratio Perm		c0.13			c0.01							
v/c Ratio		0.57			0.36		0.57	0.62		0.00	0.63	
Uniform Delay, d1		26.1			36.0		32.2	20.1		27.0	17.9	
Progression Factor		1.00			1.00		0.82	0.32		1.00	1.00	
Incremental Delay, d2		3.3			1.4		3.2	0.7		0.0	0.8	
Delay (s)		29.3			37.5		29.5	7.1		27.0	18.6	
Level of Service		C			D		C	A		C	B	
Approach Delay (s)		29.3			37.5			9.8			18.7	
Approach LOS		C			D			A			B	

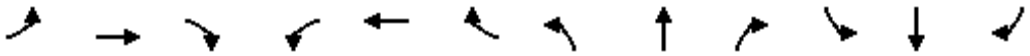
Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	109	656	21	67	822
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1688		3451		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1688		3451		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	69	125	754	24	77	945
RTOR Reduction (vph)	62	0	2	0	0	0
Lane Group Flow (vph)	132	0	776	0	77	945
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	17.3		27.3		12.0	31.1
Effective Green, g (s)	17.3		27.3		12.0	31.1
Actuated g/C Ratio	0.23		0.36		0.16	0.41
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	384		1240		282	1463
v/s Ratio Prot	c0.08		0.22		c0.04	c0.26
v/s Ratio Perm						
v/c Ratio	0.34		0.63		0.27	0.65
Uniform Delay, d1	24.6		20.1		28.2	18.0
Progression Factor	1.00		1.00		0.76	0.39
Incremental Delay, d2	1.1		0.9		0.2	0.7
Delay (s)	25.7		21.0		21.5	7.8
Level of Service	C		C		C	A
Approach Delay (s)	25.7		21.0			8.8
Approach LOS	C		C			A

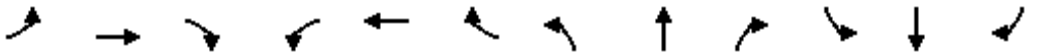
Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	19.4
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	0	83	3	1	0	85	706	1	1	781	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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	0.99	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1557		1821		1770	3538		1787	3498	
Flt Permitted		0.75	1.00		0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1405	1557		1545		1770	3538		1787	3498	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	54	0	105	4	1	0	108	894	1	1	989	99
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	54	14	0	5	0	108	895	0	1	1081	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Effective Green, g (s)		7.3	7.3		7.3		8.0	36.8		0.8	29.6	
Actuated g/C Ratio		0.13	0.13		0.13		0.14	0.65		0.01	0.52	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		182	202		200		251	2308		25	1836	
v/s Ratio Prot							c0.06	0.25		0.00	c0.31	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.30	0.07		0.03		0.43	0.39		0.04	0.59	
Uniform Delay, d1		22.2	21.6		21.4		22.1	4.6		27.4	9.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6	0.2		0.1		1.6	0.1		0.7	0.3	
Delay (s)		23.8	21.8		21.5		23.7	4.7		28.1	9.5	
Level of Service		C	C		C		C	A		C	A	
Approach Delay (s)		22.5			21.5			6.7			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

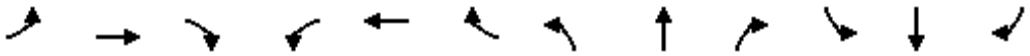


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	316	175	672	540	413	12	955	448	581	700	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	286	336	186	715	574	439	13	1016	477	618	745	337
RTOR Reduction (vph)	0	0	132	0	0	237	0	0	46	0	0	80
Lane Group Flow (vph)	286	336	54	715	574	202	13	1016	431	618	745	257
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	15.1	16.8	16.8	32.2	33.9	33.9	2.6	33.0	65.2	31.0	61.4	81.0
Effective Green, g (s)	15.1	16.8	16.8	32.2	33.9	33.9	2.6	33.0	65.2	31.0	61.4	81.0
Actuated g/C Ratio	0.12	0.13	0.13	0.25	0.26	0.26	0.02	0.25	0.50	0.24	0.47	0.62
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	403	462	207	850	923	404	35	898	794	810	1688	996
v/s Ratio Prot	0.08	c0.09		c0.21	0.16		0.01	c0.29	0.27	c0.18	0.21	0.16
v/s Ratio Perm			0.03			0.13						
v/c Ratio	0.71	0.73	0.26	0.84	0.62	0.50	0.37	1.13	0.54	0.76	0.44	0.26
Uniform Delay, d1	55.3	54.4	51.0	46.5	42.4	40.9	62.9	48.5	22.2	46.1	22.9	11.0
Progression Factor	0.97	0.97	1.22	1.00	1.00	1.00	1.03	0.98	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	4.5	0.2	7.3	0.9	0.4	1.9	70.6	0.3	3.9	0.8	0.1
Delay (s)	58.2	57.3	62.2	53.7	43.3	41.2	66.5	118.2	22.4	49.9	23.7	11.1
Level of Service	E	E	E	D	D	D	E	F	C	D	C	B
Approach Delay (s)		58.8			47.1			87.4			30.7	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM Average Control Delay	54.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	5	779	48	3	866
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5029		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5029		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	6	906	56	3	1007
RTOR Reduction (vph)	0	6	3	0	0	0
Lane Group Flow (vph)	9	0	959	0	3	1007
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	2.6	2.6	70.9		1.3	52.7
Effective Green, g (s)	2.6	2.6	70.9		1.3	52.7
Actuated g/C Ratio	0.02	0.02	0.55		0.01	0.41
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	36	32	2743		18	2061
v/s Ratio Prot	c0.00		c0.19		0.00	c0.20
v/s Ratio Perm		0.00				
v/c Ratio	0.25	0.00	0.35		0.17	0.49
Uniform Delay, d1	62.7	62.4	16.6		63.8	28.7
Progression Factor	1.00	1.00	0.21		0.71	0.39
Incremental Delay, d2	2.6	0.0	0.0		1.4	0.7
Delay (s)	65.4	62.5	3.5		46.8	12.0
Level of Service	E	E	A		D	B
Approach Delay (s)	64.2		3.5			12.1
Approach LOS	E		A			B

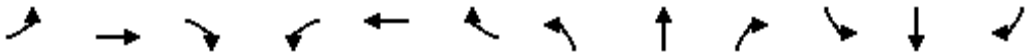
Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	57.2
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	68	212	259	278	27	281	760	41	10	751	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1485	1787	1852		3433	5034		1770	4956	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1485	1787	1852		3433	5034		1770	4956	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	45	77	241	294	316	31	319	864	47	11	853	128
RTOR Reduction (vph)	0	0	199	0	2	0	0	3	0	0	13	0
Lane Group Flow (vph)	45	77	42	294	345	0	319	908	0	11	968	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	6.3	17.2	17.2	25.4	29.7		19.2	64.6		2.5	52.7	
Effective Green, g (s)	6.3	17.2	17.2	25.4	29.7		19.2	64.6		2.5	52.7	
Actuated g/C Ratio	0.05	0.13	0.13	0.20	0.23		0.15	0.50		0.02	0.41	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	85	244	196	349	423		507	2502		34	2009	
v/s Ratio Prot	0.03	0.04		c0.16	c0.19		c0.09	0.18		0.01	c0.20	
v/s Ratio Perm			0.03									
v/c Ratio	0.53	0.32	0.22	0.84	0.81		0.63	0.36		0.32	0.48	
Uniform Delay, d1	60.4	51.1	50.4	50.4	47.5		52.1	20.1		62.9	28.6	
Progression Factor	1.00	1.00	1.00	0.62	0.44		1.03	0.86		1.45	0.02	
Incremental Delay, d2	2.7	0.5	0.4	12.3	8.5		1.7	0.4		1.8	0.7	
Delay (s)	63.1	51.6	50.8	43.3	29.4		55.1	17.7		92.8	1.3	
Level of Service	E	D	D	D	C		E	B		F	A	
Approach Delay (s)		52.5			35.8			27.4			2.4	
Approach LOS		D			D			C			A	

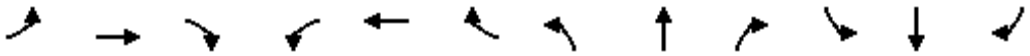
Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	268	5	229	256	853	0	0	730	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1622		1770	5085			5882	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1622		1770	5085			5882	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	298	6	254	284	948	0	0	811	547
RTOR Reduction (vph)	0	0	0	0	157	0	0	0	0	0	156	0
Lane Group Flow (vph)	0	0	0	298	103	0	284	948	0	0	1202	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				10.0	10.0		14.2	48.5			31.3	
Effective Green, g (s)				10.0	10.0		14.2	48.5			31.3	
Actuated g/C Ratio				0.15	0.15		0.22	0.75			0.48	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				539	250		387	3794			2832	
v/s Ratio Prot				c0.09	0.06		c0.16	0.19			c0.20	
v/s Ratio Perm												
v/c Ratio				0.55	0.41		0.73	0.25			0.42	
Uniform Delay, d1				25.4	24.9		23.6	2.6			11.0	
Progression Factor				1.00	1.00		1.08	1.41			0.72	
Incremental Delay, d2				0.7	0.4		5.7	0.1			0.4	
Delay (s)				26.1	25.3		31.1	3.8			8.3	
Level of Service				C	C		C	A			A	
Approach Delay (s)		0.0			25.7			10.1			8.3	
Approach LOS		A			C			B			A	

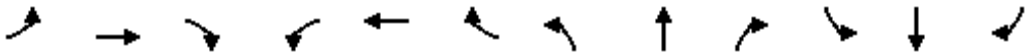
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	385	2	202	0	0	0	0	724	157	266	732	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	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	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4932		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4932		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	438	2	230	0	0	0	0	823	178	302	832	0
RTOR Reduction (vph)	0	0	144	0	0	0	0	47	0	0	0	0
Lane Group Flow (vph)	219	221	86	0	0	0	0	954	0	302	832	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	13.4	13.4	13.4					31.2		9.9	45.1	
Effective Green, g (s)	13.4	13.4	13.4					31.2		9.9	45.1	
Actuated g/C Ratio	0.21	0.21	0.21					0.48		0.15	0.69	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	347	348	326					2367		528	3564	
v/s Ratio Prot	0.13	c0.13						c0.19		c0.09	0.16	
v/s Ratio Perm			0.05									
v/c Ratio	0.63	0.64	0.26					0.40		0.57	0.23	
Uniform Delay, d1	23.5	23.6	21.7					10.9		25.6	3.6	
Progression Factor	1.00	1.00	1.00					1.05		1.29	0.29	
Incremental Delay, d2	2.7	2.8	0.2					0.5		1.4	0.1	
Delay (s)	26.3	26.3	21.8					12.0		34.3	1.2	
Level of Service	C	C	C					B		C	A	
Approach Delay (s)		24.8			0.0			12.0			10.0	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

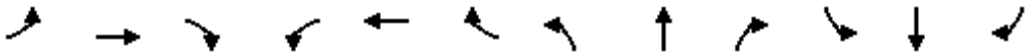
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	2	13	17	7	9	18	682	6	19	853	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.96		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1779		1770	5078		1787	5083	
Flt Permitted		0.76			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1382			1622		1770	5078		1787	5083	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	2	14	18	7	10	19	726	6	20	907	54
RTOR Reduction (vph)	0	13	0	0	9	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	47	0	0	26	0	19	731	0	20	956	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		4.8			4.8		1.3	47.4		1.3	47.4	
Effective Green, g (s)		4.8			4.8		1.3	47.4		1.3	47.4	
Actuated g/C Ratio		0.07			0.07		0.02	0.73		0.02	0.73	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		102			120		35	3703		36	3707	
v/s Ratio Prot							0.01	0.14		c0.01	c0.19	
v/s Ratio Perm		c0.03			0.02							
v/c Ratio		0.46			0.21		0.54	0.20		0.56	0.26	
Uniform Delay, d1		28.9			28.3		31.6	2.8		31.6	2.9	
Progression Factor		1.00			1.00		1.00	0.58		1.42	0.45	
Incremental Delay, d2		1.2			0.3		8.8	0.1		9.9	0.2	
Delay (s)		30.1			28.7		40.2	1.7		54.7	1.5	
Level of Service		C			C		D	A		D	A	
Approach Delay (s)		30.1			28.7			2.7			2.6	
Approach LOS		C			C			A			A	

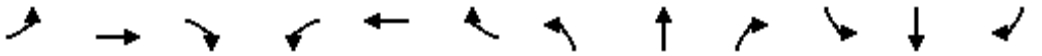
Intersection Summary			
HCM Average Control Delay	4.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	102	11	537	84	184	12	420	249	99	664	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00	
Frt	1.00	0.99		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)	1736	1797		1681	1707	1558	1752	5036	1568	3467	3516	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1797		1681	1707	1558	1752	5036	1568	3467	3516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	111	12	584	91	200	13	457	271	108	722	65
RTOR Reduction (vph)	0	4	0	0	0	131	0	0	0	0	3	0
Lane Group Flow (vph)	86	119	0	333	342	69	13	457	271	108	784	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	13.1	13.1		31.5	31.5	31.5	2.7	62.0	97.0	8.4	67.7	
Effective Green, g (s)	13.1	13.1		31.5	31.5	31.5	2.7	62.0	97.0	8.4	67.7	
Actuated g/C Ratio	0.10	0.10		0.24	0.24	0.24	0.02	0.48	0.75	0.06	0.52	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	175	181		407	414	378	36	2402	1170	224	1831	
v/s Ratio Prot	0.05	c0.07		0.20	c0.20		0.01	0.09	0.17	c0.03	c0.22	
v/s Ratio Perm						0.04						
v/c Ratio	0.49	0.66		0.82	0.83	0.18	0.36	0.19	0.23	0.48	0.43	
Uniform Delay, d1	55.3	56.3		46.5	46.7	39.0	62.8	19.6	5.1	58.7	19.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.09	0.75	
Incremental Delay, d2	0.8	6.5		11.5	12.1	0.1	2.2	0.2	0.0	0.6	0.7	
Delay (s)	56.1	62.8		58.0	58.7	39.1	65.0	19.7	5.1	64.3	15.0	
Level of Service	E	E		E	E	D	E	B	A	E	B	
Approach Delay (s)		60.0			54.0			15.2			21.0	
Approach LOS		E			D			B			C	

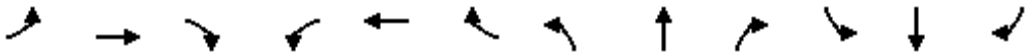
Intersection Summary			
HCM Average Control Delay	33.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	45	0	0	0	0	3	113	41	0	73	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.96			1.00	0.85
Flt Protected		0.98					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1856					1770	1788			1900	1615
Flt Permitted		0.98					0.71	1.00			1.00	1.00
Satd. Flow (perm)		1856					1314	1788			1900	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	49	0	0	0	0	3	123	45	0	79	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	0	10
Lane Group Flow (vph)	0	94	0	0	0	0	3	151	0	0	79	17
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		2.9					17.8	17.8			17.8	17.8
Effective Green, g (s)		2.9					17.8	17.8			17.8	17.8
Actuated g/C Ratio		0.10					0.62	0.62			0.62	0.62
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		188					815	1109			1178	1002
v/s Ratio Prot								c0.08			0.04	
v/s Ratio Perm		0.05					0.00					0.01
v/c Ratio		0.50					0.00	0.14			0.07	0.02
Uniform Delay, d1		12.2					2.1	2.3			2.2	2.1
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		2.1					0.0	0.1			0.0	0.0
Delay (s)		14.3					2.1	2.3			2.2	2.1
Level of Service		B					A	A			A	A
Approach Delay (s)		14.3			0.0			2.3			2.2	
Approach LOS		B			A			A			A	

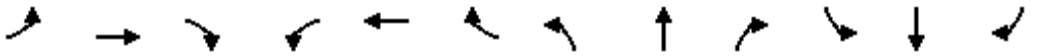
Intersection Summary			
HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	28.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	5	6	0	0	0	0	154	0	547	92	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.91						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1700						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.65	1.00	
Satd. Flow (perm)	1770	1700						1863		1214	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	5	7	0	0	0	0	167	0	595	100	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	232	7	0	0	0	0	0	167	0	595	100	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	8.7	8.7						20.9		20.9	20.9	
Effective Green, g (s)	8.7	8.7						20.9		20.9	20.9	
Actuated g/C Ratio	0.23	0.23						0.56		0.56	0.56	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	410	393						1036		675	1036	
v/s Ratio Prot		0.00						0.09			0.05	
v/s Ratio Perm	c0.13									c0.49		
v/c Ratio	0.57	0.02						0.16		0.88	0.10	
Uniform Delay, d1	12.8	11.1						4.1		7.3	3.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.0						0.1		12.9	0.0	
Delay (s)	14.6	11.2						4.1		20.2	4.0	
Level of Service	B	B						A		C	A	
Approach Delay (s)		14.4			0.0			4.1			17.8	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	37.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	90	60	524	423	92	275	0	0	489	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1853	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.29	1.00			1.00	1.00
Satd. Flow (perm)			1611		1853	1583	539	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	98	65	570	460	100	299	0	0	532	26
RTOR Reduction (vph)	0	0	59	0	0	250	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	39	0	635	210	100	299	0	0	532	10
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			16.0		16.0	16.0	16.0	16.0			16.0	16.0
Effective Green, g (s)			16.0		16.0	16.0	16.0	16.0			16.0	16.0
Actuated g/C Ratio			0.40		0.40	0.40	0.40	0.40			0.40	0.40
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			644		741	633	216	745			745	633
v/s Ratio Prot								0.16			c0.29	
v/s Ratio Perm			0.02		0.34	0.13	0.19					0.01
v/c Ratio			0.06		0.86	0.33	0.46	0.40			0.71	0.02
Uniform Delay, d1			7.4		11.0	8.3	8.8	8.6			10.1	7.2
Progression Factor			0.06		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.1		12.2	1.4	7.0	1.6			5.8	0.0
Delay (s)			0.6		23.2	9.7	15.8	10.2			15.9	7.3
Level of Service			A		C	A	B	B			B	A
Approach Delay (s)		0.6			17.5			11.6			15.5	
Approach LOS		A			B			B			B	

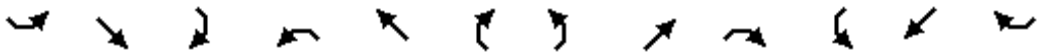
Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	619	25	940	65	25	1334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3428		3505		1770	3539
Flt Permitted	0.95		1.00		0.25	1.00
Satd. Flow (perm)	3428		3505		466	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	673	27	1022	71	27	1450
RTOR Reduction (vph)	7	0	13	0	0	0
Lane Group Flow (vph)	693	0	1080	0	27	1450
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	16.0		16.0		16.0	16.0
Effective Green, g (s)	16.0		16.0		16.0	16.0
Actuated g/C Ratio	0.40		0.40		0.40	0.40
Clearance Time (s)	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	1371		1402		186	1416
v/s Ratio Prot			0.31			c0.41
v/s Ratio Perm	c0.20				0.06	
v/c Ratio	0.51		0.77		0.15	1.02
Uniform Delay, d1	9.0		10.4		7.6	12.0
Progression Factor	1.46		1.00		1.00	1.00
Incremental Delay, d2	0.8		4.1		1.6	30.2
Delay (s)	14.0		14.6		9.3	42.2
Level of Service	B		B		A	D
Approach Delay (s)	14.0		14.6			41.6
Approach LOS	B		B			D

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	216	1414	89	134	2141	99	285	203	67	42	88	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5072		1787	6422		1765	1804		1783	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.69	1.00		0.37	1.00	1.00
Satd. Flow (perm)	1787	5072		1787	6422		1273	1804		691	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	227	1488	94	141	2254	104	300	214	71	44	93	64
RTOR Reduction (vph)	0	5	0	0	4	0	0	11	0	0	0	46
Lane Group Flow (vph)	227	1578	0	141	2354	0	300	274	0	44	93	18
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	20.5	60.0		14.8	54.8		32.9	32.9		32.9	32.9	32.9
Effective Green, g (s)	20.5	60.0		14.8	54.8		32.9	32.9		32.9	32.9	32.9
Actuated g/C Ratio	0.17	0.50		0.12	0.46		0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	305	2536		220	2933		349	495		189	516	427
v/s Ratio Prot	c0.13	0.31		0.08	c0.37			0.15			0.05	
v/s Ratio Perm							c0.24			0.06		0.01
v/c Ratio	0.74	0.62		0.64	0.80		0.86	0.55		0.23	0.18	0.04
Uniform Delay, d1	47.3	21.8		50.1	28.0		41.4	37.3		33.8	33.3	32.0
Progression Factor	0.81	0.74		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.4	0.9		6.2	2.4		18.6	1.3		0.6	0.2	0.0
Delay (s)	45.5	17.1		56.3	30.4		59.9	38.6		34.4	33.4	32.0
Level of Service	D	B		E	C		E	D		C	C	C
Approach Delay (s)		20.7			31.8			49.5			33.2	
Approach LOS		C			C			D			C	

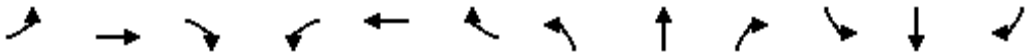
Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	799	1242	183	144	0	344	0	680	85	386	417	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5027		3467		2814		5088		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5027		3467		2814		5088		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	832	1294	191	150	0	358	0	708	89	402	434	0
RTOR Reduction (vph)	0	16	0	0	0	221	0	14	0	0	0	0
Lane Group Flow (vph)	832	1469	0	150	0	137	0	783	0	402	434	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	17.8	57.0		6.8		46.0		23.7		16.5	44.2	
Effective Green, g (s)	17.8	57.0		6.8		46.0		23.7		16.5	44.2	
Actuated g/C Ratio	0.15	0.48		0.06		0.38		0.20		0.14	0.37	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	748	2388		196		1079		1005		477	1316	
v/s Ratio Prot	c0.17	c0.29		0.04		0.05		c0.15		c0.12	0.12	
v/s Ratio Perm												
v/c Ratio	1.11	0.62		0.77		0.13		0.78		0.84	0.33	
Uniform Delay, d1	51.1	23.4		55.8		24.0		45.7		50.5	27.3	
Progression Factor	1.00	1.00		1.14		1.33		1.00		1.00	1.00	
Incremental Delay, d2	68.2	1.2		10.9		0.2		3.9		12.8	0.1	
Delay (s)	119.3	24.6		74.6		32.0		49.6		63.2	27.4	
Level of Service	F	C		E		C		D		E	C	
Approach Delay (s)		58.6			44.6			49.6			44.6	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	52.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

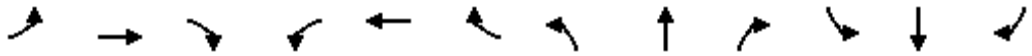
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	1204	54	252	950	198	112	39	377	215	84	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	0.99		1.00	0.97			0.93	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5094		1787	5003			1618	1504	1770	1726	
Flt Permitted	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1787	5094		1787	5003			1618	1504	1770	1726	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	120	1295	58	271	1022	213	120	42	405	231	90	86
RTOR Reduction (vph)	0	4	0	0	26	0	0	23	213	0	33	0
Lane Group Flow (vph)	120	1349	0	271	1209	0	0	269	62	231	143	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	16.0	35.9		18.5	37.9			26.0	26.0	20.1	20.1	
Effective Green, g (s)	16.0	35.9		18.5	37.9			26.0	26.0	20.1	20.1	
Actuated g/C Ratio	0.14	0.31		0.16	0.33			0.22	0.22	0.17	0.17	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	246	1577		285	1635			363	337	307	299	
v/s Ratio Prot	0.07	c0.26		c0.15	0.24			c0.17		c0.13	0.08	
v/s Ratio Perm									0.04			
v/c Ratio	0.49	0.86		0.95	0.74			0.74	0.18	0.75	0.48	
Uniform Delay, d1	46.2	37.6		48.3	34.7			41.9	36.4	45.6	43.2	
Progression Factor	0.90	0.90		0.83	0.69			1.01	1.88	1.00	1.00	
Incremental Delay, d2	0.8	4.4		36.3	2.6			7.5	0.2	9.5	0.9	
Delay (s)	42.4	38.3		76.6	26.7			50.0	68.7	55.1	44.1	
Level of Service	D	D		E	C			D	E	E	D	
Approach Delay (s)		38.6			35.7			59.0			50.3	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	41.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

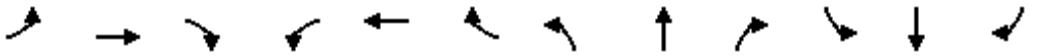
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	292	1485	75	69	1081	43	82	15	44	79	51	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3467	3545		1787	5100			1804	1564	1787	1642	
Flt Permitted	0.95	1.00		0.14	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3467	3545		259	5100			1804	1564	1787	1642	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	301	1531	77	71	1114	44	85	15	45	81	53	298
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	41	0	175	0
Lane Group Flow (vph)	301	1606	0	71	1155	0	0	100	4	81	176	0
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Perm			Split		Perm	Split		
Protected Phases	5	2			6		4	4		3	3	
Permitted Phases				6					4			
Actuated Green, G (s)	17.0	80.7		60.2	60.2			11.3	11.3	12.0	12.0	
Effective Green, g (s)	17.0	80.7		60.2	60.2			11.3	11.3	12.0	12.0	
Actuated g/C Ratio	0.15	0.70		0.52	0.52			0.10	0.10	0.10	0.10	
Clearance Time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	508	2466		134	2647			176	152	185	170	
v/s Ratio Prot	0.09	c0.45			0.23			c0.06		0.05	c0.11	
v/s Ratio Perm				0.27					0.00			
v/c Ratio	0.59	0.65		0.53	0.44			0.57	0.03	0.44	1.04	
Uniform Delay, d1	46.3	9.8		18.5	17.3			50.0	47.4	48.8	52.0	
Progression Factor	1.26	0.55		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.9		14.2	0.5			3.4	0.1	1.2	78.9	
Delay (s)	59.2	6.2		32.7	17.9			53.4	47.4	50.0	130.9	
Level of Service	E	A		C	B			D	D	D	F	
Approach Delay (s)		14.6			18.7			51.6			115.7	
Approach LOS		B			B			D			F	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

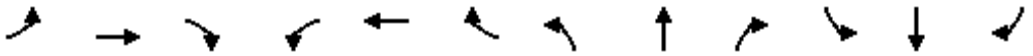
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	439	1335	28	16	697	151	40	4	11	219	4	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98		0.95	0.95	1.00
Satd. Flow (prot)	3467	3560		1787	3467		1715	1644		1684	1691	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.92		0.74	0.72	1.00
Satd. Flow (perm)	3467	3560		1787	3467		1715	1549		1309	1272	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	453	1376	29	16	719	156	41	4	11	226	4	366
RTOR Reduction (vph)	0	1	0	0	14	0	0	7	0	0	0	273
Lane Group Flow (vph)	453	1404	0	16	861	0	29	20	0	115	115	93
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	17.7	55.4		2.6	40.3		4.7	35.5		26.8	26.8	26.8
Effective Green, g (s)	17.7	55.4		2.6	40.3		4.7	35.5		26.8	26.8	26.8
Actuated g/C Ratio	0.17	0.53		0.02	0.38		0.04	0.34		0.26	0.26	0.26
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	584	1878		44	1331		77	528		334	325	408
v/s Ratio Prot	c0.13	c0.39		0.01	0.25		c0.02	0.00				
v/s Ratio Perm								0.01		0.09	c0.09	0.06
v/c Ratio	0.78	0.75		0.36	0.65		0.38	0.04		0.34	0.35	0.23
Uniform Delay, d1	41.8	19.3		50.4	26.5		48.7	23.3		31.9	32.0	30.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.8	2.8		1.9	2.4		2.2	0.0		0.5	0.5	0.2
Delay (s)	47.6	22.1		52.2	29.0		51.0	23.3		32.4	32.5	31.1
Level of Service	D	C		D	C		D	C		C	C	C
Approach Delay (s)		28.3			29.4			37.6			31.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	29.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

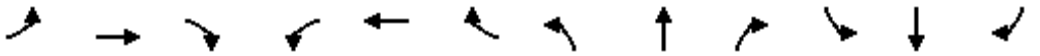
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	370	232	253	339	190	299	661	310	205	537	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3506	
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)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3506	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	385	242	264	353	198	311	689	323	214	559	56
RTOR Reduction (vph)	0	0	57	0	0	85	0	0	245	0	6	0
Lane Group Flow (vph)	153	385	185	264	353	113	311	689	78	214	609	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	22.9	47.3	72.2	22.9	47.3	68.4	24.9	33.7	33.7	21.1	29.9	
Effective Green, g (s)	22.9	47.3	72.2	22.9	47.3	68.4	24.9	33.7	33.7	21.1	29.9	
Actuated g/C Ratio	0.16	0.34	0.52	0.16	0.34	0.49	0.18	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	292	1208	847	292	1208	763	617	860	377	269	749	
v/s Ratio Prot	0.09	c0.11	0.04	c0.15	0.10	0.02	0.09	c0.19		0.12	c0.17	
v/s Ratio Perm			0.08			0.05			0.05			
v/c Ratio	0.52	0.32	0.22	0.90	0.29	0.15	0.50	0.80	0.21	0.80	0.81	
Uniform Delay, d1	53.6	34.4	18.5	57.5	34.1	19.7	52.0	50.0	42.5	57.4	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	4.39	1.00	1.00	
Incremental Delay, d2	0.8	0.7	0.0	28.6	0.6	0.0	0.2	4.8	0.2	14.0	6.6	
Delay (s)	54.3	35.1	18.6	86.1	34.7	19.8	41.4	44.5	186.4	71.4	58.9	
Level of Service	D	D	B	F	C	B	D	D	F	E	E	
Approach Delay (s)		33.7			47.7			78.4			62.2	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM Average Control Delay	58.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

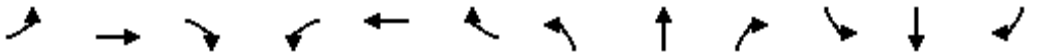
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	370	232	253	339	190	299	661	310	205	537	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	3574	1566	1787	3574	1560	3467	3574	1567	1787	3506	
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)	1787	3574	1566	1787	3574	1560	3467	3574	1567	1787	3506	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	385	242	264	353	198	311	689	323	214	559	56
RTOR Reduction (vph)	0	0	58	0	0	78	0	0	245	0	6	0
Lane Group Flow (vph)	153	385	184	264	353	120	311	689	78	214	609	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	16.3	45.7	70.6	24.5	53.9	75.0	24.9	33.7	33.7	21.1	29.9	
Effective Green, g (s)	16.3	45.7	70.6	24.5	53.9	75.0	24.9	33.7	33.7	21.1	29.9	
Actuated g/C Ratio	0.12	0.33	0.50	0.18	0.38	0.54	0.18	0.24	0.24	0.15	0.21	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	208	1167	829	313	1376	836	617	860	377	269	749	
v/s Ratio Prot	c0.09	c0.11	0.04	c0.15	0.10	0.02	0.09	c0.19		0.12	c0.17	
v/s Ratio Perm			0.08			0.06			0.05			
v/c Ratio	0.74	0.33	0.22	0.84	0.26	0.14	0.50	0.80	0.21	0.80	0.81	
Uniform Delay, d1	59.8	35.6	19.4	55.9	29.4	16.4	52.0	50.0	42.5	57.4	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.58	2.49	1.00	1.00	
Incremental Delay, d2	11.0	0.8	0.0	17.6	0.5	0.0	0.2	4.8	0.2	14.0	6.6	
Delay (s)	70.8	36.3	19.4	73.5	29.8	16.4	30.7	33.8	105.8	71.4	58.9	
Level of Service	E	D	B	E	C	B	C	C	F	E	E	
Approach Delay (s)		37.9			40.7			50.7			62.2	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

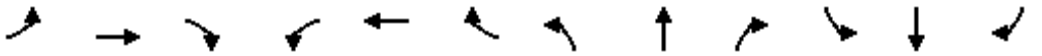
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	1096	56	215	655	42	0	0	439	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3539		1770	3493				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3539		1770	3493				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	145	1204	62	236	720	46	0	0	482	0	0	99
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	28	0	0	52
Lane Group Flow (vph)	145	1264	0	236	762	0	0	0	454	0	0	47
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	42.8	85.5		23.1	65.8				47.0			66.7
Effective Green, g (s)	42.8	85.5		23.1	65.8				47.0			66.7
Actuated g/C Ratio	0.31	0.61		0.17	0.47				0.34			0.48
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	546	2161		292	1642				945			775
v/s Ratio Prot	0.08	c0.36		c0.13	0.22				c0.16			0.03
v/s Ratio Perm												
v/c Ratio	0.27	0.58		0.81	0.46				0.48			0.06
Uniform Delay, d1	36.7	16.5		56.3	25.2				36.8			19.8
Progression Factor	1.00	1.00		1.00	1.00				0.81			1.00
Incremental Delay, d2	0.1	1.2		14.3	0.9				0.1			0.0
Delay (s)	36.8	17.7		70.6	26.1				29.8			19.8
Level of Service	D	B		E	C				C			B
Approach Delay (s)		19.6			36.6			29.8			19.8	
Approach LOS		B			D			C			B	

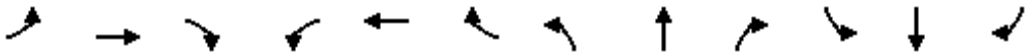
Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	604	217	45	566	177	194	267	77	132	132	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1764	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	163	664	238	49	622	195	213	293	85	145	145	157
RTOR Reduction (vph)	0	0	111	0	0	113	0	0	60	0	0	137
Lane Group Flow (vph)	163	664	127	49	622	82	192	314	25	145	145	20
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.1	68.9	68.9	7.3	59.1	59.1	30.3	30.3	41.6	17.5	17.5	17.5
Effective Green, g (s)	17.1	68.9	68.9	7.3	59.1	59.1	30.3	30.3	41.6	17.5	17.5	17.5
Actuated g/C Ratio	0.12	0.49	0.49	0.05	0.42	0.42	0.22	0.22	0.30	0.12	0.12	0.12
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	216	1742	779	179	1494	668	364	382	828	221	233	198
v/s Ratio Prot	c0.09	0.19		0.01	c0.18		0.11	c0.18	0.01	c0.08	0.08	
v/s Ratio Perm			0.08			0.05						0.01
v/c Ratio	0.75	0.38	0.16	0.27	0.42	0.12	0.53	0.82	0.03	0.66	0.62	0.10
Uniform Delay, d1	59.4	22.2	19.6	63.8	28.4	24.7	48.5	52.3	34.9	58.4	58.1	54.3
Progression Factor	1.00	1.00	1.00	1.16	0.46	0.28	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.4	0.6	0.5	0.8	0.8	0.4	1.4	13.3	0.0	6.8	5.1	0.2
Delay (s)	71.9	22.9	20.1	74.6	13.9	7.1	49.9	65.6	34.9	65.2	63.2	54.5
Level of Service	E	C	C	E	B	A	D	E	C	E	E	D
Approach Delay (s)		29.7			15.8			56.1			60.8	
Approach LOS		C			B			E			E	

Intersection Summary			
HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	618	116	797	418	164	102	194	617	55	240	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3420	1564	3467	3409		1787	1881	1599	3467	3393	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3420	1564	3467	3409		1787	1881	1599	3467	3393	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	138	644	121	830	435	171	106	202	643	57	250	80
RTOR Reduction (vph)	0	0	73	0	28	0	0	0	52	0	22	0
Lane Group Flow (vph)	124	658	48	830	578	0	106	202	591	57	308	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	41.2	41.2	41.2	44.5	44.5		12.7	33.0	77.5	5.8	26.1	
Effective Green, g (s)	41.2	41.2	41.2	44.5	44.5		12.7	33.0	77.5	5.8	26.1	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.09	0.24	0.55	0.04	0.19	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	479	1006	460	1102	1084		162	443	885	144	633	
v/s Ratio Prot	0.08	c0.19		c0.24	0.17		0.06	0.11	c0.37	0.02	c0.09	
v/s Ratio Perm			0.03									
v/c Ratio	0.26	0.65	0.10	0.75	0.53		0.65	0.46	0.67	0.40	0.49	
Uniform Delay, d1	37.7	43.2	36.0	42.8	39.2		61.5	45.8	22.1	65.4	51.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	3.3	0.5	3.0	0.5		7.0	0.3	1.5	0.7	0.2	
Delay (s)	39.0	46.5	36.4	45.8	39.7		68.6	46.1	23.6	66.0	51.2	
Level of Service	D	D	D	D	D		E	D	C	E	D	
Approach Delay (s)		44.1			43.2			33.4			53.4	
Approach LOS		D			D			C			D	

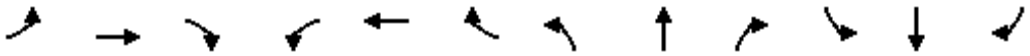
Intersection Summary			
HCM Average Control Delay	42.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1283	966	0	1051	439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1336	1006	0	1095	457
RTOR Reduction (vph)	0	0	0	0	0	100
Lane Group Flow (vph)	0	1336	1006	0	1095	357
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		35.9	35.9		20.3	20.3
Effective Green, g (s)		35.9	35.9		20.3	20.3
Actuated g/C Ratio		0.55	0.55		0.31	0.31
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1974	1974		1083	499
v/s Ratio Prot		c0.37	0.28		c0.32	0.22
v/s Ratio Perm						
v/c Ratio		0.68	0.51		1.01	0.72
Uniform Delay, d1		10.4	9.1		22.4	19.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	0.9		30.1	4.5
Delay (s)		12.3	10.0		52.5	24.3
Level of Service		B	B		D	C
Approach Delay (s)		12.3	10.0		44.2	
Approach LOS		B	B		D	

Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

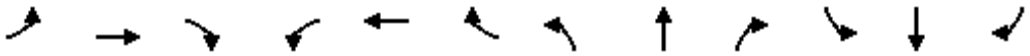
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	34	55	222	33	182	26	551	306	215	440	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1738			1788	1560	1787	3347		1787	3542	
Flt Permitted		0.87			0.66	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1531			1229	1560	1787	3347		1787	3542	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	37	38	62	249	37	204	29	619	344	242	494	24
RTOR Reduction (vph)	0	32	0	0	0	81	0	80	0	0	3	0
Lane Group Flow (vph)	0	105	0	0	286	123	29	883	0	242	515	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.9			22.9	22.9	2.5	27.4		14.8	39.7	
Effective Green, g (s)		22.9			22.9	22.9	2.5	27.4		14.8	39.7	
Actuated g/C Ratio		0.30			0.30	0.30	0.03	0.36		0.19	0.52	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		458			367	466	58	1197		345	1836	
v/s Ratio Prot							0.02	c0.26		c0.14	0.15	
v/s Ratio Perm		0.07			c0.23	0.08						
v/c Ratio		0.23			0.78	0.26	0.50	0.74		0.70	0.28	
Uniform Delay, d1		20.2			24.5	20.4	36.4	21.5		28.8	10.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			10.0	0.3	2.5	2.3		5.2	0.1	
Delay (s)		20.5			34.6	20.7	38.9	23.7		34.0	10.5	
Level of Service		C			C	C	D	C		C	B	
Approach Delay (s)		20.5			28.8			24.2			18.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	11.5
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

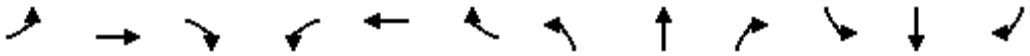
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	36	7	2	3	52	886	13	7	622	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1725			1651		1787	3565		1785	3491	
Flt Permitted		0.76			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1349			1702		1787	3565		1785	3491	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	56	0	42	8	2	3	60	1030	15	8	723	102
RTOR Reduction (vph)	0	27	0	0	3	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	71	0	0	10	0	60	1045	0	8	819	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		6.5			0.9		4.3	35.5		0.8	32.0	
Effective Green, g (s)		6.5			0.9		4.3	35.5		0.8	32.0	
Actuated g/C Ratio		0.11			0.01		0.07	0.58		0.01	0.52	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		143			25		126	2068		23	1825	
v/s Ratio Prot							c0.03	c0.29		0.00	0.23	
v/s Ratio Perm		c0.05			c0.01							
v/c Ratio		0.50			0.40		0.48	0.51		0.35	0.45	
Uniform Delay, d1		25.8			29.9		27.4	7.6		29.9	9.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			3.8		1.0	0.1		3.3	0.1	
Delay (s)		26.8			33.7		28.4	7.8		33.2	9.2	
Level of Service		C			C		C	A		C	A	
Approach Delay (s)		26.8			33.7			8.9			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	17.5
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

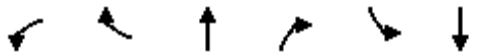
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	3	176	6	3	2	142	774	21	1	583	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.97		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1759		1787	3557		1787	3469	
Flt Permitted		0.73			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1253			1807		1787	3557		1787	3469	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	142	3	180	6	3	2	145	790	21	1	595	103
RTOR Reduction (vph)	0	37	0	0	2	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	288	0	0	9	0	145	810	0	1	686	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		25.5			1.0		12.7	26.7		10.5	24.5	
Effective Green, g (s)		25.5			1.0		12.7	26.7		10.5	24.5	
Actuated g/C Ratio		0.32			0.01		0.16	0.33		0.13	0.30	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		396			22		281	1177		233	1053	
v/s Ratio Prot							c0.08	c0.23		0.00	0.20	
v/s Ratio Perm		c0.23			c0.00							
v/c Ratio		0.73			0.41		0.52	0.69		0.00	0.65	
Uniform Delay, d1		24.5			39.6		31.2	23.4		30.6	24.4	
Progression Factor		1.00			1.00		0.65	0.28		1.00	1.00	
Incremental Delay, d2		8.0			4.5		0.9	0.9		0.0	1.3	
Delay (s)		32.5			44.0		21.0	7.3		30.6	25.7	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		32.5			44.0			9.4			25.7	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

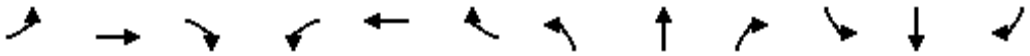
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	22	41	914	45	61	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1702		3541		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1702		3541		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	22	42	933	46	62	707
RTOR Reduction (vph)	29	0	3	0	0	0
Lane Group Flow (vph)	35	0	976	0	62	707
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	25.5		26.7		10.5	24.5
Effective Green, g (s)	25.5		26.7		10.5	24.5
Actuated g/C Ratio	0.32		0.33		0.13	0.30
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	538		1172		233	1085
v/s Ratio Prot	c0.02		c0.28		c0.03	0.20
v/s Ratio Perm						
v/c Ratio	0.07		0.83		0.27	0.65
Uniform Delay, d1	19.3		24.9		31.6	24.4
Progression Factor	1.00		1.00		0.83	0.33
Incremental Delay, d2	0.1		5.1		0.2	1.1
Delay (s)	19.4		30.1		26.3	9.1
Level of Service	B		C		C	A
Approach Delay (s)	19.4		30.1			10.5
Approach LOS	B		C			B

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

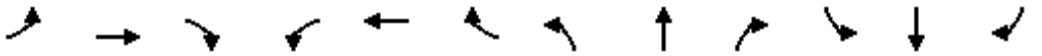
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	5	116	36	2	6	118	878	4	8	657	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1813	1573		1775		1787	3571		1787	3502	
Flt Permitted		0.70	1.00		0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1332	1573		1380		1787	3571		1787	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	114	5	121	38	2	6	123	915	4	8	684	76
RTOR Reduction (vph)	0	0	95	0	5	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	119	26	0	41	0	123	919	0	8	751	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Effective Green, g (s)		11.6	11.6		11.6		8.6	30.3		1.0	22.7	
Actuated g/C Ratio		0.21	0.21		0.21		0.16	0.56		0.02	0.42	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		284	335		294		283	1989		33	1461	
v/s Ratio Prot							c0.07	0.26		0.00	c0.21	
v/s Ratio Perm		c0.09	0.02		0.03							
v/c Ratio		0.42	0.08		0.14		0.43	0.46		0.24	0.51	
Uniform Delay, d1		18.5	17.1		17.4		20.7	7.2		26.3	11.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	0.2		0.4		1.5	0.2		3.8	0.1	
Delay (s)		20.2	17.3		17.7		22.2	7.4		30.1	11.9	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		18.7			17.7			9.1			12.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

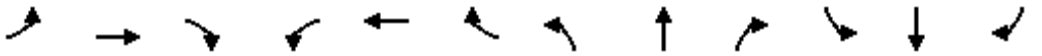
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	491	79	535	550	297	25	1059	758	497	425	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1571	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1571	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	261	528	85	575	591	319	27	1139	815	534	457	229
RTOR Reduction (vph)	0	0	70	0	0	170	0	0	9	0	0	100
Lane Group Flow (vph)	261	528	15	575	591	149	27	1139	806	534	457	129
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.3	24.7	24.7	33.8	44.2	44.2	4.7	44.5	78.3	20.0	59.8	78.6
Effective Green, g (s)	14.3	24.7	24.7	33.8	44.2	44.2	4.7	44.5	78.3	20.0	59.8	78.6
Actuated g/C Ratio	0.10	0.18	0.18	0.24	0.32	0.32	0.03	0.32	0.56	0.14	0.43	0.56
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	354	631	282	837	1128	496	60	1136	894	485	1527	898
v/s Ratio Prot	0.08	c0.15		0.17	0.17		0.02	c0.32	c0.50	c0.16	0.13	0.08
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.74	0.84	0.05	0.69	0.52	0.30	0.45	1.00	0.90	1.10	0.30	0.14
Uniform Delay, d1	61.0	55.7	47.9	48.3	39.3	36.2	66.4	47.8	27.4	60.0	26.3	14.6
Progression Factor	0.82	0.81	1.37	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	8.6	0.0	1.9	0.2	0.1	1.9	27.3	11.9	71.3	0.5	0.0
Delay (s)	56.7	54.0	65.8	50.2	39.5	36.3	68.3	75.1	39.4	131.3	26.8	14.7
Level of Service	E	D	E	D	D	D	E	E	D	F	C	B
Approach Delay (s)		55.9			42.9			60.3			70.3	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM Average Control Delay	57.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	491	79	535	550	297	25	1059	758	497	425	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	261	528	85	575	591	319	27	1139	815	534	457	229
RTOR Reduction (vph)	0	0	70	0	0	232	0	0	11	0	0	68
Lane Group Flow (vph)	261	528	15	575	591	87	27	1139	804	534	457	161
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.4	24.5	24.5	28.0	38.1	38.1	5.1	46.6	74.6	23.9	65.4	79.8
Effective Green, g (s)	14.4	24.5	24.5	28.0	38.1	38.1	5.1	46.6	74.6	23.9	65.4	79.8
Actuated g/C Ratio	0.10	0.18	0.18	0.20	0.27	0.27	0.04	0.33	0.53	0.17	0.47	0.57
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	357	625	280	693	973	427	65	1190	852	580	1670	911
v/s Ratio Prot	0.08	c0.15		0.17	0.17		0.02	c0.32	c0.50	c0.16	0.13	0.10
v/s Ratio Perm			0.01			0.06						
v/c Ratio	0.73	0.84	0.05	0.83	0.61	0.20	0.42	0.96	0.94	0.92	0.27	0.18
Uniform Delay, d1	60.9	55.9	48.1	53.7	44.4	39.3	66.0	45.7	30.7	57.1	22.8	14.4
Progression Factor	0.87	0.95	1.87	1.00	1.00	1.00	0.94	0.91	0.86	1.00	1.00	1.00
Incremental Delay, d2	6.2	9.3	0.0	7.8	0.7	0.1	1.0	13.2	13.5	19.8	0.4	0.0
Delay (s)	58.9	62.6	89.8	61.5	45.2	39.3	63.0	54.8	40.1	76.9	23.2	14.4
Level of Service	E	E	F	E	D	D	E	D	D	E	C	B
Approach Delay (s)		64.1			50.2			48.9			45.1	
Approach LOS		E			D			D			D	

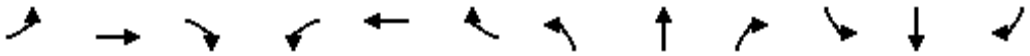
Intersection Summary			
HCM Average Control Delay	50.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	54	13	1362	15	9	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5124		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5124		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	57	14	1449	16	10	1153
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	57	1	1465	0	10	1153
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.2	8.2	80.0		1.7	63.5
Effective Green, g (s)	8.2	8.2	80.0		1.7	63.5
Actuated g/C Ratio	0.06	0.06	0.57		0.01	0.45
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	106	91	2928		22	2330
v/s Ratio Prot	c0.03		c0.29		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.54	0.01	0.50		0.45	0.49
Uniform Delay, d1	64.1	62.1	18.0		68.7	26.9
Progression Factor	1.00	1.00	0.18		0.93	0.94
Incremental Delay, d2	4.0	0.0	0.0		4.8	0.7
Delay (s)	68.1	62.1	3.2		68.7	25.9
Level of Service	E	E	A		E	C
Approach Delay (s)	66.9		3.2			26.3
Approach LOS	E		A			C

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	47.6
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

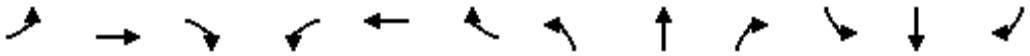
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	154	246	176	115	81	296	1226	108	40	1009	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1495	1787	1736		3467	5042		1787	5046	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1495	1787	1736		3467	5042		1787	5046	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	166	265	189	124	87	318	1318	116	43	1085	96
RTOR Reduction (vph)	0	0	196	0	20	0	0	5	0	0	6	0
Lane Group Flow (vph)	75	166	69	189	191	0	318	1429	0	43	1175	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	8.9	22.3	22.3	19.0	20.2		19.7	71.1		6.9	63.5	
Effective Green, g (s)	8.9	22.3	22.3	19.0	20.2		19.7	71.1		6.9	63.5	
Actuated g/C Ratio	0.06	0.16	0.16	0.14	0.14		0.14	0.51		0.05	0.45	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	113	297	238	243	250		488	2561		88	2289	
v/s Ratio Prot	0.04	0.09		c0.11	c0.11		c0.09	c0.28		0.02	c0.23	
v/s Ratio Perm			0.05									
v/c Ratio	0.66	0.56	0.29	0.78	0.77		0.65	0.56		0.49	0.51	
Uniform Delay, d1	64.1	54.3	51.9	58.5	57.6		56.9	23.7		64.8	27.2	
Progression Factor	1.00	1.00	1.00	0.75	0.97		1.07	0.81		1.38	0.30	
Incremental Delay, d2	10.8	1.8	0.5	12.5	11.7		2.2	0.8		1.4	0.7	
Delay (s)	74.9	56.1	52.4	56.0	67.5		62.9	19.9		91.0	8.9	
Level of Service	E	E	D	E	E		E	B		F	A	
Approach Delay (s)		56.9			62.1			27.7			11.8	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

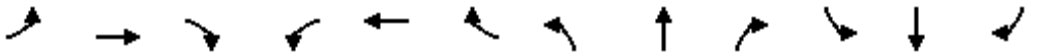
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	316	7	295	284	1335	0	0	831	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5909	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5909	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	326	7	304	293	1376	0	0	857	619
RTOR Reduction (vph)	0	0	0	0	55	0	0	0	0	0	164	0
Lane Group Flow (vph)	0	0	0	326	256	0	293	1376	0	0	1312	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				14.1	14.1		14.6	49.4			31.8	
Effective Green, g (s)				14.1	14.1		14.6	49.4			31.8	
Actuated g/C Ratio				0.20	0.20		0.21	0.71			0.45	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				698	323		373	3625			2684	
v/s Ratio Prot				0.09	c0.16		c0.16	0.27			c0.22	
v/s Ratio Perm												
v/c Ratio				0.47	0.79		0.79	0.38			0.49	
Uniform Delay, d1				24.6	26.6		26.2	4.1			13.4	
Progression Factor				1.00	1.00		0.97	1.21			1.56	
Incremental Delay, d2				0.2	11.7		7.8	0.2			0.6	
Delay (s)				24.8	38.3		33.1	5.3			21.4	
Level of Service				C	D		C	A			C	
Approach Delay (s)		0.0			31.4			10.2			21.4	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

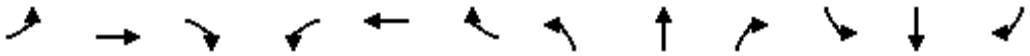
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	756	5	421	0	0	0	0	863	327	237	910	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4885		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4885		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	788	5	439	0	0	0	0	899	341	247	948	0
RTOR Reduction (vph)	0	0	78	0	0	0	0	90	0	0	0	0
Lane Group Flow (vph)	394	399	361	0	0	0	0	1150	0	247	948	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	21.0	21.0	21.0					30.0		8.5	42.5	
Effective Green, g (s)	21.0	21.0	21.0					30.0		8.5	42.5	
Actuated g/C Ratio	0.30	0.30	0.30					0.43		0.12	0.61	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	509	511	480					2094		425	3149	
v/s Ratio Prot	0.23	c0.23						c0.24		c0.07	0.18	
v/s Ratio Perm			0.23									
v/c Ratio	0.77	0.78	0.75					0.55		0.58	0.30	
Uniform Delay, d1	22.3	22.4	22.2					14.9		29.1	6.6	
Progression Factor	1.00	1.00	1.00					1.05		1.13	1.18	
Incremental Delay, d2	6.6	7.0	5.9					1.0		1.8	0.2	
Delay (s)	28.9	29.4	28.0					16.7		34.5	8.0	
Level of Service	C	C	C					B		C	A	
Approach Delay (s)		28.8			0.0			16.7			13.5	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

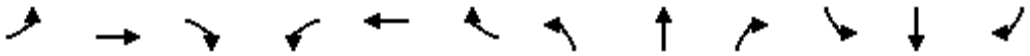
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	0	29	17	3	15	46	1134	9	19	1109	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99			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	
Frt		0.95			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1740			1743		1787	5128		1787	5098	
Flt Permitted		0.79			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1411			1539		1787	5128		1787	5098	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	0	31	18	3	16	49	1219	10	20	1192	47
RTOR Reduction (vph)	0	28	0	0	15	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	56	0	0	22	0	49	1228	0	20	1235	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		6.4			6.4		4.5	50.7		1.4	47.6	
Effective Green, g (s)		6.4			6.4		4.5	50.7		1.4	47.6	
Actuated g/C Ratio		0.09			0.09		0.06	0.72		0.02	0.68	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		129			141		115	3714		36	3467	
v/s Ratio Prot							c0.03	c0.24		0.01	c0.24	
v/s Ratio Perm		c0.04			0.01							
v/c Ratio		0.43			0.16		0.43	0.33		0.56	0.36	
Uniform Delay, d1		30.1			29.3		31.5	3.5		34.0	4.7	
Progression Factor		1.00			1.00		1.14	0.72		0.96	1.11	
Incremental Delay, d2		0.8			0.2		0.9	0.2		9.4	0.3	
Delay (s)		30.9			29.5		36.7	2.7		41.9	5.5	
Level of Service		C			C		D	A		D	A	
Approach Delay (s)		30.9			29.5			4.0			6.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

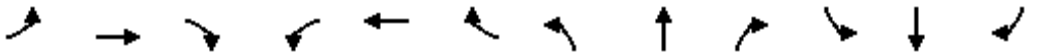
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	111	12	296	122	195	20	810	534	216	724	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	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	0.98	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1848		1698	1750	1560	1787	5136	1599	3467	3459	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1848		1698	1750	1560	1787	5136	1599	3467	3459	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	127	118	13	315	130	207	21	862	568	230	770	144
RTOR Reduction (vph)	0	4	0	0	0	165	0	0	0	0	7	0
Lane Group Flow (vph)	127	127	0	220	225	42	21	862	568	230	907	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	14.4	14.4		28.1	28.1	28.1	4.3	68.9	100.5	13.6	78.2	
Effective Green, g (s)	14.4	14.4		28.1	28.1	28.1	4.3	68.9	100.5	13.6	78.2	
Actuated g/C Ratio	0.10	0.10		0.20	0.20	0.20	0.03	0.49	0.72	0.10	0.56	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	184	190		341	351	313	55	2528	1148	337	1932	
v/s Ratio Prot	c0.07	0.07		c0.13	0.13		0.01	0.17	c0.36	c0.07	0.26	
v/s Ratio Perm						0.03						
v/c Ratio	0.69	0.67		0.65	0.64	0.13	0.38	0.34	0.49	0.68	0.47	
Uniform Delay, d1	60.6	60.5		51.4	51.3	45.9	66.5	21.7	8.6	61.1	18.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.85	
Incremental Delay, d2	8.7	7.1		3.1	3.0	0.1	1.6	0.4	0.1	4.3	0.8	
Delay (s)	69.3	67.6		54.5	54.3	46.0	68.2	22.1	8.8	62.0	16.6	
Level of Service	E	E		D	D	D	E	C	A	E	B	
Approach Delay (s)		68.4			51.7			17.5			25.7	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

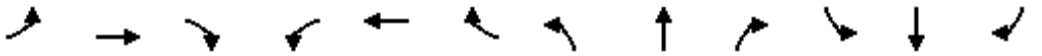
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	15	0	0	0	0	6	160	11	0	66	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.99			1.00	0.85
Flt Protected		0.96					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1833					1787	1863			1900	1615
Flt Permitted		0.96					0.71	1.00			1.00	1.00
Satd. Flow (perm)		1833					1335	1863			1900	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	17	0	0	0	0	7	178	12	0	73	111
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	0	38
Lane Group Flow (vph)	0	64	0	0	0	0	7	187	0	0	73	73
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		2.6					20.5	20.5			20.5	20.5
Effective Green, g (s)		2.6					20.5	20.5			20.5	20.5
Actuated g/C Ratio		0.08					0.66	0.66			0.66	0.66
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		153					880	1228			1252	1065
v/s Ratio Prot								c0.10			0.04	
v/s Ratio Perm		0.03					0.01					0.05
v/c Ratio		0.42					0.01	0.15			0.06	0.07
Uniform Delay, d1		13.5					1.8	2.0			1.9	1.9
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		1.8					0.0	0.1			0.0	0.0
Delay (s)		15.4					1.8	2.1			1.9	1.9
Level of Service		B					A	A			A	A
Approach Delay (s)		15.4			0.0			2.1			1.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	31.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

