TRANSIGHT CONSULTING, LLC
Transportation Engineering and Planning Services

Date:	August 13, 2021
To:	Keith Blair, ODOT Dago Garcia, City of Woodburn
From:	Joe Bessman, PE
Project Reference No.:	1584
Project Name:	Woodburn US Market Transportation Impact Analysis

This memorandum provides a formal Transportation Impact Analysis for the proposed fuel center and convenience market in Woodburn, Oregon, along with limited office space. The site is located along the Newberg Highway (OR 214) on the southwest quadrant of the Oregon Way intersection as shown in Figure 1. The proposed plan will demolish two drive-in banks (demolition had already occurred when the July site visit was conducted) and replace this with a 4,500 square-foot convenience market with 1,500 square-feet of attached office space, a 12-position fueling station, and a 5,000 square-foot office building. Figure 2 illustrates the existing site layout and Figure 3 shows the preliminary site layout with demolition of the banks.

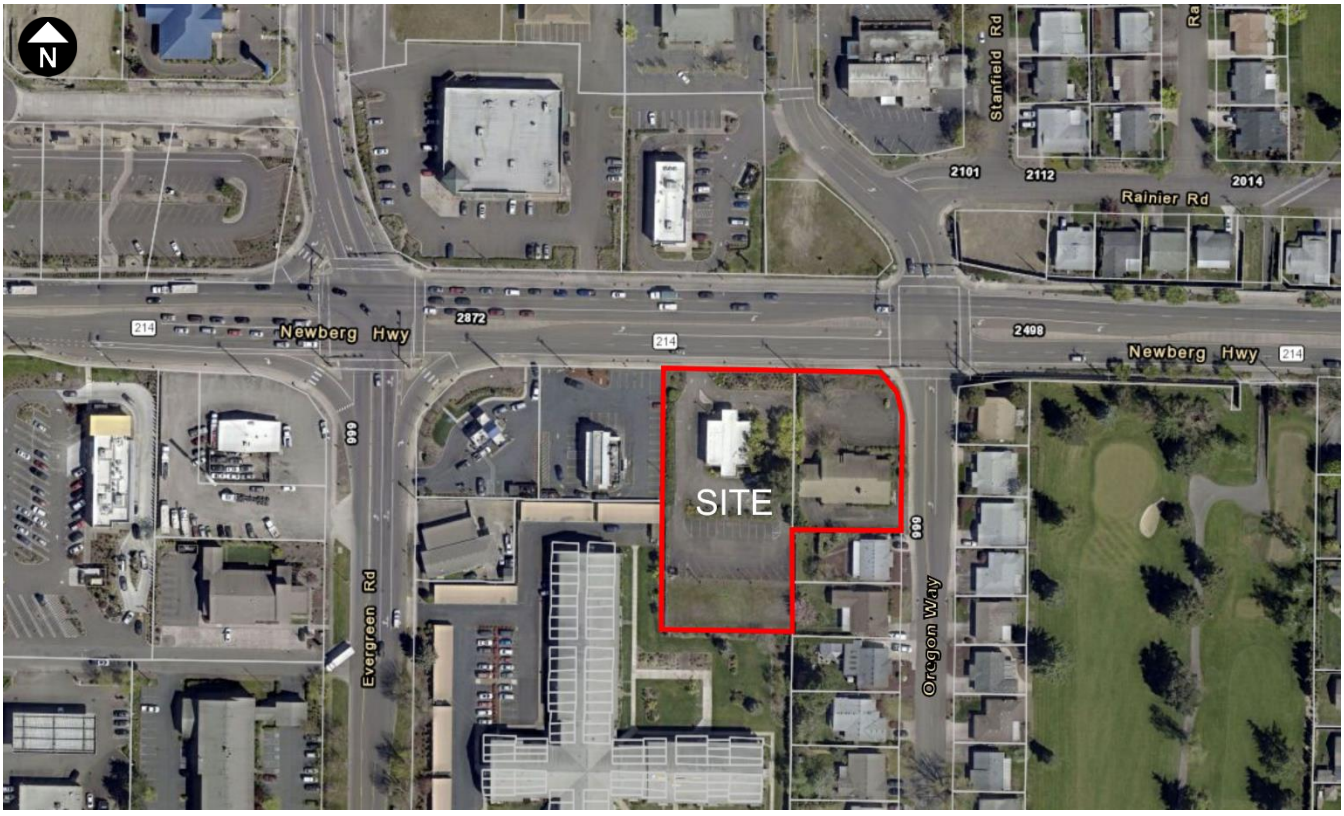


Figure 1. Site Vicinity Map. *Source: Marion County Land Use Planning & Zoning GIS*