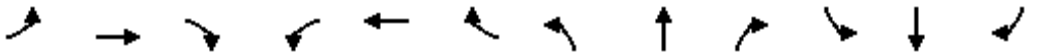
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	239	20	0	0	0	0	202	0	331	146	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1860						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.62	1.00	
Satd. Flow (perm)	1787	1860						1881		1152	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	367	266	22	0	0	0	0	224	0	368	162	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	367	280	0	0	0	0	0	224	0	368	162	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.7	12.7						14.9		14.9	14.9	
Effective Green, g (s)	12.7	12.7						14.9		14.9	14.9	
Actuated g/C Ratio	0.36	0.36						0.42		0.42	0.42	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	637	664						787		482	780	
v/s Ratio Prot		0.15						0.12			0.09	
v/s Ratio Perm	c0.21									c0.32		
v/c Ratio	0.58	0.42						0.28		0.76	0.21	
Uniform Delay, d1	9.3	8.7						6.8		8.8	6.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4						0.2		7.1	0.1	
Delay (s)	10.5	9.1						7.0		15.9	6.7	
Level of Service	B	A						A		B	A	
Approach Delay (s)		9.9			0.0			7.0			13.1	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	35.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	70	102	308	201	167	365	0	0	305	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1840	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.52	1.00			1.00	1.00
Satd. Flow (perm)			1611		1840	1583	966	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	76	111	335	218	182	397	0	0	332	27
RTOR Reduction (vph)	0	0	50	0	0	144	0	0	0	0	0	13
Lane Group Flow (vph)	0	0	26	0	446	74	182	397	0	0	332	14
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			19.7		19.7	19.7	30.3	30.3			30.3	30.3
Effective Green, g (s)			19.7		19.7	19.7	30.3	30.3			30.3	30.3
Actuated g/C Ratio			0.34		0.34	0.34	0.52	0.52			0.52	0.52
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			547		625	538	505	973			973	827
v/s Ratio Prot								c0.21			0.18	
v/s Ratio Perm			0.02		0.24	0.05	0.19					0.01
v/c Ratio			0.05		0.71	0.14	0.36	0.41			0.34	0.02
Uniform Delay, d1			12.9		16.7	13.3	8.1	8.4			8.0	6.7
Progression Factor			1.00		1.00	1.00	1.00	1.00			0.86	1.20
Incremental Delay, d2			0.0		3.9	0.1	2.0	1.3			0.5	0.0
Delay (s)			12.9		20.6	13.4	10.1	9.7			7.4	8.0
Level of Service			B		C	B	B	A			A	A
Approach Delay (s)		12.9			18.2			9.8			7.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	495	5	1365	65	5	803
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	1.00		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3438		3515		1770	3539
Flt Permitted	0.95		1.00		0.11	1.00
Satd. Flow (perm)	3438		3515		206	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	538	5	1484	71	5	873
RTOR Reduction (vph)	2	0	5	0	0	0
Lane Group Flow (vph)	541	0	1550	0	5	873
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	13.8		36.2		36.2	36.2
Effective Green, g (s)	13.8		36.2		36.2	36.2
Actuated g/C Ratio	0.24		0.62		0.62	0.62
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	818		2194		129	2209
v/s Ratio Prot			c0.44			0.25
v/s Ratio Perm	c0.16				0.02	
v/c Ratio	0.66		0.71		0.04	0.40
Uniform Delay, d1	20.0		7.3		4.2	5.4
Progression Factor	0.77		1.00		1.53	1.33
Incremental Delay, d2	1.8		1.9		0.4	0.4
Delay (s)	17.2		9.3		6.8	7.6
Level of Service	B		A		A	A
Approach Delay (s)	17.2		9.3			7.6
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix D – Level of Service Worksheets: Future Traffic Conditions

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	117	1544	97	87	2023	134	177	162	58	130	234	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5077		1770	6337		1726	1781		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.41	1.00		0.43	1.00	1.00
Satd. Flow (perm)	1787	5077		1770	6337		743	1781		805	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	121	1592	100	90	2086	138	182	167	60	134	241	194
RTOR Reduction (vph)	0	4	0	0	6	0	0	12	0	0	0	114
Lane Group Flow (vph)	121	1688	0	90	2219	0	182	215	0	134	241	80
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.5	66.5		11.5	65.0		29.7	29.7		29.7	29.7	29.7
Effective Green, g (s)	13.5	66.5		11.5	65.0		29.7	29.7		29.7	29.7	29.7
Actuated g/C Ratio	0.11	0.55		0.10	0.54		0.25	0.25		0.25	0.25	0.25
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	201	2814		170	3433		184	441		199	461	370
v/s Ratio Prot	c0.07	0.33		0.05	c0.35			0.12			0.13	
v/s Ratio Perm							c0.25			0.17		0.05
v/c Ratio	0.60	0.60		0.53	0.65		0.99	0.49		0.67	0.52	0.22
Uniform Delay, d1	50.7	17.9		51.7	19.4		45.0	38.6		40.8	39.0	35.9
Progression Factor	1.11	0.62		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	0.7		3.0	1.0		62.5	0.9		8.7	1.1	0.3
Delay (s)	59.7	11.7		54.6	20.3		107.5	39.5		49.4	40.1	36.2
Level of Service	E	B		D	C		F	D		D	D	D
Approach Delay (s)		14.9			21.7			69.8			41.0	
Approach LOS		B			C			E			D	

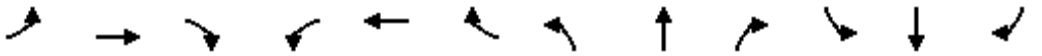
Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	386	1334	340	193	0	199	0	464	68	356	781	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4930		3273		2656		4881		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4930		3273		2656		4881		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	402	1390	354	201	0	207	0	483	71	371	814	0
RTOR Reduction (vph)	0	30	0	0	0	114	0	17	0	0	0	0
Lane Group Flow (vph)	402	1714	0	201	0	93	0	537	0	371	814	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.6	56.3		12.2		53.9		19.3		16.2	39.5	
Effective Green, g (s)	14.6	56.3		12.2		53.9		19.3		16.2	39.5	
Actuated g/C Ratio	0.12	0.47		0.10		0.45		0.16		0.13	0.33	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	607	2313		333		1193		785		468	1176	
v/s Ratio Prot	c0.08	c0.35		0.06		0.04		0.11		c0.11	c0.23	
v/s Ratio Perm												
v/c Ratio	0.66	0.74		0.60		0.08		0.68		0.79	0.69	
Uniform Delay, d1	50.3	25.9		51.6		18.9		47.5		50.3	35.0	
Progression Factor	1.00	1.00		1.26		0.50		1.00		1.00	1.00	
Incremental Delay, d2	2.7	2.2		2.5		0.1		2.5		8.9	1.8	
Delay (s)	53.1	28.1		67.5		9.6		50.0		59.2	36.7	
Level of Service	D	C		E		A		D		E	D	
Approach Delay (s)		32.8			38.1			50.0			43.8	
Approach LOS		C			D			D			D	

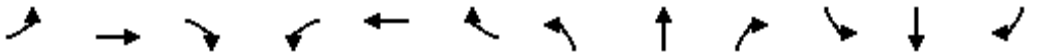
Intersection Summary			
HCM Average Control Delay	38.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	741	83	353	1667	182	0	0	0	95	103	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.98		1.00	0.99						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (prot)	1719	4859		1770	5000						1801	1568
Flt Permitted	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (perm)	1719	4859		1770	5000						1801	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	70	772	86	368	1736	190	0	0	0	99	107	89
RTOR Reduction (vph)	0	12	0	0	11	0	0	0	0	0	0	67
Lane Group Flow (vph)	70	846	0	368	1915	0	0	0	0	0	206	22
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	8.1	43.0		24.5	58.9						26.0	26.0
Effective Green, g (s)	8.1	43.0		24.5	58.9						26.0	26.0
Actuated g/C Ratio	0.08	0.41		0.23	0.56						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	133	1990		413	2805						446	388
v/s Ratio Prot	0.04	0.17		c0.21	c0.38						c0.11	
v/s Ratio Perm												0.01
v/c Ratio	0.53	0.42		0.89	0.68						0.46	0.06
Uniform Delay, d1	46.6	22.2		39.0	16.4						33.6	30.1
Progression Factor	1.00	1.00		1.27	0.54						1.00	1.00
Incremental Delay, d2	2.8	0.7		16.5	1.0						3.4	0.3
Delay (s)	49.5	22.8		66.1	9.8						37.0	30.4
Level of Service	D	C		E	A						D	C
Approach Delay (s)		24.8			18.9			0.0			35.0	
Approach LOS		C			B			A			C	

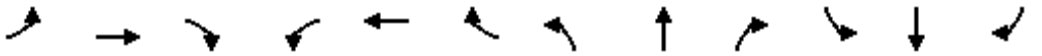
Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	598	0	0	1387	23	360	154	412	89	0	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			1.00		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (prot)	3367	3471			5071		1681	1734	1559	1770		1583
Flt Permitted	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (perm)	3367	3471			5071		1681	1734	1559	1770		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	629	0	0	1460	24	379	162	434	94	0	384
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	252	0	0	289
Lane Group Flow (vph)	163	629	0	0	1483	0	265	276	182	94	0	95
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot						Split		Perm	Prot		custom
Protected Phases	5	2			6		4	4		3		3
Permitted Phases									4			
Actuated Green, G (s)	9.5	58.7			45.7		22.1	22.1	22.1	12.2		12.2
Effective Green, g (s)	9.5	58.7			45.7		22.1	22.1	22.1	12.2		12.2
Actuated g/C Ratio	0.09	0.56			0.44		0.21	0.21	0.21	0.12		0.12
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	305	1940			2207		354	365	328	206		184
v/s Ratio Prot	c0.05	0.18			c0.29		0.16	c0.16		0.05		c0.06
v/s Ratio Perm									0.12			
v/c Ratio	0.53	0.32			0.67		0.75	0.76	0.56	0.46		0.52
Uniform Delay, d1	45.6	12.5			23.7		38.8	38.9	37.1	43.3		43.6
Progression Factor	1.27	0.65			1.48		1.02	1.02	1.07	1.00		1.00
Incremental Delay, d2	0.8	0.4			0.9		8.0	8.2	1.6	1.2		1.8
Delay (s)	58.9	8.5			35.8		47.6	48.0	41.1	44.5		45.4
Level of Service	E	A			D		D	D	D	D		D
Approach Delay (s)		18.8			35.8			44.8			45.3	
Approach LOS		B			D			D			D	

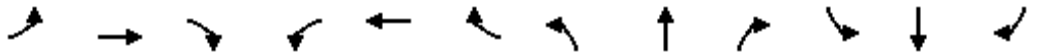
Intersection Summary			
HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	489	661	16	24	933	202	28	10	33	188	4	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.97		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3423		1752	3396		1681	1556		1659	1667	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.72	0.71	1.00
Satd. Flow (perm)	3335	3423		1752	3396		1681	1552		1262	1233	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	537	726	18	26	1025	222	31	11	36	207	4	575
RTOR Reduction (vph)	0	1	0	0	14	0	0	24	0	0	0	428
Lane Group Flow (vph)	537	743	0	26	1233	0	28	26	0	106	105	147
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.9	53.8		4.2	38.1		4.7	35.5		26.8	26.8	26.8
Effective Green, g (s)	19.9	53.8		4.2	38.1		4.7	35.5		26.8	26.8	26.8
Actuated g/C Ratio	0.19	0.51		0.04	0.36		0.04	0.34		0.26	0.26	0.26
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	632	1754		70	1232		75	525		322	315	400
v/s Ratio Prot	c0.16	0.22		0.01	c0.36		c0.02	0.00				
v/s Ratio Perm								0.01		0.08	0.09	c0.09
v/c Ratio	0.85	0.42		0.37	1.00		0.37	0.05		0.33	0.33	0.37
Uniform Delay, d1	41.1	15.9		49.1	33.5		48.7	23.4		31.8	31.8	32.1
Progression Factor	1.00	1.33		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.3	0.7		1.2	25.8		2.3	0.0		0.4	0.5	0.4
Delay (s)	50.3	21.8		50.3	59.3		51.0	23.4		32.2	32.3	32.5
Level of Service	D	C		D	E		D	C		C	C	C
Approach Delay (s)		33.8			59.1			33.3			32.5	
Approach LOS		C			E			C			C	

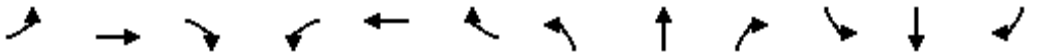
Intersection Summary			
HCM Average Control Delay	42.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	248	160	274	345	236	179	692	95	204	803	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1511	1770	3539	1554	3367	3471	1519	1787	3530	
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)	1719	3438	1511	1770	3539	1554	3367	3471	1519	1787	3530	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	96	299	193	330	416	284	216	834	114	246	967	61
RTOR Reduction (vph)	0	0	40	0	0	51	0	0	72	0	3	0
Lane Group Flow (vph)	96	299	153	330	416	233	216	834	42	246	1025	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	11.2	29.1	46.6	26.2	44.1	66.3	17.5	37.5	37.5	22.2	42.2	
Effective Green, g (s)	11.2	29.1	46.6	26.2	44.1	66.3	17.5	37.5	37.5	22.2	42.2	
Actuated g/C Ratio	0.09	0.22	0.36	0.20	0.34	0.51	0.13	0.29	0.29	0.17	0.32	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	148	770	582	357	1201	793	453	1001	438	305	1146	
v/s Ratio Prot	0.06	c0.09	0.04	c0.19	0.12	0.05	0.06	c0.24		0.14	c0.29	
v/s Ratio Perm			0.07			0.10			0.03			
v/c Ratio	0.65	0.39	0.26	0.92	0.35	0.29	0.48	0.83	0.10	0.81	0.89	
Uniform Delay, d1	57.5	42.9	29.5	50.9	32.2	18.4	52.0	43.3	33.8	51.8	41.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.76	0.36	1.00	1.00	
Incremental Delay, d2	7.1	1.5	0.1	28.6	0.8	0.1	0.3	5.7	0.1	13.6	9.1	
Delay (s)	64.6	44.4	29.6	79.6	33.0	18.4	40.1	38.5	12.3	65.5	50.9	
Level of Service	E	D	C	E	C	B	D	D	B	E	D	
Approach Delay (s)		42.8			43.9			36.2			53.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	44.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

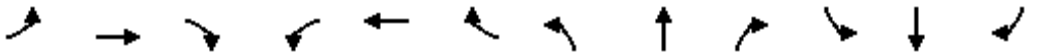
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	672	36	321	610	63	0	0	144	0	0	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3439		1770	3465				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3439		1770	3465				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	72	810	43	387	735	76	0	0	173	0	0	361
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	57	0	0	129
Lane Group Flow (vph)	72	851	0	387	805	0	0	0	116	0	0	232
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	37.7	79.1		33.1	74.5				43.4			48.0
Effective Green, g (s)	37.7	79.1		33.1	74.5				43.4			48.0
Actuated g/C Ratio	0.29	0.61		0.25	0.57				0.33			0.37
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	503	2092		451	1986				930			601
v/s Ratio Prot	0.04	c0.25		c0.22	c0.23				0.04			c0.14
v/s Ratio Perm												
v/c Ratio	0.14	0.41		0.86	0.41				0.13			0.39
Uniform Delay, d1	34.2	13.2		46.2	15.4				30.1			30.2
Progression Factor	1.00	1.00		1.00	1.00				0.64			1.00
Incremental Delay, d2	0.0	0.6		14.4	0.6				0.0			0.2
Delay (s)	34.2	13.8		60.6	16.0				19.2			30.3
Level of Service	C	B		E	B				B			C
Approach Delay (s)		15.4			30.4			19.2			30.3	
Approach LOS		B			C			B			C	

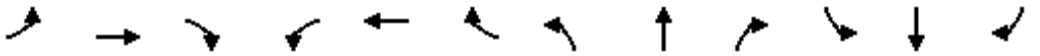
Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	3.5
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	229	648	181	80	1075	204	109	136	44	249	336	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	257	728	203	90	1208	229	122	153	49	280	378	328
RTOR Reduction (vph)	0	0	103	0	0	90	0	0	38	0	0	256
Lane Group Flow (vph)	257	728	100	90	1208	139	110	165	11	280	378	72
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	20.6	60.4	60.4	8.8	48.6	48.6	16.3	16.3	29.1	28.5	28.5	28.5
Effective Green, g (s)	20.6	60.4	60.4	8.8	48.6	48.6	16.3	16.3	29.1	28.5	28.5	28.5
Actuated g/C Ratio	0.16	0.46	0.46	0.07	0.37	0.37	0.13	0.13	0.22	0.22	0.22	0.22
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	280	1644	735	232	1323	592	211	221	624	388	408	347
v/s Ratio Prot	c0.15	0.21		0.03	c0.34		0.07	c0.09	0.00	0.16	c0.20	
v/s Ratio Perm			0.06			0.09						0.05
v/c Ratio	0.92	0.44	0.14	0.39	0.91	0.24	0.52	0.75	0.02	0.72	0.93	0.21
Uniform Delay, d1	53.9	23.5	19.9	58.0	38.7	27.9	53.2	54.9	39.3	47.1	49.7	41.5
Progression Factor	1.00	1.00	1.00	0.85	0.84	0.48	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.2	0.9	0.4	1.1	11.1	0.9	2.3	12.9	0.0	6.5	26.8	0.3
Delay (s)	86.0	24.3	20.3	50.1	43.7	14.2	55.5	67.7	39.3	53.6	76.5	41.8
Level of Service	F	C	C	D	D	B	E	E	D	D	E	D
Approach Delay (s)		37.0			39.6			59.3			58.5	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	45.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	697	88	661	564	73	114	193	789	164	272	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3323	1527	3467	3507		1787	1881	1599	3433	3352	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3323	1527	3467	3507		1787	1881	1599	3433	3352	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	100	734	93	696	594	77	120	203	831	173	286	119
RTOR Reduction (vph)	0	0	56	0	8	0	0	0	18	0	35	0
Lane Group Flow (vph)	90	744	37	696	663	0	120	203	813	173	370	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	34.9	34.9	34.9	39.4	39.4		11.8	30.0	69.4	10.2	28.4	
Effective Green, g (s)	34.9	34.9	34.9	39.4	39.4		11.8	30.0	69.4	10.2	28.4	
Actuated g/C Ratio	0.27	0.27	0.27	0.30	0.30		0.09	0.23	0.53	0.08	0.22	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	424	892	410	1051	1063		162	434	854	269	732	
v/s Ratio Prot	0.06	c0.22		0.20	0.19		0.07	0.11	c0.51	c0.05	0.11	
v/s Ratio Perm			0.02									
v/c Ratio	0.21	0.83	0.09	0.66	0.62		0.74	0.47	0.95	0.64	0.51	
Uniform Delay, d1	36.9	44.8	35.6	39.5	38.9		57.6	43.1	28.7	58.1	44.6	
Progression Factor	1.00	1.00	1.00	0.91	0.91		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	9.0	0.4	1.3	1.0		14.7	0.3	19.9	3.9	0.2	
Delay (s)	38.0	53.9	36.1	37.4	36.4		72.3	43.4	48.6	62.0	44.8	
Level of Service	D	D	D	D	D		E	D	D	E	D	
Approach Delay (s)		50.5			36.9			50.2			50.0	
Approach LOS		D			D			D			D	

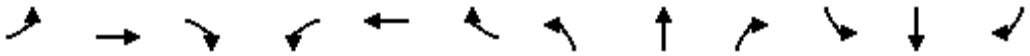
Intersection Summary			
HCM Average Control Delay	45.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1573	1154	0	804	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1673	1228	0	855	278
RTOR Reduction (vph)	0	0	0	0	0	69
Lane Group Flow (vph)	0	1673	1228	0	855	209
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		40.8	40.8		15.4	15.4
Effective Green, g (s)		40.8	40.8		15.4	15.4
Actuated g/C Ratio		0.63	0.63		0.24	0.24
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2221	2243		813	375
v/s Ratio Prot		c0.47	0.34		c0.25	0.13
v/s Ratio Perm						
v/c Ratio		0.75	0.55		1.05	0.56
Uniform Delay, d1		8.5	6.9		24.8	21.8
Progression Factor		0.65	1.00		1.00	1.00
Incremental Delay, d2		1.2	1.0		46.0	1.4
Delay (s)		6.7	7.8		70.8	23.2
Level of Service		A	A		E	C
Approach Delay (s)		6.7	7.8		59.1	
Approach LOS		A	A		E	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

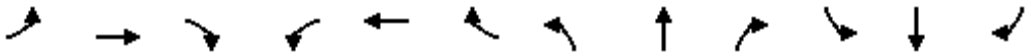
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	46	24	182	125	159	55	617	234	252	685	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.91	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.97	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1760			1768	1456	1752	3327		1787	3517	
Flt Permitted		0.91			0.77	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1619			1404	1456	1752	3327		1787	3517	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	19	55	29	217	149	189	65	735	279	300	815	80
RTOR Reduction (vph)	0	15	0	0	0	59	0	42	0	0	6	0
Lane Group Flow (vph)	0	88	0	0	366	130	65	972	0	300	889	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		24.9			24.9	24.9	6.4	28.5		17.9	40.0	
Effective Green, g (s)		24.9			24.9	24.9	6.4	28.5		17.9	40.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.08	0.34		0.22	0.48	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		487			422	438	135	1145		386	1699	
v/s Ratio Prot							0.04	c0.29		c0.17	0.25	
v/s Ratio Perm		0.05			c0.26	0.09						
v/c Ratio		0.18			0.87	0.30	0.48	0.85		0.78	0.52	
Uniform Delay, d1		21.4			27.4	22.2	36.6	25.2		30.6	14.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			16.9	0.4	1.0	5.9		8.7	0.2	
Delay (s)		21.6			44.3	22.6	37.6	31.1		39.3	15.0	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		21.6			36.9			31.5			21.1	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

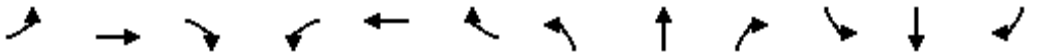
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	758	32	11	789	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1601			1599		1752	3479		1770	3350	
Flt Permitted		0.54			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		879			1222		1752	3479		1770	3350	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	892	38	13	928	107
RTOR Reduction (vph)	0	44	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	338	0	0	18	0	234	928	0	13	1028	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Effective Green, g (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		230			49		292	1752		22	1170	
v/s Ratio Prot							c0.13	0.27		0.01	c0.31	
v/s Ratio Perm		c0.38			c0.01							
v/c Ratio		1.47			0.36		0.80	0.53		0.59	0.88	
Uniform Delay, d1		35.6			45.1		38.7	16.2		47.4	29.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		233.0			1.7		13.8	0.2		25.2	7.7	
Delay (s)		268.6			46.8		52.5	16.4		72.6	37.2	
Level of Service		F			D		D	B		E	D	
Approach Delay (s)		268.6			46.8			23.7			37.6	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM Average Control Delay	65.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	17.5
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

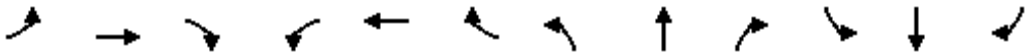
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	758	32	11	789	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1592			1604		1752	3479		1770	3360	
Flt Permitted		0.98			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1592			1226		1752	3479		1770	3360	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	892	38	13	928	107
RTOR Reduction (vph)	0	50	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	332	0	0	18	0	234	928	0	13	1028	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		21.3			3.8		10.3	44.9		1.1	35.7	
Effective Green, g (s)		21.3			3.8		10.3	44.9		1.1	35.7	
Actuated g/C Ratio		0.24			0.04		0.12	0.51		0.01	0.40	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		383			53		204	1763		22	1354	
v/s Ratio Prot		c0.21					c0.13	0.27		0.01	c0.31	
v/s Ratio Perm					c0.01							
v/c Ratio		0.87			0.34		1.15	0.53		0.59	0.76	
Uniform Delay, d1		32.3			41.2		39.1	14.7		43.5	22.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		17.6			1.4		108.3	0.2		25.2	2.4	
Delay (s)		49.9			42.6		147.4	14.9		68.7	25.1	
Level of Service		D			D		F	B		E	C	
Approach Delay (s)		49.9			42.6			41.5			25.7	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

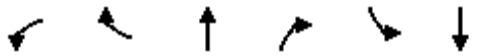
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	1	141	17	1	1	114	886	11	2	850	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.94		1.00	1.00		1.00	1.00	
Frt		0.92			0.99		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1684			1685		1752	3493		1752	3386	
Flt Permitted		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1647			1762		1752	3493		1752	3386	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	115	1	158	19	1	1	128	996	12	2	955	158
RTOR Reduction (vph)	0	46	0	0	1	0	0	1	0	0	10	0
Lane Group Flow (vph)	0	228	0	0	20	0	128	1007	0	2	1103	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		18.2			2.5		11.9	29.9		13.1	31.1	
Effective Green, g (s)		18.2			2.5		11.9	29.9		13.1	31.1	
Actuated g/C Ratio		0.23			0.03		0.15	0.37		0.16	0.39	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		371			55		258	1294		284	1305	
v/s Ratio Prot							c0.07	0.29		0.00	c0.33	
v/s Ratio Perm		c0.14			c0.01							
v/c Ratio		0.61			0.36		0.50	0.78		0.01	0.85	
Uniform Delay, d1		28.1			38.3		31.6	22.5		28.3	22.6	
Progression Factor		1.00			1.00		0.77	0.33		1.00	1.00	
Incremental Delay, d2		4.3			1.5		0.9	1.8		0.0	5.1	
Delay (s)		32.4			39.8		25.1	9.1		28.3	27.7	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		32.4			39.8			10.9			27.7	
Approach LOS		C			D			B			C	

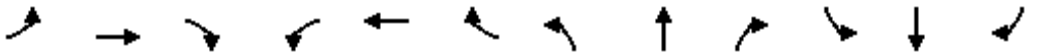
Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	111	900	25	84	924
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1690		3453		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1690		3453		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	128	1034	29	97	1062
RTOR Reduction (vph)	58	0	1	0	0	0
Lane Group Flow (vph)	145	0	1062	0	97	1062
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	18.2		29.9		13.1	31.1
Effective Green, g (s)	18.2		29.9		13.1	31.1
Actuated g/C Ratio	0.23		0.37		0.16	0.39
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	381		1279		290	1377
v/s Ratio Prot	c0.09		c0.31		c0.05	0.30
v/s Ratio Perm						
v/c Ratio	0.38		0.83		0.33	0.77
Uniform Delay, d1	26.5		23.1		29.9	21.7
Progression Factor	1.00		1.00		0.70	0.38
Incremental Delay, d2	1.3		4.6		0.2	1.7
Delay (s)	27.8		27.7		21.1	10.0
Level of Service	C		C		C	A
Approach Delay (s)	27.8		27.7			10.9
Approach LOS	C		C			B

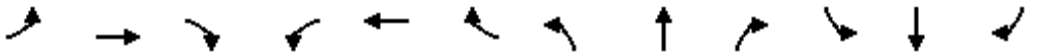
Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	99	3	1	1	86	921	1	1	956	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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		0.98		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1556		1792		1770	3539		1787	3505	
Flt Permitted		0.75	1.00		0.84		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1404	1556		1559		1770	3539		1787	3505	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	61	0	125	4	1	1	109	1166	1	1	1210	106
RTOR Reduction (vph)	0	0	110	0	1	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	61	15	0	5	0	109	1167	0	1	1310	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.8	7.8		7.8		8.4	44.0		0.9	36.5	
Effective Green, g (s)		7.8	7.8		7.8		8.4	44.0		0.9	36.5	
Actuated g/C Ratio		0.12	0.12		0.12		0.13	0.69		0.01	0.57	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		171	189		189		232	2425		25	1993	
v/s Ratio Prot							c0.06	0.33		0.00	c0.37	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.36	0.08		0.03		0.47	0.48		0.04	0.66	
Uniform Delay, d1		25.9	25.0		24.9		25.8	4.7		31.2	9.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.2	0.3		0.1		2.0	0.2		0.7	0.6	
Delay (s)		28.1	25.3		25.0		27.9	4.9		31.9	10.1	
Level of Service		C	C		C		C	A		C	B	
Approach Delay (s)		26.2			25.0			6.9			10.2	
Approach LOS		C			C			A			B	

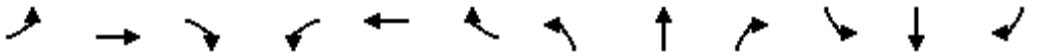
Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	64.2	Sum of lost time (s)	11.5
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	340	108	672	407	440	9	1024	572	703	689	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	278	362	115	715	433	468	10	1089	609	748	733	240
RTOR Reduction (vph)	0	0	99	0	0	236	0	0	40	0	0	90
Lane Group Flow (vph)	278	362	16	715	433	232	10	1089	569	748	733	150
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.8	17.7	17.7	32.0	34.9	34.9	1.3	31.5	63.5	31.8	62.0	81.3
Effective Green, g (s)	14.8	17.7	17.7	32.0	34.9	34.9	1.3	31.5	63.5	31.8	62.0	81.3
Actuated g/C Ratio	0.11	0.14	0.14	0.25	0.27	0.27	0.01	0.24	0.49	0.24	0.48	0.63
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	395	487	218	845	950	416	18	858	773	831	1705	1000
v/s Ratio Prot	0.08	c0.10		c0.21	0.12		0.01	c0.31	0.36	c0.22	0.21	0.09
v/s Ratio Perm			0.01			c0.15						
v/c Ratio	0.70	0.74	0.07	0.85	0.46	0.56	0.56	1.27	0.74	0.90	0.43	0.15
Uniform Delay, d1	55.5	54.0	49.0	46.7	39.6	40.9	64.1	49.2	26.6	47.6	22.4	10.1
Progression Factor	0.83	0.84	0.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1	4.7	0.0	7.5	0.1	0.9	19.4	130.3	3.2	12.5	0.8	0.0
Delay (s)	50.1	50.2	42.2	54.2	39.8	41.8	83.4	179.6	29.7	60.1	23.2	10.1
Level of Service	D	D	D	D	D	D	F	F	C	E	C	B
Approach Delay (s)		49.0			46.7			125.6			37.4	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM Average Control Delay	67.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	340	178	672	537	440	9	1024	572	703	689	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	278	362	189	715	571	468	10	1089	609	748	733	347
RTOR Reduction (vph)	0	0	163	0	0	355	0	0	30	0	0	72
Lane Group Flow (vph)	278	362	26	715	571	113	10	1089	579	748	733	275
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	17.9	17.9	17.9	27.1	27.1	27.1	1.7	38.0	65.1	30.0	66.3	88.7
Effective Green, g (s)	17.9	17.9	17.9	27.1	27.1	27.1	1.7	38.0	65.1	30.0	66.3	88.7
Actuated g/C Ratio	0.14	0.14	0.14	0.21	0.21	0.21	0.01	0.29	0.50	0.23	0.51	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	477	492	220	716	738	323	23	1034	793	784	1823	1091
v/s Ratio Prot	0.08	0.10		c0.21	c0.16		0.01	c0.31	0.37	c0.22	0.21	0.17
v/s Ratio Perm			0.02			0.07						
v/c Ratio	0.58	0.74	0.12	1.00	0.77	0.35	0.43	1.05	0.73	0.95	0.40	0.25
Uniform Delay, d1	52.5	53.8	49.1	51.4	48.6	43.9	63.7	46.0	25.5	49.3	19.6	7.9
Progression Factor	0.98	0.89	2.11	1.00	1.00	1.00	0.92	0.88	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	4.5	0.1	33.0	4.6	0.2	2.4	35.6	1.5	21.4	0.7	0.0
Delay (s)	52.5	52.6	103.7	84.4	53.2	44.2	61.1	76.2	27.1	70.7	20.3	8.0
Level of Service	D	D	F	F	D	D	E	E	C	E	C	A
Approach Delay (s)		64.2			63.5			58.6			38.6	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	54.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

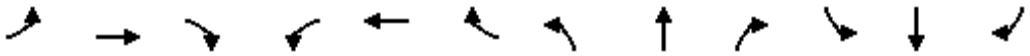
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	68	1004	59	4	1243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5031		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5031		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	79	1167	69	5	1445
RTOR Reduction (vph)	0	76	3	0	0	0
Lane Group Flow (vph)	9	3	1233	0	5	1445
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	5.5	5.5	73.8		2.3	56.8
Effective Green, g (s)	5.5	5.5	73.8		2.3	56.8
Actuated g/C Ratio	0.04	0.04	0.57		0.02	0.44
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	76	67	2856		31	2222
v/s Ratio Prot	c0.00		c0.25		0.00	c0.28
v/s Ratio Perm		0.00				
v/c Ratio	0.12	0.05	0.43		0.16	0.65
Uniform Delay, d1	59.9	59.7	16.1		62.9	28.8
Progression Factor	1.00	1.00	0.08		0.68	0.47
Incremental Delay, d2	0.5	0.2	0.0		0.6	1.0
Delay (s)	60.4	60.0	1.4		43.4	14.5
Level of Service	E	E	A		D	B
Approach Delay (s)	60.0		1.4			14.6
Approach LOS	E		A			B

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	50.4
Intersection Capacity Utilization	36.3%	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												
Volume (vph)	42	80	217	221	212	16	298	1005	46	15	1070	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1485	1787	1858		3433	5042		1770	4952	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1485	1787	1858		3433	5042		1770	4952	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	48	91	247	251	241	18	339	1142	52	17	1216	189
RTOR Reduction (vph)	0	0	213	0	2	0	0	2	0	0	13	0
Lane Group Flow (vph)	48	91	34	251	257	0	339	1192	0	17	1392	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	8.3	17.7	17.7	22.7	22.6		17.3	65.5		2.8	56.8	
Effective Green, g (s)	8.3	17.7	17.7	22.7	22.6		17.3	65.5		2.8	56.8	
Actuated g/C Ratio	0.06	0.14	0.14	0.17	0.17		0.13	0.50		0.02	0.44	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	112	251	202	312	323		457	2540		38	2164	
v/s Ratio Prot	0.03	0.05		c0.14	c0.14		c0.10	0.24		0.01	c0.28	
v/s Ratio Perm			0.02									
v/c Ratio	0.43	0.36	0.17	0.80	0.79		0.74	0.47		0.45	0.64	
Uniform Delay, d1	58.6	51.0	49.6	51.5	51.5		54.2	21.0		62.8	28.7	
Progression Factor	1.00	1.00	1.00	0.68	0.49		1.02	0.93		1.39	0.09	
Incremental Delay, d2	1.0	0.7	0.3	11.5	10.7		5.2	0.6		2.3	1.1	
Delay (s)	59.5	51.7	49.9	46.6	35.8		60.6	20.1		89.8	3.7	
Level of Service	E	D	D	D	D		E	C		F	A	
Approach Delay (s)		51.5			41.1			29.0			4.8	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

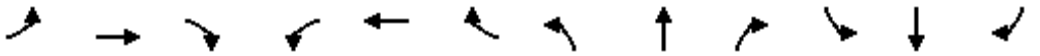
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	916	4	300	340	1049	0	0	913	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1618		1770	5085			5892	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1618		1770	5085			5892	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1018	4	333	378	1166	0	0	1014	661
RTOR Reduction (vph)	0	0	0	0	93	0	0	0	0	0	183	0
Lane Group Flow (vph)	0	0	0	1018	244	0	378	1166	0	0	1492	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				14.9	14.9		16.4	43.6			24.2	
Effective Green, g (s)				14.9	14.9		16.4	43.6			24.2	
Actuated g/C Ratio				0.23	0.23		0.25	0.67			0.37	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				803	371		447	3411			2194	
v/s Ratio Prot				c0.29	0.15		c0.21	0.23			c0.25	
v/s Ratio Perm												
v/c Ratio				1.27	0.66		0.85	0.34			0.86dr	
Uniform Delay, d1				25.1	22.7		23.1	4.6			17.1	
Progression Factor				1.00	1.00		1.00	1.36			1.04	
Incremental Delay, d2				130.3	3.2		8.1	0.2			1.4	
Delay (s)				155.3	25.9		31.1	6.4			19.2	
Level of Service				F	C		C	A			B	
Approach Delay (s)		0.0			123.2			12.4			19.2	
Approach LOS		A			F			B			B	

Intersection Summary			
HCM Average Control Delay	47.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

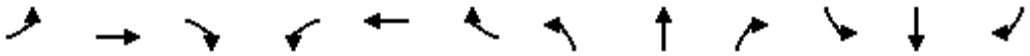
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	508	2	231	0	0	0	0	881	957	460	1369	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.92		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4639		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4639		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	577	2	262	0	0	0	0	1001	1088	523	1556	0
RTOR Reduction (vph)	0	0	26	0	0	0	0	301	0	0	0	0
Lane Group Flow (vph)	288	291	236	0	0	0	0	1788	0	523	1556	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	15.4	15.4	15.4					27.5		11.6	43.1	
Effective Green, g (s)	15.4	15.4	15.4					27.5		11.6	43.1	
Actuated g/C Ratio	0.24	0.24	0.24					0.42		0.18	0.66	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	398	399	375					1963		619	3406	
v/s Ratio Prot	0.17	c0.17						c0.39		c0.15	0.30	
v/s Ratio Perm			0.15									
v/c Ratio	0.72	0.73	0.63					1.11dr		0.84	0.46	
Uniform Delay, d1	22.8	22.9	22.2					17.6		25.8	5.3	
Progression Factor	1.00	1.00	1.00					1.07		0.96	0.83	
Incremental Delay, d2	5.4	5.6	2.4					6.6		3.4	0.1	
Delay (s)	28.3	28.5	24.6					25.5		28.2	4.5	
Level of Service	C	C	C					C		C	A	
Approach Delay (s)		27.2			0.0			25.5			10.5	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

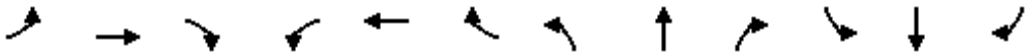
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	8	71	21	17	12	30	1587	5	19	1469	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1753			1799		1770	5083		1787	5068	
Flt Permitted		0.75			0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1356			1595		1770	5083		1787	5068	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	254	9	76	22	18	13	32	1688	5	20	1563	119
RTOR Reduction (vph)	0	16	0	0	10	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	323	0	0	43	0	32	1693	0	20	1671	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		16.8			16.8		2.8	35.4		1.3	33.9	
Effective Green, g (s)		16.8			16.8		2.8	35.4		1.3	33.9	
Actuated g/C Ratio		0.26			0.26		0.04	0.54		0.02	0.52	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		350			412		76	2768		36	2643	
v/s Ratio Prot							c0.02	c0.33		0.01	0.33	
v/s Ratio Perm		c0.24			0.03							
v/c Ratio		0.92			0.11		0.42	0.61		0.56	0.63	
Uniform Delay, d1		23.5			18.4		30.3	10.1		31.6	11.1	
Progression Factor		1.00			1.00		0.93	1.46		0.60	1.56	
Incremental Delay, d2		29.0			0.0		1.0	0.8		9.1	1.0	
Delay (s)		52.5			18.4		29.1	15.5		28.0	18.3	
Level of Service		D			B		C	B		C	B	
Approach Delay (s)		52.5			18.4			15.7			18.4	
Approach LOS		D			B			B			B	

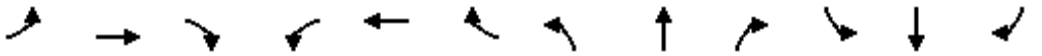
Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	194	15	625	66	157	8	1335	366	145	1378	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	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	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	1805		1681	1701	1558	1752	5036	1568	3467	3555	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1805		1681	1701	1558	1752	5036	1568	3467	3555	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	211	16	679	72	171	9	1451	398	158	1498	41
RTOR Reduction (vph)	0	3	0	0	0	100	0	0	0	0	1	0
Lane Group Flow (vph)	87	224	0	373	378	71	9	1451	398	158	1538	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	20.7	20.7		33.9	33.9	33.9	1.3	50.1	87.5	10.3	59.1	
Effective Green, g (s)	20.7	20.7		33.9	33.9	33.9	1.3	50.1	87.5	10.3	59.1	
Actuated g/C Ratio	0.16	0.16		0.26	0.26	0.26	0.01	0.39	0.67	0.08	0.45	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	276	287		438	444	406	18	1941	1055	275	1616	
v/s Ratio Prot	0.05	c0.12		0.22	c0.22		0.01	0.29	0.25	c0.05	c0.43	
v/s Ratio Perm						0.05						
v/c Ratio	0.32	0.78		0.85	0.85	0.18	0.50	0.75	0.38	0.57	0.95	
Uniform Delay, d1	48.4	52.5		45.7	45.7	37.2	64.0	34.5	9.3	57.7	34.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.08	
Incremental Delay, d2	0.2	12.0		14.2	14.0	0.1	7.7	2.7	0.1	1.5	11.6	
Delay (s)	48.6	64.5		59.9	59.7	37.3	71.8	37.2	9.4	53.3	48.4	
Level of Service	D	E		E	E	D	E	D	A	D	D	
Approach Delay (s)		60.1			55.6			31.4			48.8	
Approach LOS		E			E			C			D	

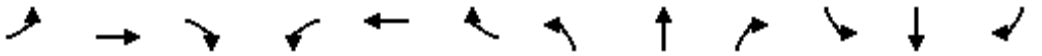
Intersection Summary			
HCM Average Control Delay	44.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	68	0	0	0	0	21	118	41	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.96				0.86
Flt Protected		0.98					0.95	1.00				1.00
Satd. Flow (prot)		1864					1770	1790				1644
Flt Permitted		0.98					0.95	1.00				1.00
Satd. Flow (perm)		1864					1770	1790				1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	74	0	0	0	0	23	128	45	0	0	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	20	0	0	0	12
Lane Group Flow (vph)	0	120	0	0	0	0	23	153	0	0	0	15
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		4.6					16.2	16.2				16.2
Effective Green, g (s)		4.6					16.2	16.2				16.2
Actuated g/C Ratio		0.16					0.56	0.56				0.56
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		298					996	1007				925
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.06					0.01					0.01
v/c Ratio		0.40					0.02	0.15				0.02
Uniform Delay, d1		10.9					2.8	3.0				2.8
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		0.9					0.0	0.1				0.0
Delay (s)		11.8					2.8	3.1				2.8
Level of Service		B					A	A				A
Approach Delay (s)		11.8			0.0			3.1			2.8	
Approach LOS		B			A			A			A	

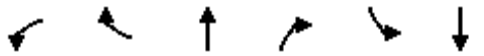
Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	28.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	339	7	7	0	0	0	0	160	0	463	18	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.93						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1723						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.65	1.00	
Satd. Flow (perm)	1770	1723						1863		1206	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	368	8	8	0	0	0	0	174	0	503	20	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	368	11	0	0	0	0	0	174	0	503	20	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.7	12.7						18.0		18.0	18.0	
Effective Green, g (s)	12.7	12.7						18.0		18.0	18.0	
Actuated g/C Ratio	0.33	0.33						0.47		0.47	0.47	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	581	565						867		561	867	
v/s Ratio Prot		0.01						0.09			0.01	
v/s Ratio Perm	c0.21									c0.42		
v/c Ratio	0.63	0.02						0.20		0.90	0.02	
Uniform Delay, d1	11.0	8.8						6.1		9.5	5.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.0						0.1		16.8	0.0	
Delay (s)	13.3	8.8						6.2		26.3	5.6	
Level of Service	B	A						A		C	A	
Approach Delay (s)		13.1			0.0			6.2			25.5	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10	326	499	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	347	531	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	531	265			531	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	531	265			531	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	53			100	
cM capacity (veh/h)	478	733			1033	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	11	347	265	265
Volume Left	11	0	0	0
Volume Right	0	347	0	0
cSH	478	733	1700	1700
Volume to Capacity	0.02	0.47	0.16	0.16
Queue Length 95th (ft)	2	64	0	0
Control Delay (s)	12.7	14.2	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.2		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	245	1305	91	143	2180	116	308	252	77	64	132	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5065		1787	6414		1767	1808		1784	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.32	1.00	1.00
Satd. Flow (perm)	1787	5065		1787	6414		1149	1808		595	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	258	1374	96	151	2295	122	324	265	81	67	139	92
RTOR Reduction (vph)	0	5	0	0	5	0	0	10	0	0	0	64
Lane Group Flow (vph)	258	1465	0	151	2412	0	324	336	0	67	139	28
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	22.3	55.7		15.4	49.3		36.6	36.6		36.6	36.6	36.6
Effective Green, g (s)	22.3	55.7		15.4	49.3		36.6	36.6		36.6	36.6	36.6
Actuated g/C Ratio	0.19	0.46		0.13	0.41		0.31	0.31		0.31	0.31	0.31
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	332	2351		229	2635		350	551		181	574	475
v/s Ratio Prot	c0.14	0.29		0.08	c0.38			0.19			0.07	
v/s Ratio Perm							c0.28			0.11		0.02
v/c Ratio	0.78	0.62		0.66	0.92		0.93	0.61		0.37	0.24	0.06
Uniform Delay, d1	46.5	24.2		49.8	33.4		40.4	35.6		32.7	31.3	29.5
Progression Factor	0.76	0.81		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	0.8		6.7	6.3		29.6	2.0		1.3	0.2	0.1
Delay (s)	42.7	20.4		56.5	39.7		70.0	37.6		34.0	31.5	29.6
Level of Service	D	C		E	D		E	D		C	C	C
Approach Delay (s)		23.7			40.7			53.3			31.5	
Approach LOS		C			D			D			C	

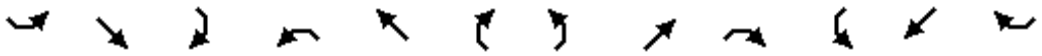
Intersection Summary			
HCM Average Control Delay	36.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	530	1289	347	265	0	212	0	1123	124	282	511	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	4957		3467		2814		5099		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	4957		3467		2814		5099		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	552	1343	361	276	0	221	0	1170	129	294	532	0
RTOR Reduction (vph)	0	41	0	0	0	136	0	11	0	0	0	0
Lane Group Flow (vph)	552	1663	0	276	0	85	0	1288	0	294	532	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	15.7	56.0		6.0		46.3		27.1		14.9	46.0	
Effective Green, g (s)	15.7	56.0		6.0		46.3		27.1		14.9	46.0	
Actuated g/C Ratio	0.13	0.47		0.05		0.39		0.23		0.12	0.38	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	659	2313		173		1086		1152		430	1370	
v/s Ratio Prot	c0.11	c0.34		c0.08		0.03		c0.25		c0.08	0.15	
v/s Ratio Perm												
v/c Ratio	0.84	0.72		1.60		0.08		1.12		0.68	0.39	
Uniform Delay, d1	50.9	25.7		57.0		23.3		46.5		50.3	26.8	
Progression Factor	1.00	1.00		1.11		1.53		1.00		1.00	1.00	
Incremental Delay, d2	9.1	2.0		281.0		0.1		65.2		4.5	0.2	
Delay (s)	60.0	27.7		344.4		35.7		111.7		54.8	27.0	
Level of Service	E	C		F		D		F		D	C	
Approach Delay (s)		35.6			207.1			111.7			36.9	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM Average Control Delay	73.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

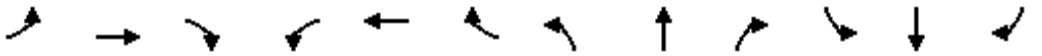
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	530	1289	347	265	0	212	0	1123	124	282	511	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	4957		3467		2814		5099		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	4957		3467		2814		5099		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	552	1343	361	276	0	221	0	1170	129	294	532	0
RTOR Reduction (vph)	0	41	0	0	0	149	0	11	0	0	0	0
Lane Group Flow (vph)	552	1663	0	276	0	72	0	1288	0	294	532	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	18.8	46.3		11.8		39.3		33.2		12.7	49.9	
Effective Green, g (s)	18.8	46.3		11.8		39.3		33.2		12.7	49.9	
Actuated g/C Ratio	0.16	0.39		0.10		0.33		0.28		0.11	0.42	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	790	1913		341		922		1411		367	1486	
v/s Ratio Prot	c0.11	c0.34		0.08		0.03		c0.25		c0.08	0.15	
v/s Ratio Perm												
v/c Ratio	0.70	0.87		0.81		0.08		0.91		0.80	0.36	
Uniform Delay, d1	47.9	34.1		53.0		27.9		42.0		52.4	24.1	
Progression Factor	1.00	1.00		0.86		0.29		1.00		1.00	1.00	
Incremental Delay, d2	2.7	5.7		6.9		0.1		9.3		11.9	0.1	
Delay (s)	50.6	39.8		52.7		8.1		51.3		64.3	24.2	
Level of Service	D	D		D		A		D		E	C	
Approach Delay (s)		42.4			32.9			51.3			38.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM Average Control Delay	43.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

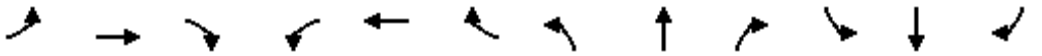
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	1230	110	244	1492	297	0	0	0	266	66	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.98						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (prot)	1787	5063		1787	5008						1791	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (perm)	1787	5063		1787	5008						1791	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	167	1323	118	262	1604	319	0	0	0	286	71	100
RTOR Reduction (vph)	0	9	0	0	27	0	0	0	0	0	0	75
Lane Group Flow (vph)	167	1432	0	262	1896	0	0	0	0	0	357	25
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	13.6	47.5		20.0	53.4						26.0	26.0
Effective Green, g (s)	13.6	47.5		20.0	53.4						26.0	26.0
Actuated g/C Ratio	0.13	0.45		0.19	0.51						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	231	2290		340	2547						443	392
v/s Ratio Prot	0.09	0.28		c0.15	c0.38						c0.20	
v/s Ratio Perm												0.02
v/c Ratio	0.72	0.63		0.77	0.74						0.81	0.06
Uniform Delay, d1	43.9	22.0		40.3	20.4						37.1	30.2
Progression Factor	1.00	1.00		1.38	0.53						1.00	1.00
Incremental Delay, d2	10.0	1.3		7.0	1.4						14.5	0.3
Delay (s)	53.9	23.3		62.8	12.3						51.6	30.5
Level of Service	D	C		E	B						D	C
Approach Delay (s)		26.4			18.3			0.0			47.0	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

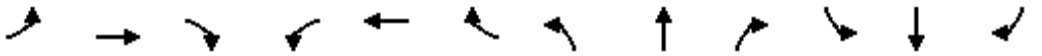
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1201	0	0	1378	44	413	240	407	64	0	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			1.00		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99	1.00	0.95		1.00
Satd. Flow (prot)	3467	3574			5107		1698	1763	1568	1787		1599
Flt Permitted	0.95	1.00			1.00		0.95	0.99	1.00	0.95		1.00
Satd. Flow (perm)	3467	3574			5107		1698	1763	1568	1787		1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	277	1238	0	0	1421	45	426	247	420	66	0	298
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	179	0	0	271
Lane Group Flow (vph)	277	1238	0	0	1463	0	332	341	241	66	0	27
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot						Split		Perm	Prot		custom
Protected Phases	5	2			6		4	4		3		3
Permitted Phases									4			
Actuated Green, G (s)	12.7	55.5			39.3		28.1	28.1	28.1	9.4		9.4
Effective Green, g (s)	12.7	55.5			39.3		28.1	28.1	28.1	9.4		9.4
Actuated g/C Ratio	0.12	0.53			0.37		0.27	0.27	0.27	0.09		0.09
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	419	1889			1911		454	472	420	160		143
v/s Ratio Prot	0.08	c0.35			c0.29		c0.20	0.19		c0.04		0.02
v/s Ratio Perm									0.15			
v/c Ratio	0.66	0.66			0.77		0.73	0.72	0.57	0.41		0.19
Uniform Delay, d1	44.1	17.9			28.8		35.0	34.9	33.3	45.2		44.3
Progression Factor	1.31	0.75			1.40		1.01	1.01	1.03	1.00		1.00
Incremental Delay, d2	2.3	1.3			2.0		5.6	5.1	1.6	1.3		0.5
Delay (s)	60.1	14.7			42.2		41.1	40.4	35.7	46.4		44.7
Level of Service	E	B			D		D	D	D	D		D
Approach Delay (s)		23.0			42.2			38.8			45.0	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	35.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

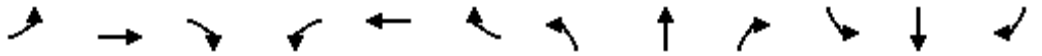
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	480	1385	44	30	976	208	26	6	16	209	6	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.95	1.00
Satd. Flow (prot)	3467	3552		1787	3468		1715	1601		1684	1693	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.74	0.73	1.00
Satd. Flow (perm)	3467	3552		1787	3468		1715	1589		1312	1293	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	495	1428	45	31	1006	214	27	6	16	215	6	387
RTOR Reduction (vph)	0	1	0	0	14	0	0	10	0	0	0	280
Lane Group Flow (vph)	495	1472	0	31	1206	0	24	15	0	110	111	107
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	18.7	52.9		4.4	38.6		3.2	36.2		29.0	29.0	29.0
Effective Green, g (s)	18.7	52.9		4.4	38.6		3.2	36.2		29.0	29.0	29.0
Actuated g/C Ratio	0.18	0.50		0.04	0.37		0.03	0.34		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	617	1790		75	1275		52	548		362	357	442
v/s Ratio Prot	c0.14	0.41		0.02	c0.35		c0.01	0.00				
v/s Ratio Perm								0.01		0.08	c0.09	0.07
v/c Ratio	0.80	0.82		0.41	0.95		0.46	0.03		0.30	0.31	0.24
Uniform Delay, d1	41.4	22.1		49.0	32.2		50.1	22.7		30.0	30.1	29.5
Progression Factor	1.13	1.21		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	3.7		1.3	15.2		4.7	0.0		0.3	0.4	0.2
Delay (s)	52.5	30.4		50.4	47.4		54.7	22.8		30.4	30.5	29.7
Level of Service	D	C		D	D		D	C		C	C	C
Approach Delay (s)		35.9			47.5			38.4			29.9	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	38.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

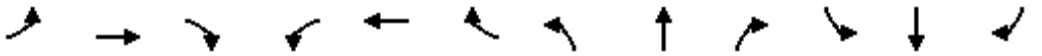
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	181	411	340	261	562	218	417	728	262	211	575	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	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)	1787	3574	1566	1787	3574	1562	3467	3574	1567	1787	3469	
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)	1787	3574	1566	1787	3574	1562	3467	3574	1567	1787	3469	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	189	428	354	272	585	227	434	758	273	220	599	99
RTOR Reduction (vph)	0	0	53	0	0	67	0	0	202	0	11	0
Lane Group Flow (vph)	189	428	301	272	585	160	434	758	71	220	687	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	23.3	44.5	68.2	23.3	44.5	66.1	23.7	35.6	35.6	21.6	33.5	
Effective Green, g (s)	23.3	44.5	68.2	23.3	44.5	66.1	23.7	35.6	35.6	21.6	33.5	
Actuated g/C Ratio	0.17	0.32	0.49	0.17	0.32	0.47	0.17	0.25	0.25	0.15	0.24	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	297	1136	802	297	1136	737	587	909	398	276	830	
v/s Ratio Prot	0.11	0.12	0.06	c0.15	c0.16	0.03	0.13	c0.21		0.12	c0.20	
v/s Ratio Perm			0.13			0.07			0.05			
v/c Ratio	0.64	0.38	0.37	0.92	0.51	0.22	0.74	0.83	0.18	0.80	0.83	
Uniform Delay, d1	54.4	37.0	22.5	57.4	38.9	21.7	55.2	49.4	40.8	57.1	50.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.68	3.33	1.00	1.00	
Incremental Delay, d2	3.3	1.0	0.1	30.6	1.7	0.1	3.5	5.5	0.1	13.8	6.7	
Delay (s)	57.7	38.0	22.6	88.0	40.6	21.8	43.1	39.0	135.8	70.9	57.2	
Level of Service	E	D	C	F	D	C	D	D	F	E	E	
Approach Delay (s)		36.2			48.6			58.3			60.5	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

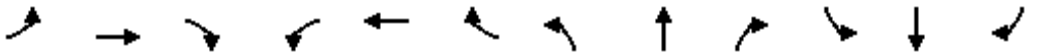
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	1097	67	296	877	137	0	0	608	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.98				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3532		1770	3435				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3532		1770	3435				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	195	1205	74	325	964	151	0	0	668	0	0	99
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	24	0	0	41
Lane Group Flow (vph)	195	1276	0	325	1106	0	0	0	644	0	0	58
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	33.6	73.0		29.4	68.8				59.5			63.7
Effective Green, g (s)	33.6	73.0		29.4	68.8				59.5			63.7
Actuated g/C Ratio	0.24	0.52		0.21	0.49				0.42			0.46
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	429	1842		372	1688				1196			740
v/s Ratio Prot	0.11	c0.36		c0.18	0.32				c0.23			0.04
v/s Ratio Perm												
v/c Ratio	0.45	0.69		0.87	0.66				0.54			0.08
Uniform Delay, d1	45.4	25.1		53.5	26.7				30.0			21.6
Progression Factor	1.00	1.00		1.00	1.00				0.80			1.00
Incremental Delay, d2	0.3	2.2		19.2	2.0				0.2			0.0
Delay (s)	45.7	27.3		72.7	28.7				24.1			21.6
Level of Service	D	C		E	C				C			C
Approach Delay (s)		29.7			38.6			24.1			21.6	
Approach LOS		C			D			C			C	

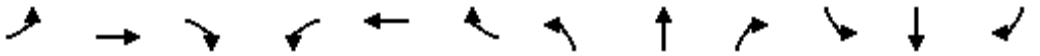
Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	160	601	202	53	754	230	249	321	95	136	132	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	660	222	58	829	253	274	353	104	149	145	201
RTOR Reduction (vph)	0	0	113	0	0	125	0	0	69	0	0	175
Lane Group Flow (vph)	176	660	109	58	829	128	247	380	35	149	145	26
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.0	63.0	63.0	7.5	53.5	53.5	35.4	35.4	46.9	18.1	18.1	18.1
Effective Green, g (s)	17.0	63.0	63.0	7.5	53.5	53.5	35.4	35.4	46.9	18.1	18.1	18.1
Actuated g/C Ratio	0.12	0.45	0.45	0.05	0.38	0.38	0.25	0.25	0.33	0.13	0.13	0.13
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	215	1593	712	184	1352	605	425	446	934	229	241	205
v/s Ratio Prot	c0.10	0.19		0.02	c0.23		0.15	c0.22	0.01	c0.08	0.08	
v/s Ratio Perm			0.07			0.08						0.02
v/c Ratio	0.82	0.41	0.15	0.32	0.61	0.21	0.58	0.85	0.04	0.65	0.60	0.13
Uniform Delay, d1	60.0	26.0	22.7	63.8	34.9	29.1	45.8	49.8	31.3	57.9	57.5	54.0
Progression Factor	1.00	1.00	1.00	0.97	0.60	0.30	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.0	0.8	0.5	0.9	1.8	0.7	2.0	14.5	0.0	6.5	4.2	0.3
Delay (s)	80.0	26.8	23.2	62.6	22.7	9.3	47.8	64.3	31.4	64.4	61.7	54.2
Level of Service	E	C	C	E	C	A	D	E	C	E	E	D
Approach Delay (s)		34.9			21.8			54.1			59.5	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	38.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	667	129	814	505	175	164	277	675	29	238	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3420	1564	3467	3424		1787	1881	1599	3467	3387	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3420	1564	3467	3424		1787	1881	1599	3467	3387	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	162	695	134	848	526	182	171	289	703	30	248	83
RTOR Reduction (vph)	0	0	76	0	23	0	0	0	69	0	25	0
Lane Group Flow (vph)	146	711	58	848	685	0	171	289	634	30	306	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	40.3	40.3	40.3	45.5	45.5		17.1	34.9	80.4	3.8	21.6	
Effective Green, g (s)	40.3	40.3	40.3	45.5	45.5		17.1	34.9	80.4	3.8	21.6	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.12	0.25	0.57	0.03	0.15	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	468	984	450	1127	1113		218	469	918	94	523	
v/s Ratio Prot	0.09	c0.21		c0.24	0.20		c0.10	0.15	c0.40	0.01	c0.09	
v/s Ratio Perm			0.04									
v/c Ratio	0.31	0.72	0.13	0.75	0.62		0.78	0.62	0.69	0.32	0.59	
Uniform Delay, d1	39.0	44.8	36.9	42.2	39.9		59.7	46.6	21.0	66.8	55.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	4.6	0.6	2.9	1.0		15.5	1.7	1.8	0.7	1.1	
Delay (s)	40.7	49.4	37.5	45.1	40.9		75.2	48.3	22.8	67.5	56.1	
Level of Service	D	D	D	D	D		E	D	C	E	E	
Approach Delay (s)		46.5			43.2			36.9			57.1	
Approach LOS		D			D			D			E	

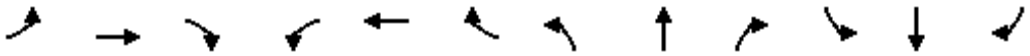
Intersection Summary			
HCM Average Control Delay	43.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1371	1039	0	1061	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1428	1082	0	1105	474
RTOR Reduction (vph)	0	0	0	0	0	89
Lane Group Flow (vph)	0	1428	1082	0	1105	385
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		37.7	37.7		18.5	18.5
Effective Green, g (s)		37.7	37.7		18.5	18.5
Actuated g/C Ratio		0.58	0.58		0.28	0.28
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2073	2073		987	455
v/s Ratio Prot		c0.40	0.30		c0.32	0.24
v/s Ratio Perm						
v/c Ratio		0.69	0.52		1.12	0.85
Uniform Delay, d1		9.5	8.2		23.2	21.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	0.9		67.4	13.4
Delay (s)		11.4	9.2		90.7	35.3
Level of Service		B	A		F	D
Approach Delay (s)		11.4	9.2		74.1	
Approach LOS		B	A		E	

Intersection Summary			
HCM Average Control Delay	35.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		

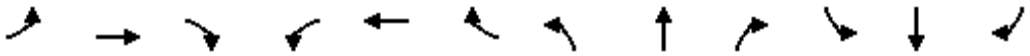
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	23	27	221	48	359	31	782	300	276	583	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1765			1791	1558	1787	3397		1787	3539	
Flt Permitted		0.70			0.71	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1269			1333	1558	1787	3397		1787	3539	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	42	26	30	248	54	403	35	879	337	310	655	35
RTOR Reduction (vph)	0	18	0	0	0	159	0	40	0	0	3	0
Lane Group Flow (vph)	0	80	0	0	302	244	35	1176	0	310	687	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.6			22.6	22.6	4.1	32.0		18.2	46.1	
Effective Green, g (s)		22.6			22.6	22.6	4.1	32.0		18.2	46.1	
Actuated g/C Ratio		0.27			0.27	0.27	0.05	0.38		0.22	0.55	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		340			357	418	87	1289		386	1935	
v/s Ratio Prot							0.02	c0.35		c0.17	0.19	
v/s Ratio Perm		0.06			c0.23	0.16						
v/c Ratio		0.24			0.85	0.58	0.40	0.91		0.80	0.36	
Uniform Delay, d1		24.1			29.2	26.8	38.9	24.8		31.4	10.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			16.6	2.1	1.1	9.9		10.8	0.1	
Delay (s)		24.5			45.8	28.9	40.0	34.7		42.2	10.8	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		24.5			36.1			34.9			20.5	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	11.5
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	0	44	8	2	3	52	1056	16	9	727	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1721			1653		1787	3564		1785	3496	
Flt Permitted		0.78			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1377			1706		1787	3564		1785	3496	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	63	0	51	9	2	3	60	1228	19	10	845	110
RTOR Reduction (vph)	0	30	0	0	3	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	84	0	0	11	0	60	1247	0	10	950	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		7.1			1.0		4.4	40.6		0.9	37.1	
Effective Green, g (s)		7.1			1.0		4.4	40.6		0.9	37.1	
Actuated g/C Ratio		0.11			0.01		0.07	0.61		0.01	0.55	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		146			25		117	2156		24	1933	
v/s Ratio Prot							c0.03	c0.35		0.01	0.27	
v/s Ratio Perm		c0.06			c0.01							
v/c Ratio		0.58			0.44		0.51	0.58		0.42	0.49	
Uniform Delay, d1		28.6			32.8		30.3	8.0		32.8	9.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.4			4.5		1.6	0.3		4.2	0.1	
Delay (s)		32.0			37.3		31.9	8.4		37.1	9.4	
Level of Service		C			D		C	A		D	A	
Approach Delay (s)		32.0			37.3			9.4			9.6	
Approach LOS		C			D			A			A	

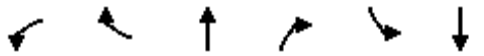
Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	17.5
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	196	3	192	6	3	2	162	926	10	1	676	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1685			1763		1787	3567		1787	3480	
Flt Permitted		0.71			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1218			1811		1787	3567		1787	3480	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	200	3	196	6	3	2	165	945	10	1	690	104
RTOR Reduction (vph)	0	28	0	0	2	0	0	1	0	0	10	0
Lane Group Flow (vph)	0	371	0	0	9	0	165	954	0	1	784	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		30.3			1.1		13.5	27.2		13.9	27.6	
Effective Green, g (s)		30.3			1.1		13.5	27.2		13.9	27.6	
Actuated g/C Ratio		0.34			0.01		0.15	0.30		0.16	0.31	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		412			22		270	1084		278	1073	
v/s Ratio Prot							c0.09	c0.27		0.00	0.23	
v/s Ratio Perm		c0.30			c0.00							
v/c Ratio		0.90			0.41		0.61	0.88		0.00	0.73	
Uniform Delay, d1		28.2			43.9		35.5	29.6		31.9	27.6	
Progression Factor		1.00			1.00		0.65	0.31		1.00	1.00	
Incremental Delay, d2		23.4			4.5		1.0	2.4		0.0	2.4	
Delay (s)		51.6			48.4		24.2	11.4		31.9	30.1	
Level of Service		D			D		C	B		C	C	
Approach Delay (s)		51.6			48.4			13.3			30.1	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

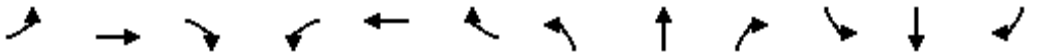
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	42	1056	54	78	796
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1705		3540		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1705		3540		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	24	43	1078	55	80	812
RTOR Reduction (vph)	28	0	3	0	0	0
Lane Group Flow (vph)	39	0	1130	0	80	812
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	30.3		27.2		13.9	27.6
Effective Green, g (s)	30.3		27.2		13.9	27.6
Actuated g/C Ratio	0.34		0.30		0.16	0.31
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	577		1076		278	1102
v/s Ratio Prot	c0.02		c0.32		c0.04	0.23
v/s Ratio Perm						
v/c Ratio	0.07		1.05		0.29	0.74
Uniform Delay, d1	20.0		31.1		33.4	27.7
Progression Factor	1.00		1.00		0.79	0.33
Incremental Delay, d2	0.1		41.7		0.1	1.8
Delay (s)	20.1		72.8		26.6	10.9
Level of Service	C		E		C	B
Approach Delay (s)	20.1		72.8			12.3
Approach LOS	C		E			B

Intersection Summary			
HCM Average Control Delay	45.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	14.6
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

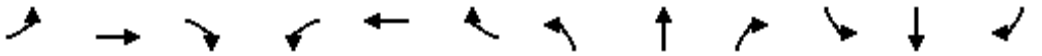
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	7	138	38	2	6	120	1002	5	10	705	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1814	1572		1775		1787	3571		1787	3502	
Flt Permitted		0.70	1.00		0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1334	1572		1366		1787	3571		1787	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	127	7	144	40	2	6	125	1044	5	10	734	82
RTOR Reduction (vph)	0	0	112	0	5	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	134	32	0	43	0	125	1049	0	10	807	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		12.5	12.5		12.5		8.7	32.1		1.0	24.4	
Effective Green, g (s)		12.5	12.5		12.5		8.7	32.1		1.0	24.4	
Actuated g/C Ratio		0.22	0.22		0.22		0.15	0.56		0.02	0.43	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		292	344		299		272	2008		31	1496	
v/s Ratio Prot							c0.07	c0.29		0.01	0.23	
v/s Ratio Perm		c0.10	0.02		0.03							
v/c Ratio		0.46	0.09		0.14		0.46	0.52		0.32	0.54	
Uniform Delay, d1		19.4	17.8		18.0		22.1	7.7		27.7	12.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.2		0.4		1.7	0.2		6.0	0.2	
Delay (s)		21.3	18.0		18.4		23.7	8.0		33.7	12.4	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		19.6			18.4			9.7			12.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	7.5
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

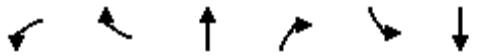
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	232	501	99	549	645	298	47	1148	652	365	452	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	249	539	106	590	694	320	51	1234	701	392	486	371
RTOR Reduction (vph)	0	0	87	0	0	177	0	0	10	0	0	97
Lane Group Flow (vph)	249	539	19	590	694	143	51	1234	691	392	486	274
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.0	25.2	25.2	29.5	40.7	40.7	7.4	49.5	79.0	18.8	60.9	79.4
Effective Green, g (s)	14.0	25.2	25.2	29.5	40.7	40.7	7.4	49.5	79.0	18.8	60.9	79.4
Actuated g/C Ratio	0.10	0.18	0.18	0.21	0.29	0.29	0.05	0.35	0.56	0.13	0.43	0.57
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	347	643	288	731	1039	456	94	1264	902	456	1555	907
v/s Ratio Prot	0.07	c0.15		c0.17	0.19		0.03	c0.35	0.43	c0.12	0.14	0.17
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.72	0.84	0.07	0.81	0.67	0.31	0.54	0.98	0.77	0.86	0.31	0.30
Uniform Delay, d1	61.1	55.4	47.6	52.5	43.7	38.8	64.6	44.7	23.4	59.3	25.9	15.8
Progression Factor	0.78	0.79	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	8.5	0.0	6.2	1.3	0.1	3.4	20.2	3.5	14.4	0.5	0.1
Delay (s)	52.9	52.3	57.4	58.7	45.0	38.9	68.0	64.9	26.9	73.7	26.4	15.9
Level of Service	D	D	E	E	D	D	E	E	C	E	C	B
Approach Delay (s)		53.1			48.8			51.6			38.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	48.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

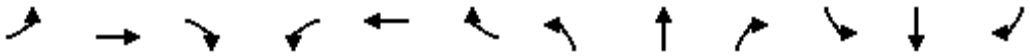
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	57	13	1462	18	11	1206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5122		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5122		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	14	1555	19	12	1283
RTOR Reduction (vph)	0	13	1	0	0	0
Lane Group Flow (vph)	61	1	1573	0	12	1283
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.5	8.5	68.5		3.4	57.3
Effective Green, g (s)	8.5	8.5	68.5		3.4	57.3
Actuated g/C Ratio	0.06	0.06	0.49		0.02	0.41
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	110	95	2506		43	2102
v/s Ratio Prot	c0.03		c0.31		0.01	c0.25
v/s Ratio Perm		0.00				
v/c Ratio	0.55	0.01	0.63		0.28	0.61
Uniform Delay, d1	63.9	61.8	26.4		67.1	32.6
Progression Factor	1.00	1.00	0.21		0.96	0.96
Incremental Delay, d2	4.8	0.0	0.3		1.1	1.1
Delay (s)	68.7	61.8	5.7		65.8	32.5
Level of Service	E	E	A		E	C
Approach Delay (s)	67.4		5.7			32.8
Approach LOS	E		A			C

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	54.5
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

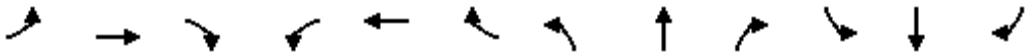
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	245	281	253	125	103	271	1307	175	52	1122	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	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		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1496	1787	1722		3467	4999		1787	5054	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1496	1787	1722		3467	4999		1787	5054	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	263	302	272	134	111	291	1405	188	56	1206	96
RTOR Reduction (vph)	0	0	154	0	21	0	0	9	0	0	5	0
Lane Group Flow (vph)	75	263	148	272	224	0	291	1584	0	56	1297	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	8.6	26.2	26.2	23.7	28.8		17.3	59.9		7.8	57.3	
Effective Green, g (s)	8.6	26.2	26.2	23.7	28.8		17.3	59.9		7.8	57.3	
Actuated g/C Ratio	0.06	0.19	0.19	0.17	0.21		0.12	0.43		0.06	0.41	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	109	349	280	303	354		428	2139		100	2069	
v/s Ratio Prot	0.04	c0.14		c0.15	c0.13		c0.08	c0.32		0.03	c0.26	
v/s Ratio Perm			0.10									
v/c Ratio	0.69	0.75	0.53	0.90	0.63		0.68	0.74		0.56	0.63	
Uniform Delay, d1	64.4	53.8	51.3	57.0	50.8		58.7	33.5		64.4	32.9	
Progression Factor	1.00	1.00	1.00	0.66	0.87		1.05	0.86		1.46	0.24	
Incremental Delay, d2	13.4	8.5	1.4	23.3	2.7		3.0	2.1		3.5	1.2	
Delay (s)	77.8	62.3	52.7	60.8	46.7		64.7	31.0		97.7	9.1	
Level of Service	E	E	D	E	D		E	C		F	A	
Approach Delay (s)		59.6			54.1			36.2			12.7	
Approach LOS		E			D			D			B	

Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

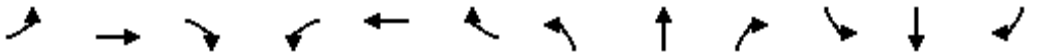
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	787	7	299	330	1454	0	0	1049	607
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5977	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5977	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	811	7	308	340	1499	0	0	1081	626
RTOR Reduction (vph)	0	0	0	0	40	0	0	0	0	0	145	0
Lane Group Flow (vph)	0	0	0	811	275	0	340	1499	0	0	1562	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				17.2	17.2		15.7	46.3			27.6	
Effective Green, g (s)				17.2	17.2		15.7	46.3			27.6	
Actuated g/C Ratio				0.25	0.25		0.22	0.66			0.39	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				852	394		401	3397			2357	
v/s Ratio Prot				c0.23	0.17		c0.19	0.29			c0.26	
v/s Ratio Perm												
v/c Ratio				0.95	0.70		0.85	0.44			0.66	
Uniform Delay, d1				26.0	24.0		26.0	5.7			17.4	
Progression Factor				1.00	1.00		1.07	1.19			1.46	
Incremental Delay, d2				19.8	4.3		11.3	0.3			1.1	
Delay (s)				45.8	28.4		39.2	7.1			26.6	
Level of Service				D	C		D	A			C	
Approach Delay (s)		0.0			40.9			13.0			26.6	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

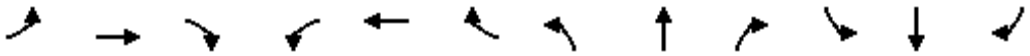
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	804	3	549	0	0	0	0	980	247	173	1663	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4951		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4951		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	838	3	572	0	0	0	0	1021	257	180	1732	0
RTOR Reduction (vph)	0	0	9	0	0	0	0	64	0	0	0	0
Lane Group Flow (vph)	419	422	563	0	0	0	0	1214	0	180	1732	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	26.0	26.0	26.0					25.8		7.7	37.5	
Effective Green, g (s)	26.0	26.0	26.0					25.8		7.7	37.5	
Actuated g/C Ratio	0.37	0.37	0.37					0.37		0.11	0.54	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	631	633	594					1825		385	2779	
v/s Ratio Prot	0.25	0.25						0.25		0.05	c0.33	
v/s Ratio Perm			c0.35									
v/c Ratio	0.66	0.67	0.95					0.67		0.47	0.62	
Uniform Delay, d1	18.4	18.4	21.3					18.5		29.2	11.3	
Progression Factor	1.00	1.00	1.00					0.86		0.99	1.15	
Incremental Delay, d2	2.0	2.1	24.1					1.8		0.5	0.6	
Delay (s)	20.4	20.4	45.4					17.7		29.6	13.7	
Level of Service	C	C	D					B		C	B	
Approach Delay (s)		30.5			0.0			17.7			15.2	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

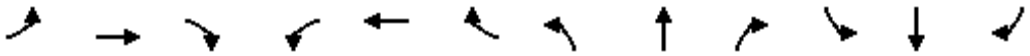
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	147	0	62	15	9	14	94	1156	3	11	1869	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00			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	
Frt		0.96			0.95		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1753			1770		1787	5133		1787	4985	
Flt Permitted		0.77			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1389			1609		1787	5133		1787	4985	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	158	0	67	16	10	15	101	1243	3	12	2010	357
RTOR Reduction (vph)	0	23	0	0	12	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	202	0	0	29	0	101	1246	0	12	2336	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		13.2			13.2		6.4	44.1		1.2	38.9	
Effective Green, g (s)		13.2			13.2		6.4	44.1		1.2	38.9	
Actuated g/C Ratio		0.19			0.19		0.09	0.63		0.02	0.56	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		262			303		163	3234		31	2770	
v/s Ratio Prot							c0.06	0.24		0.01	c0.47	
v/s Ratio Perm		c0.15			0.02							
v/c Ratio		0.77			0.10		0.62	0.39		0.39	0.84	
Uniform Delay, d1		27.0			23.5		30.6	6.3		34.0	13.0	
Progression Factor		1.00			1.00		1.22	0.81		0.86	1.65	
Incremental Delay, d2		12.1			0.0		4.6	0.3		2.1	2.5	
Delay (s)		39.0			23.5		42.0	5.5		31.4	24.0	
Level of Service		D			C		D	A		C	C	
Approach Delay (s)		39.0			23.5			8.2			24.0	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

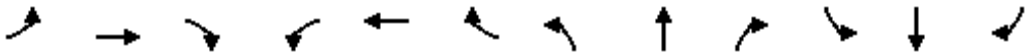
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	113	14	302	270	190	51	877	418	170	1439	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	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	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1844		1698	1778	1560	1787	5136	1599	3467	3436	
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)	1787	1844		1698	1778	1560	1787	5136	1599	3467	3436	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	166	120	15	321	287	202	54	933	445	181	1531	359
RTOR Reduction (vph)	0	4	0	0	0	134	0	0	0	0	10	0
Lane Group Flow (vph)	166	132	0	289	319	68	54	933	445	181	1880	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	17.5	17.5		31.9	31.9	31.9	7.6	63.9	99.3	11.7	68.0	
Effective Green, g (s)	17.5	17.5		31.9	31.9	31.9	7.6	63.9	99.3	11.7	68.0	
Actuated g/C Ratio	0.12	0.12		0.23	0.23	0.23	0.05	0.46	0.71	0.08	0.49	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	223	231		387	405	355	97	2344	1134	290	1669	
v/s Ratio Prot	c0.09	0.07		0.17	c0.18		0.03	0.18	0.28	c0.05	c0.55	
v/s Ratio Perm						0.04						
v/c Ratio	0.74	0.57		0.75	0.79	0.19	0.56	0.40	0.39	0.62	1.13	
Uniform Delay, d1	59.1	57.7		50.3	50.9	43.6	64.6	25.3	8.2	62.0	36.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.33	
Incremental Delay, d2	11.1	1.9		6.7	9.0	0.1	3.9	0.5	0.1	1.6	61.6	
Delay (s)	70.2	59.6		57.0	59.9	43.7	68.4	25.8	8.3	66.7	109.5	
Level of Service	E	E		E	E	D	E	C	A	E	F	
Approach Delay (s)		65.5			54.8			22.0			105.7	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM Average Control Delay	68.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		

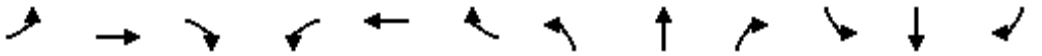
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	113	14	302	270	190	51	877	418	170	1439	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	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	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1844		1698	1778	1560	1787	5136	1599	3467	3436	
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)	1787	1844		1698	1778	1560	1787	5136	1599	3467	3436	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	166	120	15	321	287	202	54	933	445	181	1531	359
RTOR Reduction (vph)	0	4	0	0	0	126	0	0	0	0	12	0
Lane Group Flow (vph)	166	131	0	289	319	76	54	933	445	181	1878	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	17.4	17.4		28.4	28.4	28.4	7.6	67.5	99.4	11.7	71.6	
Effective Green, g (s)	17.4	17.4		28.4	28.4	28.4	7.6	67.5	99.4	11.7	71.6	
Actuated g/C Ratio	0.12	0.12		0.20	0.20	0.20	0.05	0.48	0.71	0.08	0.51	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	222	229		344	361	316	97	2476	1135	290	1757	
v/s Ratio Prot	c0.09	0.07		0.17	c0.18		0.03	0.18	0.28	c0.05	c0.55	
v/s Ratio Perm						0.05						
v/c Ratio	0.75	0.57		0.84	0.88	0.24	0.56	0.38	0.39	0.62	1.07	
Uniform Delay, d1	59.2	57.8		53.6	54.2	46.8	64.6	22.9	8.2	62.0	34.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.75	
Incremental Delay, d2	11.4	2.2		16.0	21.1	0.1	3.9	0.4	0.1	1.6	38.1	
Delay (s)	70.5	60.0		69.6	75.3	46.9	68.4	23.4	8.2	51.0	63.9	
Level of Service	E	E		E	E	D	E	C	A	D	E	
Approach Delay (s)		65.8			66.2			20.4			62.8	
Approach LOS		E			E			C			E	

Intersection Summary			
HCM Average Control Delay	50.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		

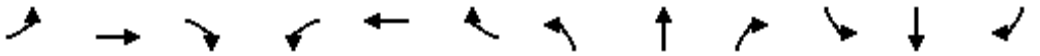
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	78	0	0	0	0	59	78	44	0	0	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.95				0.86
Flt Protected		0.98					0.95	1.00				1.00
Satd. Flow (prot)		1859					1787	1780				1644
Flt Permitted		0.98					0.95	1.00				1.00
Satd. Flow (perm)		1859					1787	1780				1644
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	69	87	0	0	0	0	66	87	49	0	0	124
RTOR Reduction (vph)	0	0	0	0	0	0	0	23	0	0	0	59
Lane Group Flow (vph)	0	156	0	0	0	0	66	113	0	0	0	65
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		4.9					14.1	14.1				14.1
Effective Green, g (s)		4.9					14.1	14.1				14.1
Actuated g/C Ratio		0.18					0.52	0.52				0.52
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		337					933	930				859
v/s Ratio Prot								c0.06				
v/s Ratio Perm		0.08					0.04					0.04
v/c Ratio		0.46					0.07	0.12				0.08
Uniform Delay, d1		9.9					3.2	3.3				3.2
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		1.0					0.0	0.1				0.0
Delay (s)		10.9					3.2	3.3				3.2
Level of Service		B					A	A				A
Approach Delay (s)		10.9			0.0			3.3			3.2	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	27.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		

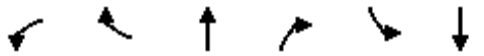
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	379	347	27	0	0	0	0	140	0	312	85	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1861						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.66	1.00	
Satd. Flow (perm)	1787	1861						1881		1226	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	421	386	30	0	0	0	0	156	0	347	94	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	421	409	0	0	0	0	0	156	0	347	94	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	13.4	13.4						13.6		13.6	13.6	
Effective Green, g (s)	13.4	13.4						13.6		13.6	13.6	
Actuated g/C Ratio	0.38	0.38						0.39		0.39	0.39	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	684	712						731		476	724	
v/s Ratio Prot		0.22						0.08			0.05	
v/s Ratio Perm	c0.24									c0.28		
v/c Ratio	0.62	0.57						0.21		0.73	0.13	
Uniform Delay, d1	8.7	8.5						7.1		9.1	6.9	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.7	1.1						0.1		5.5	0.1	
Delay (s)	10.4	9.7						7.3		14.7	7.0	
Level of Service	B	A						A		B	A	
Approach Delay (s)		10.0			0.0			7.3			13.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	35.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	32	454	519	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	33	468	535	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	535	268			535	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535	268			535	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	36			100	
cM capacity (veh/h)	480	737			1029	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	33	468	268	268
Volume Left	33	0	0	0
Volume Right	0	468	0	0
cSH	480	737	1700	1700
Volume to Capacity	0.07	0.64	0.16	0.16
Queue Length 95th (ft)	6	115	0	0
Control Delay (s)	13.0	18.0	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	17.7		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	112	1857	102	91	2022	128	217	174	59	132	246	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5084		1770	6340		1726	1784		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.43	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1787	5084		1770	6340		789	1784		845	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	115	1914	105	94	2085	132	224	179	61	136	254	195
RTOR Reduction (vph)	0	3	0	0	6	0	0	11	0	0	0	103
Lane Group Flow (vph)	115	2016	0	94	2211	0	224	229	0	136	254	92
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.1	61.0		11.7	60.1		35.0	35.0		35.0	35.0	35.0
Effective Green, g (s)	13.1	61.0		11.7	60.1		35.0	35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.11	0.51		0.10	0.50		0.29	0.29		0.29	0.29	0.29
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	195	2584		173	3175		230	520		246	543	436
v/s Ratio Prot	c0.06	c0.40		0.05	0.35			0.13			0.14	
v/s Ratio Perm							c0.28			0.16		0.06
v/c Ratio	0.59	0.78		0.54	0.70		0.97	0.44		0.55	0.47	0.21
Uniform Delay, d1	50.9	24.0		51.6	23.0		42.0	34.5		35.9	34.9	32.1
Progression Factor	1.12	0.62		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	1.2		3.5	1.3		51.6	0.6		2.7	0.6	0.2
Delay (s)	59.4	16.2		55.1	24.2		93.6	35.1		38.6	35.5	32.3
Level of Service	E	B		E	C		F	D		D	D	C
Approach Delay (s)		18.5			25.5			63.4			35.2	
Approach LOS		B			C			E			D	

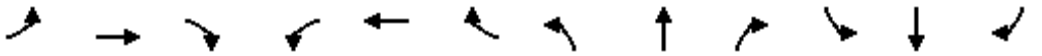
Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.4
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	391	1571	605	196	0	203	0	469	69	358	786	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.96		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4873		3273		2656		4881		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4873		3273		2656		4881		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	407	1636	630	204	0	211	0	489	72	373	819	0
RTOR Reduction (vph)	0	29	0	0	0	117	0	18	0	0	0	0
Lane Group Flow (vph)	407	2237	0	204	0	94	0	543	0	373	819	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.7	56.2		12.2		53.7		19.4		16.2	39.6	
Effective Green, g (s)	14.7	56.2		12.2		53.7		19.4		16.2	39.6	
Actuated g/C Ratio	0.12	0.47		0.10		0.45		0.16		0.13	0.33	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	611	2282		333		1189		789		468	1179	
v/s Ratio Prot	c0.08	c0.46		0.06		0.04		0.11		c0.11	c0.23	
v/s Ratio Perm												
v/c Ratio	0.67	0.98		0.61		0.08		0.69		0.80	0.69	
Uniform Delay, d1	50.3	31.4		51.6		19.0		47.5		50.3	34.9	
Progression Factor	1.00	1.00		1.23		0.45		1.00		1.00	1.00	
Incremental Delay, d2	2.7	14.7		2.5		0.1		2.5		9.1	1.8	
Delay (s)	53.1	46.1		66.0		8.7		50.0		59.4	36.7	
Level of Service	D	D		E		A		D		E	D	
Approach Delay (s)		47.1			36.9			50.0			43.8	
Approach LOS		D			D			D			D	

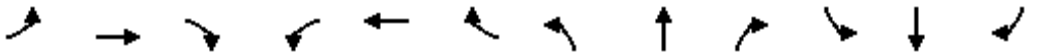
Intersection Summary			
HCM Average Control Delay	45.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	748	76	349	1670	192	0	0	0	96	104	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.98						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (prot)	1719	4866		1770	4996						1801	1568
Flt Permitted	0.95	1.00		0.95	1.00						0.98	1.00
Satd. Flow (perm)	1719	4866		1770	4996						1801	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	72	779	79	364	1740	200	0	0	0	100	108	89
RTOR Reduction (vph)	0	11	0	0	11	0	0	0	0	0	0	67
Lane Group Flow (vph)	72	847	0	364	1929	0	0	0	0	0	208	22
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	8.2	43.1		24.4	58.8						26.0	26.0
Effective Green, g (s)	8.2	43.1		24.4	58.8						26.0	26.0
Actuated g/C Ratio	0.08	0.41		0.23	0.56						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	134	1997		411	2798						446	388
v/s Ratio Prot	0.04	0.17		c0.21	c0.39						c0.12	
v/s Ratio Perm												0.01
v/c Ratio	0.54	0.42		0.89	0.69						0.47	0.06
Uniform Delay, d1	46.6	22.1		39.0	16.6						33.6	30.1
Progression Factor	1.00	1.00		1.32	0.52						1.00	1.00
Incremental Delay, d2	3.2	0.7		14.5	1.0						3.5	0.3
Delay (s)	49.8	22.8		66.0	9.6						37.1	30.4
Level of Service	D	C		E	A						D	C
Approach Delay (s)		24.8			18.5			0.0			35.1	
Approach LOS		C			B			A			D	

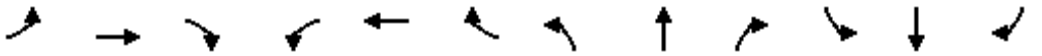
Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	609	0	0	1418	24	430	155	395	87	0	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			1.00		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (prot)	3367	3471			5071		1681	1728	1559	1770		1583
Flt Permitted	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (perm)	3367	3471			5071		1681	1728	1559	1770		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	164	641	0	0	1493	25	453	163	416	92	0	378
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	244	0	0	278
Lane Group Flow (vph)	164	641	0	0	1517	0	304	312	172	92	0	100
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot						Perm		Perm	Prot		custom
Protected Phases	5	2			6			4		3		3
Permitted Phases							4		4			
Actuated Green, G (s)	9.5	56.6			43.6		24.2	24.2	24.2	12.2		12.2
Effective Green, g (s)	9.5	56.6			43.6		24.2	24.2	24.2	12.2		12.2
Actuated g/C Ratio	0.09	0.54			0.42		0.23	0.23	0.23	0.12		0.12
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	305	1871			2106		387	398	359	206		184
v/s Ratio Prot	c0.05	0.18			c0.30					0.05		c0.06
v/s Ratio Perm							c0.18	0.18	0.11			
v/c Ratio	0.54	0.34			0.72		0.79	0.78	0.48	0.45		0.55
Uniform Delay, d1	45.7	13.7			25.6		38.0	37.9	34.9	43.3		43.8
Progression Factor	1.31	0.64			1.44		1.02	1.02	1.08	1.00		1.00
Incremental Delay, d2	0.8	0.5			1.1		9.7	9.4	0.7	1.1		2.6
Delay (s)	60.5	9.2			38.0		48.5	48.2	38.3	44.4		46.4
Level of Service	E	A			D		D	D	D	D		D
Approach Delay (s)		19.6			38.0			44.3			46.0	
Approach LOS		B			D			D			D	

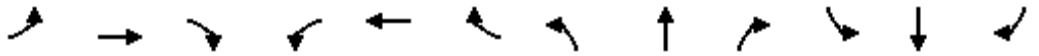
Intersection Summary			
HCM Average Control Delay	36.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	485	665	16	24	967	206	28	10	33	186	4	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.97		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3423		1752	3397		1681	1556		1659	1667	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.72	0.71	1.00
Satd. Flow (perm)	3335	3423		1752	3397		1681	1552		1262	1234	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	533	731	18	26	1063	226	31	11	36	204	4	574
RTOR Reduction (vph)	0	1	0	0	14	0	0	24	0	0	0	427
Lane Group Flow (vph)	533	748	0	26	1275	0	28	26	0	104	104	147
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.8	53.8		4.2	38.2		4.7	35.5		26.8	26.8	26.8
Effective Green, g (s)	19.8	53.8		4.2	38.2		4.7	35.5		26.8	26.8	26.8
Actuated g/C Ratio	0.19	0.51		0.04	0.36		0.04	0.34		0.26	0.26	0.26
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	629	1754		70	1236		75	525		322	315	400
v/s Ratio Prot	c0.16	0.22		0.01	c0.38		c0.02	0.00				
v/s Ratio Perm								0.01		0.08	0.08	c0.09
v/c Ratio	0.85	0.43		0.37	1.03		0.37	0.05		0.32	0.33	0.37
Uniform Delay, d1	41.1	16.0		49.1	33.4		48.7	23.4		31.7	31.8	32.1
Progression Factor	1.05	1.33		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.3	0.7		1.2	34.1		2.3	0.0		0.4	0.4	0.4
Delay (s)	52.6	21.9		50.3	67.5		51.0	23.4		32.2	32.2	32.5
Level of Service	D	C		D	E		D	C		C	C	C
Approach Delay (s)		34.7			67.1			33.3			32.5	
Approach LOS		C			E			C			C	

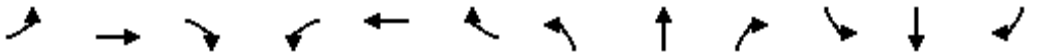
Intersection Summary			
HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	255	160	285	381	236	190	648	98	179	738	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1509	1770	3539	1553	3367	3471	1519	1787	3524	
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)	1719	3438	1509	1770	3539	1553	3367	3471	1519	1787	3524	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	90	307	193	343	459	284	229	781	118	216	889	64
RTOR Reduction (vph)	0	0	40	0	0	56	0	0	80	0	4	0
Lane Group Flow (vph)	90	307	153	343	459	228	229	781	38	216	949	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	11.7	31.8	48.0	26.7	46.8	66.9	16.2	36.4	36.4	20.1	40.3	
Effective Green, g (s)	11.7	31.8	48.0	26.7	46.8	66.9	16.2	36.4	36.4	20.1	40.3	
Actuated g/C Ratio	0.09	0.24	0.37	0.21	0.36	0.51	0.12	0.28	0.28	0.15	0.31	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	155	841	598	364	1274	799	420	972	425	276	1092	
v/s Ratio Prot	0.05	0.09	0.03	c0.19	c0.13	0.04	0.07	c0.22		0.12	c0.27	
v/s Ratio Perm			0.07			0.10			0.03			
v/c Ratio	0.58	0.37	0.26	0.94	0.36	0.29	0.55	0.80	0.09	0.78	0.87	
Uniform Delay, d1	56.8	40.7	28.6	50.9	30.6	18.0	53.4	43.5	34.6	52.8	42.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.72	0.69	0.39	1.00	1.00	
Incremental Delay, d2	3.5	1.2	0.1	32.2	0.8	0.1	0.7	4.5	0.1	12.5	7.5	
Delay (s)	60.3	42.0	28.6	83.1	31.4	18.0	39.1	34.7	13.5	65.3	49.8	
Level of Service	E	D	C	F	C	B	D	C	B	E	D	
Approach Delay (s)		40.4			44.2			33.4			52.7	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	43.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

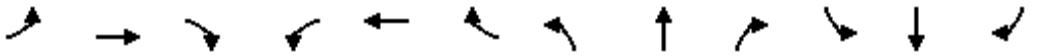
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	688	61	400	666	65	0	0	146	0	0	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3420		1770	3469				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3420		1770	3469				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	71	829	73	482	802	78	0	0	176	0	0	363
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	48	0	0	109
Lane Group Flow (vph)	71	898	0	482	874	0	0	0	128	0	0	254
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	39.3	72.3		39.9	72.9				50.2			49.6
Effective Green, g (s)	39.3	72.3		39.9	72.9				50.2			49.6
Actuated g/C Ratio	0.30	0.56		0.31	0.56				0.39			0.38
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	525	1902		543	1945				1076			621
v/s Ratio Prot	0.04	c0.26		c0.27	0.25				0.05			c0.16
v/s Ratio Perm												
v/c Ratio	0.14	0.47		0.89	0.45				0.12			0.41
Uniform Delay, d1	33.0	17.4		42.9	16.8				25.7			29.5
Progression Factor	1.00	1.00		1.00	1.00				0.90			1.00
Incremental Delay, d2	0.0	0.8		15.7	0.8				0.0			0.2
Delay (s)	33.0	18.2		58.6	17.5				23.1			29.6
Level of Service	C	B		E	B				C			C
Approach Delay (s)		19.3			32.1			23.1			29.6	
Approach LOS		B			C			C			C	

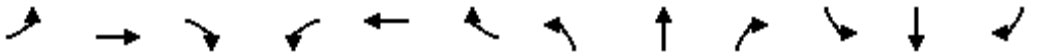
Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	229	451	181	81	468	206	162	133	44	248	329	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	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	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1759	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1759	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	257	507	203	91	526	231	182	149	49	279	370	337
RTOR Reduction (vph)	0	0	115	0	0	159	0	0	38	0	0	252
Lane Group Flow (vph)	257	507	88	91	526	72	162	169	11	279	370	85
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	24.3	56.1	56.1	8.8	40.6	40.6	16.4	16.4	29.2	32.7	32.7	32.7
Effective Green, g (s)	24.3	56.1	56.1	8.8	40.6	40.6	16.4	16.4	29.2	32.7	32.7	32.7
Actuated g/C Ratio	0.19	0.43	0.43	0.07	0.31	0.31	0.13	0.13	0.22	0.25	0.25	0.25
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	331	1527	683	232	1105	494	212	222	626	445	469	398
v/s Ratio Prot	c0.15	0.14		0.03	c0.15		c0.10	0.10	0.00	0.16	c0.20	
v/s Ratio Perm			0.06			0.05						0.05
v/c Ratio	0.78	0.33	0.13	0.39	0.48	0.15	0.76	0.76	0.02	0.63	0.79	0.21
Uniform Delay, d1	50.3	24.5	22.2	58.0	36.1	32.2	54.9	54.9	39.2	43.2	45.4	38.5
Progression Factor	1.00	1.00	1.00	1.02	0.48	0.13	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.0	0.6	0.4	1.0	1.4	0.6	15.0	14.2	0.0	2.8	8.6	0.3
Delay (s)	60.2	25.1	22.6	60.2	18.7	4.9	70.0	69.2	39.2	46.0	54.0	38.7
Level of Service	E	C	C	E	B	A	E	E	D	D	D	D
Approach Delay (s)		33.9			19.4			65.6			46.5	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	94	715	88	646	623	101	111	197	832	167	269	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3323	1527	3467	3493		1787	1881	1599	3433	3358	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3323	1527	3467	3493		1787	1881	1599	3433	3358	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	99	753	93	680	656	106	117	207	876	176	283	112
RTOR Reduction (vph)	0	0	55	0	10	0	0	0	16	0	32	0
Lane Group Flow (vph)	89	763	38	680	752	0	117	207	860	176	363	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	34.0	34.0	34.0	40.2	40.2		11.7	30.0	70.2	10.3	28.6	
Effective Green, g (s)	34.0	34.0	34.0	40.2	40.2		11.7	30.0	70.2	10.3	28.6	
Actuated g/C Ratio	0.26	0.26	0.26	0.31	0.31		0.09	0.23	0.54	0.08	0.22	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	413	869	399	1072	1080		161	434	863	272	739	
v/s Ratio Prot	0.06	c0.23		0.20	0.22		0.07	0.11	c0.54	c0.05	0.11	
v/s Ratio Perm			0.02									
v/c Ratio	0.22	0.88	0.09	0.63	0.70		0.73	0.48	1.00	0.65	0.49	
Uniform Delay, d1	37.6	46.0	36.3	38.6	39.5		57.6	43.2	29.8	58.1	44.3	
Progression Factor	1.00	1.00	1.00	0.98	0.99		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	12.2	0.5	1.1	1.7		12.9	0.3	29.5	3.9	0.2	
Delay (s)	38.8	58.2	36.8	39.0	40.7		70.5	43.5	59.3	62.0	44.5	
Level of Service	D	E	D	D	D		E	D	E	E	D	
Approach Delay (s)		54.3			39.9			57.7			49.9	
Approach LOS		D			D			E			D	

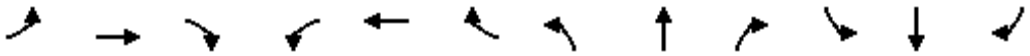
Intersection Summary			
HCM Average Control Delay	49.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1714	1132	0	807	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1823	1204	0	859	274
RTOR Reduction (vph)	0	0	0	0	0	75
Lane Group Flow (vph)	0	1823	1204	0	859	199
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		41.8	41.8		14.4	14.4
Effective Green, g (s)		41.8	41.8		14.4	14.4
Actuated g/C Ratio		0.64	0.64		0.22	0.22
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2276	2298		761	351
v/s Ratio Prot		c0.52	0.34		c0.25	0.13
v/s Ratio Perm						
v/c Ratio		0.80	0.52		1.13	0.57
Uniform Delay, d1		8.5	6.2		25.3	22.5
Progression Factor		0.74	0.66		1.00	1.00
Incremental Delay, d2		1.3	0.7		74.2	1.7
Delay (s)		7.7	4.8		99.5	24.2
Level of Service		A	A		F	C
Approach Delay (s)		7.7	4.8		81.3	
Approach LOS		A	A		F	

Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	121.6%	ICU Level of Service	H
Analysis Period (min)	15		

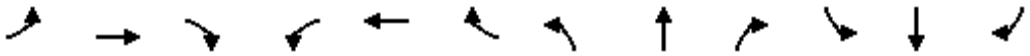
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	46	24	228	118	159	54	572	236	253	621	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.91	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.96	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1761			1756	1457	1752	3316		1787	3511	
Flt Permitted		0.85			0.75	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1515			1367	1457	1752	3316		1787	3511	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	19	55	29	271	140	189	64	681	281	301	739	80
RTOR Reduction (vph)	0	15	0	0	0	52	0	48	0	0	7	0
Lane Group Flow (vph)	0	88	0	0	411	137	64	914	0	301	812	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		25.3			25.3	25.3	6.4	27.6		17.8	39.0	
Effective Green, g (s)		25.3			25.3	25.3	6.4	27.6		17.8	39.0	
Actuated g/C Ratio		0.31			0.31	0.31	0.08	0.34		0.22	0.47	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		466			421	448	136	1113		387	1666	
v/s Ratio Prot							0.04	c0.28		c0.17	0.23	
v/s Ratio Perm		0.06			c0.30	0.09						
v/c Ratio		0.19			0.98	0.31	0.47	0.82		0.78	0.49	
Uniform Delay, d1		20.9			28.2	21.7	36.3	25.0		30.3	14.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			37.3	0.4	0.9	4.9		8.7	0.2	
Delay (s)		21.1			65.4	22.1	37.2	29.9		39.0	14.9	
Level of Service		C			E	C	D	C		D	B	
Approach Delay (s)		21.1			51.8			30.4			21.4	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	82.2	Sum of lost time (s)	11.5
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		

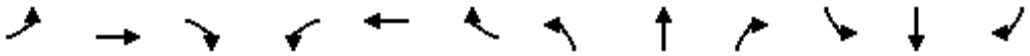
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	714	32	11	771	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1601			1599		1752	3477		1770	3346	
Flt Permitted		0.54			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		879			1222		1752	3477		1770	3346	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	840	38	13	907	107
RTOR Reduction (vph)	0	44	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	338	0	0	18	0	234	876	0	13	1007	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Effective Green, g (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		230			49		292	1751		22	1168	
v/s Ratio Prot							c0.13	0.25		0.01	c0.30	
v/s Ratio Perm		c0.38			c0.01							
v/c Ratio		1.47			0.36		0.80	0.50		0.59	0.86	
Uniform Delay, d1		35.6			45.1		38.7	15.9		47.4	29.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		233.0			1.7		13.8	0.2		25.2	6.7	
Delay (s)		268.6			46.8		52.5	16.1		72.6	35.9	
Level of Service		F			D		D	B		E	D	
Approach Delay (s)		268.6			46.8			23.7			36.4	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM Average Control Delay	65.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	17.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

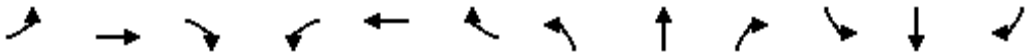
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	714	32	11	771	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	0.99		1.00	0.98	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1598			1600		1752	3477		1770	3347	
Flt Permitted		0.98			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1598			1222		1752	3477		1770	3347	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	840	38	13	907	107
RTOR Reduction (vph)	0	45	0	0	20	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	337	0	0	18	0	234	876	0	13	1007	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		24.4			3.9		16.1	48.7		1.2	33.8	
Effective Green, g (s)		24.4			3.9		16.1	48.7		1.2	33.8	
Actuated g/C Ratio		0.25			0.04		0.17	0.51		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		407			50		295	1769		22	1182	
v/s Ratio Prot		c0.21					c0.13	0.25		0.01	c0.30	
v/s Ratio Perm					c0.01							
v/c Ratio		0.83			0.36		0.79	0.50		0.59	0.85	
Uniform Delay, d1		33.7			44.7		38.2	15.4		47.0	28.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.5			1.6		12.8	0.2		25.2	6.0	
Delay (s)		46.1			46.3		51.0	15.6		72.2	34.7	
Level of Service		D			D		D	B		E	C	
Approach Delay (s)		46.1			46.3			23.0			35.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	95.7	Sum of lost time (s)	17.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

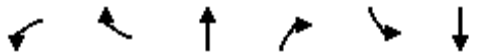
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	1	140	17	1	6	126	837	11	1	832	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.96		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.95		1.00	1.00		1.00	1.00	
Frt		0.92			0.96		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1686			1622		1752	3492		1752	3381	
Flt Permitted		0.85			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1462			1679		1752	3492		1752	3381	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	115	1	157	19	1	7	142	940	12	1	935	160
RTOR Reduction (vph)	0	45	0	0	7	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	228	0	0	20	0	142	951	0	1	1084	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		19.9			2.6		12.6	30.0		13.7	31.1	
Effective Green, g (s)		19.9			2.6		12.6	30.0		13.7	31.1	
Actuated g/C Ratio		0.24			0.03		0.15	0.36		0.16	0.37	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		350			52		265	1259		288	1264	
v/s Ratio Prot							c0.08	0.27		0.00	c0.32	
v/s Ratio Perm		c0.16			c0.01							
v/c Ratio		0.65			0.39		0.54	0.76		0.00	0.86	
Uniform Delay, d1		28.5			39.5		32.6	23.4		29.0	24.0	
Progression Factor		1.00			1.00		0.76	0.33		1.00	1.00	
Incremental Delay, d2		5.8			1.8		1.3	1.5		0.0	5.9	
Delay (s)		34.3			41.3		26.1	9.3		29.0	29.9	
Level of Service		C			D		C	A		C	C	
Approach Delay (s)		34.3			41.3			11.5			29.9	
Approach LOS		C			D			B			C	

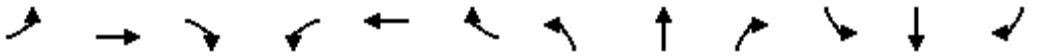
Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	111	863	25	79	910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1690		3452		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1690		3452		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	128	992	29	91	1046
RTOR Reduction (vph)	57	0	1	0	0	0
Lane Group Flow (vph)	146	0	1020	0	91	1046
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	19.9		30.0		13.7	31.1
Effective Green, g (s)	19.9		30.0		13.7	31.1
Actuated g/C Ratio	0.24		0.36		0.16	0.37
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	404		1245		294	1336
v/s Ratio Prot	c0.09		c0.30		c0.05	0.29
v/s Ratio Perm						
v/c Ratio	0.36		0.82		0.31	0.78
Uniform Delay, d1	26.4		24.1		30.6	23.1
Progression Factor	1.00		1.00		0.68	0.38
Incremental Delay, d2	1.2		4.2		0.1	1.8
Delay (s)	27.5		28.4		21.1	10.5
Level of Service	C		C		C	B
Approach Delay (s)	27.5		28.4			11.4
Approach LOS	C		C			B

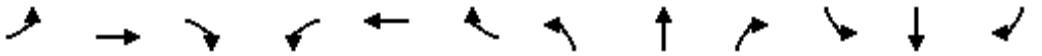
Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	16.1
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	99	3	1	1	86	872	1	1	868	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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		0.98		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1557		1792		1770	3539		1787	3499	
Flt Permitted		0.75	1.00		0.84		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1404	1557		1561		1770	3539		1787	3499	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	61	0	125	4	1	1	109	1104	1	1	1099	106
RTOR Reduction (vph)	0	0	109	0	1	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	61	16	0	5	0	109	1105	0	1	1199	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.8	7.8		7.8		8.3	41.0		0.8	33.5	
Effective Green, g (s)		7.8	7.8		7.8		8.3	41.0		0.8	33.5	
Actuated g/C Ratio		0.13	0.13		0.13		0.14	0.67		0.01	0.55	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		179	199		199		240	2375		23	1918	
v/s Ratio Prot							c0.06	0.31		0.00	c0.34	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.34	0.08		0.03		0.45	0.47		0.04	0.62	
Uniform Delay, d1		24.3	23.5		23.3		24.3	4.8		29.8	9.5	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.3		0.1		1.9	0.1		0.8	0.5	
Delay (s)		26.3	23.8		23.4		26.2	5.0		30.6	9.9	
Level of Service		C	C		C		C	A		C	A	
Approach Delay (s)		24.6			23.4			6.9			10.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	61.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	49.2%	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												
Volume (vph)	265	363	115	640	498	435	10	1030	577	707	667	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	282	386	122	681	530	463	11	1096	614	752	710	263
RTOR Reduction (vph)	0	0	105	0	0	237	0	0	35	0	0	87
Lane Group Flow (vph)	282	386	17	681	530	226	11	1096	579	752	710	176
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	15.0	18.6	18.6	30.6	34.2	34.2	2.5	31.5	62.1	32.3	61.3	80.8
Effective Green, g (s)	15.0	18.6	18.6	30.6	34.2	34.2	2.5	31.5	62.1	32.3	61.3	80.8
Actuated g/C Ratio	0.12	0.14	0.14	0.24	0.26	0.26	0.02	0.24	0.48	0.25	0.47	0.62
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	400	511	229	808	931	408	34	858	756	844	1685	994
v/s Ratio Prot	0.08	c0.11		c0.20	c0.15		0.01	c0.31	0.37	c0.22	0.20	0.11
v/s Ratio Perm			0.01			0.15						
v/c Ratio	0.70	0.76	0.08	0.84	0.57	0.56	0.32	1.28	0.77	0.89	0.42	0.18
Uniform Delay, d1	55.4	53.5	48.3	47.4	41.5	41.3	62.9	49.2	28.0	47.2	22.7	10.5
Progression Factor	0.95	0.95	1.44	1.00	1.00	1.00	1.05	0.93	1.10	1.00	1.00	1.00
Incremental Delay, d2	4.3	5.2	0.0	7.7	0.5	0.9	0.9	129.1	1.9	11.4	0.8	0.0
Delay (s)	56.7	56.1	69.3	55.1	42.0	42.3	67.0	174.7	32.6	58.5	23.4	10.5
Level of Service	E	E	E	E	D	D	E	F	C	E	C	B
Approach Delay (s)		58.3			47.4			123.3			36.7	
Approach LOS		E			D			F			D	

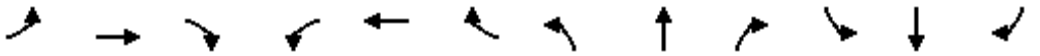
Intersection Summary			
HCM Average Control Delay	67.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	265	363	115	640	498	435	10	1030	577	707	667	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	282	386	122	681	530	463	11	1096	614	752	710	263
RTOR Reduction (vph)	0	0	105	0	0	285	0	0	26	0	0	94
Lane Group Flow (vph)	282	386	17	681	530	178	11	1096	588	752	710	169
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	13.0	18.6	18.6	26.4	32.0	32.0	2.5	38.2	64.6	29.8	65.5	83.0
Effective Green, g (s)	13.0	18.6	18.6	26.4	32.0	32.0	2.5	38.2	64.6	29.8	65.5	83.0
Actuated g/C Ratio	0.10	0.14	0.14	0.20	0.25	0.25	0.02	0.29	0.50	0.23	0.50	0.64
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	347	511	229	697	871	382	34	1040	787	778	1801	1021
v/s Ratio Prot	0.08	c0.11		c0.20	0.15		0.01	c0.31	0.37	c0.22	0.20	0.11
v/s Ratio Perm			0.01			0.11						
v/c Ratio	0.81	0.76	0.08	0.98	0.61	0.47	0.32	1.05	0.75	0.97	0.39	0.17
Uniform Delay, d1	57.3	53.5	48.3	51.5	43.4	41.7	62.9	45.9	26.2	49.6	20.0	9.5
Progression Factor	0.92	0.94	1.63	1.00	1.00	1.00	1.03	0.95	1.07	1.00	1.00	1.00
Incremental Delay, d2	12.1	5.2	0.0	28.0	0.8	0.3	0.9	34.9	1.6	24.0	0.6	0.0
Delay (s)	65.0	55.7	78.6	79.5	44.3	42.1	65.9	78.5	29.7	73.6	20.6	9.5
Level of Service	E	E	E	E	D	D	E	E	C	E	C	A
Approach Delay (s)		62.5			58.0			61.0			42.0	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	54.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	2	1019	59	4	1206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5032		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5032		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	2	1185	69	5	1402
RTOR Reduction (vph)	0	2	3	0	0	0
Lane Group Flow (vph)	9	0	1251	0	5	1402
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	2.6	2.6	71.2		1.3	52.3
Effective Green, g (s)	2.6	2.6	71.2		1.3	52.3
Actuated g/C Ratio	0.02	0.02	0.55		0.01	0.40
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	36	32	2756		18	2046
v/s Ratio Prot	c0.00		c0.25		0.00	c0.28
v/s Ratio Perm		0.00				
v/c Ratio	0.25	0.00	0.45		0.28	0.69
Uniform Delay, d1	62.7	62.4	17.7		63.9	32.1
Progression Factor	1.00	1.00	0.17		0.75	0.49
Incremental Delay, d2	2.6	0.0	0.0		2.2	1.4
Delay (s)	65.4	62.4	3.0		50.1	17.1
Level of Service	E	E	A		D	B
Approach Delay (s)	64.8		3.0			17.2
Approach LOS	E		A			B

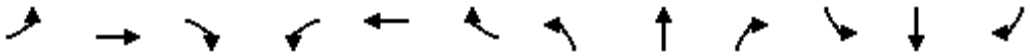
Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	56.9
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	80	218	255	266	30	298	1006	47	15	1035	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1484	1787	1848		3433	5042		1770	4949	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1484	1787	1848		3433	5042		1770	4949	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	48	91	248	290	302	34	339	1143	53	17	1176	186
RTOR Reduction (vph)	0	0	198	0	3	0	0	2	0	0	14	0
Lane Group Flow (vph)	48	91	50	290	333	0	339	1194	0	17	1348	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	5.5	16.0	16.0	25.2	29.1		21.0	65.7		2.8	52.3	
Effective Green, g (s)	5.5	16.0	16.0	25.2	29.1		21.0	65.7		2.8	52.3	
Actuated g/C Ratio	0.04	0.12	0.12	0.19	0.22		0.16	0.51		0.02	0.40	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	74	227	183	346	414		555	2548		38	1991	
v/s Ratio Prot	0.03	0.05		c0.16	c0.18		c0.10	0.24		0.01	c0.27	
v/s Ratio Perm			0.03									
v/c Ratio	0.65	0.40	0.27	0.84	0.80		0.61	0.47		0.45	0.68	
Uniform Delay, d1	61.3	52.6	51.7	50.4	47.8		50.7	20.8		62.8	31.9	
Progression Factor	1.00	1.00	1.00	0.94	0.48		0.98	0.92		1.38	0.09	
Incremental Delay, d2	13.7	0.8	0.6	11.9	8.0		1.3	0.6		2.3	1.4	
Delay (s)	75.0	53.4	52.3	59.4	31.1		51.0	19.8		89.0	4.3	
Level of Service	E	D	D	E	C		D	B		F	A	
Approach Delay (s)		55.4			44.2			26.7			5.3	
Approach LOS		E			D			C			A	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

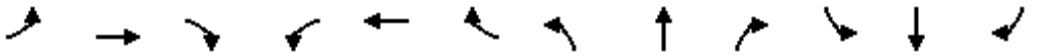
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	915	4	301	342	1050	0	0	913	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1618		1770	5085			5892	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1618		1770	5085			5892	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1017	4	334	380	1167	0	0	1014	661
RTOR Reduction (vph)	0	0	0	0	93	0	0	0	0	0	183	0
Lane Group Flow (vph)	0	0	0	1017	245	0	380	1167	0	0	1492	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				14.8	14.8		16.5	43.7			24.2	
Effective Green, g (s)				14.8	14.8		16.5	43.7			24.2	
Actuated g/C Ratio				0.23	0.23		0.25	0.67			0.37	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				797	368		449	3419			2194	
v/s Ratio Prot				c0.29	0.15		c0.21	0.23			c0.25	
v/s Ratio Perm												
v/c Ratio				1.28	0.66		0.85	0.34			0.86dr	
Uniform Delay, d1				25.1	22.8		23.0	4.5			17.1	
Progression Factor				1.00	1.00		1.00	1.38			0.99	
Incremental Delay, d2				133.9	3.5		8.0	0.2			1.4	
Delay (s)				159.0	26.3		31.2	6.4			18.4	
Level of Service				F	C		C	A			B	
Approach Delay (s)		0.0			125.9			12.5			18.4	
Approach LOS		A			F			B			B	

Intersection Summary			
HCM Average Control Delay	48.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

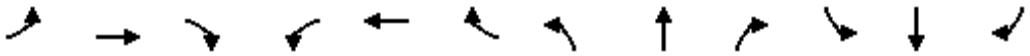
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	2	225	0	0	0	0	887	952	459	1369	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.92		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4641		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4641		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	574	2	256	0	0	0	0	1008	1082	522	1556	0
RTOR Reduction (vph)	0	0	26	0	0	0	0	298	0	0	0	0
Lane Group Flow (vph)	287	289	230	0	0	0	0	1792	0	522	1556	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	15.4	15.4	15.4					27.5		11.6	43.1	
Effective Green, g (s)	15.4	15.4	15.4					27.5		11.6	43.1	
Actuated g/C Ratio	0.24	0.24	0.24					0.42		0.18	0.66	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	398	399	375					1964		619	3406	
v/s Ratio Prot	0.17	c0.17						c0.39		c0.15	0.30	
v/s Ratio Perm			0.15									
v/c Ratio	0.72	0.72	0.61					1.11dr		0.84	0.46	
Uniform Delay, d1	22.8	22.8	22.1					17.6		25.8	5.3	
Progression Factor	1.00	1.00	1.00					1.22		0.96	0.82	
Incremental Delay, d2	5.4	5.4	2.1					6.7		3.3	0.1	
Delay (s)	28.2	28.3	24.2					28.2		28.1	4.5	
Level of Service	C	C	C					C		C	A	
Approach Delay (s)		27.0			0.0			28.2			10.4	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

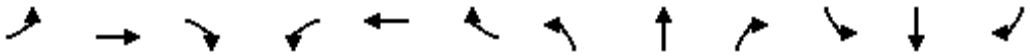
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	9	78	22	16	12	26	1572	5	19	1472	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1797		1770	5083		1787	5073	
Flt Permitted		0.75			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1357			1580		1770	5083		1787	5073	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	271	10	83	23	17	13	28	1672	5	20	1566	110
RTOR Reduction (vph)	0	15	0	0	10	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	349	0	0	43	0	28	1677	0	20	1665	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		17.4			17.4		2.7	34.8		1.3	33.4	
Effective Green, g (s)		17.4			17.4		2.7	34.8		1.3	33.4	
Actuated g/C Ratio		0.27			0.27		0.04	0.54		0.02	0.51	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		363			423		74	2721		36	2607	
v/s Ratio Prot							c0.02	c0.33		0.01	0.33	
v/s Ratio Perm		c0.26			0.03							
v/c Ratio		0.96			0.10		0.38	0.62		0.56	0.64	
Uniform Delay, d1		23.5			17.9		30.3	10.5		31.6	11.4	
Progression Factor		1.00			1.00		0.84	1.54		0.83	1.35	
Incremental Delay, d2		36.6			0.0		0.9	0.8		9.1	1.1	
Delay (s)		60.0			18.0		26.5	16.9		35.5	16.5	
Level of Service		E			B		C	B		D	B	
Approach Delay (s)		60.0			18.0			17.1			16.8	
Approach LOS		E			B			B			B	

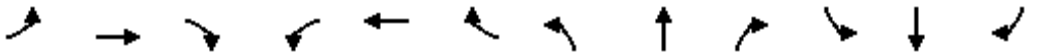
Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	196	15	591	115	193	17	1300	361	150	1337	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	1805		1681	1712	1558	1752	5036	1568	3467	3532	
Flt Permitted	0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1805		1681	1712	1558	1752	5036	1568	3467	3532	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	213	16	642	125	210	18	1413	392	163	1453	92
RTOR Reduction (vph)	0	3	0	0	0	118	0	0	0	0	3	0
Lane Group Flow (vph)	83	226	0	379	388	92	18	1413	392	163	1542	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	20.8	20.8		34.0	34.0	34.0	2.9	49.7	87.2	10.5	57.3	
Effective Green, g (s)	20.8	20.8		34.0	34.0	34.0	2.9	49.7	87.2	10.5	57.3	
Actuated g/C Ratio	0.16	0.16		0.26	0.26	0.26	0.02	0.38	0.67	0.08	0.44	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	278	289		440	448	407	39	1925	1052	280	1557	
v/s Ratio Prot	0.05	c0.13		0.23	c0.23		0.01	0.28	0.25	c0.05	c0.44	
v/s Ratio Perm						0.06						
v/c Ratio	0.30	0.78		0.86	0.87	0.23	0.46	0.73	0.37	0.58	0.99	
Uniform Delay, d1	48.2	52.4		45.8	45.8	37.7	62.8	34.5	9.4	57.6	36.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	
Incremental Delay, d2	0.2	12.0		15.3	15.5	0.1	3.1	2.5	0.1	1.6	18.3	
Delay (s)	48.4	64.5		61.0	61.3	37.8	65.9	37.0	9.5	54.8	51.6	
Level of Service	D	E		E	E	D	E	D	A	D	D	
Approach Delay (s)		60.2			56.1			31.4			51.9	
Approach LOS		E			E			C			D	

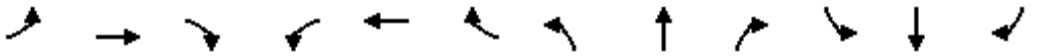
Intersection Summary			
HCM Average Control Delay	45.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	61	0	0	0	0	6	180	44	0	65	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.97			1.00	0.85
Flt Protected		0.97					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1850					1770	1808			1900	1615
Flt Permitted		0.97					0.71	1.00			1.00	1.00
Satd. Flow (perm)		1850					1324	1808			1900	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	66	0	0	0	0	7	196	48	0	71	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	16	0	0	0	15
Lane Group Flow (vph)	0	143	0	0	0	0	7	228	0	0	71	20
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		4.9					16.4	16.4			16.4	16.4
Effective Green, g (s)		4.9					16.4	16.4			16.4	16.4
Actuated g/C Ratio		0.17					0.56	0.56			0.56	0.56
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		309					741	1012			1063	904
v/s Ratio Prot								c0.13			0.04	
v/s Ratio Perm		0.08					0.01					0.01
v/c Ratio		0.46					0.01	0.23			0.07	0.02
Uniform Delay, d1		11.0					2.9	3.2			3.0	2.9
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		1.1					0.0	0.1			0.0	0.0
Delay (s)		12.1					2.9	3.4			3.0	2.9
Level of Service		B					A	A			A	A
Approach Delay (s)		12.1			0.0			3.3			2.9	
Approach LOS		B			A			A			A	

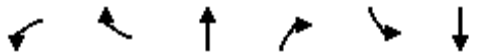
Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	29.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	6	34	0	0	0	0	251	0	455	63	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.87						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1628						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.59	1.00	
Satd. Flow (perm)	1770	1628						1863		1102	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	7	37	0	0	0	0	273	0	495	68	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	359	19	0	0	0	0	0	273	0	495	68	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.5	12.5						18.1		18.1	18.1	
Effective Green, g (s)	12.5	12.5						18.1		18.1	18.1	
Actuated g/C Ratio	0.32	0.32						0.47		0.47	0.47	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	573	527						874		517	874	
v/s Ratio Prot		0.01						0.15			0.04	
v/s Ratio Perm	c0.20									c0.45		
v/c Ratio	0.63	0.04						0.31		0.96	0.08	
Uniform Delay, d1	11.1	8.9						6.4		9.9	5.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.0						0.2		28.8	0.0	
Delay (s)	13.2	9.0						6.6		38.7	5.7	
Level of Service	B	A						A		D	A	
Approach Delay (s)		12.7			0.0			6.6			34.7	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	38.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	29	298	581	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	31	317	618	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	618	309			618	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	618	309			618	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	54			100	
cM capacity (veh/h)	421	687			958	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	31	317	309	309
Volume Left	31	0	0	0
Volume Right	0	317	0	0
cSH	421	687	1700	1700
Volume to Capacity	0.07	0.46	0.18	0.18
Queue Length 95th (ft)	6	61	0	0
Control Delay (s)	14.2	14.7	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.6		0.0	
Approach LOS	B			

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	186	1275	56	131	2058	130	310	301	103	137	205	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5090		1787	6404		1771	1802		1785	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.52	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1787	5090		1787	6404		965	1802		467	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	196	1342	59	138	2166	137	326	317	108	144	216	148
RTOR Reduction (vph)	0	3	0	0	7	0	0	10	0	0	0	86
Lane Group Flow (vph)	196	1398	0	138	2296	0	326	415	0	144	216	62
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	18.4	53.3		14.6	50.0		39.8	39.8		39.8	39.8	39.8
Effective Green, g (s)	18.4	53.3		14.6	50.0		39.8	39.8		39.8	39.8	39.8
Actuated g/C Ratio	0.15	0.44		0.12	0.42		0.33	0.33		0.33	0.33	0.33
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	274	2261		217	2668		320	598		155	624	516
v/s Ratio Prot	c0.11	0.27		0.08	c0.36			0.23			0.11	
v/s Ratio Perm							c0.34			0.31		0.04
v/c Ratio	0.72	0.62		0.64	0.86		1.02	0.69		0.93	0.35	0.12
Uniform Delay, d1	48.3	25.6		50.2	31.8		40.1	34.8		38.7	30.3	27.9
Progression Factor	0.73	0.83		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.0	0.9		6.0	3.9		55.2	3.5		51.0	0.3	0.1
Delay (s)	41.5	22.1		56.2	35.7		95.3	38.3		89.8	30.6	28.0
Level of Service	D	C		E	D		F	D		F	C	C
Approach Delay (s)		24.5			36.9			63.0			46.6	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM Average Control Delay	37.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	465	1237	329	500	0	378	0	1093	136	285	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	4958		3467		2814		5089		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	4958		3467		2814		5089		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	484	1289	343	521	0	394	0	1139	142	297	502	0
RTOR Reduction (vph)	0	40	0	0	0	241	0	12	0	0	0	0
Lane Group Flow (vph)	484	1592	0	521	0	153	0	1269	0	297	502	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	15.3	56.0		6.0		46.7		27.1		14.9	46.0	
Effective Green, g (s)	15.3	56.0		6.0		46.7		27.1		14.9	46.0	
Actuated g/C Ratio	0.13	0.47		0.05		0.39		0.23		0.12	0.38	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	643	2314		173		1095		1149		430	1370	
v/s Ratio Prot	c0.10	c0.32		c0.15		0.05		c0.25		c0.09	0.14	
v/s Ratio Perm												
v/c Ratio	0.75	0.69		3.01		0.14		1.10		0.69	0.37	
Uniform Delay, d1	50.5	25.1		57.0		23.7		46.5		50.3	26.5	
Progression Factor	1.00	1.00		1.11		1.14		1.00		1.00	1.00	
Incremental Delay, d2	5.0	1.7		913.6		0.1		59.9		4.7	0.2	
Delay (s)	55.5	26.8		977.2		27.2		106.3		55.1	26.7	
Level of Service	E	C		F		C		F		E	C	
Approach Delay (s)		33.4			568.1			106.3			37.3	
Approach LOS		C			F			F			D	

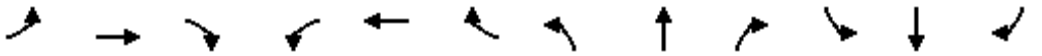
Intersection Summary			
HCM Average Control Delay	148.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	465	1237	329	500	0	378	0	1093	136	285	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	4958		3467		2814		5089		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	4958		3467		2814		5089		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	484	1289	343	521	0	394	0	1139	142	297	502	0
RTOR Reduction (vph)	0	40	0	0	0	229	0	13	0	0	0	0
Lane Group Flow (vph)	484	1592	0	521	0	165	0	1268	0	297	502	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	17.0	44.0		19.0		46.0		30.0		11.0	45.0	
Effective Green, g (s)	17.0	44.0		19.0		46.0		30.0		11.0	45.0	
Actuated g/C Ratio	0.14	0.37		0.16		0.38		0.25		0.09	0.38	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	714	1818		549		1079		1272		318	1340	
v/s Ratio Prot	0.10	c0.32		c0.15		0.06		c0.25		c0.09	0.14	
v/s Ratio Perm												
v/c Ratio	0.68	0.88		0.95		0.15		1.00		0.93	0.37	
Uniform Delay, d1	48.9	35.4		50.0		24.2		45.0		54.1	27.3	
Progression Factor	1.00	1.00		0.98		0.73		1.00		1.00	1.00	
Incremental Delay, d2	2.6	6.3		17.2		0.2		24.3		33.4	0.2	
Delay (s)	51.5	41.7		66.3		17.8		69.3		87.6	27.4	
Level of Service	D	D		E		B		E		F	C	
Approach Delay (s)		44.0			45.4			69.3			49.8	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

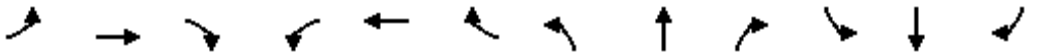
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	161	1150	99	282	1394	212	0	0	0	241	71	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	1.00
Frpb, ped/bikes	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
Frt	1.00	0.99		1.00	0.98						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (prot)	1787	5066		1787	5034						1793	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.96	1.00
Satd. Flow (perm)	1787	5066		1787	5034						1793	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	173	1237	106	303	1499	228	0	0	0	259	76	95
RTOR Reduction (vph)	0	8	0	0	19	0	0	0	0	0	0	71
Lane Group Flow (vph)	173	1335	0	303	1708	0	0	0	0	0	335	24
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot						Split		Perm
Protected Phases	5	2		1	6					4	4	
Permitted Phases												4
Actuated Green, G (s)	13.7	45.7		21.8	53.3						26.0	26.0
Effective Green, g (s)	13.7	45.7		21.8	53.3						26.0	26.0
Actuated g/C Ratio	0.13	0.44		0.21	0.51						0.25	0.25
Clearance Time (s)	4.0	4.0		3.5	4.0						4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5						2.5	2.5
Lane Grp Cap (vph)	233	2205		371	2555						444	392
v/s Ratio Prot	0.10	0.26		c0.17	c0.34						c0.19	
v/s Ratio Perm												0.01
v/c Ratio	0.74	0.61		0.82	0.67						0.75	0.06
Uniform Delay, d1	44.0	22.7		39.7	19.3						36.5	30.2
Progression Factor	1.00	1.00		1.36	0.63						1.00	1.00
Incremental Delay, d2	11.4	1.2		10.2	1.1						11.3	0.3
Delay (s)	55.4	24.0		64.3	13.2						47.9	30.5
Level of Service	E	C		E	B						D	C
Approach Delay (s)		27.6			20.8			0.0			44.0	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

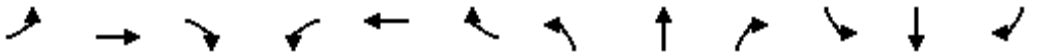
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	1036	0	0	1187	45	411	212	397	63	0	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95			0.91		0.95	0.95	1.00	1.00		1.00
Frpb, ped/bikes	1.00	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		1.00
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (prot)	3467	3574			5102		1698	1758	1567	1787		1599
Flt Permitted	0.95	1.00			1.00		0.95	0.98	1.00	0.95		1.00
Satd. Flow (perm)	3467	3574			5102		1698	1758	1567	1787		1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	302	1068	0	0	1224	46	424	219	409	65	0	306
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	194	0	0	279
Lane Group Flow (vph)	302	1068	0	0	1267	0	318	325	215	65	0	27
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot						Perm		Perm	Prot		custom
Protected Phases	5	2			6			4		3		3
Permitted Phases							4		4			
Actuated Green, G (s)	13.5	56.8			39.8		26.9	26.9	26.9	9.3		9.3
Effective Green, g (s)	13.5	56.8			39.8		26.9	26.9	26.9	9.3		9.3
Actuated g/C Ratio	0.13	0.54			0.38		0.26	0.26	0.26	0.09		0.09
Clearance Time (s)	3.5	4.0			4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5	2.5	2.5		2.5
Lane Grp Cap (vph)	446	1933			1934		435	450	401	158		142
v/s Ratio Prot	c0.09	0.30			c0.25					c0.04		0.02
v/s Ratio Perm							c0.19	0.18	0.14			
v/c Ratio	0.68	0.55			0.66		0.73	0.72	0.54	0.41		0.19
Uniform Delay, d1	43.7	15.8			26.9		35.7	35.6	33.7	45.3		44.4
Progression Factor	1.31	0.77			1.43		1.01	1.01	1.04	1.00		1.00
Incremental Delay, d2	2.5	0.9			1.2		5.9	5.3	1.1	1.3		0.5
Delay (s)	59.6	13.0			39.8		42.0	41.4	36.1	46.5		44.8
Level of Service	E	B			D		D	D	D	D		D
Approach Delay (s)		23.3			39.8			39.5			45.1	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

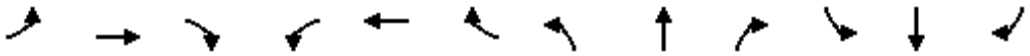
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	473	1130	43	31	916	196	26	6	16	206	6	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.95	1.00
Satd. Flow (prot)	3467	3548		1787	3468		1715	1601		1684	1693	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.74	0.73	1.00
Satd. Flow (perm)	3467	3548		1787	3468		1715	1589		1312	1294	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	488	1165	44	32	944	202	27	6	16	212	6	370
RTOR Reduction (vph)	0	2	0	0	14	0	0	10	0	0	0	268
Lane Group Flow (vph)	488	1207	0	32	1132	0	24	15	0	108	110	102
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	18.5	52.9		4.4	38.8		3.2	36.2		29.0	29.0	29.0
Effective Green, g (s)	18.5	52.9		4.4	38.8		3.2	36.2		29.0	29.0	29.0
Actuated g/C Ratio	0.18	0.50		0.04	0.37		0.03	0.34		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	611	1788		75	1282		52	548		362	357	442
v/s Ratio Prot	c0.14	0.34		0.02	c0.33		c0.01	0.00				
v/s Ratio Perm								0.01		0.08	c0.09	0.06
v/c Ratio	0.80	0.68		0.43	0.88		0.46	0.03		0.30	0.31	0.23
Uniform Delay, d1	41.5	19.6		49.1	31.0		50.1	22.7		30.0	30.1	29.4
Progression Factor	1.12	1.22		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	1.8		1.4	9.0		4.7	0.0		0.3	0.4	0.2
Delay (s)	52.3	25.8		50.5	40.0		54.7	22.8		30.3	30.4	29.6
Level of Service	D	C		D	D		D	C		C	C	C
Approach Delay (s)		33.4			40.3			38.4			29.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

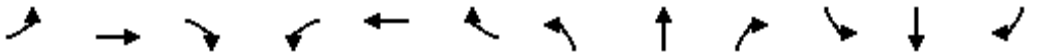
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	412	197	260	645	240	425	682	268	203	589	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	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)	1787	3574	1565	1787	3574	1562	3467	3574	1567	1787	3477	
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)	1787	3574	1565	1787	3574	1562	3467	3574	1567	1787	3477	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	181	429	205	271	672	250	443	710	279	211	614	93
RTOR Reduction (vph)	0	0	52	0	0	72	0	0	208	0	10	0
Lane Group Flow (vph)	181	429	153	271	672	178	443	710	71	211	697	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	23.2	45.3	67.8	23.2	45.3	66.2	22.5	35.6	35.6	20.9	34.0	
Effective Green, g (s)	23.2	45.3	67.8	23.2	45.3	66.2	22.5	35.6	35.6	20.9	34.0	
Actuated g/C Ratio	0.17	0.32	0.48	0.17	0.32	0.47	0.16	0.25	0.25	0.15	0.24	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	296	1156	797	296	1156	739	557	909	398	267	844	
v/s Ratio Prot	0.10	0.12	0.03	c0.15	c0.19	0.04	0.13	c0.20		0.12	c0.20	
v/s Ratio Perm			0.07			0.08			0.05			
v/c Ratio	0.61	0.37	0.19	0.92	0.58	0.24	0.80	0.78	0.18	0.79	0.83	
Uniform Delay, d1	54.2	36.4	20.5	57.4	39.4	21.9	56.5	48.6	40.8	57.4	50.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.69	3.41	1.00	1.00	
Incremental Delay, d2	2.6	0.9	0.0	30.6	2.1	0.1	6.3	3.7	0.1	13.7	6.5	
Delay (s)	56.8	37.3	20.6	88.0	41.6	22.0	48.1	37.2	139.2	71.2	56.7	
Level of Service	E	D	C	F	D	C	D	D	F	E	E	
Approach Delay (s)		37.4			48.0			60.4			60.0	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	52.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

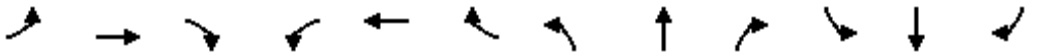
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	879	68	203	1004	141	0	0	651	0	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.98				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3522		1770	3444				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3522		1770	3444				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	360	966	75	223	1103	155	0	0	715	0	0	100
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	55	0	0	27
Lane Group Flow (vph)	360	1038	0	223	1249	0	0	0	660	0	0	73
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	35.0	76.9		22.2	64.1				55.6			68.4
Effective Green, g (s)	35.0	76.9		22.2	64.1				55.6			68.4
Actuated g/C Ratio	0.25	0.55		0.16	0.46				0.40			0.49
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	447	1935		281	1577				1118			795
v/s Ratio Prot	c0.20	0.29		0.13	c0.36				c0.23			0.05
v/s Ratio Perm												
v/c Ratio	0.81	0.54		0.79	0.79				0.59			0.09
Uniform Delay, d1	49.3	20.2		56.7	32.3				33.2			19.2
Progression Factor	1.00	1.00		1.00	1.00				0.71			1.00
Incremental Delay, d2	9.6	1.1		13.4	4.2				0.5			0.0
Delay (s)	58.9	21.2		70.0	36.5				24.0			19.2
Level of Service	E	C		E	D				C			B
Approach Delay (s)		30.9			41.5			24.0			19.2	
Approach LOS		C			D			C			B	

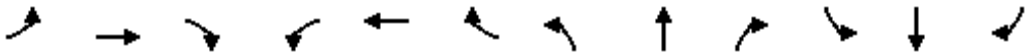
Intersection Summary			
HCM Average Control Delay	33.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	161	624	181	31	813	215	280	317	101	142	133	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1762	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1762	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	177	686	199	34	893	236	308	348	111	156	146	223
RTOR Reduction (vph)	0	0	96	0	0	109	0	0	75	0	0	193
Lane Group Flow (vph)	177	686	103	34	893	127	277	379	36	156	146	30
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.1	63.5	63.5	6.8	53.2	53.2	35.1	35.1	45.9	18.6	18.6	18.6
Effective Green, g (s)	17.1	63.5	63.5	6.8	53.2	53.2	35.1	35.1	45.9	18.6	18.6	18.6
Actuated g/C Ratio	0.12	0.45	0.45	0.05	0.38	0.38	0.25	0.25	0.33	0.13	0.13	0.13
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	216	1605	718	167	1345	602	421	442	914	235	248	210
v/s Ratio Prot	c0.10	0.19		0.01	c0.25		0.16	c0.22	0.01	c0.09	0.08	
v/s Ratio Perm			0.06			0.08						0.02
v/c Ratio	0.82	0.43	0.14	0.20	0.66	0.21	0.66	0.86	0.04	0.66	0.59	0.14
Uniform Delay, d1	59.9	25.9	22.4	64.0	36.0	29.3	47.1	50.1	32.0	57.7	57.1	53.6
Progression Factor	1.00	1.00	1.00	0.96	0.60	0.27	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.0	0.8	0.4	0.5	2.3	0.7	3.7	15.1	0.0	6.9	3.5	0.3
Delay (s)	79.9	26.8	22.8	62.1	24.1	8.5	50.8	65.1	32.1	64.6	60.6	54.0
Level of Service	E	C	C	E	C	A	D	E	C	E	E	D
Approach Delay (s)		34.9			22.0			55.2			59.0	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	650	132	806	482	185	155	290	629	28	242	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3419	1564	3467	3412		1787	1881	1599	3467	3391	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3419	1564	3467	3412		1787	1881	1599	3467	3391	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	178	677	138	840	502	193	161	302	655	29	252	82
RTOR Reduction (vph)	0	0	80	0	27	0	0	0	73	0	24	0
Lane Group Flow (vph)	160	695	58	840	668	0	161	302	582	29	310	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	41.5	41.5	41.5	46.3	46.3		16.6	32.9	79.2	3.8	20.1	
Effective Green, g (s)	41.5	41.5	41.5	46.3	46.3		16.6	32.9	79.2	3.8	20.1	
Actuated g/C Ratio	0.30	0.30	0.30	0.33	0.33		0.12	0.23	0.57	0.03	0.14	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	482	1013	464	1147	1128		212	442	905	94	487	
v/s Ratio Prot	0.10	c0.20		c0.24	0.20		c0.09	c0.16	0.36	0.01	c0.09	
v/s Ratio Perm			0.04									
v/c Ratio	0.33	0.69	0.13	0.73	0.59		0.76	0.68	0.64	0.31	0.64	
Uniform Delay, d1	38.4	43.5	36.0	41.4	39.0		59.8	48.8	20.8	66.8	56.5	
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	1.8	3.8	0.6	2.4	0.8		12.9	3.5	1.2	0.7	2.0	
Delay (s)	40.3	47.3	36.6	43.8	39.8		72.7	52.3	21.9	67.5	58.5	
Level of Service	D	D	D	D	D		E	D	C	E	E	
Approach Delay (s)		44.7			42.0			37.4			59.2	
Approach LOS		D			D			D			E	

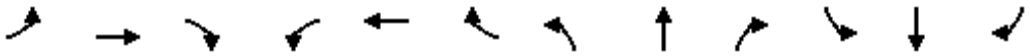
Intersection Summary			
HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1311	1020	0	1070	453
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1366	1062	0	1115	472
RTOR Reduction (vph)	0	0	0	0	0	90
Lane Group Flow (vph)	0	1366	1062	0	1115	382
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		36.5	36.5		19.7	19.7
Effective Green, g (s)		36.5	36.5		19.7	19.7
Actuated g/C Ratio		0.56	0.56		0.30	0.30
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2007	2007		1051	485
v/s Ratio Prot		c0.38	0.30		c0.32	0.24
v/s Ratio Perm						
v/c Ratio		0.68	0.53		1.06	0.79
Uniform Delay, d1		10.1	8.9		22.6	20.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	1.0		45.4	8.0
Delay (s)		12.0	9.9		68.1	28.7
Level of Service		B	A		E	C
Approach Delay (s)		12.0	9.9		56.4	
Approach LOS		B	A		E	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	23	27	220	51	188	35	764	310	279	538	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1764			1792	1558	1787	3390		1787	3533	
Flt Permitted		0.71			0.72	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1281			1342	1558	1787	3390		1787	3533	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	26	30	247	57	211	39	858	348	313	604	38
RTOR Reduction (vph)	0	18	0	0	0	83	0	44	0	0	3	0
Lane Group Flow (vph)	0	78	0	0	304	128	39	1162	0	313	639	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.4			22.4	22.4	4.2	31.9		18.3	46.0	
Effective Green, g (s)		22.4			22.4	22.4	4.2	31.9		18.3	46.0	
Actuated g/C Ratio		0.27			0.27	0.27	0.05	0.38		0.22	0.55	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		341			357	415	89	1286		389	1932	
v/s Ratio Prot							0.02	c0.34		c0.18	0.18	
v/s Ratio Perm		0.06			c0.23	0.08						
v/c Ratio		0.23			0.85	0.31	0.44	0.90		0.80	0.33	
Uniform Delay, d1		24.1			29.3	24.7	38.8	24.6		31.2	10.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			17.4	0.4	1.3	9.1		10.9	0.1	
Delay (s)		24.4			46.7	25.1	40.1	33.7		42.1	10.6	
Level of Service		C			D	C	D	C		D	B	
Approach Delay (s)		24.4			37.8			33.9			20.9	
Approach LOS		C			D			C			C	

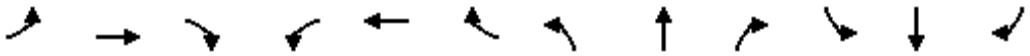
Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	0	44	8	2	3	52	1052	16	9	681	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1722			1653		1787	3564		1785	3492	
Flt Permitted		0.78			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1377			1706		1787	3564		1785	3492	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	63	0	51	9	2	3	60	1223	19	10	792	110
RTOR Reduction (vph)	0	29	0	0	3	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	85	0	0	11	0	60	1242	0	10	896	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		7.1			1.0		4.5	39.5		0.9	35.9	
Effective Green, g (s)		7.1			1.0		4.5	39.5		0.9	35.9	
Actuated g/C Ratio		0.11			0.02		0.07	0.60		0.01	0.54	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		148			26		122	2133		24	1899	
v/s Ratio Prot							c0.03	c0.35		0.01	0.26	
v/s Ratio Perm		c0.06			c0.01							
v/c Ratio		0.57			0.42		0.49	0.58		0.42	0.47	
Uniform Delay, d1		28.0			32.2		29.6	8.2		32.3	9.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.3			4.0		1.1	0.3		4.2	0.1	
Delay (s)		31.3			36.2		30.8	8.5		36.5	9.4	
Level of Service		C			D		C	A		D	A	
Approach Delay (s)		31.3			36.2			9.5			9.7	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

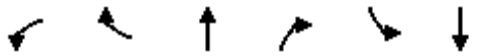
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	219	3	210	6	3	2	159	899	21	1	629	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1685			1765		1787	3559		1787	3473	
Flt Permitted		0.70			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1215			1813		1787	3559		1787	3473	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	223	3	214	6	3	2	162	917	21	1	642	105
RTOR Reduction (vph)	0	28	0	0	2	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	412	0	0	9	0	162	937	0	1	736	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		30.4			1.1		13.3	26.9		13.4	27.0	
Effective Green, g (s)		30.4			1.1		13.3	26.9		13.4	27.0	
Actuated g/C Ratio		0.34			0.01		0.15	0.30		0.15	0.30	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		416			22		268	1078		270	1056	
v/s Ratio Prot							c0.09	c0.26		0.00	0.21	
v/s Ratio Perm		c0.34			c0.00							
v/c Ratio		0.99			0.41		0.60	0.87		0.00	0.70	
Uniform Delay, d1		29.1			43.5		35.3	29.3		32.0	27.3	
Progression Factor		1.00			1.00		0.65	0.29		1.00	1.00	
Incremental Delay, d2		41.8			4.5		1.1	2.3		0.0	1.9	
Delay (s)		70.9			48.0		23.9	10.9		32.0	29.1	
Level of Service		E			D		C	B		C	C	
Approach Delay (s)		70.9			48.0			12.8			29.2	
Approach LOS		E			D			B			C	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

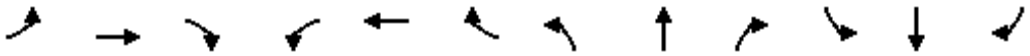
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	42	1037	54	78	767
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1705		3539		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1705		3539		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	24	43	1058	55	80	783
RTOR Reduction (vph)	28	0	3	0	0	0
Lane Group Flow (vph)	39	0	1110	0	80	783
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	30.4		26.9		13.4	27.0
Effective Green, g (s)	30.4		26.9		13.4	27.0
Actuated g/C Ratio	0.34		0.30		0.15	0.30
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	584		1072		270	1087
v/s Ratio Prot	c0.02		c0.31		c0.04	0.22
v/s Ratio Perm						
v/c Ratio	0.07		1.04		0.30	0.72
Uniform Delay, d1	19.6		30.9		33.5	27.5
Progression Factor	1.00		1.00		0.83	0.33
Incremental Delay, d2	0.1		37.1		0.2	1.6
Delay (s)	19.8		68.1		28.0	10.8
Level of Service	B		E		C	B
Approach Delay (s)	19.8		68.1			12.4
Approach LOS	B		E			B

Intersection Summary			
HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	14.6
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

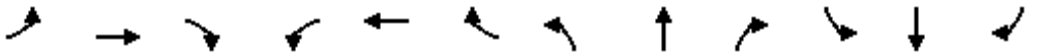
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	7	138	38	2	6	120	971	5	10	705	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1814	1572		1775		1787	3571		1787	3502	
Flt Permitted		0.70	1.00		0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1334	1572		1367		1787	3571		1787	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	127	7	144	40	2	6	125	1011	5	10	734	82
RTOR Reduction (vph)	0	0	112	0	5	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	134	32	0	43	0	125	1016	0	10	807	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		12.5	12.5		12.5		8.7	32.0		1.0	24.3	
Effective Green, g (s)		12.5	12.5		12.5		8.7	32.0		1.0	24.3	
Actuated g/C Ratio		0.22	0.22		0.22		0.15	0.56		0.02	0.43	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		293	345		300		273	2005		31	1493	
v/s Ratio Prot							c0.07	c0.28		0.01	0.23	
v/s Ratio Perm		c0.10	0.02		0.03							
v/c Ratio		0.46	0.09		0.14		0.46	0.51		0.32	0.54	
Uniform Delay, d1		19.3	17.7		17.9		22.0	7.7		27.7	12.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.2		0.4		1.7	0.2		6.0	0.2	
Delay (s)		21.3	17.9		18.3		23.7	7.9		33.6	12.4	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		19.5			18.3			9.6			12.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	53.1%	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												
Volume (vph)	344	429	94	546	660	296	49	1163	701	383	447	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	370	461	101	587	710	318	53	1251	754	412	481	376
RTOR Reduction (vph)	0	0	85	0	0	174	0	0	15	0	0	89
Lane Group Flow (vph)	370	461	16	587	710	144	53	1251	739	412	481	287
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	16.3	22.7	22.7	31.2	37.6	37.6	7.6	48.6	79.8	20.5	61.5	82.3
Effective Green, g (s)	16.3	22.7	22.7	31.2	37.6	37.6	7.6	48.6	79.8	20.5	61.5	82.3
Actuated g/C Ratio	0.12	0.16	0.16	0.22	0.27	0.27	0.05	0.35	0.57	0.15	0.44	0.59
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	404	579	259	773	960	422	97	1241	911	497	1570	940
v/s Ratio Prot	c0.11	c0.13		0.17	0.20		0.03	c0.35	c0.46	c0.12	0.13	0.18
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.92	0.80	0.06	0.76	0.74	0.34	0.55	1.01	0.81	0.83	0.31	0.30
Uniform Delay, d1	61.2	56.4	49.6	50.9	46.7	41.2	64.5	45.7	24.1	58.0	25.4	14.5
Progression Factor	0.78	0.80	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.5	6.6	0.0	3.8	2.6	0.2	3.3	27.5	5.3	10.4	0.5	0.1
Delay (s)	71.5	51.5	54.6	54.7	49.3	41.4	67.9	73.2	29.3	68.5	25.9	14.6
Level of Service	E	D	D	D	D	D	E	E	C	E	C	B
Approach Delay (s)		59.7			49.7			57.0			36.4	
Approach LOS		E			D			E			D	

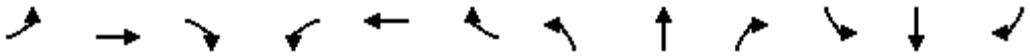
Intersection Summary			
HCM Average Control Delay	51.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	57	13	1427	18	11	1047
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5122		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5122		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	14	1518	19	12	1114
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	61	1	1537	0	12	1114
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.5	8.5	71.1		3.4	59.0
Effective Green, g (s)	8.5	8.5	71.1		3.4	59.0
Actuated g/C Ratio	0.06	0.06	0.51		0.02	0.42
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	110	95	2601		43	2164
v/s Ratio Prot	c0.03		c0.30		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.55	0.01	0.59		0.28	0.51
Uniform Delay, d1	63.9	61.8	24.2		67.1	29.9
Progression Factor	1.00	1.00	0.22		0.94	1.03
Incremental Delay, d2	4.8	0.0	0.2		1.1	0.7
Delay (s)	68.7	61.8	5.5		64.5	31.4
Level of Service	E	E	A		E	C
Approach Delay (s)	67.4		5.5			31.8
Approach LOS	E		A			C

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	54.5
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

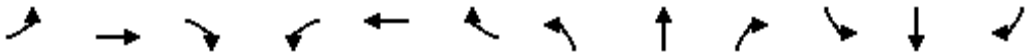
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	255	252	210	132	109	270	1270	193	56	961	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1496	1787	1722		3467	4983		1787	5044	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1496	1787	1722		3467	4983		1787	5044	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	71	274	271	226	142	117	290	1366	208	60	1033	94
RTOR Reduction (vph)	0	0	171	0	21	0	0	11	0	0	6	0
Lane Group Flow (vph)	71	274	100	226	238	0	290	1563	0	60	1121	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	9.8	27.1	27.1	21.2	26.0		17.2	61.3		8.0	59.0	
Effective Green, g (s)	9.8	27.1	27.1	21.2	26.0		17.2	61.3		8.0	59.0	
Actuated g/C Ratio	0.07	0.19	0.19	0.15	0.19		0.12	0.44		0.06	0.42	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	124	361	290	271	320		426	2182		102	2126	
v/s Ratio Prot	0.04	c0.15		c0.13	0.14		c0.08	c0.31		0.03	c0.22	
v/s Ratio Perm			0.07									
v/c Ratio	0.57	0.76	0.34	0.83	0.74		0.68	0.72		0.59	0.53	
Uniform Delay, d1	63.1	53.4	48.8	57.7	53.8		58.8	32.2		64.4	30.1	
Progression Factor	1.00	1.00	1.00	0.70	0.80		1.05	0.83		1.46	0.28	
Incremental Delay, d2	3.9	8.4	0.5	18.0	8.3		3.2	1.9		4.9	0.8	
Delay (s)	67.0	61.8	49.3	58.7	51.6		64.9	28.7		99.1	9.4	
Level of Service	E	E	D	E	D		E	C		F	A	
Approach Delay (s)		56.9			54.9			34.3			13.9	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

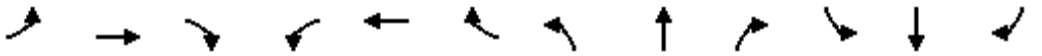
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	762	7	309	371	1424	0	0	818	605
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5900	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5900	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	786	7	319	382	1468	0	0	843	624
RTOR Reduction (vph)	0	0	0	0	43	0	0	0	0	0	190	0
Lane Group Flow (vph)	0	0	0	786	283	0	382	1468	0	0	1277	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				17.4	17.4		16.4	46.1			26.7	
Effective Green, g (s)				17.4	17.4		16.4	46.1			26.7	
Actuated g/C Ratio				0.25	0.25		0.23	0.66			0.38	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				862	399		419	3382			2250	
v/s Ratio Prot				c0.23	0.18		c0.21	0.29			c0.22	
v/s Ratio Perm												
v/c Ratio				0.91	0.71		0.91	0.43			0.57	
Uniform Delay, d1				25.6	24.0		26.1	5.7			17.1	
Progression Factor				1.00	1.00		1.11	1.25			1.30	
Incremental Delay, d2				13.5	4.7		18.3	0.3			0.9	
Delay (s)				39.1	28.7		47.2	7.4			23.2	
Level of Service				D	C		D	A			C	
Approach Delay (s)		0.0			36.0			15.6			23.2	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

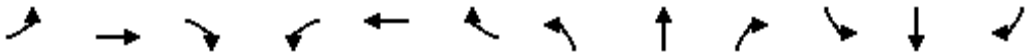
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	819	5	521	0	0	0	0	976	305	240	1340	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4918		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4918		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	853	5	543	0	0	0	0	1017	318	250	1396	0
RTOR Reduction (vph)	0	0	23	0	0	0	0	80	0	0	0	0
Lane Group Flow (vph)	426	432	520	0	0	0	0	1255	0	250	1396	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	24.6	24.6	24.6					27.0		7.9	38.9	
Effective Green, g (s)	24.6	24.6	24.6					27.0		7.9	38.9	
Actuated g/C Ratio	0.35	0.35	0.35					0.39		0.11	0.56	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	597	598	562					1897		395	2882	
v/s Ratio Prot	0.25	0.25						c0.26		c0.07	0.27	
v/s Ratio Perm			c0.32									
v/c Ratio	0.71	0.72	0.92					0.66		0.63	0.48	
Uniform Delay, d1	19.7	19.7	21.8					17.7		29.7	9.5	
Progression Factor	1.00	1.00	1.00					0.89		0.95	1.30	
Incremental Delay, d2	3.4	3.7	20.8					1.7		2.2	0.4	
Delay (s)	23.0	23.4	42.6					17.5		30.5	12.7	
Level of Service	C	C	D					B		C	B	
Approach Delay (s)		30.7			0.0			17.5			15.4	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

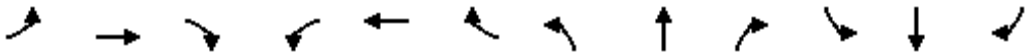
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	0	99	15	7	9	37	1206	8	16	1610	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.96		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1732			1780		1787	5129		1787	5008	
Flt Permitted		0.80			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1424			1564		1787	5129		1787	5008	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	154	0	106	16	8	10	40	1297	9	17	1731	253
RTOR Reduction (vph)	0	37	0	0	8	0	0	1	0	0	22	0
Lane Group Flow (vph)	0	223	0	0	26	0	40	1305	0	17	1962	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		13.7			13.7		4.2	43.5		1.3	40.6	
Effective Green, g (s)		13.7			13.7		4.2	43.5		1.3	40.6	
Actuated g/C Ratio		0.20			0.20		0.06	0.62		0.02	0.58	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		279			306		107	3187		33	2905	
v/s Ratio Prot							c0.02	c0.25		0.01	c0.39	
v/s Ratio Perm		c0.16			0.02							
v/c Ratio		0.80			0.08		0.37	0.41		0.52	0.68	
Uniform Delay, d1		26.8			23.0		31.6	6.7		34.0	10.1	
Progression Factor		1.00			1.00		1.22	0.57		0.83	1.66	
Incremental Delay, d2		13.8			0.0		0.7	0.4		4.6	1.0	
Delay (s)		40.7			23.1		39.3	4.2		33.0	17.9	
Level of Service		D			C		D	A		C	B	
Approach Delay (s)		40.7			23.1			5.3			18.1	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

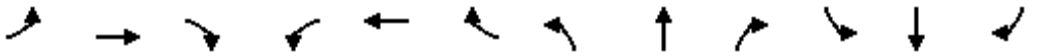
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	102	13	318	267	192	30	875	521	222	1291	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1843		1698	1778	1560	1787	5136	1599	3467	3472	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1843		1698	1778	1560	1787	5136	1599	3467	3472	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	190	109	14	338	284	204	32	931	554	236	1373	224
RTOR Reduction (vph)	0	3	0	0	0	135	0	0	0	0	7	0
Lane Group Flow (vph)	190	120	0	304	318	69	32	931	554	236	1590	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	19.4	19.4		32.4	32.4	32.4	5.0	59.3	95.2	13.9	68.2	
Effective Green, g (s)	19.4	19.4		32.4	32.4	32.4	5.0	59.3	95.2	13.9	68.2	
Actuated g/C Ratio	0.14	0.14		0.23	0.23	0.23	0.04	0.42	0.68	0.10	0.49	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	248	255		393	411	361	64	2175	1087	344	1691	
v/s Ratio Prot	c0.11	0.06		c0.18	0.18		0.02	0.18	0.35	c0.07	c0.46	
v/s Ratio Perm						0.04						
v/c Ratio	0.77	0.47		0.77	0.77	0.19	0.50	0.43	0.51	0.69	0.94	
Uniform Delay, d1	58.1	55.6		50.4	50.4	43.3	66.3	28.4	11.0	60.9	34.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.25	
Incremental Delay, d2	12.0	0.5		8.4	8.0	0.1	2.2	0.6	0.1	3.4	9.4	
Delay (s)	70.1	56.1		58.7	58.4	43.3	68.5	29.0	11.1	57.0	51.9	
Level of Service	E	E		E	E	D	E	C	B	E	D	
Approach Delay (s)		64.6			54.8			23.3			52.6	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM Average Control Delay	43.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

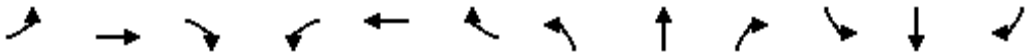
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	133	0	0	0	0	5	84	69	0	129	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.93			1.00	0.85
Flt Protected		0.98					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1869					1787	1753			1900	1615
Flt Permitted		0.98					0.67	1.00			1.00	1.00
Satd. Flow (perm)		1869					1253	1753			1900	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	148	0	0	0	0	6	93	77	0	143	119
RTOR Reduction (vph)	0	0	0	0	0	0	0	43	0	0	0	66
Lane Group Flow (vph)	0	222	0	0	0	0	6	127	0	0	143	53
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		7.1					12.0	12.0			12.0	12.0
Effective Green, g (s)		7.1					12.0	12.0			12.0	12.0
Actuated g/C Ratio		0.26					0.44	0.44			0.44	0.44
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		490					555	776			841	715
v/s Ratio Prot								0.07			c0.08	
v/s Ratio Perm		0.12					0.00					0.03
v/c Ratio		0.45					0.01	0.16			0.17	0.07
Uniform Delay, d1		8.4					4.2	4.5			4.5	4.3
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		0.7					0.0	0.1			0.1	0.0
Delay (s)		9.0					4.2	4.6			4.6	4.4
Level of Service		A					A	A			A	A
Approach Delay (s)		9.0			0.0			4.6			4.5	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	27.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

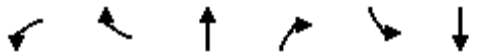
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	368	414	27	0	0	0	0	151	0	336	209	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1864						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.65	1.00	
Satd. Flow (perm)	1787	1864						1881		1212	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	460	30	0	0	0	0	168	0	373	232	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	409	484	0	0	0	0	0	168	0	373	232	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	13.8	13.8						14.2		14.2	14.2	
Effective Green, g (s)	13.8	13.8						14.2		14.2	14.2	
Actuated g/C Ratio	0.38	0.38						0.39		0.39	0.39	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	685	715						742		478	735	
v/s Ratio Prot		c0.26						0.09			0.12	
v/s Ratio Perm	0.23									c0.31		
v/c Ratio	0.60	0.68						0.23		0.78	0.32	
Uniform Delay, d1	8.9	9.2						7.2		9.5	7.5	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.4	2.5						0.2		8.1	0.2	
Delay (s)	10.3	11.8						7.4		17.6	7.8	
Level of Service	B	B						A		B	A	
Approach Delay (s)		11.1			0.0			7.4			13.8	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	115	412	519	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	119	425	535	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	535	268			535	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535	268			535	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	42			100	
cM capacity (veh/h)	480	737			1029	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2
Volume Total	119	425	268	268
Volume Left	119	0	0	0
Volume Right	0	425	0	0
cSH	480	737	1700	1700
Volume to Capacity	0.25	0.58	0.16	0.16
Queue Length 95th (ft)	24	93	0	0
Control Delay (s)	14.9	16.3	0.0	0.0
Lane LOS	B	C		
Approach Delay (s)	16.0		0.0	
Approach LOS	C			

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	119	1863	116	108	2054	141	216	189	60	117	250	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5078		1770	6335		1727	1788		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.43	1.00		0.43	1.00	1.00
Satd. Flow (perm)	1787	5078		1770	6335		781	1788		801	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	123	1921	120	111	2118	145	223	195	62	121	258	167
RTOR Reduction (vph)	0	5	0	0	7	0	0	10	0	0	0	86
Lane Group Flow (vph)	123	2036	0	111	2256	0	223	247	0	121	258	81
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.6	59.6		12.9	59.4		35.2	35.2		35.2	35.2	35.2
Effective Green, g (s)	13.6	59.6		12.9	59.4		35.2	35.2		35.2	35.2	35.2
Actuated g/C Ratio	0.11	0.50		0.11	0.49		0.29	0.29		0.29	0.29	0.29
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	203	2522		190	3136		229	524		235	546	439
v/s Ratio Prot	c0.07	c0.40		0.06	0.36			0.14			0.14	
v/s Ratio Perm							c0.29			0.15		0.05
v/c Ratio	0.61	0.81		0.58	0.72		0.97	0.47		0.51	0.47	0.18
Uniform Delay, d1	50.6	25.4		51.0	23.8		41.9	34.8		35.3	34.8	31.7
Progression Factor	1.15	0.45		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3		4.5	1.5		51.7	0.7		1.9	0.6	0.2
Delay (s)	58.6	11.7		55.5	25.2		93.6	35.4		37.2	35.4	31.9
Level of Service	E	B		E	C		F	D		D	D	C
Approach Delay (s)		14.4			26.6			62.5			34.7	
Approach LOS		B			C			E			C	

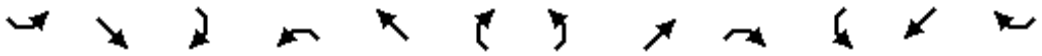
Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	7.4
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	373	1473	676	178	0	195	0	492	71	695	988	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.95		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4845		3273		2656		4883		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4845		3273		2656		4883		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	389	1534	704	185	0	203	0	512	74	724	1029	0
RTOR Reduction (vph)	0	14	0	0	0	116	0	16	0	0	0	0
Lane Group Flow (vph)	389	2224	0	185	0	87	0	570	0	724	1029	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.2	56.2		9.7		51.7		21.1		17.0	42.1	
Effective Green, g (s)	14.2	56.2		9.7		51.7		21.1		17.0	42.1	
Actuated g/C Ratio	0.12	0.47		0.08		0.43		0.18		0.14	0.35	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	590	2269		265		1144		859		491	1254	
v/s Ratio Prot	c0.08	c0.46		0.06		0.03		0.12		c0.21	c0.29	
v/s Ratio Perm												
v/c Ratio	0.66	0.98		0.70		0.08		0.66		1.47	0.82	
Uniform Delay, d1	50.6	31.4		53.7		20.1		46.1		51.5	35.5	
Progression Factor	1.00	1.00		1.22		0.59		1.00		1.00	1.00	
Incremental Delay, d2	2.7	14.8		5.8		0.1		1.9		224.4	4.4	
Delay (s)	53.3	46.1		71.1		12.0		48.1		275.9	39.9	
Level of Service	D	D		E		B		D		F	D	
Approach Delay (s)		47.2			40.2			48.1			137.4	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM Average Control Delay	76.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

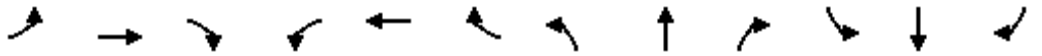
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	373	1473	676	178	0	195	0	492	71	695	988	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.95		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4845		3273		2656		4883		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4845		3273		2656		4883		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	389	1534	704	185	0	203	0	512	74	724	1029	0
RTOR Reduction (vph)	0	19	0	0	0	130	0	16	0	0	0	0
Lane Group Flow (vph)	389	2219	0	185	0	73	0	570	0	724	1029	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	16.0	52.0		7.0		43.0		19.5		25.5	49.0	
Effective Green, g (s)	16.0	52.0		7.0		43.0		19.5		25.5	49.0	
Actuated g/C Ratio	0.13	0.43		0.06		0.36		0.16		0.21	0.41	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	665	2100		191		952		793		737	1459	
v/s Ratio Prot	0.08	c0.46		c0.06		0.03		0.12		c0.21	c0.29	
v/s Ratio Perm												
v/c Ratio	0.58	1.06		0.97		0.08		0.72		0.98	0.71	
Uniform Delay, d1	48.9	34.0		56.4		25.4		47.7		47.0	29.5	
Progression Factor	1.00	1.00		0.94		0.45		1.00		1.00	1.00	
Incremental Delay, d2	1.3	36.7		46.6		0.1		3.1		28.6	1.6	
Delay (s)	50.2	70.7		99.4		11.5		50.8		75.6	31.1	
Level of Service	D	E		F		B		D		E	C	
Approach Delay (s)		67.6			53.4			50.8			49.5	
Approach LOS		E			D			D			D	

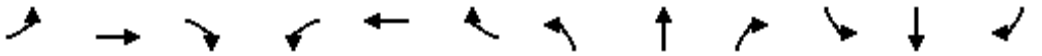
Intersection Summary			
HCM Average Control Delay	58.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



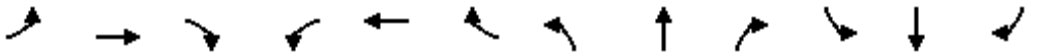
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	830	25	356	1287	295	396	33	607	129	139	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.97			0.98	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4915		1770	4924			1663	1504	1752	1719	
Flt Permitted	0.95	1.00		0.95	1.00			0.61	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4915		1770	4924			1056	1504	1752	1719	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	155	865	26	371	1341	307	412	34	632	134	145	120
RTOR Reduction (vph)	0	3	0	0	29	0	0	5	249	0	24	0
Lane Group Flow (vph)	155	888	0	371	1619	0	0	523	301	134	241	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Perm		Perm	Split		
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases							8		8			
Actuated Green, G (s)	14.4	41.0		26.5	52.6			16.0	16.0	26.0	26.0	
Effective Green, g (s)	14.4	41.0		26.5	52.6			16.0	16.0	26.0	26.0	
Actuated g/C Ratio	0.12	0.33		0.21	0.42			0.13	0.13	0.21	0.21	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	198	1612		375	2072			135	193	364	358	
v/s Ratio Prot	0.09	0.18		c0.21	c0.33					0.08	c0.14	
v/s Ratio Perm								c0.49	0.20			
v/c Ratio	0.78	0.55		0.99	0.78			3.87	1.56	0.37	0.67	
Uniform Delay, d1	53.8	34.5		49.1	31.2			54.5	54.5	42.5	45.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.5	1.4		43.1	3.0			1310.3	276.6	2.9	9.7	
Delay (s)	71.2	35.8		92.3	34.3			1364.8	331.1	45.3	55.3	
Level of Service	E	D		F	C			F	F	D	E	
Approach Delay (s)		41.1			44.9			837.4			52.0	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM Average Control Delay	232.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	830	25	356	1287	295	396	33	607	129	139	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.97			1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4915		1770	4922			1781	1583	1752	1719	
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4915		1770	4922			1781	1583	1752	1719	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	155	865	26	371	1341	307	412	34	632	134	145	120
RTOR Reduction (vph)	0	2	0	0	29	0	0	0	114	0	24	0
Lane Group Flow (vph)	155	889	0	371	1619	0	0	446	518	134	241	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Split		pt+ov	Split		
Protected Phases	5	2		1	6		8	8	8 1	4	4	
Permitted Phases												
Actuated Green, G (s)	16.5	32.0		27.5	43.0			33.1	64.6	21.9	21.9	
Effective Green, g (s)	16.5	32.0		27.5	43.0			33.1	64.6	21.9	21.9	
Actuated g/C Ratio	0.13	0.25		0.21	0.33			0.25	0.50	0.17	0.17	
Clearance Time (s)	3.5	4.0		3.5	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			3.0		2.5	2.5	
Lane Grp Cap (vph)	218	1210		374	1628			453	787	295	290	
v/s Ratio Prot	0.09	c0.18		0.21	c0.33			c0.25	0.33	0.08	c0.14	
v/s Ratio Perm												
v/c Ratio	0.71	0.73		0.99	0.99			0.98	0.66	0.45	0.83	
Uniform Delay, d1	54.5	45.1		51.1	43.4			48.2	24.5	48.7	52.3	
Progression Factor	0.85	0.84		0.83	0.48			0.97	1.17	1.00	1.00	
Incremental Delay, d2	7.5	3.4		38.4	18.2			33.1	1.6	0.8	17.6	
Delay (s)	54.1	41.2		80.8	39.2			79.7	30.3	49.5	69.9	
Level of Service	D	D		F	D			E	C	D	E	
Approach Delay (s)		43.1			46.8			50.7			63.0	
Approach LOS		D			D			D			E	

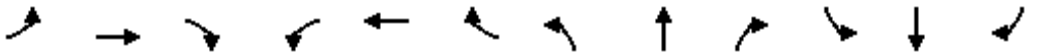
Intersection Summary			
HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	1249	100	79	1556	23	79	17	68	89	62	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3367	3433		1770	5073			1789	1558	1770	1631	
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3367	3433		1770	5073			1789	1558	1770	1631	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	228	1315	105	83	1638	24	83	18	72	94	65	319
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	65	0	139	0
Lane Group Flow (vph)	228	1416	0	83	1661	0	0	101	7	94	245	0
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	11.5	68.1		12.5	69.1			12.2	12.2	21.7	21.7	
Effective Green, g (s)	11.5	68.1		12.5	69.1			12.2	12.2	21.7	21.7	
Actuated g/C Ratio	0.09	0.52		0.10	0.53			0.09	0.09	0.17	0.17	
Clearance Time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	298	1798		170	2696			168	146	295	272	
v/s Ratio Prot	0.07	c0.41		0.05	c0.33			c0.06		0.05	c0.15	
v/s Ratio Perm									0.00			
v/c Ratio	0.77	0.79		0.49	0.62			0.60	0.05	0.32	0.90	
Uniform Delay, d1	57.9	25.1		55.7	21.2			56.6	53.6	47.6	53.1	
Progression Factor	0.80	0.65		0.92	0.71			1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.7	3.1		0.7	0.5			5.0	0.1	0.5	30.1	
Delay (s)	54.9	19.3		52.0	15.5			61.6	53.7	48.1	83.1	
Level of Service	D	B		D	B			E	D	D	F	
Approach Delay (s)		24.2			17.3			58.3			76.3	
Approach LOS		C			B			E			E	

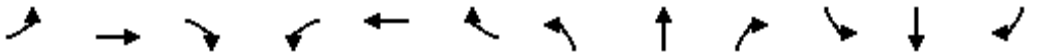
Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



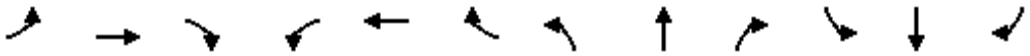
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	490	900	16	25	1142	202	31	9	32	158	3	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3427		1752	3413		1681	1553		1659	1666	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.72	0.72	1.00
Satd. Flow (perm)	3335	3427		1752	3413		1681	1550		1265	1251	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	538	989	18	27	1255	222	34	10	35	174	3	556
RTOR Reduction (vph)	0	1	0	0	11	0	0	23	0	0	0	417
Lane Group Flow (vph)	538	1006	0	27	1466	0	31	25	0	89	88	139
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.9	54.1		4.3	38.5		4.8	35.1		26.3	26.3	26.3
Effective Green, g (s)	19.9	54.1		4.3	38.5		4.8	35.1		26.3	26.3	26.3
Actuated g/C Ratio	0.19	0.52		0.04	0.37		0.05	0.33		0.25	0.25	0.25
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	632	1766		72	1251		77	518		317	313	393
v/s Ratio Prot	c0.16	0.29		0.02	c0.43		c0.02	0.00				
v/s Ratio Perm								0.01		0.07	0.07	c0.09
v/c Ratio	0.85	0.57		0.38	1.17		0.40	0.05		0.28	0.28	0.35
Uniform Delay, d1	41.1	17.5		49.0	33.2		48.7	23.6		31.7	31.7	32.4
Progression Factor	1.25	0.80		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.6	1.1		1.2	86.2		2.5	0.0		0.4	0.4	0.4
Delay (s)	60.0	15.0		50.2	119.5		51.2	23.7		32.1	32.1	32.8
Level of Service	E	B		D	F		D	C		C	C	C
Approach Delay (s)		30.7			118.2			34.5			32.6	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM Average Control Delay	65.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	490	900	16	25	1142	202	31	9	32	158	3	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3427		1752	3411		1681	1552		1658	1665	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.72	0.70	1.00
Satd. Flow (perm)	3335	3427		1752	3411		1681	1557		1264	1215	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	538	989	18	27	1255	222	34	10	35	174	3	556
RTOR Reduction (vph)	0	1	0	0	10	0	0	26	0	0	0	426
Lane Group Flow (vph)	538	1006	0	27	1467	0	31	22	0	89	88	130
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	23.7	81.2		3.3	60.8		15.6	34.0		14.4	14.4	14.4
Effective Green, g (s)	23.7	81.2		3.3	60.8		15.6	34.0		14.4	14.4	14.4
Actuated g/C Ratio	0.18	0.62		0.03	0.47		0.12	0.26		0.11	0.11	0.11
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	608	2141		44	1595		202	407		140	135	174
v/s Ratio Prot	c0.16	0.29		0.02	c0.43		c0.02	0.01				
v/s Ratio Perm								0.01		0.07	0.07	c0.08
v/c Ratio	0.88	0.47		0.61	0.92		0.15	0.05		0.64	0.65	0.75
Uniform Delay, d1	51.8	13.0		62.7	32.3		51.3	36.0		55.3	55.4	56.0
Progression Factor	0.78	0.66		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.5	0.5		16.5	10.1		0.3	0.0		8.0	9.6	15.2
Delay (s)	51.1	9.1		79.2	42.5		51.5	36.0		63.3	65.0	71.3
Level of Service	D	A		E	D		D	D		E	E	E
Approach Delay (s)		23.7			43.1			42.1			69.5	
Approach LOS		C			D			D			E	

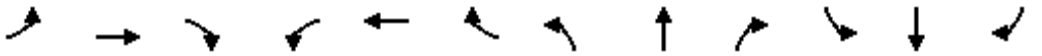
Intersection Summary			
HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	232	157	324	471	236	207	851	96	215	796	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1510	1770	3539	1555	3367	3471	1519	1787	3518	
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)	1719	3438	1510	1770	3539	1555	3367	3471	1519	1787	3518	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	87	280	189	390	567	284	249	1025	116	259	959	78
RTOR Reduction (vph)	0	0	30	0	0	56	0	0	61	0	5	0
Lane Group Flow (vph)	87	280	159	390	567	228	249	1025	55	259	1032	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	12.5	29.0	45.1	27.5	44.0	67.1	16.1	35.4	35.4	23.1	42.4	
Effective Green, g (s)	12.5	29.0	45.1	27.5	44.0	67.1	16.1	35.4	35.4	23.1	42.4	
Actuated g/C Ratio	0.10	0.22	0.35	0.21	0.34	0.52	0.12	0.27	0.27	0.18	0.33	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	165	767	565	374	1198	803	417	945	414	318	1147	
v/s Ratio Prot	0.05	0.08	0.03	c0.22	c0.16	0.05	0.07	c0.30		0.14	c0.29	
v/s Ratio Perm			0.07			0.10			0.04			
v/c Ratio	0.53	0.37	0.28	1.04	0.47	0.28	0.60	1.08	0.13	0.81	0.90	
Uniform Delay, d1	55.9	42.7	30.7	51.2	33.9	17.8	53.9	47.3	35.7	51.4	41.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.75	0.48	1.00	1.00	
Incremental Delay, d2	1.4	1.3	0.1	58.1	1.3	0.1	1.4	54.1	0.1	14.0	9.6	
Delay (s)	57.3	44.1	30.8	109.4	35.2	17.9	42.8	89.6	17.2	65.4	51.3	
Level of Service	E	D	C	F	D	B	D	F	B	E	D	
Approach Delay (s)		41.6			54.6			75.2			54.2	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	59.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

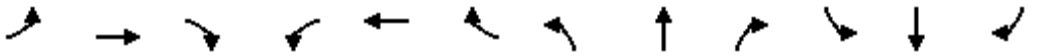
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	232	157	324	471	236	207	851	96	215	796	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1511	1770	3539	1554	3367	3471	1519	1787	3518	
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)	1719	3438	1511	1770	3539	1554	3367	3471	1519	1787	3518	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	87	280	189	390	567	284	249	1025	116	259	959	78
RTOR Reduction (vph)	0	0	51	0	0	80	0	0	63	0	5	0
Lane Group Flow (vph)	87	280	138	390	567	204	249	1025	53	259	1032	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	10.9	24.0	38.9	32.5	45.6	67.7	14.9	36.4	36.4	22.1	43.6	
Effective Green, g (s)	10.9	24.0	38.9	32.5	45.6	67.7	14.9	36.4	36.4	22.1	43.6	
Actuated g/C Ratio	0.08	0.18	0.30	0.25	0.35	0.52	0.11	0.28	0.28	0.17	0.34	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	144	635	493	443	1241	809	386	972	425	304	1180	
v/s Ratio Prot	c0.05	c0.08	0.03	c0.22	0.16	0.04	0.07	c0.30		0.14	c0.29	
v/s Ratio Perm			0.06			0.09			0.03			
v/c Ratio	0.60	0.44	0.28	0.88	0.46	0.25	0.65	1.05	0.12	0.85	0.87	
Uniform Delay, d1	57.5	47.0	34.8	46.9	32.6	17.2	55.0	46.8	34.9	52.4	40.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.75	0.33	1.00	1.00	
Incremental Delay, d2	4.8	2.2	0.1	17.7	1.2	0.1	2.6	43.4	0.1	19.3	7.4	
Delay (s)	62.3	49.3	34.9	64.5	33.8	17.3	44.5	78.3	11.5	71.7	48.0	
Level of Service	E	D	C	E	C	B	D	E	B	E	D	
Approach Delay (s)		46.4			39.7			66.7			52.8	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	52.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

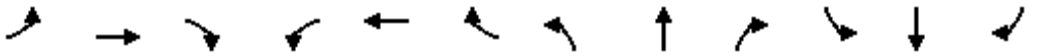
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	657	41	443	793	69	0	0	154	0	0	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3434		1770	3476				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3434		1770	3476				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	67	792	49	534	955	83	0	0	186	0	0	378
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	52	0	0	84
Lane Group Flow (vph)	67	839	0	534	1033	0	0	0	134	0	0	294
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	32.9	66.9		45.6	79.6				55.6			42.9
Effective Green, g (s)	32.9	66.9		45.6	79.6				55.6			42.9
Actuated g/C Ratio	0.25	0.51		0.35	0.61				0.43			0.33
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	439	1767		621	2128				1192			537
v/s Ratio Prot	0.04	0.24		c0.30	c0.30				0.05			c0.18
v/s Ratio Perm												
v/c Ratio	0.15	0.47		0.86	0.49				0.11			0.55
Uniform Delay, d1	37.7	20.3		39.2	13.9				22.4			35.6
Progression Factor	1.00	1.00		1.00	1.00				1.04			1.00
Incremental Delay, d2	0.1	0.9		11.1	0.8				0.0			0.6
Delay (s)	37.8	21.2		50.3	14.7				23.3			36.2
Level of Service	D	C		D	B				C			D
Approach Delay (s)		22.4			26.8			23.3			36.2	
Approach LOS		C			C			C			D	

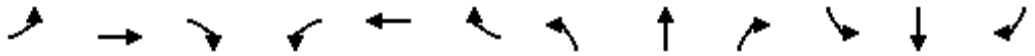
Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	411	189	94	586	219	126	138	47	243	344	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1762	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1762	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	244	462	212	106	658	246	142	155	53	273	387	348
RTOR Reduction (vph)	0	0	121	0	0	166	0	0	41	0	0	260
Lane Group Flow (vph)	244	462	91	106	658	80	128	169	12	273	387	88
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	22.4	55.5	55.5	9.3	42.4	42.4	16.4	16.4	29.7	32.8	32.8	32.8
Effective Green, g (s)	22.4	55.5	55.5	9.3	42.4	42.4	16.4	16.4	29.7	32.8	32.8	32.8
Actuated g/C Ratio	0.17	0.43	0.43	0.07	0.33	0.33	0.13	0.13	0.23	0.25	0.25	0.25
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	305	1511	676	246	1154	516	212	222	637	447	470	399
v/s Ratio Prot	c0.14	0.13		0.03	c0.19		0.08	c0.10	0.00	0.15	c0.21	
v/s Ratio Perm			0.06			0.05						0.06
v/c Ratio	0.80	0.31	0.13	0.43	0.57	0.16	0.60	0.76	0.02	0.61	0.82	0.22
Uniform Delay, d1	51.6	24.6	22.6	57.8	36.3	31.1	53.7	54.9	38.9	43.0	45.9	38.5
Progression Factor	1.00	1.00	1.00	1.02	0.53	0.19	0.96	0.96	2.23	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.5	0.4	1.1	1.8	0.6	4.8	14.2	0.0	2.5	11.1	0.3
Delay (s)	64.8	25.1	23.1	60.2	21.1	6.6	56.4	66.8	86.6	45.4	57.0	38.8
Level of Service	E	C	C	E	C	A	E	E	F	D	E	D
Approach Delay (s)		35.2			21.6			66.0			47.6	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM Average Control Delay	38.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	638	86	621	456	72	103	212	773	171	302	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3323	1527	3467	3495		1787	1881	1599	3433	3369	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3323	1527	3467	3495		1787	1881	1599	3433	3369	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	672	91	654	480	76	108	223	814	180	318	115
RTOR Reduction (vph)	0	0	59	0	10	0	0	0	20	0	28	0
Lane Group Flow (vph)	93	682	32	654	546	0	108	223	794	180	405	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	35.7	35.7	35.7	38.4	38.4		11.3	30.0	68.4	10.4	29.1	
Effective Green, g (s)	35.7	35.7	35.7	38.4	38.4		11.3	30.0	68.4	10.4	29.1	
Actuated g/C Ratio	0.27	0.27	0.27	0.30	0.30		0.09	0.23	0.53	0.08	0.22	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	434	913	419	1024	1032		155	434	841	275	754	
v/s Ratio Prot	0.06	c0.21		0.19	0.16		0.06	0.12	c0.50	c0.05	0.12	
v/s Ratio Perm			0.02									
v/c Ratio	0.21	0.75	0.08	0.64	0.53		0.70	0.51	0.94	0.65	0.54	
Uniform Delay, d1	36.3	43.0	34.9	39.8	38.3		57.7	43.6	29.0	58.1	44.5	
Progression Factor	1.00	1.00	1.00	1.00	0.99		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	5.6	0.3	1.2	0.5		10.5	0.4	18.5	4.2	0.4	
Delay (s)	37.5	48.6	35.3	41.0	38.4		68.1	44.1	47.5	62.0	44.9	
Level of Service	D	D	D	D	D		E	D	D	E	D	
Approach Delay (s)		46.0			39.8			48.8			49.9	
Approach LOS		D			D			D			D	

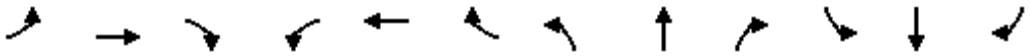
Intersection Summary			
HCM Average Control Delay	45.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1582	885	0	872	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1683	941	0	928	281
RTOR Reduction (vph)	0	0	0	0	0	127
Lane Group Flow (vph)	0	1683	941	0	928	154
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		40.9	40.9		15.3	15.3
Effective Green, g (s)		40.9	40.9		15.3	15.3
Actuated g/C Ratio		0.63	0.63		0.24	0.24
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2227	2249		808	373
v/s Ratio Prot		c0.48	0.26		c0.27	0.10
v/s Ratio Perm						
v/c Ratio		0.76	0.42		1.15	0.41
Uniform Delay, d1		8.5	6.1		24.8	21.0
Progression Factor		0.68	0.70		1.00	1.00
Incremental Delay, d2		1.4	0.5		81.0	0.5
Delay (s)		7.1	4.8		105.9	21.6
Level of Service		A	A		F	C
Approach Delay (s)		7.1	4.8		86.3	
Approach LOS		A	A		F	

Intersection Summary			
HCM Average Control Delay	31.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	117.1%	ICU Level of Service	H
Analysis Period (min)	15		

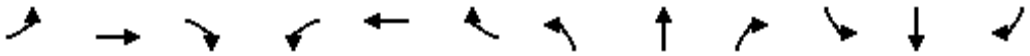
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	61	35	249	115	159	42	832	230	253	646	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.91	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.96	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1754			1755	1451	1752	3364		1787	3514	
Flt Permitted		0.70			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1233			1246	1451	1752	3364		1787	3514	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	25	73	42	296	137	189	50	990	274	301	769	79
RTOR Reduction (vph)	0	16	0	0	0	50	0	26	0	0	6	0
Lane Group Flow (vph)	0	124	0	0	433	139	50	1238	0	301	842	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		25.1			25.1	25.1	4.8	31.7		18.1	45.0	
Effective Green, g (s)		25.1			25.1	25.1	4.8	31.7		18.1	45.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.06	0.37		0.21	0.52	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		358			362	422	97	1234		374	1830	
v/s Ratio Prot							0.03	c0.37		c0.17	0.24	
v/s Ratio Perm		0.10			c0.35	0.10						
v/c Ratio		0.35			1.20	0.33	0.52	1.00		0.80	0.46	
Uniform Delay, d1		24.2			30.7	24.0	39.7	27.4		32.5	13.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			112.1	0.5	1.9	26.4		11.3	0.1	
Delay (s)		24.8			142.8	24.5	41.6	53.8		43.7	13.2	
Level of Service		C			F	C	D	D		D	B	
Approach Delay (s)		24.8			106.8			53.3			21.2	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM Average Control Delay	50.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

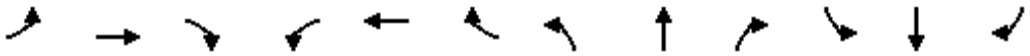
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	956	32	11	828	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1601			1599		1752	3484		1770	3358	
Flt Permitted		0.54			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		879			1222		1752	3484		1770	3358	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	1125	38	13	974	107
RTOR Reduction (vph)	0	44	0	0	20	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	338	0	0	18	0	234	1162	0	13	1074	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Effective Green, g (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		230			49		292	1755		22	1173	
v/s Ratio Prot							c0.13	0.33		0.01	c0.32	
v/s Ratio Perm		c0.38			c0.01							
v/c Ratio		1.47			0.36		0.80	0.66		0.59	0.92	
Uniform Delay, d1		35.6			45.1		38.7	17.8		47.4	30.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		233.0			1.7		13.8	0.9		25.2	11.1	
Delay (s)		268.6			46.8		52.5	18.7		72.6	41.1	
Level of Service		F			D		D	B		E	D	
Approach Delay (s)		268.6			46.8			24.3			41.5	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM Average Control Delay	63.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	17.5
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

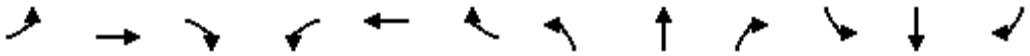
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	956	32	11	828	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1598			1600		1752	3484		1770	3359	
Flt Permitted		0.98			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1598			1222		1752	3484		1770	3359	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	1125	38	13	974	107
RTOR Reduction (vph)	0	45	0	0	20	0	0	1	0	0	6	0
Lane Group Flow (vph)	0	337	0	0	18	0	234	1162	0	13	1075	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		24.4			3.9		16.1	48.7		1.2	33.8	
Effective Green, g (s)		24.4			3.9		16.1	48.7		1.2	33.8	
Actuated g/C Ratio		0.25			0.04		0.17	0.51		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		407			50		295	1773		22	1186	
v/s Ratio Prot		c0.21					c0.13	0.33		0.01	c0.32	
v/s Ratio Perm					c0.01							
v/c Ratio		0.83			0.36		0.79	0.66		0.59	0.91	
Uniform Delay, d1		33.7			44.7		38.2	17.3		47.0	29.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.5			1.6		12.8	0.8		25.2	9.9	
Delay (s)		46.1			46.3		51.0	18.1		72.2	39.4	
Level of Service		D			D		D	B		E	D	
Approach Delay (s)		46.1			46.3			23.6			39.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	95.7	Sum of lost time (s)	17.5
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

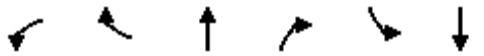
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	1	144	17	1	2	119	1086	11	1	887	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.94		1.00	1.00		1.00	1.00	
Frt		0.92			0.99		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1682			1672		1752	3495		1752	3387	
Flt Permitted		0.94			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1613			1744		1752	3495		1752	3387	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	111	1	162	19	1	2	134	1220	12	1	997	162
RTOR Reduction (vph)	0	50	0	0	2	0	0	1	0	0	10	0
Lane Group Flow (vph)	0	224	0	0	20	0	134	1231	0	1	1149	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		18.3			2.5		12.0	29.9		13.2	31.1	
Effective Green, g (s)		18.3			2.5		12.0	29.9		13.2	31.1	
Actuated g/C Ratio		0.23			0.03		0.15	0.37		0.16	0.38	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		365			54		260	1292		286	1302	
v/s Ratio Prot							c0.08	c0.35		0.00	0.34	
v/s Ratio Perm		c0.14			c0.01							
v/c Ratio		0.62			0.37		0.52	0.95		0.00	0.88	
Uniform Delay, d1		28.1			38.4		31.8	24.8		28.3	23.2	
Progression Factor		1.00			1.00		0.73	0.35		1.00	1.00	
Incremental Delay, d2		4.4			1.6		0.5	5.9		0.0	7.3	
Delay (s)		32.5			40.0		23.8	14.5		28.3	30.5	
Level of Service		C			D		C	B		C	C	
Approach Delay (s)		32.5			40.0			15.4			30.5	
Approach LOS		C			D			B			C	

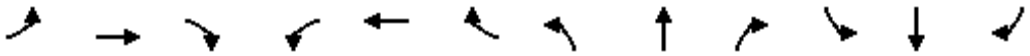
Intersection Summary			
HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	111	1105	25	84	964
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1690		3456		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1690		3456		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	128	1270	29	97	1108
RTOR Reduction (vph)	58	0	1	0	0	0
Lane Group Flow (vph)	145	0	1298	0	97	1108
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	18.3		29.9		13.2	31.1
Effective Green, g (s)	18.3		29.9		13.2	31.1
Actuated g/C Ratio	0.23		0.37		0.16	0.38
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	382		1277		292	1374
v/s Ratio Prot	c0.09		c0.38		c0.05	0.31
v/s Ratio Perm						
v/c Ratio	0.38		1.02		0.33	0.81
Uniform Delay, d1	26.5		25.5		30.0	22.2
Progression Factor	1.00		1.00		0.69	0.37
Incremental Delay, d2	1.3		29.3		0.1	2.1
Delay (s)	27.8		54.8		20.9	10.4
Level of Service	C		D		C	B
Approach Delay (s)	27.8		54.8			11.3
Approach LOS	C		D			B

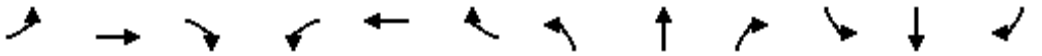
Intersection Summary			
HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	99	3	1	3	86	1072	1	1	974	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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		0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1556		1743		1770	3539		1787	3505	
Flt Permitted		0.75	1.00		0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1400	1556		1580		1770	3539		1787	3505	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	61	0	125	4	1	4	109	1357	1	1	1233	106
RTOR Reduction (vph)	0	0	110	0	4	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	61	15	0	5	0	109	1358	0	1	1334	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.9	7.9		7.9		8.5	45.2		0.9	37.6	
Effective Green, g (s)		7.9	7.9		7.9		8.5	45.2		0.9	37.6	
Actuated g/C Ratio		0.12	0.12		0.12		0.13	0.69		0.01	0.57	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		169	188		191		230	2442		25	2012	
v/s Ratio Prot							c0.06	0.38		0.00	c0.38	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.36	0.08		0.03		0.47	0.56		0.04	0.66	
Uniform Delay, d1		26.5	25.6		25.4		26.4	5.1		31.9	9.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.3	0.3		0.1		2.1	0.3		0.7	0.6	
Delay (s)		28.7	25.9		25.5		28.5	5.4		32.5	10.2	
Level of Service		C	C		C		C	A		C	B	
Approach Delay (s)		26.8			25.5			7.1			10.3	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	11.5
Intersection Capacity Utilization	52.3%	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												
Volume (vph)	270	330	101	572	556	414	13	1043	546	667	631	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	287	351	107	609	591	440	14	1110	581	710	671	351
RTOR Reduction (vph)	0	0	93	0	0	245	0	0	45	0	0	72
Lane Group Flow (vph)	287	351	14	609	591	195	14	1110	536	710	671	279
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	15.2	17.3	17.3	28.1	30.2	30.2	2.7	31.5	59.6	36.1	64.9	84.6
Effective Green, g (s)	15.2	17.3	17.3	28.1	30.2	30.2	2.7	31.5	59.6	36.1	64.9	84.6
Actuated g/C Ratio	0.12	0.13	0.13	0.22	0.23	0.23	0.02	0.24	0.46	0.28	0.50	0.65
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	405	476	213	742	822	360	37	858	726	943	1784	1041
v/s Ratio Prot	0.08	c0.10		c0.18	0.17		0.01	c0.31	0.34	c0.21	0.19	0.17
v/s Ratio Perm			0.01			0.13						
v/c Ratio	0.71	0.74	0.07	0.82	0.72	0.54	0.38	1.29	0.74	0.75	0.38	0.27
Uniform Delay, d1	55.3	54.2	49.3	48.6	46.0	43.8	62.8	49.2	28.8	42.9	20.1	9.6
Progression Factor	0.97	0.97	1.38	1.00	1.00	1.00	1.05	0.94	1.17	1.00	1.00	1.00
Incremental Delay, d2	4.3	4.8	0.0	6.9	2.5	0.9	1.1	136.5	1.7	3.1	0.6	0.1
Delay (s)	57.9	57.6	67.9	55.5	48.5	44.7	67.3	182.7	35.2	45.9	20.7	9.7
Level of Service	E	E	E	E	D	D	E	F	D	D	C	A
Approach Delay (s)		59.2			50.1			131.5			28.8	
Approach LOS		E			D			F			C	

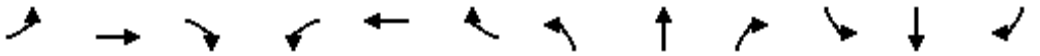
Intersection Summary			
HCM Average Control Delay	68.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	330	101	572	556	414	13	1043	546	667	631	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	287	351	107	609	591	440	14	1110	581	710	671	351
RTOR Reduction (vph)	0	0	93	0	0	295	0	0	31	0	0	82
Lane Group Flow (vph)	287	351	14	609	591	145	14	1110	550	710	671	269
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	20.1	17.3	17.3	30.9	28.1	28.1	2.7	37.2	72.6	27.6	62.1	82.2
Effective Green, g (s)	20.1	17.3	17.3	30.9	28.1	28.1	2.7	37.2	72.6	27.6	62.1	82.2
Actuated g/C Ratio	0.15	0.13	0.13	0.24	0.22	0.22	0.02	0.29	0.56	0.21	0.48	0.63
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	536	476	213	816	765	335	37	1013	884	721	1707	1011
v/s Ratio Prot	0.08	0.10		c0.18	c0.17		0.01	c0.31	0.35	c0.21	0.19	0.17
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.54	0.74	0.07	0.75	0.77	0.43	0.38	1.10	0.62	0.98	0.39	0.27
Uniform Delay, d1	50.6	54.2	49.3	45.9	47.9	44.1	62.8	46.4	19.4	51.0	21.8	10.6
Progression Factor	1.07	0.86	1.63	1.00	1.00	1.00	1.00	0.93	0.85	1.00	1.00	1.00
Incremental Delay, d2	0.5	4.8	0.0	3.3	4.4	0.3	1.1	51.4	0.5	29.4	0.7	0.1
Delay (s)	54.6	51.5	80.6	49.2	52.4	44.4	64.2	94.4	17.0	80.4	22.5	10.6
Level of Service	D	D	F	D	D	D	E	F	B	F	C	B
Approach Delay (s)		56.9			49.1			67.8			43.8	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	54.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	8	68	1083	59	4	1256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5035		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5035		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	9	79	1259	69	5	1460
RTOR Reduction (vph)	0	76	3	0	0	0
Lane Group Flow (vph)	9	3	1325	0	5	1460
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	5.5	5.5	64.4		1.3	47.0
Effective Green, g (s)	5.5	5.5	64.4		1.3	47.0
Actuated g/C Ratio	0.04	0.04	0.50		0.01	0.36
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	76	67	2494		18	1838
v/s Ratio Prot	c0.00		c0.26		0.00	c0.29
v/s Ratio Perm		0.00				
v/c Ratio	0.12	0.05	0.53		0.28	0.79
Uniform Delay, d1	59.9	59.7	22.5		63.9	37.2
Progression Factor	1.00	1.00	0.18		0.69	0.54
Incremental Delay, d2	0.5	0.2	0.1		1.9	2.3
Delay (s)	60.4	60.0	4.1		46.2	22.6
Level of Service	E	E	A		D	C
Approach Delay (s)	60.0		4.1			22.7
Approach LOS	E		A			C

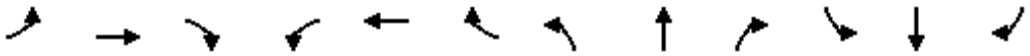
Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	60.8
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	82	223	264	272	59	288	1044	51	17	1084	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1485	1787	1823		3433	5039		1770	4955	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1485	1787	1823		3433	5039		1770	4955	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	44	93	253	300	309	67	327	1186	58	19	1232	185
RTOR Reduction (vph)	0	0	183	0	6	0	0	3	0	0	14	0
Lane Group Flow (vph)	44	93	70	300	370	0	327	1241	0	19	1403	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	5.5	22.1	22.1	25.8	32.9		19.6	58.9		2.9	47.0	
Effective Green, g (s)	5.5	22.1	22.1	25.8	32.9		19.6	58.9		2.9	47.0	
Actuated g/C Ratio	0.04	0.17	0.17	0.20	0.25		0.15	0.45		0.02	0.36	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	74	314	252	355	461		518	2283		39	1791	
v/s Ratio Prot	0.03	0.05		c0.17	c0.20		c0.10	0.25		0.01	c0.28	
v/s Ratio Perm			0.05									
v/c Ratio	0.59	0.30	0.28	0.85	0.80		0.63	0.54		0.49	0.78	
Uniform Delay, d1	61.2	47.2	47.0	50.2	45.5		51.8	25.8		62.8	37.0	
Progression Factor	1.00	1.00	1.00	1.01	0.45		1.02	0.91		1.43	0.09	
Incremental Delay, d2	8.3	0.4	0.4	12.1	7.0		1.7	0.9		2.1	2.2	
Delay (s)	69.4	47.5	47.5	62.7	27.4		54.5	24.4		91.7	5.5	
Level of Service	E	D	D	E	C		D	C		F	A	
Approach Delay (s)		50.0			43.0			30.7			6.6	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM Average Control Delay	26.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

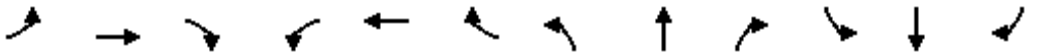


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	901	4	302	307	1081	0	0	970	601
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1618		1770	5085			5907	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1618		1770	5085			5907	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1001	4	336	341	1201	0	0	1078	668
RTOR Reduction (vph)	0	0	0	0	86	0	0	0	0	0	172	0
Lane Group Flow (vph)	0	0	0	1001	254	0	341	1201	0	0	1574	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				15.5	15.5		15.6	43.0			24.4	
Effective Green, g (s)				15.5	15.5		15.6	43.0			24.4	
Actuated g/C Ratio				0.24	0.24		0.24	0.66			0.38	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				835	386		425	3364			2217	
v/s Ratio Prot				c0.29	0.16		c0.19	0.24			c0.27	
v/s Ratio Perm												
v/c Ratio				1.20	0.66		0.80	0.36			0.88dr	
Uniform Delay, d1				24.8	22.4		23.2	4.9			17.3	
Progression Factor				1.00	1.00		1.00	1.35			0.84	
Incremental Delay, d2				101.0	3.1		6.0	0.2			1.4	
Delay (s)				125.7	25.4		29.3	6.8			15.8	
Level of Service				F	C		C	A			B	
Approach Delay (s)		0.0			100.3			11.7			15.8	
Approach LOS		A			F			B			B	

Intersection Summary			
HCM Average Control Delay	38.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	108.1%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

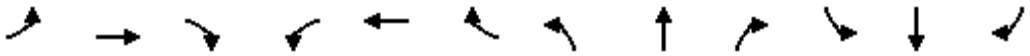
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	511	2	285	0	0	0	0	877	946	456	1415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.92		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4640		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4640		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	581	2	324	0	0	0	0	997	1075	518	1608	0
RTOR Reduction (vph)	0	0	23	0	0	0	0	299	0	0	0	0
Lane Group Flow (vph)	290	293	301	0	0	0	0	1773	0	518	1608	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	15.9	15.9	15.9					27.5		11.1	42.6	
Effective Green, g (s)	15.9	15.9	15.9					27.5		11.1	42.6	
Actuated g/C Ratio	0.24	0.24	0.24					0.42		0.17	0.66	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	411	412	387					1963		592	3366	
v/s Ratio Prot	0.17	0.17						c0.38		c0.15	0.31	
v/s Ratio Perm			c0.19									
v/c Ratio	0.71	0.71	0.78					1.10dr		0.88	0.48	
Uniform Delay, d1	22.4	22.5	22.9					17.5		26.3	5.6	
Progression Factor	1.00	1.00	1.00					1.32		1.02	0.83	
Incremental Delay, d2	4.5	4.8	8.7					6.2		5.5	0.2	
Delay (s)	26.9	27.2	31.6					29.3		32.2	4.9	
Level of Service	C	C	C					C		C	A	
Approach Delay (s)		28.7			0.0			29.3			11.5	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	108.1%	ICU Level of Service	G
Analysis Period (min)	15		

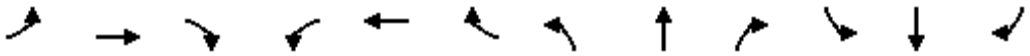
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	5	55	22	21	11	42	1579	5	20	1520	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1758			1809		1770	5083		1787	5046	
Flt Permitted		0.73			0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1338			1611		1770	5083		1787	5046	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	248	5	59	23	22	12	45	1680	5	21	1617	169
RTOR Reduction (vph)	0	12	0	0	9	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	300	0	0	48	0	45	1685	0	21	1768	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		16.5			16.5		4.3	35.7		1.3	32.7	
Effective Green, g (s)		16.5			16.5		4.3	35.7		1.3	32.7	
Actuated g/C Ratio		0.25			0.25		0.07	0.55		0.02	0.50	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		340			409		117	2792		36	2539	
v/s Ratio Prot							c0.03	c0.33		0.01	c0.35	
v/s Ratio Perm		c0.22			0.03							
v/c Ratio		0.88			0.12		0.38	0.60		0.58	0.70	
Uniform Delay, d1		23.3			18.7		29.1	9.9		31.6	12.4	
Progression Factor		1.00			1.00		0.95	1.34		0.86	1.39	
Incremental Delay, d2		22.0			0.0		0.6	0.8		12.8	1.4	
Delay (s)		45.3			18.7		28.1	14.0		40.1	18.6	
Level of Service		D			B		C	B		D	B	
Approach Delay (s)		45.3			18.7			14.3			18.8	
Approach LOS		D			B			B			B	

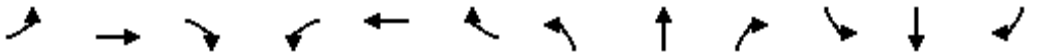
Intersection Summary			
HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	162	13	575	87	186	12	1337	334	161	1368	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00	
Frt	1.00	0.99		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)	1736	1804		1681	1707	1558	1752	5036	1568	3467	3541	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1804		1681	1707	1558	1752	5036	1568	3467	3541	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	176	14	625	95	202	13	1453	363	175	1487	74
RTOR Reduction (vph)	0	3	0	0	0	123	0	0	0	0	2	0
Lane Group Flow (vph)	87	187	0	356	364	79	13	1453	363	175	1559	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	18.0	18.0		32.8	32.8	32.8	2.7	53.3	89.6	10.9	61.5	
Effective Green, g (s)	18.0	18.0		32.8	32.8	32.8	2.7	53.3	89.6	10.9	61.5	
Actuated g/C Ratio	0.14	0.14		0.25	0.25	0.25	0.02	0.41	0.69	0.08	0.47	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	240	250		424	431	393	36	2065	1081	291	1675	
v/s Ratio Prot	0.05	c0.10		0.21	c0.21		0.01	0.29	0.23	c0.05	c0.44	
v/s Ratio Perm						0.05						
v/c Ratio	0.36	0.75		0.84	0.84	0.20	0.36	0.70	0.34	0.60	0.93	
Uniform Delay, d1	50.8	53.8		46.1	46.2	38.3	62.8	31.8	8.2	57.5	32.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.83	1.05	
Incremental Delay, d2	0.3	10.3		13.1	13.5	0.1	2.2	2.0	0.1	1.8	8.5	
Delay (s)	51.1	64.1		59.2	59.7	38.4	65.0	33.8	8.2	49.6	42.3	
Level of Service	D	E		E	E	D	E	C	A	D	D	
Approach Delay (s)		60.0			54.8			29.0			43.1	
Approach LOS		E			D			C			D	

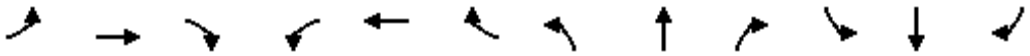
Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	68	0	0	0	0	21	165	41	0	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.97				0.86
Flt Protected		0.97					0.95	1.00				1.00
Satd. Flow (prot)		1852					1770	1807				1644
Flt Permitted		0.97					0.95	1.00				1.00
Satd. Flow (perm)		1852					1770	1807				1644
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	74	0	0	0	0	23	179	45	0	0	43
RTOR Reduction (vph)	0	0	0	0	0	0	0	17	0	0	0	19
Lane Group Flow (vph)	0	153	0	0	0	0	23	207	0	0	0	24
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		4.9					15.8	15.8				15.8
Effective Green, g (s)		4.9					15.8	15.8				15.8
Actuated g/C Ratio		0.17					0.55	0.55				0.55
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		316					974	995				905
v/s Ratio Prot								c0.11				
v/s Ratio Perm		0.08					0.01					0.01
v/c Ratio		0.48					0.02	0.21				0.03
Uniform Delay, d1		10.8					2.9	3.3				2.9
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		1.2					0.0	0.1				0.0
Delay (s)		11.9					2.9	3.4				3.0
Level of Service		B					A	A				A
Approach Delay (s)		11.9			0.0			3.3			3.0	
Approach LOS		B			A			A			A	

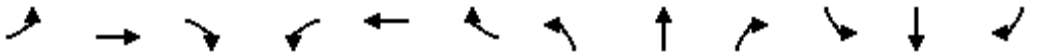
Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	28.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	339	7	7	0	0	0	0	238	0	555	33	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.93						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1723						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.60	1.00	
Satd. Flow (perm)	1770	1723						1863		1116	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	368	8	8	0	0	0	0	259	0	603	36	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	368	11	0	0	0	0	0	259	0	603	36	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.7	12.7						18.0		18.0	18.0	
Effective Green, g (s)	12.7	12.7						18.0		18.0	18.0	
Actuated g/C Ratio	0.33	0.33						0.47		0.47	0.47	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	581	565						867		519	867	
v/s Ratio Prot		0.01						0.14			0.02	
v/s Ratio Perm	c0.21									c0.54		
v/c Ratio	0.63	0.02						0.30		1.16	0.04	
Uniform Delay, d1	11.0	8.8						6.4		10.4	5.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.0						0.2		92.4	0.0	
Delay (s)	13.3	8.8						6.6		102.8	5.7	
Level of Service	B	A						A		F	A	
Approach Delay (s)		13.1			0.0			6.6			97.3	
Approach LOS		B			A			A			F	

Intersection Summary			
HCM Average Control Delay	53.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	103	43	534	444	45	532	0	0	442	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1856	1583	1770	1863			1863	1583
Flt Permitted			1.00		1.00	1.00	0.34	1.00			1.00	1.00
Satd. Flow (perm)			1611		1856	1583	642	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	112	47	580	483	49	578	0	0	480	30
RTOR Reduction (vph)	0	0	67	0	0	98	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	45	0	627	385	49	578	0	0	480	12
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			16.0		16.0	16.0	16.0	16.0			16.0	16.0
Effective Green, g (s)			16.0		16.0	16.0	16.0	16.0			16.0	16.0
Actuated g/C Ratio			0.40		0.40	0.40	0.40	0.40			0.40	0.40
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			644		742	633	257	745			745	633
v/s Ratio Prot								c0.31			0.26	
v/s Ratio Perm			0.03		0.34	0.24	0.08					0.01
v/c Ratio			0.07		0.85	0.61	0.19	0.78			0.64	0.02
Uniform Delay, d1			7.4		10.9	9.5	7.8	10.4			9.7	7.3
Progression Factor			0.25		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2		11.4	4.3	1.6	7.8			4.3	0.1
Delay (s)			2.0		22.2	13.8	9.4	18.2			14.0	7.3
Level of Service			A		C	B	A	B			B	A
Approach Delay (s)		2.0			18.6			17.5			13.6	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	582	25	979	78	25	1101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3427		3500		1770	3539
Flt Permitted	0.95		1.00		0.25	1.00
Satd. Flow (perm)	3427		3500		466	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	633	27	1064	85	27	1197
RTOR Reduction (vph)	8	0	15	0	0	0
Lane Group Flow (vph)	652	0	1134	0	27	1197
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	16.0		16.0		16.0	16.0
Effective Green, g (s)	16.0		16.0		16.0	16.0
Actuated g/C Ratio	0.40		0.40		0.40	0.40
Clearance Time (s)	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	1371		1400		186	1416
v/s Ratio Prot			0.32			c0.34
v/s Ratio Perm	c0.19				0.06	
v/c Ratio	0.48		0.81		0.15	0.85
Uniform Delay, d1	8.9		10.7		7.6	10.9
Progression Factor	1.54		1.00		1.00	1.00
Incremental Delay, d2	0.7		5.2		1.6	6.4
Delay (s)	14.4		15.8		9.3	17.2
Level of Service	B		B		A	B
Approach Delay (s)	14.4		15.8			17.1
Approach LOS	B		B			B

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	258	1710	90	133	2154	115	294	242	80	61	108	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5082		1787	6414		1766	1804		1784	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.65	1.00		0.31	1.00	1.00
Satd. Flow (perm)	1787	5082		1787	6414		1213	1804		574	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	272	1800	95	140	2267	121	309	255	84	64	114	80
RTOR Reduction (vph)	0	4	0	0	5	0	0	11	0	0	0	57
Lane Group Flow (vph)	272	1891	0	140	2383	0	309	328	0	64	114	23
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	23.0	58.4		14.7	50.6		34.6	34.6		34.6	34.6	34.6
Effective Green, g (s)	23.0	58.4		14.7	50.6		34.6	34.6		34.6	34.6	34.6
Actuated g/C Ratio	0.19	0.49		0.12	0.42		0.29	0.29		0.29	0.29	0.29
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	343	2473		219	2705		350	520		166	542	449
v/s Ratio Prot	c0.15	0.37		0.08	c0.37			0.18			0.06	
v/s Ratio Perm							c0.25			0.11		0.01
v/c Ratio	0.79	0.76		0.64	0.88		0.88	0.63		0.39	0.21	0.05
Uniform Delay, d1	46.2	25.2		50.1	31.9		40.8	37.2		34.2	32.4	30.8
Progression Factor	0.86	0.71		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.4	1.0		6.0	4.5		22.1	2.5		1.5	0.2	0.0
Delay (s)	45.1	19.0		56.1	36.5		62.8	39.7		35.7	32.5	30.9
Level of Service	D	B		E	D		E	D		D	C	C
Approach Delay (s)		22.2			37.6			50.7			32.8	
Approach LOS		C			D			D			C	

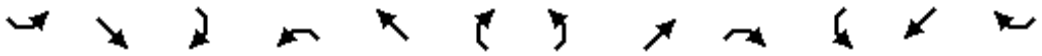
Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	545	1409	216	229	0	297	0	999	193	583	691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5023		3467		2814		5043		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5023		3467		2814		5043		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	568	1468	225	239	0	309	0	1041	201	607	720	0
RTOR Reduction (vph)	0	17	0	0	0	190	0	24	0	0	0	0
Lane Group Flow (vph)	568	1676	0	239	0	119	0	1218	0	607	720	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	15.8	56.0		6.0		46.2		25.0		17.0	46.0	
Effective Green, g (s)	15.8	56.0		6.0		46.2		25.0		17.0	46.0	
Actuated g/C Ratio	0.13	0.47		0.05		0.39		0.21		0.14	0.38	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	664	2344		173		1083		1051		491	1370	
v/s Ratio Prot	c0.11	c0.33		c0.07		0.04		c0.24		c0.18	0.20	
v/s Ratio Perm												
v/c Ratio	0.86	0.71		1.38		0.11		1.16		1.24	0.53	
Uniform Delay, d1	51.0	25.6		57.0		23.7		47.5		51.5	28.6	
Progression Factor	1.00	1.00		1.13		1.59		1.00		1.00	1.00	
Incremental Delay, d2	10.5	1.9		190.2		0.1		82.4		122.9	0.4	
Delay (s)	61.5	27.5		254.6		37.8		129.9		174.4	28.9	
Level of Service	E	C		F		D		F		F	C	
Approach Delay (s)		36.0			132.4			129.9			95.5	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM Average Control Delay	82.2	HCM Level of Service	F
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

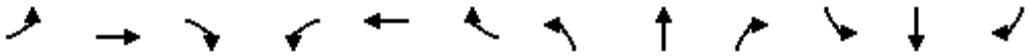
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	545	1409	216	229	0	297	0	999	193	583	691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5023		3467		2814		5044		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5023		3467		2814		5044		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	568	1468	225	239	0	309	0	1041	201	607	720	0
RTOR Reduction (vph)	0	17	0	0	0	221	0	24	0	0	0	0
Lane Group Flow (vph)	568	1676	0	239	0	88	0	1218	0	607	720	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	19.0	44.0		9.0		34.0		29.0		22.0	55.0	
Effective Green, g (s)	19.0	44.0		9.0		34.0		29.0		22.0	55.0	
Actuated g/C Ratio	0.16	0.37		0.08		0.28		0.24		0.18	0.46	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	798	1842		260		797		1219		636	1638	
v/s Ratio Prot	0.11	c0.33		c0.07		0.03		c0.24		c0.18	0.20	
v/s Ratio Perm												
v/c Ratio	0.71	0.91		0.92		0.11		1.00		0.95	0.44	
Uniform Delay, d1	47.9	36.1		55.1		31.8		45.5		48.5	22.0	
Progression Factor	1.00	1.00		0.85		0.53		1.00		1.00	1.00	
Incremental Delay, d2	3.0	8.2		22.7		0.2		25.5		24.7	0.2	
Delay (s)	50.9	44.3		69.4		17.0		71.0		73.2	22.2	
Level of Service	D	D		E		B		E		E	C	
Approach Delay (s)		46.0			39.8			71.0			45.6	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	51.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

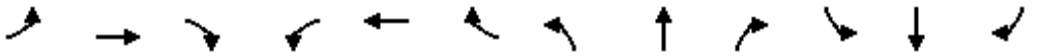
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1048	25	244	1086	197	198	106	915	322	80	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.98			0.92	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5113		1787	5017			1609	1504	1770	1700	
Flt Permitted	0.95	1.00		0.95	1.00			0.81	1.00	0.95	1.00	
Satd. Flow (perm)	1787	5113		1787	5017			1332	1504	1770	1700	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	289	1127	27	262	1168	212	213	114	984	346	86	120
RTOR Reduction (vph)	0	2	0	0	21	0	0	30	274	0	40	0
Lane Group Flow (vph)	289	1152	0	262	1359	0	0	632	375	346	166	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm		Perm	Split		
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases							8		8			
Actuated Green, G (s)	16.0	45.3		22.2	51.0			16.0	16.0	26.0	26.0	
Effective Green, g (s)	16.0	45.3		22.2	51.0			16.0	16.0	26.0	26.0	
Actuated g/C Ratio	0.13	0.36		0.18	0.41			0.13	0.13	0.21	0.21	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	229	1853		317	2047			170	193	368	354	
v/s Ratio Prot	c0.16	0.23		c0.15	c0.27					c0.20	0.10	
v/s Ratio Perm								c0.47	0.25			
v/c Ratio	1.26	0.62		0.83	0.66			3.72	1.94	0.94	0.47	
Uniform Delay, d1	54.5	32.8		49.5	30.0			54.5	54.5	48.7	43.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	148.1	1.6		15.7	1.7			1238.2	443.2	34.0	4.4	
Delay (s)	202.6	34.4		65.2	31.8			1292.7	497.7	82.7	47.8	
Level of Service	F	C		E	C			F	F	F	D	
Approach Delay (s)		68.1			37.1			899.1			69.7	
Approach LOS		E			D			F			E	

Intersection Summary			
HCM Average Control Delay	278.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

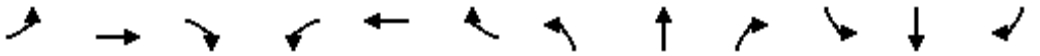
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1048	25	244	1086	197	174	106	615	322	80	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5112		1787	5017			1807	1583	1770	1700	
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1787	5112		1787	5017			1807	1583	1770	1700	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	289	1127	27	262	1168	212	187	114	661	346	86	120
RTOR Reduction (vph)	0	2	0	0	20	0	0	0	34	0	39	0
Lane Group Flow (vph)	289	1152	0	262	1360	0	0	301	627	346	167	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		pt+ov	Split		
Protected Phases	5	2		1	6		8	8	8 1	4	4	
Permitted Phases												
Actuated Green, G (s)	21.5	34.0		23.5	36.0			30.4	53.9	26.6	26.6	
Effective Green, g (s)	21.5	34.0		23.5	36.0			30.4	53.9	26.6	26.6	
Actuated g/C Ratio	0.17	0.26		0.18	0.28			0.23	0.41	0.20	0.20	
Clearance Time (s)	3.5	4.0		3.5	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			3.0		2.5	2.5	
Lane Grp Cap (vph)	296	1337		323	1389			423	656	362	348	
v/s Ratio Prot	c0.16	0.23		0.15	c0.27			0.17	c0.40	c0.20	0.10	
v/s Ratio Perm												
v/c Ratio	0.98	0.86		0.81	0.98			0.71	0.96	0.96	0.48	
Uniform Delay, d1	54.0	45.8		51.1	46.6			45.8	36.9	51.1	45.6	
Progression Factor	0.91	0.79		0.70	0.67			1.21	1.52	1.00	1.00	
Incremental Delay, d2	37.3	5.4		12.4	18.1			4.0	19.6	35.5	0.8	
Delay (s)	86.5	41.8		48.0	49.5			59.4	75.7	86.6	46.4	
Level of Service	F	D		D	D			E	E	F	D	
Approach Delay (s)		50.7			49.3			70.6			71.6	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	56.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

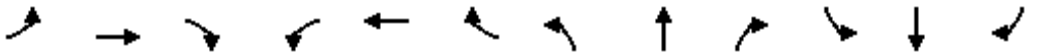
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1048	25	244	1086	197	174	106	615	322	80	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	3467	5112		1787	5017			1807	1583	1770	1700	
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (perm)	3467	5112		1787	5017			1807	1583	1770	1700	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	289	1127	27	262	1168	212	187	114	661	346	86	120
RTOR Reduction (vph)	0	2	0	0	19	0	0	0	34	0	39	0
Lane Group Flow (vph)	289	1152	0	262	1361	0	0	301	627	346	167	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		pt+ov	Split		
Protected Phases	5	2		1	6		8	8	8 1	4	4	
Permitted Phases												
Actuated Green, G (s)	15.2	33.9		23.6	42.3			30.4	54.0	26.6	26.6	
Effective Green, g (s)	15.2	33.9		23.6	42.3			30.4	54.0	26.6	26.6	
Actuated g/C Ratio	0.12	0.26		0.18	0.33			0.23	0.42	0.20	0.20	
Clearance Time (s)	3.5	4.0		3.5	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			3.0		2.5	2.5	
Lane Grp Cap (vph)	405	1333		324	1632			423	658	362	348	
v/s Ratio Prot	0.08	c0.23		0.15	0.27			0.17	c0.40	c0.20	0.10	
v/s Ratio Perm												
v/c Ratio	0.71	0.86		0.81	0.83			0.71	0.95	0.96	0.48	
Uniform Delay, d1	55.3	45.9		51.0	40.6			45.8	36.8	51.1	45.6	
Progression Factor	0.99	0.79		0.70	0.63			1.21	1.52	1.00	1.00	
Incremental Delay, d2	3.5	5.6		11.9	4.6			4.0	19.1	35.5	0.8	
Delay (s)	58.4	42.0		47.5	30.2			59.4	75.0	86.6	46.4	
Level of Service	E	D		D	C			E	E	F	D	
Approach Delay (s)		45.3			32.9			70.2			71.6	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

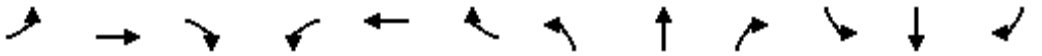
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	1249	100	79	1556	23	79	17	68	89	62	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3367	3433		1770	5073			1789	1558	1770	1631	
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3367	3433		1770	5073			1789	1558	1770	1631	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	228	1315	105	83	1638	24	83	18	72	94	65	319
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	65	0	139	0
Lane Group Flow (vph)	228	1416	0	83	1661	0	0	101	7	94	245	0
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	11.5	68.1		12.5	69.1			12.2	12.2	21.7	21.7	
Effective Green, g (s)	11.5	68.1		12.5	69.1			12.2	12.2	21.7	21.7	
Actuated g/C Ratio	0.09	0.52		0.10	0.53			0.09	0.09	0.17	0.17	
Clearance Time (s)	3.5	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	298	1798		170	2696			168	146	295	272	
v/s Ratio Prot	0.07	c0.41		0.05	c0.33			c0.06		0.05	c0.15	
v/s Ratio Perm									0.00			
v/c Ratio	0.77	0.79		0.49	0.62			0.60	0.05	0.32	0.90	
Uniform Delay, d1	57.9	25.1		55.7	21.2			56.6	53.6	47.6	53.1	
Progression Factor	0.80	0.65		0.92	0.71			1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.7	3.1		0.7	0.5			5.0	0.1	0.5	30.1	
Delay (s)	54.9	19.3		52.0	15.5			61.6	53.7	48.1	83.1	
Level of Service	D	B		D	B			E	D	D	F	
Approach Delay (s)		24.2			17.3			58.3			76.3	
Approach LOS		C			B			E			E	

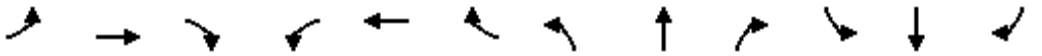
Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



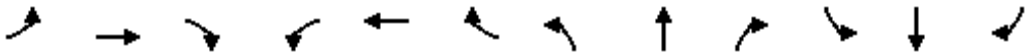
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	490	900	16	25	1142	202	31	9	32	158	3	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3427		1752	3411		1681	1552		1658	1665	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.72	0.70	1.00
Satd. Flow (perm)	3335	3427		1752	3411		1681	1557		1264	1215	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	538	989	18	27	1255	222	34	10	35	174	3	556
RTOR Reduction (vph)	0	1	0	0	10	0	0	26	0	0	0	426
Lane Group Flow (vph)	538	1006	0	27	1467	0	31	22	0	89	88	130
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	23.7	81.2		3.3	60.8		15.6	34.0		14.4	14.4	14.4
Effective Green, g (s)	23.7	81.2		3.3	60.8		15.6	34.0		14.4	14.4	14.4
Actuated g/C Ratio	0.18	0.62		0.03	0.47		0.12	0.26		0.11	0.11	0.11
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	608	2141		44	1595		202	407		140	135	174
v/s Ratio Prot	c0.16	0.29		0.02	c0.43		c0.02	0.01				
v/s Ratio Perm								0.01		0.07	0.07	c0.08
v/c Ratio	0.88	0.47		0.61	0.92		0.15	0.05		0.64	0.65	0.75
Uniform Delay, d1	51.8	13.0		62.7	32.3		51.3	36.0		55.3	55.4	56.0
Progression Factor	0.78	0.66		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.5	0.5		16.5	10.1		0.3	0.0		8.0	9.6	15.2
Delay (s)	51.1	9.1		79.2	42.5		51.5	36.0		63.3	65.0	71.3
Level of Service	D	A		E	D		D	D		E	E	E
Approach Delay (s)		23.7			43.1			42.1			69.5	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	490	900	16	25	1142	202	31	9	32	158	3	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3427		1752	3411		1681	1552		1658	1665	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.72	0.70	1.00
Satd. Flow (perm)	3335	3427		1752	3411		1681	1557		1264	1215	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	538	989	18	27	1255	222	34	10	35	174	3	556
RTOR Reduction (vph)	0	1	0	0	10	0	0	26	0	0	0	426
Lane Group Flow (vph)	538	1006	0	27	1467	0	31	22	0	89	88	130
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	23.7	81.2		3.3	60.8		15.6	34.0		14.4	14.4	14.4
Effective Green, g (s)	23.7	81.2		3.3	60.8		15.6	34.0		14.4	14.4	14.4
Actuated g/C Ratio	0.18	0.62		0.03	0.47		0.12	0.26		0.11	0.11	0.11
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	608	2141		44	1595		202	407		140	135	174
v/s Ratio Prot	c0.16	0.29		0.02	c0.43		c0.02	0.01				
v/s Ratio Perm								0.01		0.07	0.07	c0.08
v/c Ratio	0.88	0.47		0.61	0.92		0.15	0.05		0.64	0.65	0.75
Uniform Delay, d1	51.8	13.0		62.7	32.3		51.3	36.0		55.3	55.4	56.0
Progression Factor	0.78	0.66		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.5	0.5		16.5	10.1		0.3	0.0		8.0	9.6	15.2
Delay (s)	51.1	9.1		79.2	42.5		51.5	36.0		63.3	65.0	71.3
Level of Service	D	A		E	D		D	D		E	E	E
Approach Delay (s)		23.7			43.1			42.1			69.5	
Approach LOS		C			D			D			E	

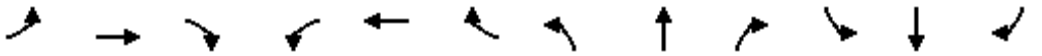
Intersection Summary			
HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	240	501	275	247	567	227	368	786	249	179	535	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	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)	1787	3574	1567	1787	3574	1561	3467	3574	1567	1787	3472	
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)	1787	3574	1567	1787	3574	1561	3467	3574	1567	1787	3472	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	250	522	286	257	591	236	383	819	259	186	557	89
RTOR Reduction (vph)	0	0	59	0	0	43	0	0	173	0	11	0
Lane Group Flow (vph)	250	522	227	257	591	193	383	819	86	186	635	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	22.6	45.4	71.0	22.6	45.4	64.4	25.6	38.0	38.0	19.0	31.4	
Effective Green, g (s)	22.6	45.4	71.0	22.6	45.4	64.4	25.6	38.0	38.0	19.0	31.4	
Actuated g/C Ratio	0.16	0.32	0.51	0.16	0.32	0.46	0.18	0.27	0.27	0.14	0.22	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	288	1159	834	288	1159	718	634	970	425	243	779	
v/s Ratio Prot	0.14	0.15	0.05	c0.14	c0.17	0.04	0.11	c0.23		0.10	c0.18	
v/s Ratio Perm			0.10			0.09			0.05			
v/c Ratio	0.87	0.45	0.27	0.89	0.51	0.27	0.60	0.84	0.20	0.77	0.82	
Uniform Delay, d1	57.2	37.4	19.7	57.5	38.3	23.3	52.5	48.2	39.3	58.4	51.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.70	2.43	1.00	1.00	
Incremental Delay, d2	22.3	1.3	0.1	26.8	1.6	0.1	1.0	5.9	0.1	12.1	6.4	
Delay (s)	79.6	38.7	19.8	84.3	39.9	23.4	39.1	39.7	95.5	70.5	58.0	
Level of Service	E	D	B	F	D	C	D	D	F	E	E	
Approach Delay (s)		43.2			46.8			49.4			60.8	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	49.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

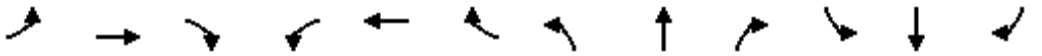
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	843	69	307	889	135	0	0	586	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.98				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3519		1770	3438				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3519		1770	3438				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	364	926	76	337	977	148	0	0	644	0	0	99
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	60	0	0	39
Lane Group Flow (vph)	364	998	0	337	1116	0	0	0	584	0	0	60
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	37.7	73.0		31.0	66.3				59.5			66.2
Effective Green, g (s)	37.7	73.0		31.0	66.3				59.5			66.2
Actuated g/C Ratio	0.27	0.52		0.22	0.47				0.42			0.47
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	481	1835		392	1628				1196			769
v/s Ratio Prot	c0.20	0.28		c0.19	c0.32				c0.21			0.04
v/s Ratio Perm												
v/c Ratio	0.76	0.54		0.86	0.69				0.49			0.08
Uniform Delay, d1	46.9	22.4		52.4	28.7				29.2			20.2
Progression Factor	1.00	1.00		1.00	1.00				0.74			1.00
Incremental Delay, d2	6.0	1.2		16.3	2.4				0.1			0.0
Delay (s)	52.9	23.5		68.7	31.1				21.6			20.2
Level of Service	D	C		E	C				C			C
Approach Delay (s)		31.4			39.8			21.6			20.2	
Approach LOS		C			D			C			C	

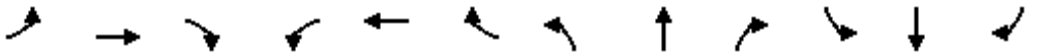
Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	589	223	31	773	225	256	322	99	136	136	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	174	647	245	34	849	247	281	354	109	149	149	203
RTOR Reduction (vph)	0	0	126	0	0	120	0	0	73	0	0	177
Lane Group Flow (vph)	174	647	119	34	849	127	253	382	36	149	149	26
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	16.9	63.5	63.5	6.8	53.4	53.4	35.6	35.6	46.4	18.1	18.1	18.1
Effective Green, g (s)	16.9	63.5	63.5	6.8	53.4	53.4	35.6	35.6	46.4	18.1	18.1	18.1
Actuated g/C Ratio	0.12	0.45	0.45	0.05	0.38	0.38	0.25	0.25	0.33	0.13	0.13	0.13
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	214	1605	718	167	1350	604	427	448	924	229	241	205
v/s Ratio Prot	c0.10	0.18		0.01	c0.24		0.15	c0.22	0.01	c0.08	0.08	
v/s Ratio Perm			0.08			0.08						0.02
v/c Ratio	0.81	0.40	0.17	0.20	0.63	0.21	0.59	0.85	0.04	0.65	0.62	0.13
Uniform Delay, d1	60.0	25.6	22.6	64.0	35.2	29.1	45.8	49.7	31.7	57.9	57.7	54.0
Progression Factor	1.00	1.00	1.00	0.95	0.61	0.29	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.5	0.8	0.5	0.5	2.0	0.7	2.2	14.5	0.0	6.5	4.7	0.3
Delay (s)	79.5	26.3	23.1	61.1	23.4	9.2	48.0	64.2	31.7	64.4	62.3	54.2
Level of Service	E	C	C	E	C	A	D	E	C	E	E	D
Approach Delay (s)		34.3			21.4			53.9			59.7	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	38.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	447	137	803	490	178	156	275	650	58	247	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3417	1564	3467	3419		1787	1881	1599	3467	3382	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3417	1564	3467	3419		1787	1881	1599	3467	3382	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	177	466	143	836	510	185	162	286	677	60	257	89
RTOR Reduction (vph)	0	0	101	0	25	0	0	0	70	0	26	0
Lane Group Flow (vph)	159	484	42	836	670	0	162	286	607	60	320	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	41.0	41.0	41.0	44.5	44.5		16.6	33.1	77.6	5.9	22.4	
Effective Green, g (s)	41.0	41.0	41.0	44.5	44.5		16.6	33.1	77.6	5.9	22.4	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.12	0.24	0.55	0.04	0.16	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	476	1001	458	1102	1087		212	445	886	146	541	
v/s Ratio Prot	0.10	c0.14		c0.24	0.20		c0.09	0.15	c0.38	0.02	c0.09	
v/s Ratio Perm			0.03									
v/c Ratio	0.33	0.48	0.09	0.76	0.62		0.76	0.64	0.68	0.41	0.59	
Uniform Delay, d1	38.8	40.8	36.0	42.9	40.5		59.8	48.1	22.4	65.4	54.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	1.7	0.4	3.0	1.0		13.6	2.4	1.8	0.7	1.2	
Delay (s)	40.7	42.4	36.4	46.0	41.6		73.5	50.5	24.2	66.0	55.7	
Level of Service	D	D	D	D	D		E	D	C	E	E	
Approach Delay (s)		41.0			44.0			38.0			57.2	
Approach LOS		D			D			D			E	

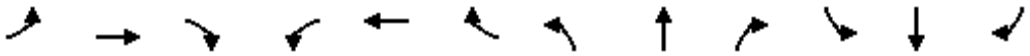
Intersection Summary			
HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1155	1021	0	1022	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1203	1064	0	1065	469
RTOR Reduction (vph)	0	0	0	0	0	83
Lane Group Flow (vph)	0	1203	1064	0	1065	386
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		33.1	33.1		23.1	23.1
Effective Green, g (s)		33.1	33.1		23.1	23.1
Actuated g/C Ratio		0.51	0.51		0.36	0.36
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1820	1820		1232	568
v/s Ratio Prot		c0.34	0.30		c0.31	0.24
v/s Ratio Perm						
v/c Ratio		0.66	0.58		0.86	0.68
Uniform Delay, d1		11.8	11.1		19.5	17.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	1.4		6.5	2.9
Delay (s)		13.7	12.5		26.0	20.7
Level of Service		B	B		C	C
Approach Delay (s)		13.7	12.5		24.4	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

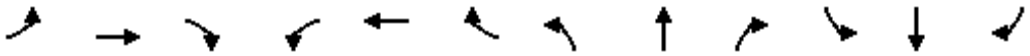
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	23	26	220	50	353	33	862	309	279	475	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1765			1791	1558	1787	3405		1787	3530	
Flt Permitted		0.72			0.72	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1298			1345	1558	1787	3405		1787	3530	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	39	26	29	247	56	397	37	969	347	313	534	36
RTOR Reduction (vph)	0	18	0	0	0	156	0	37	0	0	4	0
Lane Group Flow (vph)	0	76	0	0	303	241	37	1279	0	313	566	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.5			22.5	22.5	4.1	31.9		18.4	46.2	
Effective Green, g (s)		22.5			22.5	22.5	4.1	31.9		18.4	46.2	
Actuated g/C Ratio		0.27			0.27	0.27	0.05	0.38		0.22	0.55	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		346			359	416	87	1288		390	1935	
v/s Ratio Prot							0.02	c0.38		c0.18	0.16	
v/s Ratio Perm		0.06			c0.23	0.15						
v/c Ratio		0.22			0.84	0.58	0.43	0.99		0.80	0.29	
Uniform Delay, d1		24.1			29.2	26.8	39.0	26.1		31.2	10.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			16.4	2.0	1.2	23.3		10.7	0.1	
Delay (s)		24.4			45.6	28.7	40.2	49.4		41.9	10.3	
Level of Service		C			D	C	D	D		D	B	
Approach Delay (s)		24.4			36.0			49.2			21.5	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	37.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	11.5
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

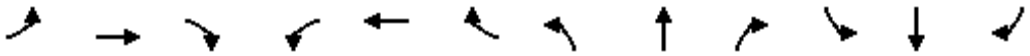
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	0	44	8	2	3	52	1147	16	9	617	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1722			1653		1787	3565		1785	3485	
Flt Permitted		0.78			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1376			1706		1787	3565		1785	3485	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	63	0	51	9	2	3	60	1334	19	10	717	110
RTOR Reduction (vph)	0	29	0	0	3	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	85	0	0	11	0	60	1353	0	10	820	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		7.2			1.0		4.6	38.1		0.9	34.4	
Effective Green, g (s)		7.2			1.0		4.6	38.1		0.9	34.4	
Actuated g/C Ratio		0.11			0.02		0.07	0.59		0.01	0.53	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		153			26		127	2099		25	1853	
v/s Ratio Prot							c0.03	c0.38		0.01	0.24	
v/s Ratio Perm		c0.06			c0.01							
v/c Ratio		0.55			0.42		0.47	0.64		0.40	0.44	
Uniform Delay, d1		27.2			31.6		28.9	8.8		31.6	9.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.4			4.0		1.0	0.6		3.8	0.1	
Delay (s)		29.7			35.6		29.9	9.4		35.4	9.4	
Level of Service		C			D		C	A		D	A	
Approach Delay (s)		29.7			35.6			10.3			9.7	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	17.5
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

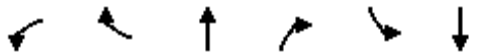
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	3	194	6	3	2	164	1014	21	1	566	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1685			1764		1787	3561		1787	3465	
Flt Permitted		0.70			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1217			1812		1787	3561		1787	3465	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	203	3	198	6	3	2	167	1035	21	1	578	104
RTOR Reduction (vph)	0	27	0	0	2	0	0	1	0	0	13	0
Lane Group Flow (vph)	0	377	0	0	9	0	167	1055	0	1	669	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		30.5			1.1		13.5	26.4		11.8	24.7	
Effective Green, g (s)		30.5			1.1		13.5	26.4		11.8	24.7	
Actuated g/C Ratio		0.35			0.01		0.16	0.30		0.14	0.28	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		428			23		278	1083		243	986	
v/s Ratio Prot							c0.09	c0.30		0.00	0.19	
v/s Ratio Perm		c0.31			c0.00							
v/c Ratio		0.88			0.39		0.60	0.97		0.00	0.68	
Uniform Delay, d1		26.4			42.5		34.1	29.9		32.4	27.5	
Progression Factor		1.00			1.00		0.61	0.31		1.00	1.00	
Incremental Delay, d2		19.8			4.0		0.3	4.0		0.0	1.7	
Delay (s)		46.2			46.5		21.2	13.1		32.4	29.2	
Level of Service		D			D		C	B		C	C	
Approach Delay (s)		46.2			46.5			14.2			29.2	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	86.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	42	1157	54	78	688
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1705		3543		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1705		3543		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	24	43	1181	55	80	702
RTOR Reduction (vph)	28	0	3	0	0	0
Lane Group Flow (vph)	39	0	1233	0	80	702
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	30.5		26.4		11.8	24.7
Effective Green, g (s)	30.5		26.4		11.8	24.7
Actuated g/C Ratio	0.35		0.30		0.14	0.28
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	599		1078		243	1017
v/s Ratio Prot	c0.02		c0.35		c0.04	0.20
v/s Ratio Perm						
v/c Ratio	0.07		1.14		0.33	0.69
Uniform Delay, d1	18.7		30.2		33.9	27.6
Progression Factor	1.00		1.00		0.85	0.34
Incremental Delay, d2	0.1		76.1		0.2	1.5
Delay (s)	18.8		106.3		29.2	10.9
Level of Service	B		F		C	B
Approach Delay (s)	18.8		106.3			12.8
Approach LOS	B		F			B

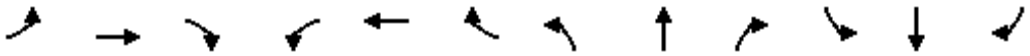
Intersection Summary			
HCM Average Control Delay	68.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	86.8	Sum of lost time (s)	18.1
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	42	1157	54	78	688
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1705		3542		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1705		3542		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	24	43	1181	55	80	702
RTOR Reduction (vph)	28	0	2	0	0	0
Lane Group Flow (vph)	39	0	1234	0	80	702
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	32.2		36.3		6.3	25.4
Effective Green, g (s)	32.2		36.3		6.3	25.4
Actuated g/C Ratio	0.35		0.39		0.07	0.27
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	590		1383		121	976
v/s Ratio Prot	c0.02		c0.35		c0.04	0.20
v/s Ratio Perm						
v/c Ratio	0.07		0.89		0.66	0.72
Uniform Delay, d1	20.3		26.5		42.3	30.6
Progression Factor	1.00		1.00		0.91	0.33
Incremental Delay, d2	0.1		7.6		7.9	1.9
Delay (s)	20.4		34.1		46.3	11.9
Level of Service	C		C		D	B
Approach Delay (s)	20.4		34.1			15.4
Approach LOS	C		C			B

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

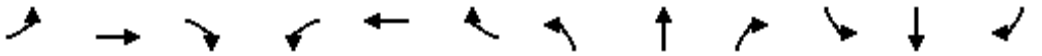
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	7	138	38	2	6	120	1128	5	10	623	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1814	1572		1775		1787	3571		1787	3493	
Flt Permitted		0.70	1.00		0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1334	1572		1367		1787	3571		1787	3493	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	127	7	144	40	2	6	125	1175	5	10	649	82
RTOR Reduction (vph)	0	0	112	0	5	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	134	32	0	43	0	125	1180	0	10	720	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		12.5	12.5		12.5		8.8	32.0		1.0	24.2	
Effective Green, g (s)		12.5	12.5		12.5		8.8	32.0		1.0	24.2	
Actuated g/C Ratio		0.22	0.22		0.22		0.15	0.56		0.02	0.42	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		293	345		300		276	2005		31	1483	
v/s Ratio Prot							c0.07	c0.33		0.01	0.21	
v/s Ratio Perm		c0.10	0.02		0.03							
v/c Ratio		0.46	0.09		0.14		0.45	0.59		0.32	0.49	
Uniform Delay, d1		19.3	17.7		17.9		21.9	8.2		27.7	11.9	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.2		0.4		1.6	0.4		6.0	0.1	
Delay (s)		21.3	17.9		18.3		23.5	8.6		33.6	12.0	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		19.5			18.3			10.1			12.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

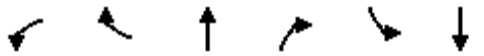
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	492	89	541	638	296	47	1142	649	365	450	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	261	529	96	582	686	318	51	1228	698	392	484	370
RTOR Reduction (vph)	0	0	79	0	0	177	0	0	10	0	0	96
Lane Group Flow (vph)	261	529	17	582	686	141	51	1228	688	392	484	274
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.3	24.7	24.7	29.2	39.6	39.6	7.4	49.9	79.1	19.2	61.7	80.5
Effective Green, g (s)	14.3	24.7	24.7	29.2	39.6	39.6	7.4	49.9	79.1	19.2	61.7	80.5
Actuated g/C Ratio	0.10	0.18	0.18	0.21	0.28	0.28	0.05	0.36	0.56	0.14	0.44	0.58
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	354	631	282	723	1011	444	94	1274	903	466	1575	919
v/s Ratio Prot	0.08	c0.15		c0.17	0.19		0.03	c0.34	0.43	c0.12	0.14	0.17
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.74	0.84	0.06	0.80	0.68	0.32	0.54	0.96	0.76	0.84	0.31	0.30
Uniform Delay, d1	61.0	55.7	48.0	52.7	44.6	39.5	64.6	44.2	23.2	58.9	25.3	15.3
Progression Factor	0.79	0.80	1.14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	8.7	0.0	6.1	1.4	0.2	3.4	17.9	3.5	12.4	0.5	0.1
Delay (s)	54.3	53.4	54.6	58.8	46.0	39.7	68.0	62.1	26.7	71.3	25.8	15.3
Level of Service	D	D	D	E	D	D	E	E	C	E	C	B
Approach Delay (s)		53.8			49.4			49.8			37.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	47.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

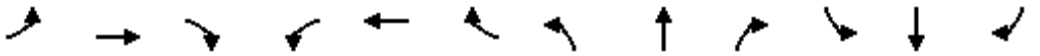
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	57	13	1448	18	11	1070
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5122		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5122		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	14	1540	19	12	1138
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	61	1	1559	0	12	1138
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.5	8.5	72.7		3.4	60.6
Effective Green, g (s)	8.5	8.5	72.7		3.4	60.6
Actuated g/C Ratio	0.06	0.06	0.52		0.02	0.43
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	110	95	2660		43	2223
v/s Ratio Prot	c0.03		c0.30		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.55	0.01	0.59		0.28	0.51
Uniform Delay, d1	63.9	61.8	23.2		67.1	28.9
Progression Factor	1.00	1.00	0.18		0.94	0.97
Incremental Delay, d2	4.8	0.0	0.2		1.1	0.7
Delay (s)	68.7	61.8	4.3		64.3	28.7
Level of Service	E	E	A		E	C
Approach Delay (s)	67.4		4.3			29.0
Approach LOS	E		A			C

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	51.4
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

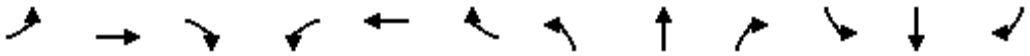
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	203	227	264	131	98	265	1317	174	55	979	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1495	1787	1731		3467	5001		1787	5040	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1495	1787	1731		3467	5001		1787	5040	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	55	218	244	284	141	105	285	1416	187	59	1053	100
RTOR Reduction (vph)	0	0	157	0	20	0	0	9	0	0	7	0
Lane Group Flow (vph)	55	218	87	284	226	0	285	1594	0	59	1146	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	10.2	22.9	22.9	24.2	24.4		16.8	62.5		8.0	60.6	
Effective Green, g (s)	10.2	22.9	22.9	24.2	24.4		16.8	62.5		8.0	60.6	
Actuated g/C Ratio	0.07	0.16	0.16	0.17	0.17		0.12	0.45		0.06	0.43	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	129	305	245	309	302		416	2233		102	2182	
v/s Ratio Prot	0.03	0.12		c0.16	c0.13		c0.08	c0.32		0.03	c0.23	
v/s Ratio Perm			0.06									
v/c Ratio	0.43	0.71	0.35	0.92	0.75		0.69	0.71		0.58	0.53	
Uniform Delay, d1	62.1	55.5	52.0	56.9	54.9		59.1	31.5		64.4	29.1	
Progression Factor	1.00	1.00	1.00	0.64	0.83		1.06	0.84		1.45	0.29	
Incremental Delay, d2	0.8	7.2	0.6	27.0	7.9		3.3	1.8		4.3	0.8	
Delay (s)	62.9	62.7	52.6	63.4	53.4		65.9	28.3		97.6	9.1	
Level of Service	E	E	D	E	D		E	C		F	A	
Approach Delay (s)		58.0			58.8			34.0			13.4	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

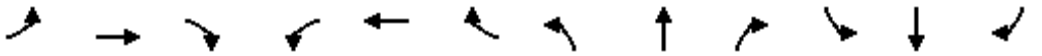
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	790	7	291	320	1465	0	0	870	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1605		1787	5136			5922	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1605		1787	5136			5922	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	814	7	300	330	1510	0	0	897	619
RTOR Reduction (vph)	0	0	0	0	39	0	0	0	0	0	174	0
Lane Group Flow (vph)	0	0	0	814	268	0	330	1510	0	0	1342	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				17.5	17.5		15.5	46.0			27.5	
Effective Green, g (s)				17.5	17.5		15.5	46.0			27.5	
Actuated g/C Ratio				0.25	0.25		0.22	0.66			0.39	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				867	401		396	3375			2327	
v/s Ratio Prot				c0.23	0.17		c0.18	0.29			c0.23	
v/s Ratio Perm												
v/c Ratio				0.94	0.67		0.83	0.45			0.58	
Uniform Delay, d1				25.7	23.6		26.0	5.8			16.7	
Progression Factor				1.00	1.00		1.05	1.19			1.41	
Incremental Delay, d2				17.2	3.3		10.4	0.3			0.9	
Delay (s)				42.9	26.9		37.8	7.3			24.5	
Level of Service				D	C		D	A			C	
Approach Delay (s)		0.0			38.5			12.8			24.5	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

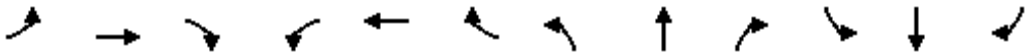
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	764	3	578	0	0	0	0	1021	243	184	1476	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4959		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4959		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	796	3	602	0	0	0	0	1064	253	192	1538	0
RTOR Reduction (vph)	0	0	16	0	0	0	0	58	0	0	0	0
Lane Group Flow (vph)	398	401	586	0	0	0	0	1259	0	192	1538	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	26.5	26.5	26.5					25.3		7.7	37.0	
Effective Green, g (s)	26.5	26.5	26.5					25.3		7.7	37.0	
Actuated g/C Ratio	0.38	0.38	0.38					0.36		0.11	0.53	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	643	645	605					1792		385	2742	
v/s Ratio Prot	0.23	0.24						c0.25		0.05	c0.30	
v/s Ratio Perm			c0.37									
v/c Ratio	0.62	0.62	0.97					0.70		0.50	0.56	
Uniform Delay, d1	17.7	17.7	21.4					19.1		29.3	11.1	
Progression Factor	1.00	1.00	1.00					0.94		0.99	1.23	
Incremental Delay, d2	1.3	1.3	28.5					2.2		0.6	0.5	
Delay (s)	18.9	19.0	49.8					20.2		29.6	14.1	
Level of Service	B	B	D					C		C	B	
Approach Delay (s)		32.2			0.0			20.2			15.8	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

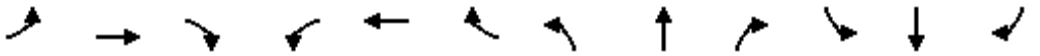
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	0	53	16	9	15	91	1159	2	9	1706	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00			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	
Frt		0.96			0.95		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1753			1768		1787	5134		1787	4970	
Flt Permitted		0.76			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1387			1606		1787	5134		1787	4970	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	134	0	57	17	10	16	98	1246	2	10	1834	365
RTOR Reduction (vph)	0	23	0	0	13	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	168	0	0	30	0	98	1248	0	10	2163	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		12.1			12.1		6.6	45.2		1.2	39.8	
Effective Green, g (s)		12.1			12.1		6.6	45.2		1.2	39.8	
Actuated g/C Ratio		0.17			0.17		0.09	0.65		0.02	0.57	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		240			278		168	3315		31	2826	
v/s Ratio Prot							c0.05	0.24		0.01	c0.44	
v/s Ratio Perm		c0.12			0.02							
v/c Ratio		0.70			0.11		0.58	0.38		0.32	0.77	
Uniform Delay, d1		27.2			24.4		30.4	5.8		34.0	11.5	
Progression Factor		1.00			1.00		1.21	0.74		0.83	1.60	
Incremental Delay, d2		7.0			0.1		3.1	0.3		1.7	1.6	
Delay (s)		34.2			24.5		39.9	4.6		29.8	20.0	
Level of Service		C			C		D	A		C	C	
Approach Delay (s)		34.2			24.5			7.2			20.1	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

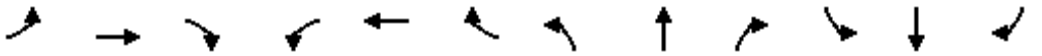
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	99	13	303	258	189	52	891	475	189	1251	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1842		1698	1778	1560	1787	5136	1599	3467	3420	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1842		1698	1778	1560	1787	5136	1599	3467	3420	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	157	105	14	322	274	201	55	948	505	201	1331	356
RTOR Reduction (vph)	0	4	0	0	0	141	0	0	0	0	12	0
Lane Group Flow (vph)	157	115	0	290	306	60	55	948	505	201	1675	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	16.8	16.8		31.3	31.3	31.3	7.7	64.4	99.2	12.5	69.2	
Effective Green, g (s)	16.8	16.8		31.3	31.3	31.3	7.7	64.4	99.2	12.5	69.2	
Actuated g/C Ratio	0.12	0.12		0.22	0.22	0.22	0.06	0.46	0.71	0.09	0.49	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	214	221		380	398	349	98	2363	1133	310	1690	
v/s Ratio Prot	c0.09	0.06		0.17	c0.17		0.03	0.18	0.32	c0.06	c0.49	
v/s Ratio Perm						0.04						
v/c Ratio	0.73	0.52		0.76	0.77	0.17	0.56	0.40	0.45	0.65	0.99	
Uniform Delay, d1	59.4	57.8		50.9	51.0	43.9	64.5	25.0	8.7	61.6	35.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.35	
Incremental Delay, d2	10.6	0.9		8.0	7.8	0.1	4.3	0.5	0.1	2.3	15.7	
Delay (s)	70.1	58.7		58.8	58.8	44.0	68.8	25.5	8.8	64.6	63.1	
Level of Service	E	E		E	E	D	E	C	A	E	E	
Approach Delay (s)		65.2			55.1			21.5			63.2	
Approach LOS		E			E			C			E	

Intersection Summary			
HCM Average Control Delay	47.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

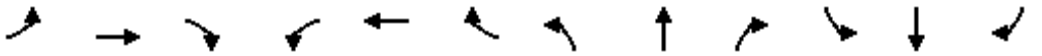
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	78	0	0	0	0	59	163	44	0	0	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0				4.0
Lane Util. Factor		1.00					1.00	1.00				1.00
Frt		1.00					1.00	0.97				0.86
Flt Protected		0.98					0.95	1.00				1.00
Satd. Flow (prot)		1867					1787	1821				1644
Flt Permitted		0.98					0.95	1.00				1.00
Satd. Flow (perm)		1867					1787	1821				1644
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	48	87	0	0	0	0	66	181	49	0	0	119
RTOR Reduction (vph)	0	0	0	0	0	0	0	18	0	0	0	52
Lane Group Flow (vph)	0	135	0	0	0	0	66	212	0	0	0	67
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					custom
Protected Phases		4						2				
Permitted Phases	4						2					6
Actuated Green, G (s)		4.8					16.5	16.5				16.5
Effective Green, g (s)		4.8					16.5	16.5				16.5
Actuated g/C Ratio		0.16					0.56	0.56				0.56
Clearance Time (s)		4.0					4.0	4.0				4.0
Vehicle Extension (s)		3.0					3.0	3.0				3.0
Lane Grp Cap (vph)		306					1006	1025				926
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.07					0.04					0.04
v/c Ratio		0.44					0.07	0.21				0.07
Uniform Delay, d1		11.0					2.9	3.2				2.9
Progression Factor		1.00					1.00	1.00				1.00
Incremental Delay, d2		1.0					0.0	0.1				0.0
Delay (s)		12.1					2.9	3.3				2.9
Level of Service		B					A	A				A
Approach Delay (s)		12.1			0.0			3.2			2.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	29.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

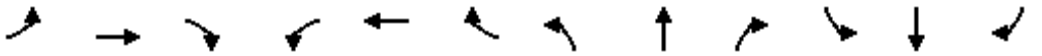
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	547	347	27	0	0	0	0	206	0	377	80	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1861						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.62	1.00	
Satd. Flow (perm)	1787	1861						1881		1147	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	608	386	30	0	0	0	0	229	0	419	89	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	608	409	0	0	0	0	0	229	0	419	89	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	15.5	15.5						15.7		15.7	15.7	
Effective Green, g (s)	15.5	15.5						15.7		15.7	15.7	
Actuated g/C Ratio	0.40	0.40						0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	707	736						753		459	746	
v/s Ratio Prot		0.22						0.12			0.05	
v/s Ratio Perm	c0.34									c0.37		
v/c Ratio	0.86	0.56						0.30		0.91	0.12	
Uniform Delay, d1	10.9	9.2						8.0		11.1	7.4	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	10.2	0.9						0.2		22.4	0.1	
Delay (s)	21.1	10.1						8.3		33.5	7.5	
Level of Service	C	B						A		C	A	
Approach Delay (s)		16.6			0.0			8.3			28.9	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	46	62	501	562	66	687	0	0	349	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1853	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.46	1.00			1.00	1.00
Satd. Flow (perm)			1611		1853	1583	850	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	50	67	545	611	72	747	0	0	379	27
RTOR Reduction (vph)	0	0	30	0	0	55	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	20	0	612	556	72	747	0	0	379	11
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			16.0		16.0	16.0	16.0	16.0			16.0	16.0
Effective Green, g (s)			16.0		16.0	16.0	16.0	16.0			16.0	16.0
Actuated g/C Ratio			0.40		0.40	0.40	0.40	0.40			0.40	0.40
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			644		741	633	340	745			745	633
v/s Ratio Prot								c0.40			0.20	
v/s Ratio Perm			0.01		0.33	c0.35	0.08					0.01
v/c Ratio			0.03		0.83	0.88	0.21	1.00			0.51	0.02
Uniform Delay, d1			7.3		10.8	11.1	7.9	12.0			9.0	7.2
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.1		10.2	16.0	1.4	33.6			2.5	0.0
Delay (s)			7.4		20.9	27.1	9.3	45.6			11.5	7.3
Level of Service			A		C	C	A	D			B	A
Approach Delay (s)		7.4			24.0			42.4			11.2	
Approach LOS		A			C			D			B	

Intersection Summary				
HCM Average Control Delay	27.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	77.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	567	25	1317	21	25	707
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		1.00		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3427		3531		1770	3539
Flt Permitted	0.95		1.00		0.25	1.00
Satd. Flow (perm)	3427		3531		466	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	616	27	1432	23	27	768
RTOR Reduction (vph)	5	0	3	0	0	0
Lane Group Flow (vph)	638	0	1452	0	27	768
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	16.0		16.0		16.0	16.0
Effective Green, g (s)	16.0		16.0		16.0	16.0
Actuated g/C Ratio	0.40		0.40		0.40	0.40
Clearance Time (s)	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	1371		1412		186	1416
v/s Ratio Prot			c0.41			0.22
v/s Ratio Perm	c0.19				0.06	
v/c Ratio	0.47		1.03		0.15	0.54
Uniform Delay, d1	8.8		12.0		7.6	9.2
Progression Factor	1.61		1.00		1.00	1.00
Incremental Delay, d2	0.8		31.5		1.6	1.5
Delay (s)	15.0		43.5		9.3	10.7
Level of Service	B		D		A	B
Approach Delay (s)	15.0		43.5			10.6
Approach LOS	B		D			B

Intersection Summary			
HCM Average Control Delay	28.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	105	1782	115	109	1989	127	217	177	61	119	262	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5076		1770	6339		1728	1783		1765	1863	1496
Flt Permitted	0.95	1.00		0.95	1.00		0.42	1.00		0.46	1.00	1.00
Satd. Flow (perm)	1787	5076		1770	6339		762	1783		846	1863	1496
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	108	1837	119	112	2051	131	224	182	63	123	270	170
RTOR Reduction (vph)	0	5	0	0	6	0	0	11	0	0	0	83
Lane Group Flow (vph)	108	1951	0	112	2176	0	224	234	0	123	270	87
Confl. Peds. (#/hr)			6			2	30		3	3		30
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.6	58.7		12.9	59.5		36.1	36.1		36.1	36.1	36.1
Effective Green, g (s)	12.6	58.7		12.9	59.5		36.1	36.1		36.1	36.1	36.1
Actuated g/C Ratio	0.10	0.49		0.11	0.50		0.30	0.30		0.30	0.30	0.30
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	188	2483		190	3143		229	536		255	560	450
v/s Ratio Prot	0.06	c0.38		c0.06	0.34			0.13			0.14	
v/s Ratio Perm							c0.29			0.15		0.06
v/c Ratio	0.57	0.79		0.59	0.69		0.98	0.44		0.48	0.48	0.19
Uniform Delay, d1	51.1	25.4		51.0	23.2		41.6	33.8		34.3	34.3	31.1
Progression Factor	1.14	0.46		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2		4.6	1.3		52.7	0.6		1.4	0.7	0.2
Delay (s)	58.5	11.9		55.6	24.5		94.2	34.3		35.7	35.0	31.3
Level of Service	E	B		E	C		F	C		D	C	C
Approach Delay (s)		14.4			26.0			62.9			34.0	
Approach LOS		B			C			E			C	

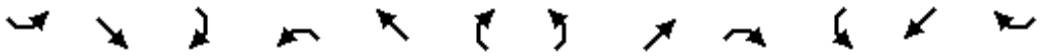
Intersection Summary			
HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.3
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	360	1363	600	176	0	198	0	499	62	694	1001	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.95		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4852		3273		2656		4896		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4852		3273		2656		4896		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	375	1420	625	183	0	206	0	520	65	723	1043	0
RTOR Reduction (vph)	0	13	0	0	0	117	0	14	0	0	0	0
Lane Group Flow (vph)	375	2032	0	183	0	89	0	571	0	723	1043	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	14.0	56.2		9.5		51.7		21.3		17.0	42.3	
Effective Green, g (s)	14.0	56.2		9.5		51.7		21.3		17.0	42.3	
Actuated g/C Ratio	0.12	0.47		0.08		0.43		0.18		0.14	0.35	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	582	2272		259		1144		869		491	1260	
v/s Ratio Prot	c0.08	c0.42		0.06		0.03		0.12		c0.21	c0.29	
v/s Ratio Perm												
v/c Ratio	0.64	0.89		0.71		0.08		0.66		1.47	0.83	
Uniform Delay, d1	50.6	29.2		53.9		20.1		45.9		51.5	35.5	
Progression Factor	1.00	1.00		1.23		0.36		1.00		1.00	1.00	
Incremental Delay, d2	2.5	6.0		6.5		0.1		1.8		223.5	4.6	
Delay (s)	53.1	35.1		72.8		7.3		47.8		275.0	40.1	
Level of Service	D	D		E		A		D		F	D	
Approach Delay (s)		37.9			38.1			47.8			136.3	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM Average Control Delay	72.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

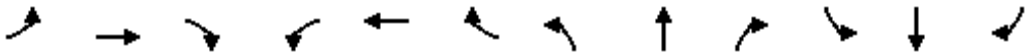
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	360	1363	600	176	0	198	0	499	62	694	1001	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.95		1.00		0.85		0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	4990	4852		3273		2656		4896		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	4990	4852		3273		2656		4896		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	375	1420	625	183	0	206	0	520	65	723	1043	0
RTOR Reduction (vph)	0	25	0	0	0	139	0	14	0	0	0	0
Lane Group Flow (vph)	375	2020	0	183	0	67	0	571	0	723	1043	0
Confl. Peds. (#/hr)						2			2			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	2%	2%	2%	7%	7%	7%	4%	4%	4%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	16.0	48.0		7.0		39.0		20.2		28.8	53.0	
Effective Green, g (s)	16.0	48.0		7.0		39.0		20.2		28.8	53.0	
Actuated g/C Ratio	0.13	0.40		0.06		0.32		0.17		0.24	0.44	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	665	1941		191		863		824		832	1579	
v/s Ratio Prot	0.08	c0.42		c0.06		0.03		0.12		c0.21	c0.29	
v/s Ratio Perm												
v/c Ratio	0.56	1.04		0.96		0.08		0.69		0.87	0.66	
Uniform Delay, d1	48.7	36.0		56.4		28.0		47.0		43.8	26.4	
Progression Factor	1.00	1.00		0.95		0.68		1.00		1.00	1.00	
Incremental Delay, d2	1.1	31.9		44.6		0.1		2.5		9.6	1.0	
Delay (s)	49.8	67.9		98.1		19.1		49.5		53.4	27.5	
Level of Service	D	E		F		B		D		D	C	
Approach Delay (s)		65.1			56.3			49.5			38.1	
Approach LOS		E			E			D			D	

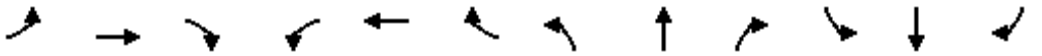
Intersection Summary			
HCM Average Control Delay	53.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



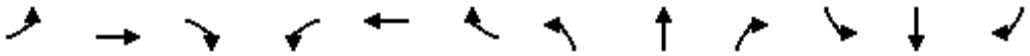
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	833	25	361	1299	285	397	35	606	128	138	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.97			0.98	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4915		1770	4929			1664	1504	1752	1719	
Flt Permitted	0.95	1.00		0.95	1.00			0.61	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4915		1770	4929			1059	1504	1752	1719	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	155	868	26	376	1353	297	414	36	631	133	144	119
RTOR Reduction (vph)	0	3	0	0	27	0	0	5	246	0	24	0
Lane Group Flow (vph)	155	891	0	376	1623	0	0	527	303	133	239	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Perm		Perm	Split		
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases							8		8			
Actuated Green, G (s)	14.4	41.0		26.5	52.6			16.0	16.0	26.0	26.0	
Effective Green, g (s)	14.4	41.0		26.5	52.6			16.0	16.0	26.0	26.0	
Actuated g/C Ratio	0.12	0.33		0.21	0.42			0.13	0.13	0.21	0.21	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	198	1612		375	2074			136	193	364	358	
v/s Ratio Prot	0.09	0.18		c0.21	c0.33					0.08	c0.14	
v/s Ratio Perm								c0.50	0.20			
v/c Ratio	0.78	0.55		1.00	0.78			3.87	1.57	0.37	0.67	
Uniform Delay, d1	53.8	34.5		49.2	31.3			54.5	54.5	42.4	45.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.5	1.4		47.1	3.0			1310.6	280.2	2.8	9.5	
Delay (s)	71.2	35.8		96.4	34.3			1365.1	334.7	45.2	55.1	
Level of Service	E	D		F	C			F	F	D	E	
Approach Delay (s)		41.1			45.8			841.8			51.8	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM Average Control Delay	234.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	833	25	361	1289	295	397	35	606	128	138	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.97			1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1719	4915		1770	4922			1781	1583	1752	1719	
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1719	4915		1770	4922			1781	1583	1752	1719	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	155	868	26	376	1343	307	414	36	631	133	144	119
RTOR Reduction (vph)	0	2	0	0	26	0	0	0	62	0	22	0
Lane Group Flow (vph)	155	892	0	376	1624	0	0	450	569	133	241	0
Confl. Peds. (#/hr)			1			1				4		
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Split		pt+ov	Split		
Protected Phases	5	2		1	6		8	8	8 1	4	4	
Permitted Phases												
Actuated Green, G (s)	13.9	30.2		36.5	52.3			38.8	75.3	19.0	19.0	
Effective Green, g (s)	13.9	30.2		36.5	52.3			38.8	75.3	19.0	19.0	
Actuated g/C Ratio	0.10	0.22		0.26	0.37			0.28	0.54	0.14	0.14	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0		2.5	2.5	
Lane Grp Cap (vph)	171	1060		461	1839			494	851	238	233	
v/s Ratio Prot	0.09	c0.18		0.21	c0.33			c0.25	0.36	0.08	c0.14	
v/s Ratio Perm												
v/c Ratio	0.91	0.84		0.82	0.88			0.91	0.67	0.56	1.04	
Uniform Delay, d1	62.4	52.6		48.6	41.0			48.9	23.3	56.6	60.5	
Progression Factor	0.89	0.84		0.65	0.59			0.88	0.63	1.00	1.00	
Incremental Delay, d2	38.0	6.9		8.2	5.2			17.9	1.6	2.3	68.7	
Delay (s)	93.4	51.2		39.7	29.2			61.0	16.3	58.9	129.2	
Level of Service	F	D		D	C			E	B	E	F	
Approach Delay (s)		57.4			31.1			34.9			105.5	
Approach LOS		E			C			C			F	

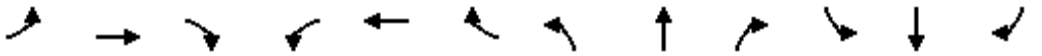
Intersection Summary			
HCM Average Control Delay	44.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	224	1243	100	79	1561	23	81	17	68	89	62	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3367	3432		1770	5073			1789	1559	1770	1631	
Flt Permitted	0.95	1.00		0.16	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3367	3432		294	5073			1789	1559	1770	1631	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	236	1308	105	83	1643	24	85	18	72	94	65	319
RTOR Reduction (vph)	0	4	0	0	1	0	0	0	65	0	177	0
Lane Group Flow (vph)	236	1409	0	83	1666	0	0	103	7	94	207	0
Confl. Peds. (#/hr)						4			3	3		
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Perm			Split		Perm	Split		
Protected Phases	5	2			6		4	4		3	3	
Permitted Phases				6					4			
Actuated Green, G (s)	11.7	65.7		50.5	50.5			10.9	10.9	16.4	16.4	
Effective Green, g (s)	11.7	65.7		50.5	50.5			10.9	10.9	16.4	16.4	
Actuated g/C Ratio	0.11	0.63		0.48	0.48			0.10	0.10	0.16	0.16	
Clearance Time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.5	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	375	2147		141	2440			186	162	276	255	
v/s Ratio Prot	0.07	c0.41			0.33			c0.06		0.05	c0.13	
v/s Ratio Perm				0.28					0.00			
v/c Ratio	0.63	0.66		0.59	0.68			0.55	0.05	0.34	0.81	
Uniform Delay, d1	44.6	12.5		19.7	21.1			44.7	42.4	39.5	42.8	
Progression Factor	1.00	1.00		1.72	1.60			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	1.6		7.1	0.6			2.8	0.1	0.5	17.1	
Delay (s)	47.0	14.1		41.0	34.2			47.6	42.5	40.0	59.9	
Level of Service	D	B		D	C			D	D	D	E	
Approach Delay (s)		18.8			34.6			45.5			56.0	
Approach LOS		B			C			D			E	

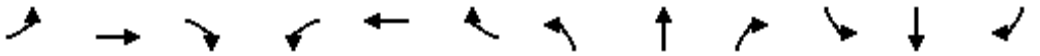
Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	472	897	17	24	1081	192	31	9	31	150	3	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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
Frt	1.00	1.00		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3335	3426		1752	3412		1681	1555		1659	1666	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.72	0.72	1.00
Satd. Flow (perm)	3335	3426		1752	3412		1681	1551		1266	1258	1568
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	519	986	19	26	1188	211	34	10	34	165	3	546
RTOR Reduction (vph)	0	1	0	0	11	0	0	23	0	0	0	410
Lane Group Flow (vph)	519	1004	0	26	1388	0	31	24	0	84	84	136
Confl. Peds. (#/hr)			6			11			3	3		
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	19.5	54.4		4.2	39.1		4.8	34.9		26.1	26.1	26.1
Effective Green, g (s)	19.5	54.4		4.2	39.1		4.8	34.9		26.1	26.1	26.1
Actuated g/C Ratio	0.19	0.52		0.04	0.37		0.05	0.33		0.25	0.25	0.25
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	619	1775		70	1271		77	516		315	313	390
v/s Ratio Prot	c0.16	0.29		0.01	c0.41		c0.02	0.00				
v/s Ratio Perm								0.01		0.07	0.07	c0.09
v/c Ratio	0.84	0.57		0.37	1.09		0.40	0.05		0.27	0.27	0.35
Uniform Delay, d1	41.2	17.2		49.1	33.0		48.7	23.8		31.7	31.8	32.5
Progression Factor	1.25	0.79		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.7	1.1		1.2	54.3		2.5	0.0		0.3	0.3	0.4
Delay (s)	59.4	14.8		50.3	87.3		51.2	23.8		32.1	32.1	32.8
Level of Service	E	B		D	F		D	C		C	C	C
Approach Delay (s)		30.0			86.6			34.7			32.7	
Approach LOS		C			F			C			C	

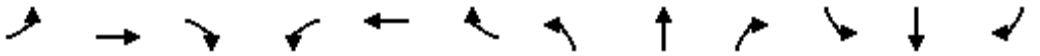
Intersection Summary			
HCM Average Control Delay	52.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	240	159	331	479	230	206	854	97	219	795	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1510	1770	3539	1555	3367	3471	1519	1787	3508	
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)	1719	3438	1510	1770	3539	1555	3367	3471	1519	1787	3508	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	87	289	192	399	577	277	248	1029	117	264	958	94
RTOR Reduction (vph)	0	0	29	0	0	56	0	0	61	0	6	0
Lane Group Flow (vph)	87	289	163	399	577	221	248	1029	56	264	1046	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	12.5	29.0	44.7	27.5	44.0	67.4	15.7	35.1	35.1	23.4	42.8	
Effective Green, g (s)	12.5	29.0	44.7	27.5	44.0	67.4	15.7	35.1	35.1	23.4	42.8	
Actuated g/C Ratio	0.10	0.22	0.34	0.21	0.34	0.52	0.12	0.27	0.27	0.18	0.33	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	165	767	560	374	1198	806	407	937	410	322	1155	
v/s Ratio Prot	0.05	0.08	0.04	c0.23	c0.16	0.05	0.07	c0.30		0.15	c0.30	
v/s Ratio Perm			0.07			0.09			0.04			
v/c Ratio	0.53	0.38	0.29	1.07	0.48	0.27	0.61	1.10	0.14	0.82	0.91	
Uniform Delay, d1	55.9	42.8	31.1	51.2	34.0	17.6	54.2	47.5	36.0	51.3	41.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.75	0.47	1.00	1.00	
Incremental Delay, d2	1.4	1.4	0.1	65.4	1.4	0.1	1.7	59.1	0.1	14.2	10.1	
Delay (s)	57.3	44.2	31.2	116.7	35.4	17.6	43.0	94.5	17.1	65.5	51.8	
Level of Service	E	D	C	F	D	B	D	F	B	E	D	
Approach Delay (s)		41.8			57.3			78.8			54.6	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM Average Control Delay	61.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		

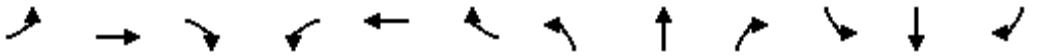
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	240	159	331	479	230	206	854	97	219	795	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1719	3438	1512	1770	3539	1554	3367	3471	1519	1787	3508	
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)	1719	3438	1512	1770	3539	1554	3367	3471	1519	1787	3508	
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	87	289	192	399	577	277	248	1029	117	264	958	94
RTOR Reduction (vph)	0	0	40	0	0	21	0	0	65	0	6	0
Lane Group Flow (vph)	87	289	152	399	577	256	248	1029	52	264	1046	0
Confl. Peds. (#/hr)	11		12	12		11	35		7	7		35
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	8.2	24.0	40.8	30.2	46.0	67.3	16.8	39.5	39.5	21.3	44.0	
Effective Green, g (s)	8.2	24.0	40.8	30.2	46.0	67.3	16.8	39.5	39.5	21.3	44.0	
Actuated g/C Ratio	0.06	0.18	0.31	0.23	0.35	0.52	0.13	0.30	0.30	0.16	0.34	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	108	635	515	411	1252	804	435	1055	462	293	1187	
v/s Ratio Prot	0.05	0.08	0.04	c0.23	c0.16	0.05	0.07	c0.30		0.15	c0.30	
v/s Ratio Perm			0.06			0.11			0.03			
v/c Ratio	0.81	0.46	0.29	0.97	0.46	0.32	0.57	0.98	0.11	0.90	0.88	
Uniform Delay, d1	60.1	47.2	33.7	49.5	32.4	18.1	53.2	44.8	32.6	53.3	40.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.72	0.33	1.00	1.00	
Incremental Delay, d2	32.3	2.3	0.1	36.5	1.2	0.1	1.0	20.8	0.1	28.1	7.9	
Delay (s)	92.4	49.5	33.8	85.9	33.6	18.2	40.3	53.0	10.8	81.4	48.4	
Level of Service	F	D	C	F	C	B	D	D	B	F	D	
Approach Delay (s)		50.8			46.9			47.2			55.0	
Approach LOS		D			D			D			E	

Intersection Summary				
HCM Average Control Delay	49.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	90.7%	ICU Level of Service	E	
Analysis Period (min)	15			

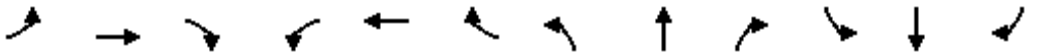
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	661	47	444	798	68	0	0	144	0	0	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.99				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1736	3429		1770	3477				2787			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1736	3429		1770	3477				2787			1627
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	66	796	57	535	961	82	0	0	173	0	0	363
RTOR Reduction (vph)	0	3	0	0	5	0	0	0	52	0	0	82
Lane Group Flow (vph)	66	850	0	535	1038	0	0	0	121	0	0	281
Confl. Peds. (#/hr)			6			21						16
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	33.4	67.2		45.5	79.3				55.3			43.2
Effective Green, g (s)	33.4	67.2		45.5	79.3				55.3			43.2
Actuated g/C Ratio	0.26	0.52		0.35	0.61				0.43			0.33
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	446	1773		620	2121				1186			541
v/s Ratio Prot	0.04	0.25		c0.30	c0.30				0.04			c0.17
v/s Ratio Perm												
v/c Ratio	0.15	0.48		0.86	0.49				0.10			0.52
Uniform Delay, d1	37.3	20.2		39.3	14.1				22.4			35.0
Progression Factor	1.00	1.00		1.00	1.00				1.11			1.00
Incremental Delay, d2	0.1	0.9		11.5	0.8				0.0			0.4
Delay (s)	37.4	21.1		50.9	14.9				25.0			35.4
Level of Service	D	C		D	B				C			D
Approach Delay (s)		22.3			27.1			25.0			35.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

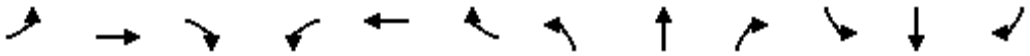
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	217	411	157	93	601	220	123	140	47	246	306	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1762	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1762	2787	1770	1863	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	244	462	176	104	675	247	138	157	53	276	344	355
RTOR Reduction (vph)	0	0	96	0	0	160	0	0	41	0	0	274
Lane Group Flow (vph)	244	462	80	104	675	87	124	171	12	276	344	81
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	22.1	58.8	58.8	9.2	45.9	45.9	16.5	16.5	29.7	29.5	29.5	29.5
Effective Green, g (s)	22.1	58.8	58.8	9.2	45.9	45.9	16.5	16.5	29.7	29.5	29.5	29.5
Actuated g/C Ratio	0.17	0.45	0.45	0.07	0.35	0.35	0.13	0.13	0.23	0.23	0.23	0.23
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	301	1601	716	243	1250	559	213	224	637	402	423	359
v/s Ratio Prot	c0.14	0.13		0.03	c0.19		0.07	c0.10	0.00	0.16	c0.18	
v/s Ratio Perm			0.05			0.06						0.05
v/c Ratio	0.81	0.29	0.11	0.43	0.54	0.16	0.58	0.76	0.02	0.69	0.81	0.22
Uniform Delay, d1	51.9	22.4	20.5	57.9	33.6	28.8	53.5	54.9	38.9	46.0	47.6	40.9
Progression Factor	1.00	1.00	1.00	1.06	0.54	0.17	0.99	0.99	2.13	1.00	1.00	1.00
Incremental Delay, d2	14.4	0.5	0.3	1.1	1.5	0.5	4.0	14.3	0.0	4.8	11.4	0.3
Delay (s)	66.3	22.9	20.8	62.7	19.5	5.5	57.2	68.5	83.0	50.8	59.0	41.3
Level of Service	E	C	C	E	B	A	E	E	F	D	E	D
Approach Delay (s)		34.5			20.5			66.7			50.2	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM Average Control Delay	38.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	651	86	675	581	78	118	207	773	163	245	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	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	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3323	1527	3467	3505		1787	1881	1599	3433	3351	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1579	3323	1527	3467	3505		1787	1881	1599	3433	3351	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	102	685	91	711	612	82	124	218	814	172	258	108
RTOR Reduction (vph)	0	0	58	0	8	0	0	0	20	0	35	0
Lane Group Flow (vph)	92	695	33	711	686	0	124	218	794	172	331	0
Confl. Peds. (#/hr)	1		3	3		1	4					4
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	35.7	35.7	35.7	38.6	38.6		12.0	30.0	68.6	10.2	28.2	
Effective Green, g (s)	35.7	35.7	35.7	38.6	38.6		12.0	30.0	68.6	10.2	28.2	
Actuated g/C Ratio	0.27	0.27	0.27	0.30	0.30		0.09	0.23	0.53	0.08	0.22	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	434	913	419	1029	1041		165	434	844	269	727	
v/s Ratio Prot	0.06	c0.21		0.21	0.20		0.07	0.12	c0.50	c0.05	0.10	
v/s Ratio Perm			0.02									
v/c Ratio	0.21	0.76	0.08	0.69	0.66		0.75	0.50	0.94	0.64	0.45	
Uniform Delay, d1	36.3	43.2	35.0	40.4	40.0		57.5	43.5	28.8	58.1	44.2	
Progression Factor	1.00	1.00	1.00	0.99	0.99		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	6.0	0.4	1.8	1.3		15.6	0.3	18.0	3.6	0.2	
Delay (s)	37.4	49.2	35.3	41.9	41.0		73.2	43.8	46.8	61.6	44.4	
Level of Service	D	D	D	D	D		E	D	D	E	D	
Approach Delay (s)		46.5			41.5			49.0			49.9	
Approach LOS		D			D			D			D	

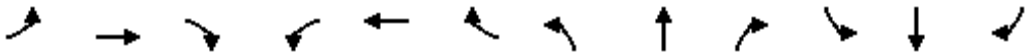
Intersection Summary			
HCM Average Control Delay	45.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1565	1070	0	815	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3574		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3574		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1665	1138	0	867	281
RTOR Reduction (vph)	0	0	0	0	0	84
Lane Group Flow (vph)	0	1665	1138	0	867	197
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		40.7	40.7		15.5	15.5
Effective Green, g (s)		40.7	40.7		15.5	15.5
Actuated g/C Ratio		0.63	0.63		0.24	0.24
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		2216	2238		819	377
v/s Ratio Prot		c0.47	0.32		c0.25	0.12
v/s Ratio Perm						
v/c Ratio		0.75	0.51		1.06	0.52
Uniform Delay, d1		8.6	6.7		24.8	21.5
Progression Factor		0.67	0.75		1.00	1.00
Incremental Delay, d2		1.3	0.7		48.1	1.0
Delay (s)		7.1	5.7		72.9	22.5
Level of Service		A	A		E	C
Approach Delay (s)		7.1	5.7		60.6	
Approach LOS		A	A		E	

Intersection Summary			
HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		

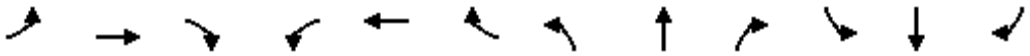
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	58	33	244	118	154	45	800	231	245	665	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98			1.00	0.91	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		0.99			0.96	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1755	1452	1752	3359		1787	3515	
Flt Permitted		0.72			0.70	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1269			1274	1452	1752	3359		1787	3515	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	24	69	39	290	140	183	54	952	275	292	792	80
RTOR Reduction (vph)	0	16	0	0	0	49	0	27	0	0	6	0
Lane Group Flow (vph)	0	116	0	0	430	134	54	1200	0	292	866	0
Confl. Peds. (#/hr)	78		67	67		78			8			4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		25.1			25.1	25.1	4.9	31.5		17.8	44.4	
Effective Green, g (s)		25.1			25.1	25.1	4.9	31.5		17.8	44.4	
Actuated g/C Ratio		0.29			0.29	0.29	0.06	0.37		0.21	0.52	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		371			372	424	100	1232		370	1817	
v/s Ratio Prot							0.03	c0.36		c0.16	0.25	
v/s Ratio Perm		0.09			c0.34	0.09						
v/c Ratio		0.31			1.16	0.32	0.54	0.97		0.79	0.48	
Uniform Delay, d1		23.7			30.4	23.7	39.4	26.8		32.3	13.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			96.3	0.4	3.2	19.5		9.9	0.1	
Delay (s)		24.2			126.7	24.1	42.6	46.3		42.2	13.4	
Level of Service		C			F	C	D	D		D	B	
Approach Delay (s)		24.2			96.1			46.1			20.7	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM Average Control Delay	45.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	11.5
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

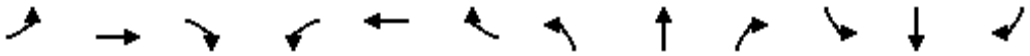
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	928	32	11	840	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1601			1599		1752	3483		1770	3360	
Flt Permitted		0.54			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		879			1222		1752	3483		1770	3360	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	1092	38	13	988	107
RTOR Reduction (vph)	0	44	0	0	20	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	338	0	0	18	0	234	1129	0	13	1088	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Effective Green, g (s)		25.3			3.9		16.1	48.6		1.2	33.7	
Actuated g/C Ratio		0.26			0.04		0.17	0.50		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		230			49		292	1754		22	1173	
v/s Ratio Prot							c0.13	0.32		0.01	c0.32	
v/s Ratio Perm		c0.38			c0.01							
v/c Ratio		1.47			0.36		0.80	0.64		0.59	0.93	
Uniform Delay, d1		35.6			45.1		38.7	17.6		47.4	30.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		233.0			1.7		13.8	0.7		25.2	12.5	
Delay (s)		268.6			46.8		52.5	18.3		72.6	42.7	
Level of Service		F			D		D	B		E	D	
Approach Delay (s)		268.6			46.8			24.2			43.0	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM Average Control Delay	64.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	17.5
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

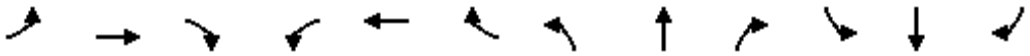
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1	194	10	4	18	199	928	32	11	840	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.93			0.97		1.00	1.00		1.00	0.96	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.92			0.93		1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1598			1600		1752	3483		1770	3361	
Flt Permitted		0.98			0.75		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1598			1222		1752	3483		1770	3361	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	153	1	228	12	5	21	234	1092	38	13	988	107
RTOR Reduction (vph)	0	45	0	0	20	0	0	1	0	0	6	0
Lane Group Flow (vph)	0	337	0	0	18	0	234	1129	0	13	1089	0
Confl. Peds. (#/hr)	4		87	87		4			5			142
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Perm			Prot			Prot		
Protected Phases	3	3			4		5	2		1	6	
Permitted Phases				4								
Actuated Green, G (s)		24.4			3.9		16.1	48.7		1.2	33.8	
Effective Green, g (s)		24.4			3.9		16.1	48.7		1.2	33.8	
Actuated g/C Ratio		0.25			0.04		0.17	0.51		0.01	0.35	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		407			50		295	1772		22	1187	
v/s Ratio Prot		c0.21					c0.13	0.32		0.01	c0.32	
v/s Ratio Perm					c0.01							
v/c Ratio		0.83			0.36		0.79	0.64		0.59	0.92	
Uniform Delay, d1		33.7			44.7		38.2	17.1		47.0	29.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.5			1.6		12.8	0.7		25.2	11.1	
Delay (s)		46.1			46.3		51.0	17.7		72.2	40.7	
Level of Service		D			D		D	B		E	D	
Approach Delay (s)		46.1			46.3			23.4			41.0	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	33.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	95.7	Sum of lost time (s)	17.5
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

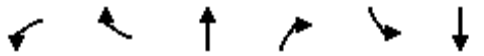
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	1	144	17	1	0	119	1060	11	1	914	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.94		1.00	1.00		1.00	1.00	
Frt		0.92			1.00		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1681			1700		1752	3495		1752	3401	
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1680			1781		1752	3495		1752	3401	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	111	1	162	19	1	0	134	1191	12	1	1027	145
RTOR Reduction (vph)	0	50	0	0	0	0	0	1	0	0	8	0
Lane Group Flow (vph)	0	224	0	0	20	0	134	1202	0	1	1164	0
Confl. Peds. (#/hr)	15		10	10		15			54			34
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		17.8			2.5		12.0	29.9		13.2	31.1	
Effective Green, g (s)		17.8			2.5		12.0	29.9		13.2	31.1	
Actuated g/C Ratio		0.22			0.03		0.15	0.37		0.16	0.39	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		372			55		261	1300		288	1316	
v/s Ratio Prot							c0.08	c0.34		0.00	0.34	
v/s Ratio Perm		c0.13			c0.01							
v/c Ratio		0.60			0.36		0.51	0.92		0.00	0.88	
Uniform Delay, d1		28.1			38.2		31.5	24.2		28.1	23.0	
Progression Factor		1.00			1.00		0.74	0.35		1.00	1.00	
Incremental Delay, d2		4.0			1.5		0.6	4.6		0.0	7.4	
Delay (s)		32.1			39.7		24.0	13.0		28.1	30.4	
Level of Service		C			D		C	B		C	C	
Approach Delay (s)		32.1			39.7			14.1			30.4	
Approach LOS		C			D			B			C	

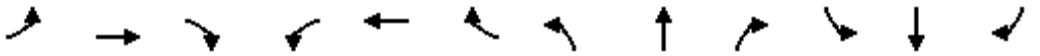
Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	111	1079	25	84	991
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1690		3456		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1690		3456		1787	3574
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	75	128	1240	29	97	1139
RTOR Reduction (vph)	58	0	1	0	0	0
Lane Group Flow (vph)	145	0	1268	0	97	1139
Confl. Peds. (#/hr)	9			11		
Heavy Vehicles (%)	1%	1%	4%	4%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	17.8		29.9		13.2	31.1
Effective Green, g (s)	17.8		29.9		13.2	31.1
Actuated g/C Ratio	0.22		0.37		0.16	0.39
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	374		1285		293	1382
v/s Ratio Prot	c0.09		c0.37		c0.05	0.32
v/s Ratio Perm						
v/c Ratio	0.39		0.99		0.33	0.82
Uniform Delay, d1	26.7		25.1		29.7	22.2
Progression Factor	1.00		1.00		0.69	0.37
Incremental Delay, d2	1.4		21.7		0.1	2.4
Delay (s)	28.0		46.8		20.6	10.7
Level of Service	C		D		C	B
Approach Delay (s)	28.0		46.8			11.4
Approach LOS	C		D			B

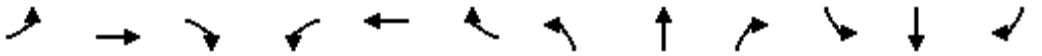
Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	0	99	3	1	0	86	1069	1	1	990	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.98		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	0.99	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1556		1820		1770	3539		1787	3506	
Flt Permitted		0.75	1.00		0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1405	1556		1553		1770	3539		1787	3506	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	61	0	125	4	1	0	109	1353	1	1	1253	106
RTOR Reduction (vph)	0	0	110	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	61	15	0	5	0	109	1354	0	1	1354	0
Confl. Peds. (#/hr)			6	6					9			38
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		7.9	7.9		7.9		8.5	45.7		0.9	38.1	
Effective Green, g (s)		7.9	7.9		7.9		8.5	45.7		0.9	38.1	
Actuated g/C Ratio		0.12	0.12		0.12		0.13	0.69		0.01	0.58	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		168	186		186		228	2450		24	2024	
v/s Ratio Prot							c0.06	0.38		0.00	c0.39	
v/s Ratio Perm		c0.04	0.01		0.00							
v/c Ratio		0.36	0.08		0.03		0.48	0.55		0.04	0.67	
Uniform Delay, d1		26.7	25.8		25.7		26.7	5.1		32.1	9.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.3	0.3		0.1		2.1	0.3		0.7	0.7	
Delay (s)		29.0	26.1		25.8		28.8	5.3		32.8	10.3	
Level of Service		C	C		C		C	A		C	B	
Approach Delay (s)		27.1			25.8			7.1			10.3	
Approach LOS		C			C			A			B	

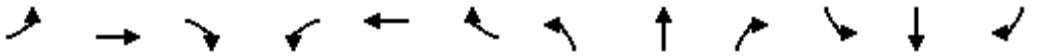
Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	266	325	113	580	562	425	11	1045	543	652	640	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	283	346	120	617	598	452	12	1112	578	694	681	363
RTOR Reduction (vph)	0	0	104	0	0	246	0	0	46	0	0	75
Lane Group Flow (vph)	283	346	16	617	598	206	12	1112	532	694	681	288
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	15.0	17.1	17.1	28.4	30.5	30.5	2.6	31.5	59.9	36.0	64.9	84.4
Effective Green, g (s)	15.0	17.1	17.1	28.4	30.5	30.5	2.6	31.5	59.9	36.0	64.9	84.4
Actuated g/C Ratio	0.12	0.13	0.13	0.22	0.23	0.23	0.02	0.24	0.46	0.28	0.50	0.65
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	400	470	210	750	830	364	35	858	729	940	1784	1038
v/s Ratio Prot	0.08	c0.10		c0.18	0.17		0.01	c0.31	0.34	c0.20	0.19	0.18
v/s Ratio Perm			0.01			0.13						
v/c Ratio	0.71	0.74	0.08	0.82	0.72	0.57	0.34	1.30	0.73	0.74	0.38	0.28
Uniform Delay, d1	55.4	54.3	49.5	48.4	45.8	43.9	62.9	49.2	28.5	42.7	20.1	9.8
Progression Factor	0.99	1.00	1.48	1.00	1.00	1.00	1.05	0.93	1.17	1.00	1.00	1.00
Incremental Delay, d2	4.3	4.8	0.1	6.9	2.6	1.2	1.2	138.1	1.7	2.6	0.6	0.1
Delay (s)	59.2	58.9	73.6	55.3	48.5	45.1	67.3	184.0	34.9	45.4	20.8	9.8
Level of Service	E	E	E	E	D	D	E	F	C	D	C	A
Approach Delay (s)		61.4			50.1			132.6			28.3	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM Average Control Delay	69.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

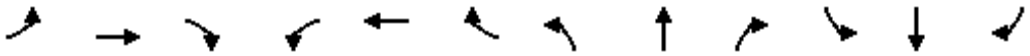


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	266	325	113	580	562	425	11	1045	543	652	640	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3433	3539	1551	1770	3539	1583	3396	3574	1599
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	283	346	120	617	598	452	12	1112	578	694	681	363
RTOR Reduction (vph)	0	0	104	0	0	240	0	0	33	0	0	93
Lane Group Flow (vph)	283	346	16	617	598	212	12	1112	545	694	681	270
Confl. Peds. (#/hr)						6			2			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	13.2	17.1	17.1	31.4	35.3	35.3	2.6	39.0	70.4	25.5	61.9	79.6
Effective Green, g (s)	13.2	17.1	17.1	31.4	35.3	35.3	2.6	39.0	70.4	25.5	61.9	79.6
Actuated g/C Ratio	0.10	0.13	0.13	0.24	0.27	0.27	0.02	0.30	0.54	0.20	0.48	0.61
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	352	470	210	829	961	421	35	1062	857	666	1702	979
v/s Ratio Prot	0.08	c0.10		c0.18	c0.17		0.01	c0.31	0.34	c0.20	0.19	0.17
v/s Ratio Perm			0.01			0.14						
v/c Ratio	0.80	0.74	0.08	0.74	0.62	0.50	0.34	1.05	0.64	1.04	0.40	0.28
Uniform Delay, d1	57.1	54.3	49.5	45.6	41.5	40.0	62.9	45.5	20.8	52.2	22.0	11.8
Progression Factor	0.97	0.99	1.70	1.00	1.00	1.00	1.08	0.98	1.10	1.00	1.00	1.00
Incremental Delay, d2	11.1	4.8	0.1	3.2	0.9	0.3	1.2	34.1	0.6	46.3	0.7	0.1
Delay (s)	66.5	58.4	84.0	48.8	42.4	40.3	68.7	78.6	23.6	98.5	22.7	11.8
Level of Service	E	E	F	D	D	D	E	E	C	F	C	B
Approach Delay (s)		65.6			44.2			59.9			50.7	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	53.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	10	68	1086	59	4	1310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
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	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1589	5035		1770	5085
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1589	5035		1770	5085
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	12	79	1263	69	5	1523
RTOR Reduction (vph)	0	76	3	0	0	0
Lane Group Flow (vph)	12	3	1329	0	5	1523
Confl. Peds. (#/hr)		3		8		
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	5.6	5.6	64.3		1.3	46.6
Effective Green, g (s)	5.6	5.6	64.3		1.3	46.6
Actuated g/C Ratio	0.04	0.04	0.49		0.01	0.36
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	78	68	2490		18	1823
v/s Ratio Prot	c0.01		c0.26		0.00	c0.30
v/s Ratio Perm		0.00				
v/c Ratio	0.15	0.05	0.53		0.28	0.84
Uniform Delay, d1	59.9	59.6	22.6		63.9	38.2
Progression Factor	1.00	1.00	0.18		0.70	0.56
Incremental Delay, d2	0.7	0.2	0.1		1.9	2.9
Delay (s)	60.6	59.9	4.1		46.3	24.2
Level of Service	E	E	A		D	C
Approach Delay (s)	60.0		4.1			24.3
Approach LOS	E		A			C

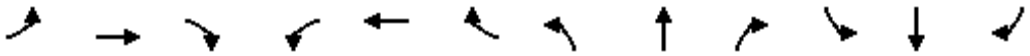
Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	60.8
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	77	226	263	269	61	291	1045	50	17	1138	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	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		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1485	1787	1821		3433	5040		1770	4959	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1485	1787	1821		3433	5040		1770	4959	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	44	88	257	299	306	69	331	1188	57	19	1293	188
RTOR Reduction (vph)	0	0	182	0	6	0	0	3	0	0	13	0
Lane Group Flow (vph)	44	88	75	299	369	0	331	1242	0	19	1468	0
Confl. Peds. (#/hr)			29			8			9			24
Confl. Bikes (#/hr)			1			1			1			1
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	5.5	22.3	22.3	25.7	32.9		19.9	58.8		2.9	46.6	
Effective Green, g (s)	5.5	22.3	22.3	25.7	32.9		19.9	58.8		2.9	46.6	
Actuated g/C Ratio	0.04	0.17	0.17	0.20	0.25		0.15	0.45		0.02	0.36	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	74	316	255	353	461		526	2280		39	1778	
v/s Ratio Prot	0.03	0.05		c0.17	c0.20		c0.10	0.25		0.01	c0.30	
v/s Ratio Perm			0.05									
v/c Ratio	0.59	0.28	0.29	0.85	0.80		0.63	0.54		0.49	0.83	
Uniform Delay, d1	61.2	46.9	47.0	50.3	45.5		51.6	25.9		62.8	38.0	
Progression Factor	1.00	1.00	1.00	1.02	0.46		1.02	0.92		1.42	0.11	
Incremental Delay, d2	8.3	0.4	0.5	12.1	6.8		1.6	0.9		1.9	2.6	
Delay (s)	69.4	47.2	47.4	63.2	27.5		54.3	24.6		91.0	6.6	
Level of Service	E	D	D	E	C		D	C		F	A	
Approach Delay (s)		49.9			43.3			30.8			7.7	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

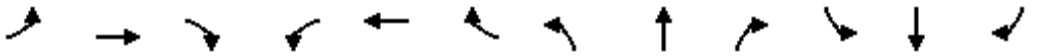
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	907	5	303	306	1083	0	0	972	655
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.98	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3502	1620		1770	5085			5882	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3502	1620		1770	5085			5882	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1008	6	337	340	1203	0	0	1080	728
RTOR Reduction (vph)	0	0	0	0	85	0	0	0	0	0	187	0
Lane Group Flow (vph)	0	0	0	1008	258	0	340	1203	0	0	1621	0
Confl. Peds. (#/hr)												27
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				15.4	15.4		15.6	43.1			24.5	
Effective Green, g (s)				15.4	15.4		15.6	43.1			24.5	
Actuated g/C Ratio				0.24	0.24		0.24	0.66			0.38	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				830	384		425	3372			2217	
v/s Ratio Prot				c0.29	0.16		c0.19	0.24			c0.28	
v/s Ratio Perm												
v/c Ratio				1.21	0.67		0.80	0.36			0.93dr	
Uniform Delay, d1				24.8	22.5		23.2	4.8			17.4	
Progression Factor				1.00	1.00		0.98	1.33			0.92	
Incremental Delay, d2				107.5	3.6		5.8	0.2			1.4	
Delay (s)				132.3	26.1		28.7	6.6			17.4	
Level of Service				F	C		C	A			B	
Approach Delay (s)		0.0			105.4			11.5			17.4	
Approach LOS		A			F			B			B	

Intersection Summary			
HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

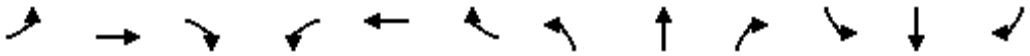
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	489	2	236	0	0	0	0	900	948	457	1422	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.92		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					4645		3467	5136	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					4645		3467	5136	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	556	2	268	0	0	0	0	1023	1077	519	1616	0
RTOR Reduction (vph)	0	0	23	0	0	0	0	293	0	0	0	0
Lane Group Flow (vph)	278	280	245	0	0	0	0	1808	0	519	1616	0
Confl. Peds. (#/hr)									8			
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	15.1	15.1	15.1					27.5		11.9	43.4	
Effective Green, g (s)	15.1	15.1	15.1					27.5		11.9	43.4	
Actuated g/C Ratio	0.23	0.23	0.23					0.42		0.18	0.67	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	391	392	368					1965		635	3429	
v/s Ratio Prot	0.17	c0.17						c0.39		c0.15	0.31	
v/s Ratio Perm			0.15									
v/c Ratio	0.71	0.71	0.67					1.11dr		0.82	0.47	
Uniform Delay, d1	22.9	23.0	22.7					17.7		25.5	5.2	
Progression Factor	1.00	1.00	1.00					1.30		0.96	0.80	
Incremental Delay, d2	5.0	5.1	3.5					7.4		2.7	0.1	
Delay (s)	28.0	28.0	26.2					30.5		27.2	4.3	
Level of Service	C	C	C					C		C	A	
Approach Delay (s)		27.4			0.0			30.5			9.9	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

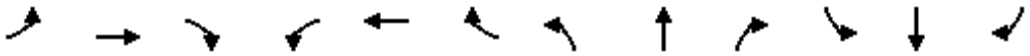
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	7	62	21	17	11	42	1645	6	19	1480	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		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	
Frt		0.97			0.97		1.00	1.00		1.00	0.99	
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750			1802		1770	5082		1787	5044	
Flt Permitted		0.75			0.87		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1360			1606		1770	5082		1787	5044	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	204	7	66	22	18	12	45	1750	6	20	1574	169
RTOR Reduction (vph)	0	17	0	0	9	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	260	0	0	43	0	45	1756	0	20	1725	0
Confl. Peds. (#/hr)			3	3					5			7
Confl. Bikes (#/hr)									1			4
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	2%	2%	2%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		14.2			14.2		4.3	38.0		1.3	35.0	
Effective Green, g (s)		14.2			14.2		4.3	38.0		1.3	35.0	
Actuated g/C Ratio		0.22			0.22		0.07	0.58		0.02	0.54	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		297			351		117	2971		36	2716	
v/s Ratio Prot							c0.03	c0.35		0.01	c0.34	
v/s Ratio Perm		c0.19			0.03							
v/c Ratio		0.87			0.12		0.38	0.59		0.56	0.64	
Uniform Delay, d1		24.5			20.4		29.1	8.6		31.6	10.5	
Progression Factor		1.00			1.00		0.92	1.47		0.87	1.33	
Incremental Delay, d2		23.0			0.1		0.6	0.6		9.0	1.0	
Delay (s)		47.6			20.4		27.4	13.2		36.4	15.0	
Level of Service		D			C		C	B		D	B	
Approach Delay (s)		47.6			20.4			13.6			15.2	
Approach LOS		D			C			B			B	

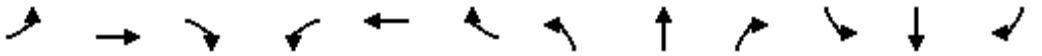
Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	168	13	616	93	181	12	1400	356	140	1370	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00	
Frt	1.00	0.99		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)	1736	1805		1681	1706	1558	1752	5036	1568	3467	3548	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	1805		1681	1706	1558	1752	5036	1568	3467	3548	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	183	14	670	101	197	13	1522	387	152	1489	58
RTOR Reduction (vph)	0	3	0	0	0	111	0	0	0	0	2	0
Lane Group Flow (vph)	87	194	0	382	389	86	13	1522	387	152	1545	0
Confl. Peds. (#/hr)	4		6	6		4			2			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	18.5	18.5		34.1	34.1	34.1	2.7	52.3	89.9	10.1	59.7	
Effective Green, g (s)	18.5	18.5		34.1	34.1	34.1	2.7	52.3	89.9	10.1	59.7	
Actuated g/C Ratio	0.14	0.14		0.26	0.26	0.26	0.02	0.40	0.69	0.08	0.46	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	247	257		441	447	409	36	2026	1084	269	1629	
v/s Ratio Prot	0.05	c0.11		0.23	c0.23		0.01	0.30	0.25	c0.04	c0.44	
v/s Ratio Perm						0.06						
v/c Ratio	0.35	0.76		0.87	0.87	0.21	0.36	0.75	0.36	0.57	0.95	
Uniform Delay, d1	50.3	53.6		45.8	45.8	37.4	62.8	33.3	8.2	57.8	33.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.02	
Incremental Delay, d2	0.3	10.7		15.7	16.2	0.1	2.2	2.6	0.1	1.3	11.0	
Delay (s)	50.7	64.3		61.5	62.0	37.5	65.0	35.9	8.3	51.3	45.3	
Level of Service	D	E		E	E	D	E	D	A	D	D	
Approach Delay (s)		60.1			56.8			30.5			45.9	
Approach LOS		E			E			C			D	

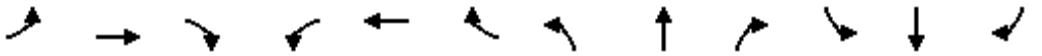
Intersection Summary			
HCM Average Control Delay	42.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	68	0	0	0	0	23	166	44	0	84	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.97			1.00	0.85
Flt Protected		0.97					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1852					1770	1804			1900	1615
Flt Permitted		0.97					0.70	1.00			1.00	1.00
Satd. Flow (perm)		1852					1300	1804			1900	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	74	0	0	0	0	25	180	48	0	91	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	18	0	0	0	5
Lane Group Flow (vph)	0	153	0	0	0	0	25	210	0	0	91	7
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		4.9					15.8	15.8			15.8	15.8
Effective Green, g (s)		4.9					15.8	15.8			15.8	15.8
Actuated g/C Ratio		0.17					0.55	0.55			0.55	0.55
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		316					716	993			1046	889
v/s Ratio Prot								c0.12			0.05	
v/s Ratio Perm		0.08					0.02					0.00
v/c Ratio		0.48					0.03	0.21			0.09	0.01
Uniform Delay, d1		10.8					3.0	3.3			3.0	2.9
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		1.2					0.0	0.1			0.0	0.0
Delay (s)		11.9					3.0	3.4			3.1	2.9
Level of Service		B					A	A			A	A
Approach Delay (s)		11.9			0.0			3.3			3.1	
Approach LOS		B			A			A			A	

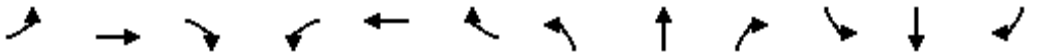
Intersection Summary			
HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	28.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	339	7	7	0	0	0	0	239	0	560	88	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.93						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1770	1723						1863		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.60	1.00	
Satd. Flow (perm)	1770	1723						1863		1115	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	368	8	8	0	0	0	0	260	0	609	96	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	368	11	0	0	0	0	0	260	0	609	96	0
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	12.7	12.7						18.0		18.0	18.0	
Effective Green, g (s)	12.7	12.7						18.0		18.0	18.0	
Actuated g/C Ratio	0.33	0.33						0.47		0.47	0.47	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	581	565						867		519	867	
v/s Ratio Prot		0.01						0.14			0.05	
v/s Ratio Perm	c0.21									c0.55		
v/c Ratio	0.63	0.02						0.30		1.17	0.11	
Uniform Delay, d1	11.0	8.8						6.4		10.4	5.8	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.0						0.2		96.9	0.1	
Delay (s)	13.3	8.8						6.6		107.3	5.9	
Level of Service	B	A						A		F	A	
Approach Delay (s)		13.1			0.0			6.6			93.5	
Approach LOS		B			A			A			F	

Intersection Summary			
HCM Average Control Delay	53.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	100	80	540	479	99	479	0	0	468	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1851	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)			1611		1851	1583	1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	109	87	587	521	108	521	0	0	509	27
RTOR Reduction (vph)	0	0	97	0	0	157	0	0	0	0	0	14
Lane Group Flow (vph)	0	0	12	0	674	364	108	521	0	0	509	13
Turn Type			Over	Perm		Perm	Prot					Perm
Protected Phases			5		8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)			6.9		24.7	24.7	6.9	28.3			17.4	17.4
Effective Green, g (s)			6.9		24.7	24.7	6.9	28.3			17.4	17.4
Actuated g/C Ratio			0.11		0.40	0.40	0.11	0.46			0.29	0.29
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			182		750	641	200	864			531	452
v/s Ratio Prot			0.01				0.06	c0.28			c0.27	
v/s Ratio Perm					0.36	0.23						0.01
v/c Ratio			0.07		0.90	0.57	0.54	0.60			0.96	0.03
Uniform Delay, d1			24.2		17.0	14.0	25.6	12.2			21.4	15.7
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2		13.5	1.2	3.0	1.2			28.5	0.0
Delay (s)			24.3		30.5	15.2	28.5	13.4			50.0	15.7
Level of Service			C		C	B	C	B			D	B
Approach Delay (s)		24.3			23.8			16.0			48.2	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	639	25	982	75	25	1056
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3428		3501		1770	3539
Flt Permitted	0.95		1.00		0.25	1.00
Satd. Flow (perm)	3428		3501		466	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	695	27	1067	82	27	1148
RTOR Reduction (vph)	7	0	14	0	0	0
Lane Group Flow (vph)	715	0	1135	0	27	1148
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	16.0		16.0		16.0	16.0
Effective Green, g (s)	16.0		16.0		16.0	16.0
Actuated g/C Ratio	0.40		0.40		0.40	0.40
Clearance Time (s)	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	1371		1400		186	1416
v/s Ratio Prot			0.32			c0.32
v/s Ratio Perm	c0.21				0.06	
v/c Ratio	0.52		0.81		0.15	0.81
Uniform Delay, d1	9.1		10.7		7.6	10.7
Progression Factor	1.46		1.00		1.00	1.00
Incremental Delay, d2	0.8		5.2		1.6	5.1
Delay (s)	14.1		15.8		9.3	15.8
Level of Service	B		B		A	B
Approach Delay (s)	14.1		15.8			15.6
Approach LOS	B		B			B

Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	256	1718	91	125	2073	125	313	289	103	91	133	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96		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	5081		1787	6407		1767	1800		1785	1881	1556
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.23	1.00	1.00
Satd. Flow (perm)	1787	5081		1787	6407		1148	1800		440	1881	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	269	1808	96	132	2182	132	329	304	108	96	140	99
RTOR Reduction (vph)	0	4	0	0	7	0	0	11	0	0	0	68
Lane Group Flow (vph)	269	1900	0	132	2307	0	329	401	0	96	140	31
Confl. Peds. (#/hr)			11			1	10		3	3		10
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	22.8	56.4		14.2	48.3		37.1	37.1		37.1	37.1	37.1
Effective Green, g (s)	22.8	56.4		14.2	48.3		37.1	37.1		37.1	37.1	37.1
Actuated g/C Ratio	0.19	0.47		0.12	0.40		0.31	0.31		0.31	0.31	0.31
Clearance Time (s)	3.2	4.4		3.7	4.4		4.2	4.2		4.2	4.2	4.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	340	2388		211	2579		355	557		136	582	481
v/s Ratio Prot	c0.15	0.37		0.07	c0.36			0.22			0.07	
v/s Ratio Perm							c0.29			0.22		0.02
v/c Ratio	0.79	0.80		0.63	0.89		0.93	0.72		0.71	0.24	0.06
Uniform Delay, d1	46.3	26.9		50.4	33.5		40.1	36.8		36.6	30.9	29.2
Progression Factor	0.83	0.73		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.2	1.2		5.7	5.3		29.5	4.4		15.4	0.2	0.1
Delay (s)	43.6	20.9		56.0	38.8		69.6	41.3		52.0	31.2	29.3
Level of Service	D	C		E	D		E	D		D	C	C
Approach Delay (s)		23.7			39.7			53.9			36.6	
Approach LOS		C			D			D			D	

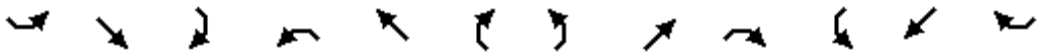
Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.8
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	546	1409	213	242	0	304	0	1020	206	588	692	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5025		3467		2814		5038		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5025		3467		2814		5038		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	569	1468	222	252	0	317	0	1062	215	612	721	0
RTOR Reduction (vph)	0	17	0	0	0	195	0	25	0	0	0	0
Lane Group Flow (vph)	569	1673	0	252	0	122	0	1252	0	612	721	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	15.8	56.0		6.0		46.2		25.0		17.0	46.0	
Effective Green, g (s)	15.8	56.0		6.0		46.2		25.0		17.0	46.0	
Actuated g/C Ratio	0.13	0.47		0.05		0.39		0.21		0.14	0.38	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	664	2345		173		1083		1050		491	1370	
v/s Ratio Prot	c0.11	c0.33		c0.07		0.04		c0.25		c0.18	0.20	
v/s Ratio Perm												
v/c Ratio	0.86	0.71		1.46		0.11		1.19		1.25	0.53	
Uniform Delay, d1	51.0	25.6		57.0		23.7		47.5		51.5	28.6	
Progression Factor	1.00	1.00		1.10		1.63		1.00		1.00	1.00	
Incremental Delay, d2	10.6	1.9		221.4		0.1		96.0		127.1	0.4	
Delay (s)	61.6	27.5		284.0		38.8		143.5		178.6	29.0	
Level of Service	E	C		F		D		F		F	C	
Approach Delay (s)		36.1			147.4			143.5			97.6	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM Average Control Delay	88.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

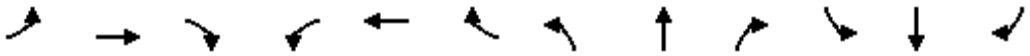
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	546	1409	213	242	0	304	0	1020	206	588	692	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor	0.94	0.91		0.97		0.88		0.91		0.97	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00		0.85		0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	5040	5025		3467		2814		5038		3467	3574	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)	5040	5025		3467		2814		5038		3467	3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	569	1468	222	252	0	317	0	1062	215	612	721	0
RTOR Reduction (vph)	0	16	0	0	0	227	0	26	0	0	0	0
Lane Group Flow (vph)	569	1674	0	252	0	90	0	1251	0	612	721	0
Confl. Peds. (#/hr)			2						6			
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot		custom				Prot		
Protected Phases	1	6		5		2		4		3	8	
Permitted Phases												
Actuated Green, G (s)	19.0	44.0		9.0		34.0		29.0		22.0	55.0	
Effective Green, g (s)	19.0	44.0		9.0		34.0		29.0		22.0	55.0	
Actuated g/C Ratio	0.16	0.37		0.08		0.28		0.24		0.18	0.46	
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	798	1843		260		797		1218		636	1638	
v/s Ratio Prot	0.11	c0.33		c0.07		0.03		c0.25		c0.18	0.20	
v/s Ratio Perm												
v/c Ratio	0.71	0.91		0.97		0.11		1.03		0.96	0.44	
Uniform Delay, d1	47.9	36.1		55.4		31.8		45.5		48.6	22.1	
Progression Factor	1.00	1.00		0.84		0.45		1.00		1.00	1.00	
Incremental Delay, d2	3.0	8.1		32.0		0.1		33.0		26.4	0.2	
Delay (s)	50.9	44.2		78.5		14.5		78.5		75.0	22.2	
Level of Service	D	D		E		B		E		E	C	
Approach Delay (s)		45.9			42.9			78.5			46.5	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	53.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

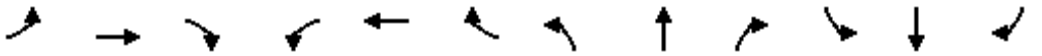
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1044	25	256	1169	198	201	108	914	343	110	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			0.95	0.95	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.98			0.92	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5112		1787	5024			1610	1504	1770	1714	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00	0.95	1.00	
Satd. Flow (perm)	1787	5112		1787	5024			1302	1504	1770	1714	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	289	1123	27	275	1257	213	216	116	983	369	118	134
RTOR Reduction (vph)	0	2	0	0	19	0	0	29	269	0	32	0
Lane Group Flow (vph)	289	1148	0	275	1451	0	0	637	380	369	220	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Perm		Perm	Split		
Protected Phases	5	2		1	6			8		4	4	
Permitted Phases							8		8			
Actuated Green, G (s)	16.0	44.6		22.9	51.0			16.0	16.0	26.0	26.0	
Effective Green, g (s)	16.0	44.6		22.9	51.0			16.0	16.0	26.0	26.0	
Actuated g/C Ratio	0.13	0.36		0.18	0.41			0.13	0.13	0.21	0.21	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0	3.0	2.5	2.5	
Lane Grp Cap (vph)	229	1824		327	2050			167	193	368	357	
v/s Ratio Prot	c0.16	0.22		c0.15	c0.29					c0.21	0.13	
v/s Ratio Perm								c0.49	0.25			
v/c Ratio	1.26	0.63		0.84	0.71			3.82	1.97	1.00	0.61	
Uniform Delay, d1	54.5	33.3		49.3	30.8			54.5	54.5	49.5	45.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	148.1	1.7		17.2	2.1			1281.5	453.2	47.6	7.7	
Delay (s)	202.6	35.0		66.5	32.9			1336.0	507.7	97.1	52.7	
Level of Service	F	D		E	C			F	F	F	D	
Approach Delay (s)		68.7			38.2			927.2			79.1	
Approach LOS		E			D			F			E	

Intersection Summary			
HCM Average Control Delay	280.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

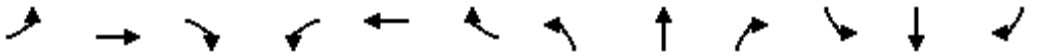
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1044	25	256	1169	198	198	108	603	343	110	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1787	5112		1787	5024			1804	1583	1770	1714	
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1787	5112		1787	5024			1804	1583	1770	1714	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	289	1123	27	275	1257	213	213	116	648	369	118	134
RTOR Reduction (vph)	0	2	0	0	18	0	0	0	44	0	32	0
Lane Group Flow (vph)	289	1148	0	275	1452	0	0	329	604	369	220	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		pt+ov	Split		
Protected Phases	5	2		1	6		8	8	8 1	4	4	
Permitted Phases												
Actuated Green, G (s)	21.0	34.0		23.5	36.0			27.5	51.0	29.5	29.5	
Effective Green, g (s)	21.0	34.0		23.5	36.0			27.5	51.0	29.5	29.5	
Actuated g/C Ratio	0.16	0.26		0.18	0.28			0.21	0.39	0.23	0.23	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0		2.5	2.5	
Lane Grp Cap (vph)	289	1337		323	1391			382	621	402	389	
v/s Ratio Prot	c0.16	0.22		0.15	c0.29			0.18	c0.38	c0.21	0.13	
v/s Ratio Perm												
v/c Ratio	1.00	0.86		0.85	1.04			0.86	0.97	0.92	0.57	
Uniform Delay, d1	54.5	45.7		51.6	47.0			49.4	38.8	49.1	44.6	
Progression Factor	0.87	0.82		0.71	0.69			0.86	0.61	1.00	1.00	
Incremental Delay, d2	44.8	5.4		16.7	34.9			12.6	22.8	25.4	1.5	
Delay (s)	92.0	42.9		53.4	67.2			55.1	46.4	74.5	46.1	
Level of Service	F	D		D	E			E	D	E	D	
Approach Delay (s)		52.7			65.1			49.3			63.0	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	57.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

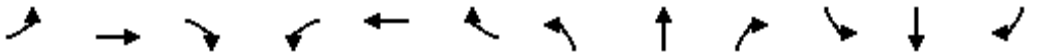
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	1044	25	256	1169	198	198	108	603	343	110	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		3.5	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00		1.00	0.98			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	3467	5112		1787	5024			1804	1583	1770	1714	
Flt Permitted	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (perm)	3467	5112		1787	5024			1804	1583	1770	1714	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	289	1123	27	275	1257	213	213	116	648	369	118	134
RTOR Reduction (vph)	0	2	0	0	17	0	0	0	46	0	32	0
Lane Group Flow (vph)	289	1148	0	275	1453	0	0	329	602	369	220	0
Confl. Peds. (#/hr)			6							4		
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Split		pt+ov	Split		
Protected Phases	5	2		1	6		8	8	8 1	4	4	
Permitted Phases												
Actuated Green, G (s)	15.6	30.7		28.5	43.1			25.8	54.3	29.5	29.5	
Effective Green, g (s)	15.6	30.7		28.5	43.1			25.8	54.3	29.5	29.5	
Actuated g/C Ratio	0.12	0.24		0.22	0.33			0.20	0.42	0.23	0.23	
Clearance Time (s)	4.0	4.0		3.5	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5			3.0		2.5	2.5	
Lane Grp Cap (vph)	416	1207		392	1666			358	661	402	389	
v/s Ratio Prot	0.08	c0.22		0.15	c0.29			c0.18	0.38	c0.21	0.13	
v/s Ratio Perm												
v/c Ratio	0.69	0.95		0.70	0.87			0.92	0.91	0.92	0.57	
Uniform Delay, d1	54.9	48.9		46.8	40.9			51.1	35.6	49.1	44.6	
Progression Factor	0.89	0.83		0.73	0.69			0.86	0.58	1.00	1.00	
Incremental Delay, d2	3.3	13.1		4.6	5.8			20.8	12.2	25.4	1.5	
Delay (s)	52.2	53.8		38.5	34.2			64.8	32.8	74.5	46.1	
Level of Service	D	D		D	C			E	C	E	D	
Approach Delay (s)		53.5			34.9			43.6			63.0	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM Average Control Delay	45.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

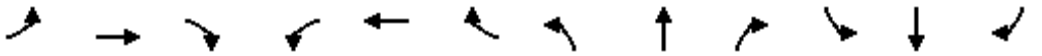
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	298	1574	100	51	1295	44	82	17	45	64	43	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.91			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	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	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	3467	3537		1787	5104			1807	1563	1787	1641	
Flt Permitted	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	3467	3537		1787	5104			1807	1563	1787	1641	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	307	1623	103	53	1335	45	85	18	46	66	44	254
RTOR Reduction (vph)	0	3	0	0	2	0	0	0	42	0	161	0
Lane Group Flow (vph)	307	1723	0	53	1378	0	0	103	4	66	137	0
Confl. Peds. (#/hr)						12			6	6		
Confl. Bikes (#/hr)			5			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	15.8	83.1		6.4	74.2			12.3	12.3	12.2	12.2	
Effective Green, g (s)	15.8	83.1		6.4	74.2			12.3	12.3	12.2	12.2	
Actuated g/C Ratio	0.12	0.64		0.05	0.57			0.09	0.09	0.09	0.09	
Clearance Time (s)	3.5	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.5		3.0	2.5			2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	421	2261		88	2913			171	148	168	154	
v/s Ratio Prot	0.09	c0.49		0.03	c0.27			c0.06		0.04	c0.08	
v/s Ratio Perm									0.00			
v/c Ratio	0.73	0.76		0.60	0.47			0.60	0.03	0.39	0.89	
Uniform Delay, d1	55.0	16.5		60.6	16.4			56.5	53.4	55.4	58.2	
Progression Factor	1.19	0.59		0.61	0.28			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.3	1.1		8.3	0.4			5.0	0.1	1.1	41.0	
Delay (s)	67.6	10.7		45.0	5.0			61.5	53.5	56.5	99.2	
Level of Service	E	B		D	A			E	D	E	F	
Approach Delay (s)		19.3			6.5			59.0			91.5	
Approach LOS		B			A			E			F	

Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

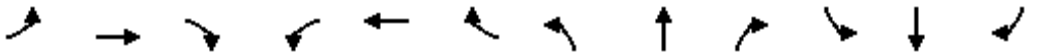
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	491	1356	47	30	984	202	26	6	16	214	6	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95		0.95	0.95		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		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		0.99	0.99	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99		0.95	0.95	1.00
Satd. Flow (prot)	3467	3551		1787	3471		1715	1601		1684	1693	1599
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.99		0.74	0.73	1.00
Satd. Flow (perm)	3467	3551		1787	3471		1715	1589		1312	1290	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	506	1398	48	31	1014	208	27	6	16	221	6	392
RTOR Reduction (vph)	0	1	0	0	13	0	0	10	0	0	0	283
Lane Group Flow (vph)	506	1445	0	31	1209	0	24	15	0	113	114	109
Confl. Peds. (#/hr)			12			6			7	7		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot			Prot			Prot			Perm		Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases										4		4
Actuated Green, G (s)	18.9	52.8		4.4	38.3		3.2	36.3		29.1	29.1	29.1
Effective Green, g (s)	18.9	52.8		4.4	38.3		3.2	36.3		29.1	29.1	29.1
Actuated g/C Ratio	0.18	0.50		0.04	0.36		0.03	0.35		0.28	0.28	0.28
Clearance Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.5		2.0	2.5		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	624	1786		75	1266		52	550		364	358	443
v/s Ratio Prot	c0.15	0.41		0.02	c0.35		c0.01	0.00				
v/s Ratio Perm								0.01		0.09	c0.09	0.07
v/c Ratio	0.81	0.81		0.41	0.95		0.46	0.03		0.31	0.32	0.25
Uniform Delay, d1	41.3	21.9		49.0	32.5		50.1	22.7		30.0	30.1	29.4
Progression Factor	1.19	0.86		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	2.5		1.3	16.5		4.7	0.0		0.4	0.4	0.2
Delay (s)	53.9	21.2		50.4	49.0		54.7	22.7		30.4	30.5	29.6
Level of Service	D	C		D	D		D	C		C	C	C
Approach Delay (s)		29.7			49.1			38.4			29.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	36.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

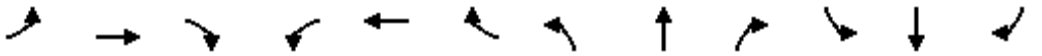
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	425	272	242	586	230	409	760	251	185	538	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	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	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	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)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3473	
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)	1787	3574	1566	1787	3574	1561	3467	3574	1567	1787	3473	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	201	443	283	252	610	240	426	792	261	193	560	88
RTOR Reduction (vph)	0	0	59	0	0	60	0	0	182	0	11	0
Lane Group Flow (vph)	201	443	224	252	610	180	426	792	79	193	637	0
Confl. Peds. (#/hr)	15		13	13		15	32		5	5		32
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	22.4	46.1	71.2	22.4	46.1	65.6	25.1	37.0	37.0	19.5	31.4	
Effective Green, g (s)	22.4	46.1	71.2	22.4	46.1	65.6	25.1	37.0	37.0	19.5	31.4	
Actuated g/C Ratio	0.16	0.33	0.51	0.16	0.33	0.47	0.18	0.26	0.26	0.14	0.22	
Clearance Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.0	4.0	3.5	4.0	
Vehicle Extension (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.5	2.5	2.0	2.5	
Lane Grp Cap (vph)	286	1177	836	286	1177	731	622	945	414	249	779	
v/s Ratio Prot	0.11	0.12	0.05	c0.14	c0.17	0.03	0.12	c0.22		0.11	c0.18	
v/s Ratio Perm			0.09			0.08			0.05			
v/c Ratio	0.70	0.38	0.27	0.88	0.52	0.25	0.68	0.84	0.19	0.78	0.82	
Uniform Delay, d1	55.6	35.9	19.6	57.5	38.0	22.3	53.8	48.7	39.9	58.1	51.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.67	2.59	1.00	1.00	
Incremental Delay, d2	6.3	0.9	0.1	24.9	1.6	0.1	2.1	5.6	0.1	12.8	6.5	
Delay (s)	61.9	36.9	19.6	82.4	39.6	22.4	39.8	38.0	103.5	71.0	58.1	
Level of Service	E	D	B	F	D	C	D	D	F	E	E	
Approach Delay (s)		37.0			45.7			50.1			61.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

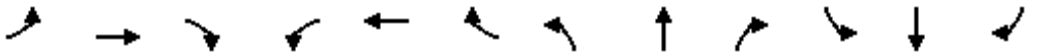
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	360	806	67	309	906	149	0	0	626	0	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		3.5	4.0				3.5			3.5
Lane Util. Factor	1.00	0.95		1.00	0.95				0.88			1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				1.00			1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00			1.00
Frt	1.00	0.99		1.00	0.98				0.85			0.86
Flt Protected	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (prot)	1787	3518		1770	3430				2814			1627
Flt Permitted	0.95	1.00		0.95	1.00				1.00			1.00
Satd. Flow (perm)	1787	3518		1770	3430				2814			1627
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	396	886	74	340	996	164	0	0	688	0	0	100
RTOR Reduction (vph)	0	4	0	0	11	0	0	0	67	0	0	34
Lane Group Flow (vph)	396	956	0	340	1149	0	0	0	621	0	0	66
Confl. Peds. (#/hr)			12			17						16
Confl. Bikes (#/hr)			8			4						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot			Prot					custom			custom
Protected Phases	5	2		1	6				1 8			5 4
Permitted Phases												
Actuated Green, G (s)	41.6	71.5		31.1	61.0				61.0			71.5
Effective Green, g (s)	41.6	71.5		31.1	61.0				61.0			71.5
Actuated g/C Ratio	0.30	0.51		0.22	0.44				0.44			0.51
Clearance Time (s)	3.5	4.0		3.5	4.0							
Vehicle Extension (s)	2.0	2.5		2.0	2.5							
Lane Grp Cap (vph)	531	1797		393	1495				1226			831
v/s Ratio Prot	c0.22	0.27		c0.19	c0.34				c0.22			0.04
v/s Ratio Perm												
v/c Ratio	0.75	0.53		0.87	0.77				0.51			0.08
Uniform Delay, d1	44.4	23.0		52.4	33.5				28.6			17.5
Progression Factor	1.00	1.00		1.00	1.00				0.70			1.00
Incremental Delay, d2	5.0	1.1		17.1	3.9				0.1			0.0
Delay (s)	49.4	24.1		69.6	37.4				20.0			17.5
Level of Service	D	C		E	D				C			B
Approach Delay (s)		31.5			44.7			20.0			17.5	
Approach LOS		C			D			C			B	

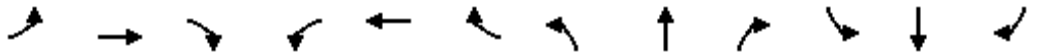
Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	588	227	29	781	226	257	321	97	137	121	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.95	0.95	0.88	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583	1681	1763	2787	1770	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	174	646	249	32	858	248	282	353	107	151	133	208
RTOR Reduction (vph)	0	0	128	0	0	119	0	0	72	0	0	181
Lane Group Flow (vph)	174	646	121	32	858	129	254	381	35	151	133	27
Turn Type	Prot		Perm	Prot		Perm	Split		pt+ov	Split		Perm
Protected Phases	5	2		1	6		4	4	4 1	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	17.0	63.5	63.5	6.8	53.3	53.3	35.4	35.4	46.2	18.3	18.3	18.3
Effective Green, g (s)	17.0	63.5	63.5	6.8	53.3	53.3	35.4	35.4	46.2	18.3	18.3	18.3
Actuated g/C Ratio	0.12	0.45	0.45	0.05	0.38	0.38	0.25	0.25	0.33	0.13	0.13	0.13
Clearance Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	215	1605	718	167	1347	603	425	446	920	231	244	207
v/s Ratio Prot	c0.10	0.18		0.01	c0.24		0.15	c0.22	0.01	c0.09	0.07	
v/s Ratio Perm			0.08			0.08						0.02
v/c Ratio	0.81	0.40	0.17	0.19	0.64	0.21	0.60	0.85	0.04	0.65	0.55	0.13
Uniform Delay, d1	59.9	25.6	22.6	64.0	35.4	29.2	46.0	49.8	31.8	57.8	57.0	53.8
Progression Factor	1.00	1.00	1.00	0.95	0.62	0.29	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.7	0.8	0.5	0.5	2.1	0.7	2.3	14.7	0.0	6.5	2.5	0.3
Delay (s)	78.6	26.3	23.1	61.0	23.9	9.2	48.3	64.5	31.8	64.3	59.4	54.1
Level of Service	E	C	C	E	C	A	D	E	C	E	E	D
Approach Delay (s)		34.1			21.7			54.3			58.7	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	447	137	797	479	175	137	270	649	59	252	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0	4.0	3.5	4.0	
Lane Util. Factor	0.91	0.91	1.00	0.97	0.95		1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3417	1564	3467	3418		1787	1881	1599	3467	3391	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1626	3417	1564	3467	3418		1787	1881	1599	3467	3391	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	176	466	143	830	499	182	143	281	676	61	262	85
RTOR Reduction (vph)	0	0	101	0	25	0	0	0	70	0	23	0
Lane Group Flow (vph)	158	484	42	830	656	0	143	281	606	61	324	0
Confl. Peds. (#/hr)	1		5	5		1	15					15
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split		Perm	Split			Prot		pt+ov	Prot		
Protected Phases	2	2		1	1		3	8	8 1	7	4	
Permitted Phases			2									
Actuated Green, G (s)	41.0	41.0	41.0	44.3	44.3		15.5	33.3	77.6	5.9	23.7	
Effective Green, g (s)	41.0	41.0	41.0	44.3	44.3		15.5	33.3	77.6	5.9	23.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.32	0.32		0.11	0.24	0.55	0.04	0.17	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	3.0	3.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	476	1001	458	1097	1082		198	447	886	146	574	
v/s Ratio Prot	0.10	c0.14		c0.24	0.19		0.08	0.15	c0.38	0.02	c0.10	
v/s Ratio Perm			0.03									
v/c Ratio	0.33	0.48	0.09	0.76	0.61		0.72	0.63	0.68	0.42	0.56	
Uniform Delay, d1	38.8	40.8	36.0	43.0	40.5		60.2	47.8	22.4	65.4	53.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	1.7	0.4	3.0	1.0		10.5	2.0	1.8	0.7	0.8	
Delay (s)	40.6	42.4	36.4	46.0	41.4		70.6	49.8	24.2	66.1	54.2	
Level of Service	D	D	D	D	D		E	D	C	E	D	
Approach Delay (s)		41.0			44.0			36.8			55.9	
Approach LOS		D			D			D			E	

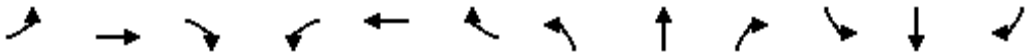
Intersection Summary			
HCM Average Control Delay	42.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	0	1155	1018	0	1021	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.3	4.3		4.5	4.5
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3574	3574		3467	1599
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3574	3574		3467	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1203	1060	0	1064	451
RTOR Reduction (vph)	0	0	0	0	0	84
Lane Group Flow (vph)	0	1203	1060	0	1064	367
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type						Prot
Protected Phases		2	6		8	8
Permitted Phases						
Actuated Green, G (s)		33.1	33.1		23.1	23.1
Effective Green, g (s)		33.1	33.1		23.1	23.1
Actuated g/C Ratio		0.51	0.51		0.36	0.36
Clearance Time (s)		4.3	4.3		4.5	4.5
Vehicle Extension (s)		4.0	4.0		2.5	2.5
Lane Grp Cap (vph)		1820	1820		1232	568
v/s Ratio Prot		c0.34	0.30		c0.31	0.23
v/s Ratio Perm						
v/c Ratio		0.66	0.58		0.86	0.65
Uniform Delay, d1		11.8	11.1		19.5	17.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.9	1.4		6.4	2.2
Delay (s)		13.7	12.5		25.9	19.8
Level of Service		B	B		C	B
Approach Delay (s)		13.7	12.5		24.1	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

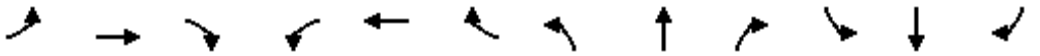
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	23	26	218	51	348	35	785	321	274	490	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1765			1792	1558	1787	3388		1787	3531	
Flt Permitted		0.72			0.72	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1302			1348	1558	1787	3388		1787	3531	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	39	26	29	245	57	391	39	882	361	308	551	37
RTOR Reduction (vph)	0	18	0	0	0	154	0	45	0	0	4	0
Lane Group Flow (vph)	0	76	0	0	302	237	39	1198	0	308	584	0
Confl. Peds. (#/hr)	12		13	13		12			5			10
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4		4						
Actuated Green, G (s)		22.4			22.4	22.4	4.2	32.0		18.1	45.9	
Effective Green, g (s)		22.4			22.4	22.4	4.2	32.0		18.1	45.9	
Actuated g/C Ratio		0.27			0.27	0.27	0.05	0.38		0.22	0.55	
Clearance Time (s)		4.0			4.0	4.0	3.5	4.0		3.5	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		347			359	415	89	1291		385	1929	
v/s Ratio Prot							0.02	c0.35		c0.17	0.17	
v/s Ratio Perm		0.06			c0.22	0.15						
v/c Ratio		0.22			0.84	0.57	0.44	0.93		0.80	0.30	
Uniform Delay, d1		24.0			29.1	26.6	38.8	24.9		31.2	10.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			16.1	1.9	1.3	11.6		10.7	0.1	
Delay (s)		24.3			45.2	28.5	40.0	36.5		41.9	10.4	
Level of Service		C			D	C	D	D		D	B	
Approach Delay (s)		24.3			35.8			36.6			21.3	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

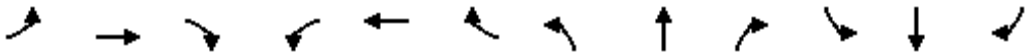
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	0	44	8	2	3	52	1084	16	9	630	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1722			1653		1787	3565		1785	3486	
Flt Permitted		0.78			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1376			1706		1787	3565		1785	3486	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	63	0	51	9	2	3	60	1260	19	10	733	110
RTOR Reduction (vph)	0	29	0	0	3	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	85	0	0	11	0	60	1279	0	10	836	0
Confl. Peds. (#/hr)			3	3			11		4	4		11
Confl. Bikes (#/hr)									5			1
Heavy Vehicles (%)	0%	0%	0%	8%	8%	8%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4								
Actuated Green, G (s)		7.2			1.0		4.5	38.2		0.9	34.6	
Effective Green, g (s)		7.2			1.0		4.5	38.2		0.9	34.6	
Actuated g/C Ratio		0.11			0.02		0.07	0.59		0.01	0.53	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		153			26		124	2102		25	1861	
v/s Ratio Prot							c0.03	c0.36		0.01	0.24	
v/s Ratio Perm		c0.06			c0.01							
v/c Ratio		0.55			0.42		0.48	0.61		0.40	0.45	
Uniform Delay, d1		27.3			31.6		29.0	8.5		31.7	9.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.4			4.0		1.1	0.4		3.8	0.1	
Delay (s)		29.7			35.6		30.1	8.9		35.5	9.4	
Level of Service		C			D		C	A		D	A	
Approach Delay (s)		29.7			35.6			9.9			9.7	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	17.5
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

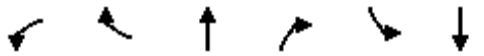
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	196	3	187	6	3	2	166	954	22	1	581	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Frt		0.93			0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1686			1764		1787	3559		1787	3469	
Flt Permitted		0.70			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1215			1812		1787	3559		1787	3469	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	200	3	191	6	3	2	169	973	22	1	593	102
RTOR Reduction (vph)	0	27	0	0	2	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	367	0	0	9	0	169	994	0	1	683	0
Confl. Peds. (#/hr)			3	3					8			12
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4								
Actuated Green, G (s)		30.4			1.1		13.6	26.5		12.0	24.9	
Effective Green, g (s)		30.4			1.1		13.6	26.5		12.0	24.9	
Actuated g/C Ratio		0.35			0.01		0.16	0.30		0.14	0.29	
Clearance Time (s)		5.0			4.5		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		5.0			2.0		3.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		425			23		279	1084		246	993	
v/s Ratio Prot							c0.09	c0.28		0.00	0.20	
v/s Ratio Perm		c0.30			c0.00							
v/c Ratio		0.86			0.39		0.61	0.92		0.00	0.69	
Uniform Delay, d1		26.4			42.6		34.2	29.2		32.3	27.6	
Progression Factor		1.00			1.00		0.62	0.29		1.00	1.00	
Incremental Delay, d2		17.8			4.0		0.3	1.4		0.0	1.8	
Delay (s)		44.2			46.6		21.5	9.9		32.3	29.4	
Level of Service		D			D		C	A		C	C	
Approach Delay (s)		44.2			46.6			11.6			29.4	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

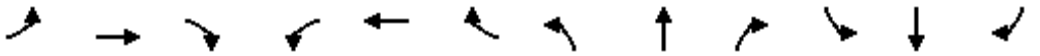
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	42	1100	54	78	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0		3.5	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frpb, ped/bikes	1.00		1.00		1.00	1.00
Flpb, ped/bikes	1.00		1.00		1.00	1.00
Frt	0.91		0.99		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1705		3541		1787	3574
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1705		3541		1787	3574
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	24	43	1122	55	80	710
RTOR Reduction (vph)	28	0	3	0	0	0
Lane Group Flow (vph)	39	0	1174	0	80	710
Confl. Peds. (#/hr)	2			11		
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type					Prot	
Protected Phases	3		6		5	2
Permitted Phases						
Actuated Green, G (s)	30.4		26.5		12.0	24.9
Effective Green, g (s)	30.4		26.5		12.0	24.9
Actuated g/C Ratio	0.35		0.30		0.14	0.29
Clearance Time (s)	5.0		4.0		3.5	4.0
Vehicle Extension (s)	5.0		2.5		2.0	2.5
Lane Grp Cap (vph)	596		1079		246	1023
v/s Ratio Prot	c0.02		c0.33		c0.04	0.20
v/s Ratio Perm						
v/c Ratio	0.07		1.09		0.33	0.69
Uniform Delay, d1	18.8		30.2		33.8	27.7
Progression Factor	1.00		1.00		0.84	0.33
Incremental Delay, d2	0.1		54.7		0.2	1.5
Delay (s)	18.9		84.9		28.7	10.6
Level of Service	B		F		C	B
Approach Delay (s)	18.9		84.9			12.4
Approach LOS	B		F			B

Intersection Summary			
HCM Average Control Delay	54.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

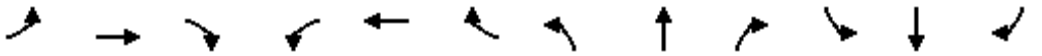
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	7	138	38	2	6	120	1058	5	10	631	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97		1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.98		1.00	1.00		1.00	0.98	
Flt Protected		0.95	1.00		0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1814	1573		1775		1787	3571		1787	3494	
Flt Permitted		0.70	1.00		0.74		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1334	1573		1365		1787	3571		1787	3494	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	127	7	144	40	2	6	125	1102	5	10	657	82
RTOR Reduction (vph)	0	0	113	0	5	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	134	31	0	43	0	125	1107	0	10	729	0
Confl. Peds. (#/hr)			19	19			18		8	8		18
Confl. Bikes (#/hr)									4			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			Prot			Prot		
Protected Phases		4			4		5	2		1	6	
Permitted Phases	4		4	4								
Actuated Green, G (s)		12.3	12.3		12.3		8.7	31.5		1.0	23.8	
Effective Green, g (s)		12.3	12.3		12.3		8.7	31.5		1.0	23.8	
Actuated g/C Ratio		0.22	0.22		0.22		0.15	0.56		0.02	0.42	
Clearance Time (s)		4.0	4.0		4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		4.5	4.5		4.5		4.0	3.0		3.0	2.0	
Lane Grp Cap (vph)		291	344		298		276	1998		32	1477	
v/s Ratio Prot							c0.07	c0.31		0.01	0.21	
v/s Ratio Perm		c0.10	0.02		0.03							
v/c Ratio		0.46	0.09		0.15		0.45	0.55		0.31	0.49	
Uniform Delay, d1		19.1	17.5		17.8		21.6	7.9		27.3	11.9	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.2		0.4		1.6	0.3		5.5	0.1	
Delay (s)		21.1	17.7		18.1		23.2	8.2		32.8	11.9	
Level of Service		C	B		B		C	A		C	B	
Approach Delay (s)		19.4			18.1			9.8			12.2	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	7.5
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

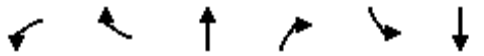
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	493	88	538	640	294	47	1140	648	369	451	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5	4.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	*0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	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	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)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3467	3574	1570	1787	3574	1599	3396	3574	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	259	530	95	578	688	316	51	1226	697	397	485	375
RTOR Reduction (vph)	0	0	78	0	0	178	0	0	11	0	0	96
Lane Group Flow (vph)	259	530	17	578	688	138	51	1226	686	397	485	279
Confl. Peds. (#/hr)	3					3						
Confl. Bikes (#/hr)						2			1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot		Perm	Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases			2			6						
Actuated Green, G (s)	14.3	24.7	24.7	29.2	39.6	39.6	7.4	49.5	78.7	19.6	61.7	80.5
Effective Green, g (s)	14.3	24.7	24.7	29.2	39.6	39.6	7.4	49.5	78.7	19.6	61.7	80.5
Actuated g/C Ratio	0.10	0.18	0.18	0.21	0.28	0.28	0.05	0.35	0.56	0.14	0.44	0.58
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.5	4.5		3.5	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)	354	631	282	723	1011	444	94	1264	899	475	1575	919
v/s Ratio Prot	0.07	c0.15		c0.17	0.19		0.03	c0.34	0.43	c0.12	0.14	0.17
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.73	0.84	0.06	0.80	0.68	0.31	0.54	0.97	0.76	0.84	0.31	0.30
Uniform Delay, d1	61.0	55.7	48.0	52.6	44.6	39.5	64.6	44.5	23.5	58.6	25.3	15.3
Progression Factor	0.79	0.81	1.14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	8.7	0.0	5.8	1.5	0.1	3.4	19.1	3.5	11.6	0.5	0.1
Delay (s)	54.4	53.7	54.8	58.4	46.1	39.6	68.0	63.6	27.0	70.2	25.8	15.4
Level of Service	D	D	D	E	D	D	E	E	C	E	C	B
Approach Delay (s)		54.0			49.3			50.8			36.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	47.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

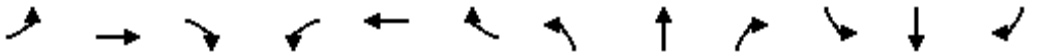
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	57	13	1466	18	11	1065
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5		3.5	4.5
Lane Util. Factor	1.00	1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	0.96	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	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1805	1558	5122		1787	5136
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1805	1558	5122		1787	5136
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	14	1560	19	12	1133
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	61	1	1579	0	12	1133
Confl. Peds. (#/hr)		16		14		
Confl. Bikes (#/hr)				7		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type		Perm			Prot	
Protected Phases	16		6 7		13	2
Permitted Phases		16				
Actuated Green, G (s)	8.5	8.5	71.9		3.4	58.1
Effective Green, g (s)	8.5	8.5	71.9		3.4	58.1
Actuated g/C Ratio	0.06	0.06	0.51		0.02	0.42
Clearance Time (s)	4.0	4.0			3.5	4.5
Vehicle Extension (s)	2.5	2.5			2.0	2.7
Lane Grp Cap (vph)	110	95	2631		43	2131
v/s Ratio Prot	c0.03		c0.31		0.01	c0.22
v/s Ratio Perm		0.00				
v/c Ratio	0.55	0.01	0.60		0.28	0.53
Uniform Delay, d1	63.9	61.8	23.9		67.1	30.7
Progression Factor	1.00	1.00	0.18		0.94	0.94
Incremental Delay, d2	4.8	0.0	0.2		1.1	0.8
Delay (s)	68.7	61.8	4.6		64.0	29.8
Level of Service	E	E	A		E	C
Approach Delay (s)	67.4		4.6			30.2
Approach LOS	E		A			C

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	52.8
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

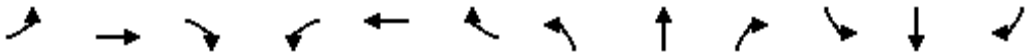
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	221	211	258	129	101	283	1332	214	58	979	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	0.98		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	0.85	1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1495	1787	1726		3467	4976		1787	5048	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1495	1787	1726		3467	4976		1787	5048	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	55	238	227	277	139	109	304	1432	230	62	1053	91
RTOR Reduction (vph)	0	0	158	0	21	0	0	12	0	0	6	0
Lane Group Flow (vph)	55	238	69	277	227	0	304	1650	0	62	1138	0
Confl. Peds. (#/hr)			28			19			19			35
Confl. Bikes (#/hr)			2						3			1
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	10.5	24.1	24.1	23.9	25.0		18.4	61.4		8.2	58.1	
Effective Green, g (s)	10.5	24.1	24.1	23.9	25.0		18.4	61.4		8.2	58.1	
Actuated g/C Ratio	0.08	0.17	0.17	0.17	0.18		0.13	0.44		0.06	0.42	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.5		3.5	4.5	
Vehicle Extension (s)	2.0	2.5	2.5	2.0	2.5		2.0	2.7		2.0	2.7	
Lane Grp Cap (vph)	133	321	257	305	308		456	2182		105	2095	
v/s Ratio Prot	0.03	0.13		c0.15	c0.13		c0.09	c0.33		0.03	c0.23	
v/s Ratio Perm			0.05									
v/c Ratio	0.41	0.74	0.27	0.91	0.74		0.67	0.76		0.59	0.54	
Uniform Delay, d1	61.8	55.0	50.3	57.0	54.4		57.9	33.0		64.3	30.9	
Progression Factor	1.00	1.00	1.00	0.57	0.71		1.05	0.87		1.45	0.28	
Incremental Delay, d2	0.8	8.5	0.4	25.0	7.1		2.5	2.2		5.1	0.9	
Delay (s)	62.6	63.4	50.7	57.3	45.8		63.4	31.0		98.2	9.6	
Level of Service	E	E	D	E	D		E	C		F	A	
Approach Delay (s)		57.8			51.9			36.0			14.2	
Approach LOS		E			D			D			B	

Intersection Summary			
HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

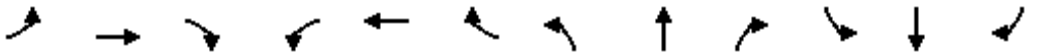
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	797	8	309	334	1520	0	0	855	593
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0		3.0	3.5			3.5	
Lane Util. Factor				0.97	1.00		1.00	0.91			0.86	
Frpb, ped/bikes				1.00	1.00		1.00	1.00			0.97	
Flpb, ped/bikes				1.00	1.00		1.00	1.00			1.00	
Frt				1.00	0.85		1.00	1.00			0.94	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				3467	1606		1787	5136			5921	
Flt Permitted				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (perm)				3467	1606		1787	5136			5921	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	822	8	319	344	1567	0	0	881	611
RTOR Reduction (vph)	0	0	0	0	34	0	0	0	0	0	176	0
Lane Group Flow (vph)	0	0	0	822	293	0	344	1567	0	0	1316	0
Confl. Peds. (#/hr)												26
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type				Split			Prot					
Protected Phases				4	4		1	6			2	
Permitted Phases												
Actuated Green, G (s)				17.8	17.8		15.7	45.7			27.0	
Effective Green, g (s)				17.8	17.8		15.7	45.7			27.0	
Actuated g/C Ratio				0.25	0.25		0.22	0.65			0.39	
Clearance Time (s)				3.0	3.0		3.0	3.5			3.5	
Vehicle Extension (s)				2.0	2.0		2.0	3.0			4.0	
Lane Grp Cap (vph)				882	408		401	3353			2284	
v/s Ratio Prot				c0.24	0.18		c0.19	0.31			c0.22	
v/s Ratio Perm												
v/c Ratio				0.93	0.72		0.86	0.47			0.58	
Uniform Delay, d1				25.5	23.8		26.1	6.1			17.0	
Progression Factor				1.00	1.00		1.07	1.16			1.38	
Incremental Delay, d2				16.0	5.0		12.1	0.3			0.9	
Delay (s)				41.5	28.8		40.1	7.4			24.4	
Level of Service				D	C		D	A			C	
Approach Delay (s)		0.0			37.9			13.3			24.4	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

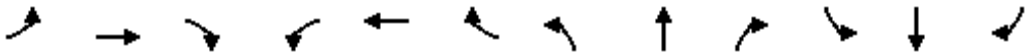
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	834	3	497	0	0	0	0	1020	241	179	1473	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	1.00					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1698	1703	1599					4961		3502	5187	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1698	1703	1599					4961		3502	5187	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	869	3	518	0	0	0	0	1062	251	186	1534	0
RTOR Reduction (vph)	0	0	16	0	0	0	0	55	0	0	0	0
Lane Group Flow (vph)	434	438	502	0	0	0	0	1258	0	186	1534	0
Confl. Peds. (#/hr)									13			
Confl. Bikes (#/hr)									10			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Split		Perm							Prot		
Protected Phases	8	8						6		5	2	
Permitted Phases			8									
Actuated Green, G (s)	24.2	24.2	24.2					27.6		7.7	39.3	
Effective Green, g (s)	24.2	24.2	24.2					27.6		7.7	39.3	
Actuated g/C Ratio	0.35	0.35	0.35					0.39		0.11	0.56	
Clearance Time (s)	3.0	3.0	3.0					3.5		4.0	3.5	
Vehicle Extension (s)	2.0	2.0	2.0					3.0		3.0	4.0	
Lane Grp Cap (vph)	587	589	553					1956		385	2912	
v/s Ratio Prot	0.26	0.26						c0.25		0.05	c0.30	
v/s Ratio Perm			c0.31									
v/c Ratio	0.74	0.74	0.91					0.64		0.48	0.53	
Uniform Delay, d1	20.1	20.2	21.8					17.2		29.3	9.6	
Progression Factor	1.00	1.00	1.00					0.84		0.93	1.29	
Incremental Delay, d2	4.2	4.4	18.2					1.6		0.6	0.4	
Delay (s)	24.3	24.6	40.0					16.0		27.9	12.7	
Level of Service	C	C	D					B		C	B	
Approach Delay (s)		30.3			0.0			16.0			14.4	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

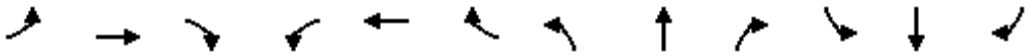
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	0	90	21	10	10	101	1142	9	16	1623	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		0.99			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	
Frt		0.94			0.97		1.00	1.00		1.00	0.97	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1723			1789		1787	5128		1787	4967	
Flt Permitted		0.80			0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1425			1499		1787	5128		1787	4967	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	117	0	97	23	11	11	109	1228	10	17	1745	356
RTOR Reduction (vph)	0	46	0	0	9	0	0	1	0	0	37	0
Lane Group Flow (vph)	0	168	0	0	36	0	109	1237	0	17	2064	0
Confl. Peds. (#/hr)			6	6					7			12
Confl. Bikes (#/hr)									8			4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		11.8			11.8		6.7	45.4		1.3	40.0	
Effective Green, g (s)		11.8			11.8		6.7	45.4		1.3	40.0	
Actuated g/C Ratio		0.17			0.17		0.10	0.65		0.02	0.57	
Clearance Time (s)		4.0			4.0		3.5	4.0		3.5	4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.5		2.0	2.5	
Lane Grp Cap (vph)		240			253		171	3326		33	2838	
v/s Ratio Prot							c0.06	0.24		0.01	c0.42	
v/s Ratio Perm		c0.12			0.02							
v/c Ratio		0.70			0.14		0.64	0.37		0.52	0.73	
Uniform Delay, d1		27.4			24.8		30.5	5.7		34.0	11.0	
Progression Factor		1.00			1.00		1.20	0.85		0.82	1.71	
Incremental Delay, d2		7.3			0.1		5.3	0.3		4.5	1.4	
Delay (s)		34.8			24.9		41.8	5.2		32.3	20.2	
Level of Service		C			C		D	A		C	C	
Approach Delay (s)		34.8			24.9			8.1			20.3	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

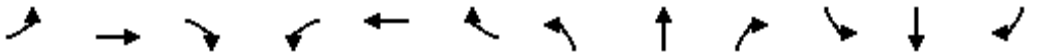
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	160	99	12	304	146	196	28	896	465	192	1221	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5	3.5	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	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	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1787	1844		1698	1756	1560	1787	5136	1599	3467	3423	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1787	1844		1698	1756	1560	1787	5136	1599	3467	3423	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	170	105	13	323	155	209	30	953	495	204	1299	341
RTOR Reduction (vph)	0	3	0	0	0	169	0	0	0	0	11	0
Lane Group Flow (vph)	170	115	0	236	242	40	30	953	495	204	1629	0
Confl. Peds. (#/hr)	11		14	14		11			12			10
Confl. Bikes (#/hr)									3			2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split			Split		Perm	Prot		pt+ov	Prot		
Protected Phases	4	4		3	3		1	6	6 3	5	2	
Permitted Phases						3						
Actuated Green, G (s)	17.8	17.8		26.6	26.6	26.6	4.8	68.0	98.1	12.6	75.8	
Effective Green, g (s)	17.8	17.8		26.6	26.6	26.6	4.8	68.0	98.1	12.6	75.8	
Actuated g/C Ratio	0.13	0.13		0.19	0.19	0.19	0.03	0.49	0.70	0.09	0.54	
Clearance Time (s)	3.0	3.0		4.5	4.5	4.5	3.5	3.5		4.0	4.0	
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)	227	234		323	334	296	61	2495	1120	312	1853	
v/s Ratio Prot	c0.10	0.06		c0.14	0.14		0.02	0.19	0.31	c0.06	c0.48	
v/s Ratio Perm						0.03						
v/c Ratio	0.75	0.49		0.73	0.72	0.13	0.49	0.38	0.44	0.65	0.88	
Uniform Delay, d1	58.9	56.9		53.3	53.3	47.1	66.4	22.7	9.1	61.6	28.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.40	
Incremental Delay, d2	11.2	0.6		7.1	6.5	0.1	2.3	0.4	0.1	2.6	4.6	
Delay (s)	70.1	57.5		60.5	59.7	47.2	68.7	23.2	9.2	68.1	43.8	
Level of Service	E	E		E	E	D	E	C	A	E	D	
Approach Delay (s)		64.9			56.2			19.4			46.5	
Approach LOS		E			E			B			D	

Intersection Summary			
HCM Average Control Delay	40.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

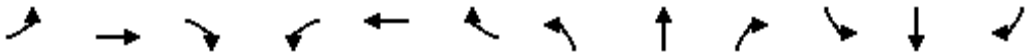
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	78	0	0	0	0	59	164	44	0	79	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		1.00					1.00	0.97			1.00	0.85
Flt Protected		0.98					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1859					1787	1821			1900	1615
Flt Permitted		0.98					0.70	1.00			1.00	1.00
Satd. Flow (perm)		1859					1317	1821			1900	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	70	87	0	0	0	0	66	182	49	0	88	117
RTOR Reduction (vph)	0	0	0	0	0	0	0	19	0	0	0	56
Lane Group Flow (vph)	0	157	0	0	0	0	66	212	0	0	88	61
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Perm						Perm					Perm
Protected Phases		4						2			6	
Permitted Phases	4						2					6
Actuated Green, G (s)		6.5					15.6	15.6			15.6	15.6
Effective Green, g (s)		6.5					15.6	15.6			15.6	15.6
Actuated g/C Ratio		0.22					0.52	0.52			0.52	0.52
Clearance Time (s)		4.0					4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0					3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		401					683	944			985	837
v/s Ratio Prot								c0.12			0.05	
v/s Ratio Perm		0.08					0.05					0.04
v/c Ratio		0.39					0.10	0.22			0.09	0.07
Uniform Delay, d1		10.1					3.7	4.0			3.7	3.6
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		0.6					0.1	0.1			0.0	0.0
Delay (s)		10.7					3.7	4.1			3.7	3.7
Level of Service		B					A	A			A	A
Approach Delay (s)		10.7			0.0			4.0			3.7	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	30.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



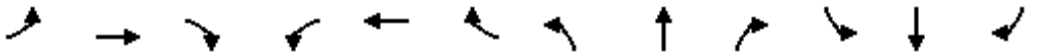
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	550	347	27	0	0	0	0	227	0	384	157	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00						1.00		1.00	1.00	
Frt	1.00	0.99						1.00		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1787	1861						1881		1770	1863	
Flt Permitted	0.95	1.00						1.00		0.60	1.00	
Satd. Flow (perm)	1787	1861						1881		1123	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	611	386	30	0	0	0	0	252	0	427	174	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	611	409	0	0	0	0	0	252	0	427	174	0
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Perm									Perm		
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	15.6	15.6						16.0		16.0	16.0	
Effective Green, g (s)	15.6	15.6						16.0		16.0	16.0	
Actuated g/C Ratio	0.39	0.39						0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0						4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	704	733						760		454	753	
v/s Ratio Prot		0.22						0.13			0.09	
v/s Ratio Perm	c0.34									c0.38		
v/c Ratio	0.87	0.56						0.33		0.94	0.23	
Uniform Delay, d1	11.1	9.3						8.1		11.3	7.8	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	11.0	0.9						0.3		27.8	0.2	
Delay (s)	22.1	10.2						8.4		39.1	7.9	
Level of Service	C	B						A		D	A	
Approach Delay (s)		17.3			0.0			8.4			30.1	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	39.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
25: New Road & Strobridge Ave.

1/22/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	91	102	509	239	68	709	0	0	348	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1847	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)			1611		1847	1583	1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	99	111	553	260	74	771	0	0	378	27
RTOR Reduction (vph)	0	0	90	0	0	78	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	9	0	664	182	74	771	0	0	378	9
Turn Type			Over	Perm		Perm	Prot					Perm
Protected Phases			5		8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)			5.8		24.6	24.6	5.8	29.6			19.8	19.8
Effective Green, g (s)			5.8		24.6	24.6	5.8	29.6			19.8	19.8
Actuated g/C Ratio			0.09		0.40	0.40	0.09	0.48			0.32	0.32
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)			150		730	626	165	887			593	504
v/s Ratio Prot			0.01				0.04	c0.41			0.20	
v/s Ratio Perm					0.36	0.11						0.01
v/c Ratio			0.06		0.91	0.29	0.45	0.87			0.64	0.02
Uniform Delay, d1			25.7		17.8	12.8	26.7	14.6			18.1	14.5
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2		15.2	0.3	1.9	9.1			2.3	0.0
Delay (s)			25.9		32.9	13.1	28.6	23.6			20.4	14.5
Level of Service			C		C	B	C	C			C	B
Approach Delay (s)		25.9			27.3			24.1			20.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	24.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	576	26	1312	66	25	704
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	0.97		0.95		1.00	0.95
Frt	0.99		0.99		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	3427		3514		1770	3539
Flt Permitted	0.95		1.00		0.25	1.00
Satd. Flow (perm)	3427		3514		466	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	626	28	1426	72	27	765
RTOR Reduction (vph)	5	0	9	0	0	0
Lane Group Flow (vph)	649	0	1489	0	27	765
Turn Type					Perm	
Protected Phases			2			6
Permitted Phases	8				6	
Actuated Green, G (s)	16.0		16.0		16.0	16.0
Effective Green, g (s)	16.0		16.0		16.0	16.0
Actuated g/C Ratio	0.40		0.40		0.40	0.40
Clearance Time (s)	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	1371		1406		186	1416
v/s Ratio Prot			c0.42			0.22
v/s Ratio Perm	c0.19				0.06	
v/c Ratio	0.47		1.06		0.15	0.54
Uniform Delay, d1	8.9		12.0		7.6	9.2
Progression Factor	1.58		1.00		1.00	1.00
Incremental Delay, d2	0.7		41.3		1.6	1.5
Delay (s)	14.7		53.3		9.3	10.7
Level of Service	B		D		A	B
Approach Delay (s)	14.7		53.3			10.6
Approach LOS	B		D			B

Intersection Summary			
HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Appendix E – Strobridge Avenue/I-580 Westbound Off Ramp Alternative Design Analysis

CHS Consulting Group

MEMORANDUM

DATE: January 16, 2014

TO: David Mahama, P.E.

FROM: Antonino Genoese, P.E.

RE: Strobridge Avenue/I-580 WB Off Ramp Alternative Design Analysis

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Per your request, we have evaluated the level of service and expected delay for the intersection of I-580 westbound off-ramp and Strobridge Avenue in Castro Valley for three different intersection operation options. The following intersection operation options were considered:

- Traffic Signal
- Stop-controlled Intersection
- Roundabout

We conducted the intersection operation analysis using the future year forecast (2035) traffic volumes for Scenarios 3 and 4. The analysis was conducted for the a.m. and p.m. peak hours. Scenario 3 includes new roadway configurations on Norbridge Avenue and Strobridge Avenue, which includes the conversion of a portion of Norbridge Avenue and Strobridge Avenue from one-way traffic to two-way traffic and the construction of a new roadway that links Strobridge Avenue to Castro Valley Boulevard. Scenario 4 includes the new roadway configurations on Norbridge Avenue and Strobridge Avenue as described in scenario 3, but without the access restriction on Strobridge Avenue at Gary Drive. The p.m. peak hour volumes are higher than the a.m. peak hour volumes for both scenarios 3 and 4. Therefore, the p.m. peak hour volumes were considered for the intersection design.

Table 1 below shows the results of the level of service analysis for the three intersection operation options. As shown in the table, signalization and roundabout operation are expected to operate the Strobridge Avenue/I-580 westbound intersection acceptably at LOS C or better. However, significant traffic queuing is expected on the I-580 westbound off-ramp with the roundabout operation during the p.m. peak hour.

Table 1: Peak Hour Intersection Level of Service Results Comparison

Design Option	*Scenario 3 AM*	*Scenario 3 PM*	*Scenario 4 AM*	*Scenario 4 PM*
Signalization	B(19.9)	C(25.1)	C(20.6)	C(27.0)
Stop-controlled	F(146.2)	F(176.0)	F(153.9)	F(213.4)
Roundabout	B(10.2)	C(21.0)*	B(13.8)	C(22.4)*

Notes:
* See roundabout section for more details
C(#) = Level of Service (Average Intersection Delay in Seconds per Vehicle)

The findings from the LOS analysis are discussed as follows:

Traffic Signal

The signalization of this intersection provides an even distribution of the highest conflicting volumes at the northbound and westbound approaches. By utilizing a cycle length of 75 seconds and optimized split signal phasing, delays can remain low for both of the approaches and the overall intersection will operate at LOS C during the evening peak hour.

Stop-controlled Intersection

This intersection was tested for two-way and all-way stop control. Based on the reconfigured volumes, through traffic on the northbound, southbound, and westbound approaches are of similar demand. A two-way stop controlled intersection operation would cause either the northbound or westbound approaches to have a volume/capacity ratio greater than 3.0 and an average delay cannot be reported by the software (i.e. resulting error in delay equation calculations). The practical capacity of an all-way stop-controlled intersection is approximately 1000 vehicles/hour. Because the total of the northbound and westbound approaches is greater than 1000 vehicles, the delay for each approach increases exponentially for each of these lane movements. As shown in the attached analysis results, these two approaches report very high average delays (greater than 100 seconds) resulting in an overall intersection LOS F.

Roundabout

For both scenarios, the evening p.m. peak hour volumes are most significant and would significantly influence the design features of the roundabout. Due to the heavy westbound approach volumes from the I-580 exit ramp, two approach lanes access the roundabout would be needed, with the right lane serving as a right turn only lane to Strobridge and the left lane striped through the roundabout serving the through and left turn movements. The other three approaches would perform adequately with one approach lane as shown in Figure 1. Because of the unique roundabout design, we used traffic simulation software VISSIM to model each of the scenario volumes.

The overall delay and level of service for the future condition is reported as C(22.4) or better for all time periods with the a.m. operating sufficiently for both scenarios, however, the westbound approach volumes would not be fully served during the evening p.m. hour in either scenario.

The VISSIM summary results show the total service volumes would be less than the input demand; thus, the volume/capacity ratio for the westbound approach would be greater than 1.0, which will cause significant queuing along the ramp potentially backing up onto the freeway. This is mainly due to the northbound approach having the right-of-way at the roundabout, which is the critical conflicting volume across the westbound approach. Similar results can also be found using the capacity and delay equations for a one-lane roundabout located in the FHWA publication *Roundabouts: An Informational Guide* (FHWA-RD-00-067) (Figure 2).

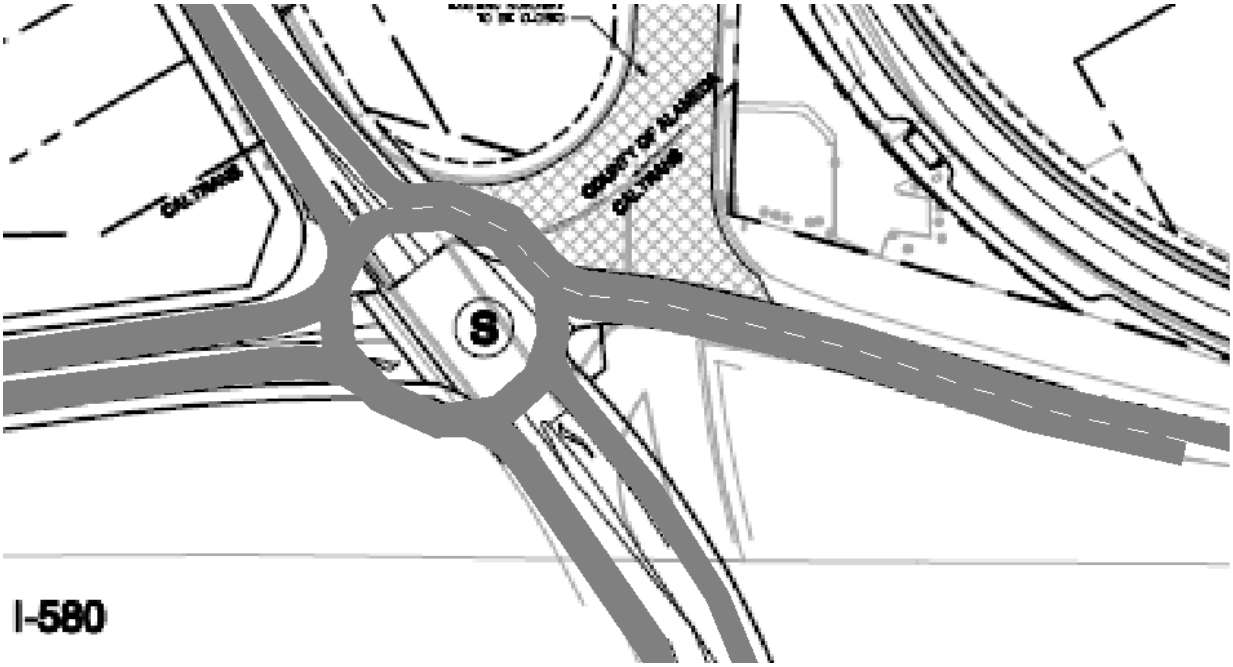


Figure 1 - Roundabout Design Concept

Conclusion

Our analysis suggests that a traffic signal at this intersection would be the most beneficial. Stop sign control (two-way or all-way) would cause significant delays and a roundabout design would cause potential backups to I-580 during the PM peak hour.

FHWA Capacity and Delay

	EB	NB	WB	SB	-
Entering Flow	100	854	1299	411	0
Circulating Flow across Entry, Q_c (pce/hr)	495	0	854	746	0

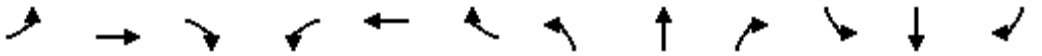
	E1	E2	E3	E4	E5
S	0.26	0.26	0.26	0.26	-
M	0.10	0.10	0.10	0.10	-
X_2	4.46	4.46	5.68	4.46	-
F	1352.58	1352.58	1721.99	1352.58	-
t_D	1.46	1.46	1.46	1.46	-
f_c	0.58	0.58	0.65	0.58	-
k	0.89	0.89	0.89	0.89	-

Urban and Rural Single-Lane Roundabout Entry Capacity Forecast

	EB	NB	WB	SB	-
ENTRY CAPACITY (pce/hr), C = Q_e	949	1,204	1,036	819	-
V/C	0.11	0.71	1.25	0.50	-
CONTROL DELAY (sec/veh), d	4.2	9.9	132.9	8.7	-
QUEUE LENGTH 95th Percentile (veh)	0.4	6.4	44.0	2.9	-

CHECK: V/C should not exceed 0.85

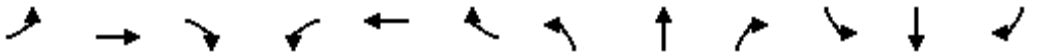
Figure 2 - FHWA Capacity and Delay Calculations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	103	43	534	444	45	532	0	0	442	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1856	1583	1770	1863			1863	1583
Flt Permitted			1.00		1.00	1.00	0.32	1.00			1.00	1.00
Satd. Flow (perm)			1611		1856	1583	600	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	112	47	580	483	49	578	0	0	480	30
RTOR Reduction (vph)	0	0	61	0	0	107	0	0	0	0	0	15
Lane Group Flow (vph)	0	0	51	0	627	376	49	578	0	0	480	15
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			34.0		34.0	34.0	33.0	33.0			33.0	33.0
Effective Green, g (s)			34.0		34.0	34.0	33.0	33.0			33.0	33.0
Actuated g/C Ratio			0.45		0.45	0.45	0.44	0.44			0.44	0.44
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			730		841	718	264	820			820	697
v/s Ratio Prot								c0.31			0.26	
v/s Ratio Perm			0.03		0.34	0.24	0.08					0.01
v/c Ratio			0.07		0.75	0.52	0.19	0.70			0.59	0.02
Uniform Delay, d1			11.6		16.9	14.7	12.8	17.0			15.8	11.9
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2		6.0	2.7	1.5	5.1			3.0	0.1
Delay (s)			11.8		22.9	17.4	14.4	22.1			18.9	11.9
Level of Service			B		C	B	B	C			B	B
Approach Delay (s)		11.8			20.5			21.5			18.5	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

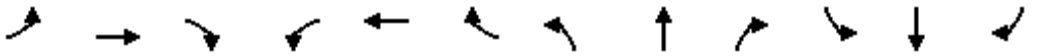
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	46	62	501	562	66	687	0	0	349	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1853	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.45	1.00			1.00	1.00
Satd. Flow (perm)			1611		1853	1583	834	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	50	67	545	611	72	747	0	0	379	27
RTOR Reduction (vph)	0	0	30	0	0	89	0	0	0	0	0	14
Lane Group Flow (vph)	0	0	20	0	612	522	72	747	0	0	379	13
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			30.0		30.0	30.0	37.0	37.0			37.0	37.0
Effective Green, g (s)			30.0		30.0	30.0	37.0	37.0			37.0	37.0
Actuated g/C Ratio			0.40		0.40	0.40	0.49	0.49			0.49	0.49
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			644		741	633	411	919			919	781
v/s Ratio Prot								c0.40			0.20	
v/s Ratio Perm			0.01		0.33	0.33	0.09					0.01
v/c Ratio			0.03		0.83	0.82	0.18	0.81			0.41	0.02
Uniform Delay, d1			13.7		20.2	20.1	10.5	16.1			12.1	9.7
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.1		10.2	11.6	0.9	7.8			1.4	0.0
Delay (s)			13.8		30.4	31.7	11.5	23.9			13.5	9.7
Level of Service			B		C	C	B	C			B	A
Approach Delay (s)		13.8			31.1			22.8			13.2	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	25.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

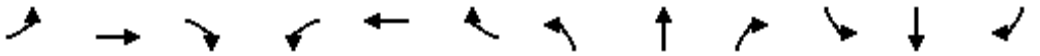
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	100	80	540	479	99	479	0	0	468	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1851	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.27	1.00			1.00	1.00
Satd. Flow (perm)			1611		1851	1583	505	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	109	87	587	521	108	521	0	0	509	27
RTOR Reduction (vph)	0	0	57	0	0	109	0	0	0	0	0	13
Lane Group Flow (vph)	0	0	52	0	674	412	108	521	0	0	509	14
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			36.0		36.0	36.0	31.0	31.0			31.0	31.0
Effective Green, g (s)			36.0		36.0	36.0	31.0	31.0			31.0	31.0
Actuated g/C Ratio			0.48		0.48	0.48	0.41	0.41			0.41	0.41
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			773		888	760	209	770			770	654
v/s Ratio Prot								c0.28			0.27	
v/s Ratio Perm			0.03		0.36	0.26	0.21					0.01
v/c Ratio			0.07		0.76	0.54	0.52	0.68			0.66	0.02
Uniform Delay, d1			10.5		16.0	13.7	16.4	17.9			17.8	13.0
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2		6.0	2.8	8.8	4.7			4.4	0.1
Delay (s)			10.6		22.0	16.5	25.3	22.7			22.2	13.1
Level of Service			B		C	B	C	C			C	B
Approach Delay (s)		10.6			19.6			23.1			21.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

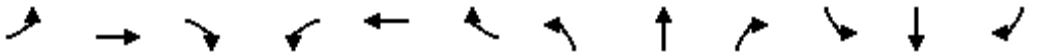
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	91	102	509	572	68	709	0	0	348	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Frt			0.86		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected			1.00		0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)			1611		1847	1583	1770	1863			1863	1583
Flt Permitted			1.00		0.99	1.00	0.44	1.00			1.00	1.00
Satd. Flow (perm)			1611		1847	1583	824	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	99	111	553	622	74	771	0	0	378	27
RTOR Reduction (vph)	0	0	58	0	0	77	0	0	0	0	0	14
Lane Group Flow (vph)	0	0	41	0	664	545	74	771	0	0	378	13
Turn Type			custom	Perm		Perm	Perm					Perm
Protected Phases					8			2			6	
Permitted Phases			4	8		8	2					6
Actuated Green, G (s)			31.0		31.0	31.0	36.0	36.0			36.0	36.0
Effective Green, g (s)			31.0		31.0	31.0	36.0	36.0			36.0	36.0
Actuated g/C Ratio			0.41		0.41	0.41	0.48	0.48			0.48	0.48
Clearance Time (s)			4.0		4.0	4.0	4.0	4.0			4.0	4.0
Lane Grp Cap (vph)			666		763	654	396	894			894	760
v/s Ratio Prot								c0.41			0.20	
v/s Ratio Perm			0.03		0.36	0.34	0.09					0.01
v/c Ratio			0.06		0.87	0.83	0.19	0.86			0.42	0.02
Uniform Delay, d1			13.2		20.2	19.7	11.1	17.3			12.7	10.2
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2			0.2		13.0	11.9	1.0	10.8			1.5	0.0
Delay (s)			13.4		33.1	31.6	12.2	28.1			14.2	10.3
Level of Service			B		C	C	B	C			B	B
Approach Delay (s)		13.4			32.4			26.7			13.9	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

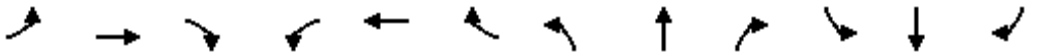
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	103	43	534	444	45	532	0	0	442	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	112	47	580	483	49	578	0	0	480	30

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	112	627	483	49	578	480	30
Volume Left (vph)	0	47	0	49	0	0	0
Volume Right (vph)	112	0	483	0	0	0	30
Hadj (s)	-0.57	0.07	-0.67	0.53	0.03	0.03	-0.57
Departure Headway (s)	9.6	8.3	7.5	8.9	8.4	8.4	3.2
Degree Utilization, x	0.30	1.44	1.01	0.12	1.34	1.12	0.03
Capacity (veh/h)	372	436	483	400	439	443	1121
Control Delay (s)	16.6	232.1	70.0	11.9	193.1	107.0	6.3
Approach Delay (s)	16.6	161.6		179.0		101.0	
Approach LOS	C	F		F		F	

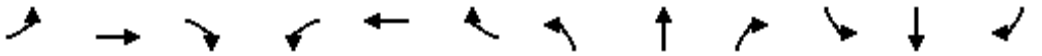
Intersection Summary				
Delay	146.2			
HCM Level of Service	F			
Intersection Capacity Utilization	70.1%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	46	62	501	562	66	687	0	0	349	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	50	67	545	611	72	747	0	0	379	27

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	50	612	611	72	747	379	27
Volume Left (vph)	0	67	0	72	0	0	0
Volume Right (vph)	50	0	611	0	0	0	27
Hadj (s)	-0.57	0.09	-0.67	0.53	0.03	0.03	-0.57
Departure Headway (s)	9.1	7.7	7.0	8.4	7.9	7.9	3.2
Degree Utilization, x	0.13	1.31	1.19	0.17	1.64	0.84	0.02
Capacity (veh/h)	372	457	522	422	459	449	1121
Control Delay (s)	13.5	178.3	124.3	11.9	318.4	39.8	6.3
Approach Delay (s)	13.5	151.3		291.5		37.6	
Approach LOS	B	F		F		E	

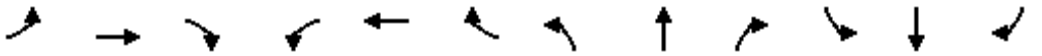
Intersection Summary				
Delay	176.0			
HCM Level of Service	F			
Intersection Capacity Utilization	77.6%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	100	80	540	479	99	479	0	0	468	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	109	87	587	521	108	521	0	0	509	27

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	109	674	521	108	521	509	27
Volume Left (vph)	0	87	0	108	0	0	0
Volume Right (vph)	109	0	521	0	0	0	27
Hadj (s)	-0.57	0.10	-0.67	0.53	0.03	0.03	-0.57
Departure Headway (s)	9.6	8.3	7.5	8.9	8.4	8.3	3.2
Degree Utilization, x	0.29	1.55	1.09	0.26	1.21	1.18	0.02
Capacity (veh/h)	372	447	488	402	436	437	1121
Control Delay (s)	16.4	280.6	93.7	13.8	139.5	129.2	6.3
Approach Delay (s)	16.4	199.2		117.9		123.0	
Approach LOS	C	F		F		F	

Intersection Summary				
Delay	153.9			
HCM Level of Service	F			
Intersection Capacity Utilization	73.7%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	91	102	509	572	68	709	0	0	348	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	99	111	553	622	74	771	0	0	378	27

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	99	664	622	74	771	378	27
Volume Left (vph)	0	111	0	74	0	0	0
Volume Right (vph)	99	0	622	0	0	0	27
Hadj (s)	-0.57	0.12	-0.67	0.53	0.03	0.03	-0.57
Departure Headway (s)	9.2	8.1	7.3	8.7	8.2	8.2	3.2
Degree Utilization, x	0.25	1.49	1.26	0.18	1.75	0.87	0.02
Capacity (veh/h)	373	444	503	410	446	432	1121
Control Delay (s)	15.3	250.5	152.7	12.3	364.8	45.4	6.3
Approach Delay (s)	15.3	203.3		334.0		42.8	
Approach LOS	C	F		F		E	

Intersection Summary				
Delay	213.4			
HCM Level of Service	F			
Intersection Capacity Utilization	79.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Delay

Intersection	Approach	Movement	Run 1		2		3		4		5		6		7		8		9		10		LOS	Average(s)	Standard Deviation(s)	Min(s)	Max(s)
			Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume					
Strobridge/I-580 WB Off-ramp	EB	Right 1	3.6	87	4.5	101	3.9	110	4.3	85	4.2	106	3.8	85	3.9	104	4.2	96	3.7	102	4.3	86		4	3.9	0.2	27.6
		Total	3.6	87	4.5	101	3.9	110	4.3	85	4.2	106	3.8	85	3.9	104	4.2	96	3.7	102	4.3	86		4	3.9	0.2	27.6
	SEB	Through	8.7	404	9.4	477	10.6	434	11.7	436	8.9	430	11.1	453	8.7	417	10	412	7	442	8.4	452		9.5	9.8	0.2	68.5
		Right 3	11.4	18	12.2	28	9.3	25	14.9	28	11.7	27	13.5	28	11.3	26	9.7	22	10.8	30	13.8	23		11.9	10.5	0	51
		Total	8.8	422	9.6	505	10.5	459	11.9	464	9.1	457	11.2	481	8.9	443	10	434	7.2	472	8.7	475		9.6	9.8	0	68.5
	WB	Left 3	19	34	24.8	41	15.1	45	19.6	44	21	44	21.8	39	20	49	18.9	51	11.9	32	17.6	42		19.1	16.3	0.3	97.7
		Through	19.4	564	25.2	496	13.9	529	20.5	536	20.2	524	23.3	550	18.4	546	18.8	497	16.3	519	17.1	519		19.3	17.3	0.1	120.3
		Right 1	13	452	13.7	411	8.5	454	12.8	432	12.7	434	14.7	421	10.1	434	12	449	9.3	429	10.1	430		11.7	11.7	0.2	73.7
		Total	16.6	1050	20.2	948	11.6	1028	17.2	1012	17	1002	19.7	1010	15	1029	15.7	997	13.1	980	14.1	991		16	15.6	0.1	120.3
	NWB	Left 1	2.9	44	2.7	42	2.3	38	2.9	44	2.6	48	2.6	49	2.6	44	2.7	42	2.5	40	2.7	35		2.7	1.2	0.8	8.1
		Through	1.4	531	1.4	579	1.3	486	1.5	565	1.4	515	1.4	532	1.4	531	1.4	549	1.4	508	1.3	511		1.4	1	0.1	9.6
		Total	1.5	575	1.5	621	1.4	524	1.6	609	1.5	563	1.5	581	1.5	575	1.5	591	1.5	548	1.4	546		1.5	1.1	0.1	9.6
	Total		10.5	2134	11.7	2175	8.4	2121	11.2	2170	10.6	2128	12.3	2157	9.6	2151	10	2118	8.3	2102	9.2	2098	B	10.2	13.2	0	120.3
NETWORK TOTAL			10.5	2134	11.7	2175	8.4	2121	11.2	2170	10.6	2128	12.3	2157	9.6	2151	10	2118	8.3	2102	9.2	2098		10.2	13.2	0	120.3

Queue Lengths

Intersection	Approach	Movement	95% Queues per Run										Max	95%	Median	Average	Standard Deviation
			1	2	3	4	5	6	7	8	9	10					
			1	2	3	4	5	6	7	8	9	10					
Strobridge/I-580 WB Off-ramp	EB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	84.6	0	0	0.7	4.2
		Left 3	0	0	0	0	0	0	0	0	0	0	84.6	0	0	0.7	4.2
		Right 1	0	0	0	0	0	0	0	0	0	0	84.6	0	0	0.7	4.2
	SEB	U-turn Marke	63	69.4	89.4	109.2	70	107.8	65.2	84.9	58.1	68.1	383.5	82.2	0	14.1	34.8
		Through	63	69.4	89.4	109.2	70	107.8	65.2	84.9	58.1	68.1	383.5	82.2	0	14.1	34.8
		Right 3	63	69.4	89.4	109.2	70	107.8	65.2	84.9	58.1	68.1	383.5	82.2	0	14.1	34.8
	WB	Left 3	241.8	261.3	174.5	236.2	217.6	282.8	224.8	225.6	217.7	218.3	1144.1	238.3	16.5	57.2	91.4
		Through	241.8	261.3	174.5	236.2	217.6	282.8	224.8	225.6	217.7	218.3	1144.1	238.3	16.5	57.2	91.4
		Right 1	241.8	261.3	174.5	236.2	217.6	282.8	224.8	225.6	217.7	218.3	1144.1	238.3	16.5	57.2	91.4
	NWB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Left 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Volumes

Intersection	Approach	Movement	Run 1	2	3	4	5	6	7	8	9	10	Standard Deviation	
			1	2	3	4	5	6	7	8	9	10		Volume Inputs
Strobridge/I-580 WB Off-ramp	EB	Right 1	87	101	110	85	106	85	104	96	102	86	9.7	
		Total	87	101	110	85	106	85	104	96	102	86	9.7	103
	SEB	Through	404	477	434	436	430	453	417	412	442	452	21.8	
		Right 3	18	28	25	28	27	28	26	22	30	23	3.6	
		Total	422	505	459	464	457	481	443	434	472	475	24.2	470
	WB	Left 3	34	41	45	44	44	39	49	51	32	42	6	
		Through	564	496	529	536	524	550	546	497	519	519	21.9	
		Right 1	452	411	454	432	434	421	434	449	429	430	13.7	
		Total	1050	948	1028	1012	1002	1010	1029	997	980	991	28.6	1021
	NWB	Left 1	44	42	38	44	48	49	44	42	40	35	4.2	
		Through	531	579	486	565	515	532	531	549	508	511	27.9	
		Total	575	621	524	609	563	581	575	591	548	546	29.5	577
	Total		2134	2175	2121	2170	2128	2157	2151	2118	2102	2098	27	
NETWORK TOTAL			2134	2175	2121	2170	2128	2157	2151	2118	2102	2098	27	

Delay

Intersection	Approach	Movement	Run 1		2		3		4		5		6		7		8		9		10		LOS	Average(s)	Standard Deviation(s)	Min(s)	Max(s)
			Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume					
Strobridge/I-580 WB Off-ramp	EB	Right 1	2.4	43	3	38	2.6	52	2.8	28	2.4	43	3.3	36	2.6	48	2.5	49	2.7	47	3.1	39		2.7	2.4	0.2	17.1
		Total	2.4	43	3	38	2.6	52	2.8	28	2.4	43	3.3	36	2.6	48	2.5	49	2.7	47	3.1	39		2.7	2.4	0.2	17.1
	SEB	Through	5.2	310	5.6	375	7.6	327	5.9	352	6.2	338	8.2	359	6.2	328	5.3	328	5.5	349	7.1	355		6.3	7	0.1	61.2
		Right 3	6.6	17	9.3	28	9	22	8.6	29	9.6	23	9	22	8.2	23	6	16	8	26	11	21		8.7	7.4	0	42.2
		Total	5.3	327	5.9	403	7.7	349	6.1	381	6.4	361	8.2	381	6.3	351	5.3	344	5.7	375	7.3	376		6.4	7.1	0	61.2
	WB	Left 3	31.8	48	45.9	48	32.9	57	51.5	54	38.6	58	47.7	55	35.5	54	32.7	58	31.4	43	38.2	60		38.7	28.4	0.3	184
		Through	38	456	41.8	394	33.6	496	47.1	428	36.2	442	46.4	459	37.4	452	37.7	399	30.5	444	40.3	459		38.8	27.4	0.2	191.6
		Right 1	46.2	511	55.5	471	36.8	534	47.7	460	39.2	506	43.8	473	43.9	493	45.5	509	38.5	517	43.5	500		43.9	28.6	0.2	188
		Total	41.8	1015	49.1	913	35.1	1087	47.6	942	37.8	1006	45.2	987	40.5	999	41.5	966	34.7	1004	41.7	1019		41.4	28.2	0.2	191.6
	NWB	Left 1	3.1	67	3.2	58	2.6	52	3	62	2.9	67	2.9	70	3	65	2.8	59	3	59	2.9	53		2.9	1.3	0.8	9
		Through	1.8	668	1.9	732	1.7	638	1.8	711	1.7	670	1.8	687	1.8	685	1.8	701	1.8	661	1.8	678		1.8	1.3	0.1	9.9
		Total	1.9	735	2	790	1.8	690	1.9	773	1.8	737	1.9	757	1.9	750	1.9	760	1.9	720	1.9	731		1.9	1.3	0.1	9.9
	Total		21.5	2120	22.8	2144	19.4	2178	22.9	2124	19.5	2147	22.8	2161	20.6	2148	20.5	2119	17.9	2146	21.6	2165	C	21	27.2	0	191.6
NETWORK TOTAL			21.5	2120	22.8	2144	19.4	2178	22.9	2124	19.5	2147	22.8	2161	20.6	2148	20.5	2119	17.9	2146	21.6	2165		21	27.2	0	191.6

Queue Lengths

Intersection	Approach	Movement	95% Queues per Run										Max	95%	Median	Average	Standard Deviation
			1	2	3	4	5	6	7	8	9	10					
			1	2	3	4	5	6	7	8	9	10					
Strobridge/I-580 WB Off-ramp	EB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	46.3	0	0	0.1	1.5
		Left 3	0	0	0	0	0	0	0	0	0	0	46.3	0	0	0.1	1.5
		Right 1	0	0	0	0	0	0	0	0	0	0	46.3	0	0	0.1	1.5
	SEB	U-turn Marke	20.1	40.5	42.2	39.4	40.2	59.6	41	36.5	37.4	42.6	198	40.1	0	5.9	18
		Through	20.1	40.5	42.2	39.4	40.2	59.6	41	36.5	37.4	42.6	198	40.1	0	5.9	18
		Right 3	20.1	40.5	42.2	39.4	40.2	59.6	41	36.5	37.4	42.6	198	40.1	0	5.9	18
	WB	Left 3	1123.4	1124.7	1101.5	1121.5	1117.7	1121.4	1117.1	1118	1108.5	1118.6	1162.4	1119.2	208.3	361.4	389.1
		Through	1123.4	1124.7	1101.5	1121.5	1117.7	1121.4	1117.1	1118	1108.5	1118.6	1162.4	1119.2	208.3	361.4	389.1
		Right 1	1123.4	1124.7	1101.5	1121.5	1117.7	1121.4	1117.1	1118	1108.5	1118.6	1162.4	1119.2	208.3	361.4	389.1
	NWB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Left 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Volumes

Intersection	Approach	Movement	Run 1	2	3	4	5	6	7	8	9	10	Standard Deviation	
			1	2	3	4	5	6	7	8	9	10		Input Volumes
Strobridge/I-580 WB Off-ramp	EB	Right 1	43	38	52	28	43	36	48	49	47	39	7.2	
		Total	43	38	52	28	43	36	48	49	47	39	7.2	46
	SEB	Through	310	375	327	352	338	359	328	328	349	355	19.3	
		Right 3	17	28	22	29	23	22	23	16	26	21	4.2	
		Total	327	403	349	381	361	381	351	344	375	376	22.4	374
	WB	Left 3	48	48	57	54	58	55	54	58	43	60	5.5	
		Through	456	394	496	428	442	459	452	399	444	459	30.1	
		Right 1	511	471	534	460	506	473	493	509	517	500	23.2	
		Total	1015	913	1087	942	1006	987	999	966	1004	1019	47.2	1125
	NWB	Left 1	67	58	52	62	67	70	65	59	59	53	6.1	
		Through	668	732	638	711	670	687	685	701	661	678	26.8	
		Total	735	790	690	773	737	757	750	760	720	731	28.3	753
	Total		2120	2144	2178	2124	2147	2161	2148	2119	2146	2165	19.7	
NETWORK TOTAL			2120	2144	2178	2124	2147	2161	2148	2119	2146	2165	19.7	

Delay

Intersection	Approach	Movement	Run 1		2		3		4		5		6		7		8		9		10		LOS	Average(s)	Standard Deviation(s)	Min(s)	Max(s)
			Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume					
Strobridge/I-580 WB Off-ramp	EB	Right 1	4.1	86	3.9	96	3.9	107	4.1	82	4	101	4.7	83	4.2	102	4	91	3.6	98	4.9	81		4.1	3.7	0.2	20.1
		Total	4.1	86	3.9	96	3.9	107	4.1	82	4	101	4.7	83	4.2	102	4	91	3.6	98	4.9	81		4.1	3.7	0.2	20.1
	SEB	Through	21.7	425	16.6	502	14.3	457	19.2	461	12.4	452	19	483	19.3	437	19.2	434	15.6	456	14.7	479		17.1	16.3	0.1	93.5
		Right 3	23.2	20	20.1	26	16.8	18	21	27	17.6	26	22.9	28	23.8	28	15.8	18	18.6	29	19.1	20		20.1	15.7	0	79.4
		Total	21.8	445	16.8	528	14.4	475	19.3	488	12.7	478	19.2	511	19.6	465	19.1	452	15.8	485	14.9	499		17.3	16.3	0	93.5
	WB	Left 3	23.5	72	34.1	73	17.5	77	29.4	89	22.8	85	20.7	82	23.4	76	21.9	76	17.1	59	18	73		23	19.1	0.2	119
		Through	24.8	575	27.5	505	18.5	533	29.1	532	22.9	533	22.7	543	22.7	564	24.2	513	19	549	18.1	527		22.9	19.6	0.2	131.1
		Right 1	17.3	484	19.7	451	12.4	487	18.6	470	13	461	15.4	461	13.8	470	18	487	11.1	463	12.6	458		15.2	14	0.2	99.4
		Total	21.5	1131	24.5	1029	15.7	1097	24.6	1091	18.7	1079	19.5	1086	19	1110	21.2	1076	15.5	1071	15.7	1058		19.6	17.8	0.2	131.1
	NWB	Left 1	2.8	104	2.9	95	2.7	86	2.9	96	2.8	104	2.8	118	2.8	103	2.8	103	2.8	88	2.5	78		2.8	1.3	0.7	8.9
		Through	1.4	472	1.4	528	1.3	439	1.5	513	1.4	461	1.4	464	1.4	473	1.5	488	1.4	460	1.3	469		1.4	1.1	0.1	15
		Total	1.7	576	1.6	623	1.5	525	1.7	609	1.7	565	1.7	582	1.7	576	1.7	591	1.6	548	1.5	547		1.7	1.3	0.1	15
	Total		15.8	2238	15.6	2276	11.5	2204	16.6	2270	12.4	2223	14.3	2262	14	2253	14.8	2210	11.6	2202	11.6	2185	B	13.8	16.5	0	131.1
NETWORK TOTAL			15.8	2238	15.6	2276	11.5	2204	16.6	2270	12.4	2223	14.3	2262	14	2253	14.8	2210	11.6	2202	11.6	2185		13.8	16.5	0	131.1

Queue Lengths

Intersection	Approach	Movement	95% Queues per Run										Max	95%	Median	Average	Standard Deviation
			1	2	3	4	5	6	7	8	9	10					
			1	2	3	4	5	6	7	8	9	10					
Strobridge/I-580 WB Off-ramp	EB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	58.5	0	0	0.7	3.8
		Left 3	0	0	0	0	0	0	0	0	0	0	58.5	0	0	0.7	3.8
		Right 1	0	0	0	0	0	0	0	0	0	0	58.5	0	0	0.7	3.8
	SEB	U-turn Marke	227.8	217.2	147.6	211.4	128.1	223.8	180.5	206.4	149.3	151.2	411.9	190	0	36.6	67.4
		Through	227.8	217.2	147.6	211.4	128.1	223.8	180.5	206.4	149.3	151.2	411.9	190	0	36.6	67.4
		Right 3	227.8	217.2	147.6	211.4	128.1	223.8	180.5	206.4	149.3	151.2	411.9	190	0	36.6	67.4
	WB	Left 3	278.9	419.5	238.7	518	271.3	284.8	231.4	297.6	241.2	209.7	1144.4	272.4	32.3	84.8	143.6
		Through	278.9	419.5	238.7	518	271.3	284.8	231.4	297.6	241.2	209.7	1144.4	272.4	32.3	84.8	143.6
		Right 1	278.9	419.5	238.7	518	271.3	284.8	231.4	297.6	241.2	209.7	1144.4	272.4	32.3	84.8	143.6
	NWB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	52.9	0	0	0	0.2
		Left 1	0	0	0	0	0	0	0	0	0	0	52.9	0	0	0	0.2
		Through	0	0	0	0	0	0	0	0	0	0	52.9	0	0	0	0.2

Volumes

Intersection	Approach	Movement	Run 1	2	3	4	5	6	7	8	9	10	Standard Deviation	
			1	2	3	4	5	6	7	8	9	10		Input Volumes
Strobridge/I-580 WB Off-ramp	EB	Right 1	86	96	107	82	101	83	102	91	98	81	9.4	
		Total	86	96	107	82	101	83	102	91	98	81	9.4	100
	SEB	Through	425	502	457	461	452	483	437	434	456	479	23.9	
		Right 3	20	26	18	27	26	28	28	18	29	20	4.4	
		Total	445	528	475	488	478	511	465	452	485	499	25.6	493
	WB	Left 3	72	73	77	89	85	82	76	76	59	73	8.2	
		Through	575	505	533	532	533	543	564	513	549	527	21.4	
		Right 1	484	451	487	470	461	461	470	487	463	458	12.8	
		Total	1131	1029	1097	1091	1079	1086	1110	1076	1071	1058	28	1099
	NWB	Left 1	104	95	86	96	104	118	103	103	88	78	11.4	
		Through	472	528	439	513	461	464	473	488	460	469	26.4	
		Total	576	623	525	609	565	582	576	591	548	547	29.6	578
	Total		2238	2276	2204	2270	2223	2262	2253	2210	2202	2185	32	
NETWORK TOTAL			2238	2276	2204	2270	2223	2262	2253	2210	2202	2185	32	

Delay

Intersection	Approach	Movement	Run 1		2		3		4		5		6		7		8		9		10		LOS	Average(s)	Standard Deviation(s)	Min(s)	Max(s)
			Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume	Delay(s)	Volume					
Strobridge/I-580 WB Off-ramp	EB	Right 1	3.1	78	4.7	85	3.6	97	2.9	75	3.4	92	2.6	75	2.7	90	3.1	85	3.3	89	3	76		3.3	2.9	0.2	20.3
		Total	3.1	78	4.7	85	3.6	97	2.9	75	3.4	92	2.6	75	2.7	90	3.1	85	3.3	89	3	76		3.3	2.9	0.2	20.3
	SEB	Through	5.1	309	6.1	373	7	327	5.4	349	6.1	337	6.5	359	5.5	325	5.1	326	6	346	5.8	353		5.9	6.5	0.2	50.1
		Right 3	5.4	17	8.1	28	9.2	22	7.6	29	8.9	23	8	22	6.7	23	8.6	16	13.3	26	8.9	21		8.6	7	0	39.2
		Total	5.1	326	6.2	401	7.1	349	5.6	378	6.3	360	6.6	381	5.6	348	5.3	342	6.5	372	6	374		6	6.6	0	50.1
	WB	Left 3	43.1	79	49.7	72	40	89	54.6	90	48.7	91	53.4	88	43.6	80	38.3	79	43.1	69	54.2	75		47	33.9	0.2	196.5
		Through	46.5	440	50.3	368	38.7	449	49.4	411	44.9	407	53.8	424	41.1	429	42.8	379	40.5	447	47.5	442		45.4	32.5	0.2	188.7
		Right 1	46.8	482	61.6	447	41.5	496	48.6	441	43.4	475	47.8	449	46.7	478	47.8	481	40.1	496	45.4	476		46.8	29.1	0.2	177
		Total	46.4	1001	55.9	887	40.2	1034	49.5	942	44.5	973	51	961	44	987	45	939	40.5	1012	47	993		46.2	31	0.2	196.5
	NWB	Left 1	3.3	69	3.3	58	2.9	56	3.3	65	3.1	68	3.2	72	3	68	2.9	62	3.2	62	3.2	53		3.1	1.5	0.7	11.7
		Through	2	686	2	749	1.9	669	2	726	1.9	693	2	713	2	711	1.8	725	2	681	2	703		1.9	1.5	0.1	12.3
		Total	2.1	755	2.1	807	2	725	2.1	791	2	761	2.1	785	2.1	779	1.9	787	2.1	743	2.1	756		2	1.5	0.1	12.3
	Total		23.1	2160	24.8	2180	20.8	2205	23.2	2186	21.7	2186	24.2	2202	21.4	2204	21.3	2153	20.4	2216	23.1	2199	C	22.4	29.9	0	196.5
NETWORK TOTAL			23.1	2160	24.8	2180	20.8	2205	23.2	2186	21.7	2186	24.2	2202	21.4	2204	21.3	2153	20.4	2216	23.1	2199		22.4	29.9	0	196.5

Queue Lengths

Intersection	Approach	Movement	95% Queues per Run										Max	95%	Median	Average	Standard Deviation
			1	2	3	4	5	6	7	8	9	10					
			1	2	3	4	5	6	7	8	9	10					
Strobridge/I-580 WB Off-ramp	EB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	49.6	0	0	0.4	2.9
		Left 3	0	0	0	0	0	0	0	0	0	0	49.6	0	0	0.4	2.9
		Right 1	0	0	0	0	0	0	0	0	0	0	49.6	0	0	0.4	2.9
	SEB	U-turn Marke	19.4	40.3	44.6	29.9	39.4	41.8	35.9	20.9	41	37.4	201.9	38.7	0	5.3	16
		Through	19.4	40.3	44.6	29.9	39.4	41.8	35.9	20.9	41	37.4	201.9	38.7	0	5.3	16
		Right 3	19.4	40.3	44.6	29.9	39.4	41.8	35.9	20.9	41	37.4	201.9	38.7	0	5.3	16
	WB	Left 3	1122.4	1127.7	1122.7	1123.5	1123.6	1124.5	1119.5	1120	1122.3	1122.7	1162.3	1123.1	236.1	419.4	414.2
		Through	1122.4	1127.7	1122.7	1123.5	1123.6	1124.5	1119.5	1120	1122.3	1122.7	1162.3	1123.1	236.1	419.4	414.2
		Right 1	1122.4	1127.7	1122.7	1123.5	1123.6	1124.5	1119.5	1120	1122.3	1122.7	1162.3	1123.1	236.1	419.4	414.2
	NWB	U-turn Marke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Left 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Through	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Volumes

Intersection	Approach	Movement	Run 1	2	3	4	5	6	7	8	9	10	Standard Deviation	
			1	2	3	4	5	6	7	8	9	10		Input Volumes
Strobridge/I-580 WB Off-ramp	EB	Right 1	78	85	97	75	92	75	90	85	89	76	7.9	
		Total	78	85	97	75	92	75	90	85	89	76	7.9	91
	SEB	Through	309	373	327	349	337	359	325	326	346	353	19.1	
		Right 3	17	28	22	29	23	22	23	16	26	21	4.2	
		Total	326	401	349	378	360	381	348	342	372	374	22.2	373
	WB	Left 3	79	72	89	90	91	88	80	79	69	75	7.9	
		Through	440	368	449	411	407	424	429	379	447	442	28.3	
		Right 1	482	447	496	441	475	449	478	481	496	476	19.7	
		Total	1001	887	1034	942	973	961	987	939	1012	993	42.5	1183
	NWB	Left 1	69	58	56	65	68	72	68	62	62	53	6.2	
		Through	686	749	669	726	693	713	711	725	681	703	24.2	
		Total	755	807	725	791	761	785	779	787	743	756	25.1	777
	Total		2160	2180	2205	2186	2186	2202	2204	2153	2216	2199	20.3	
NETWORK TOTAL			2160	2180	2205	2186	2186	2202	2204	2153	2216	2199	20.3	