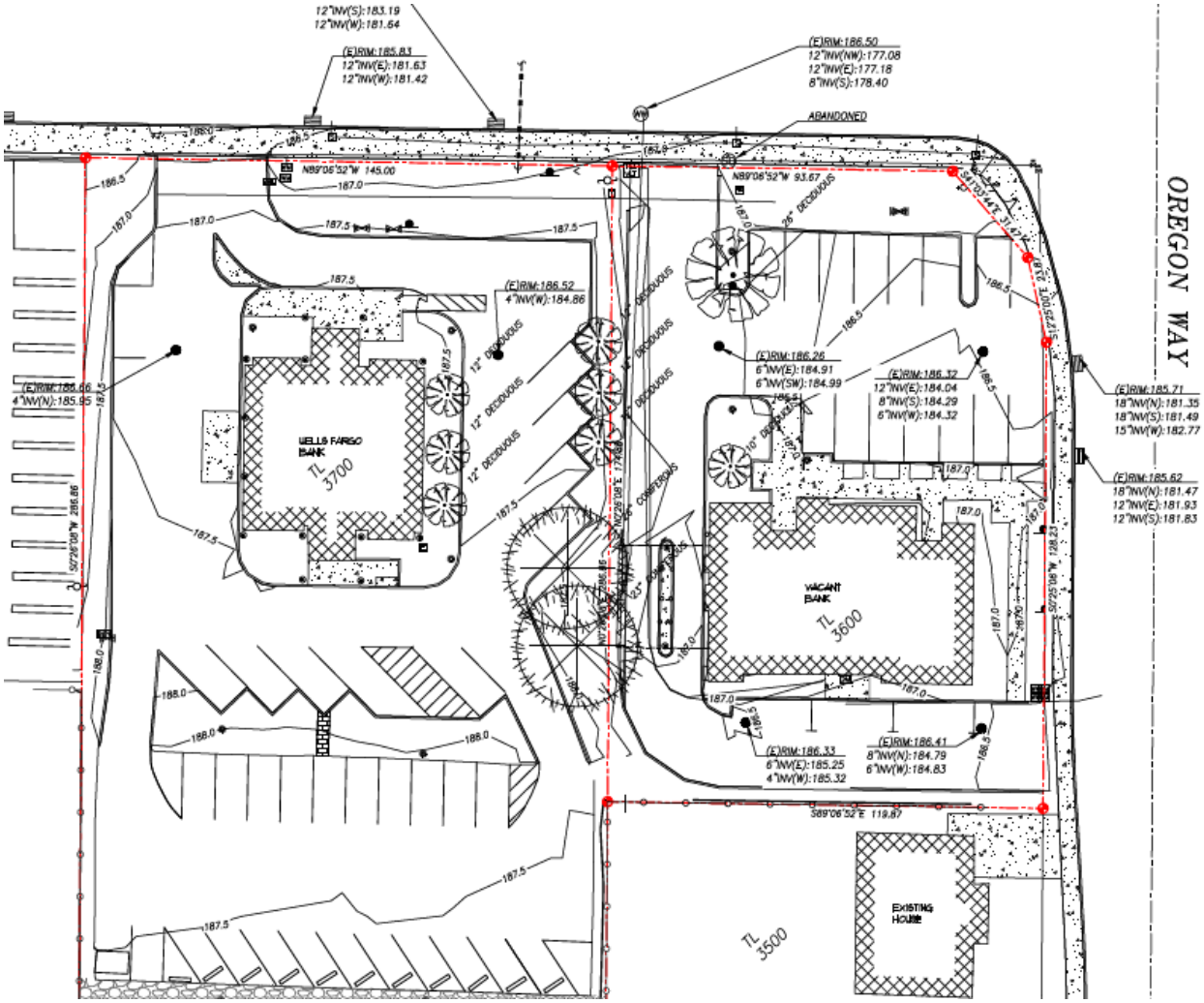


Figure 2. Existing site layout (banks shown have been demolished).

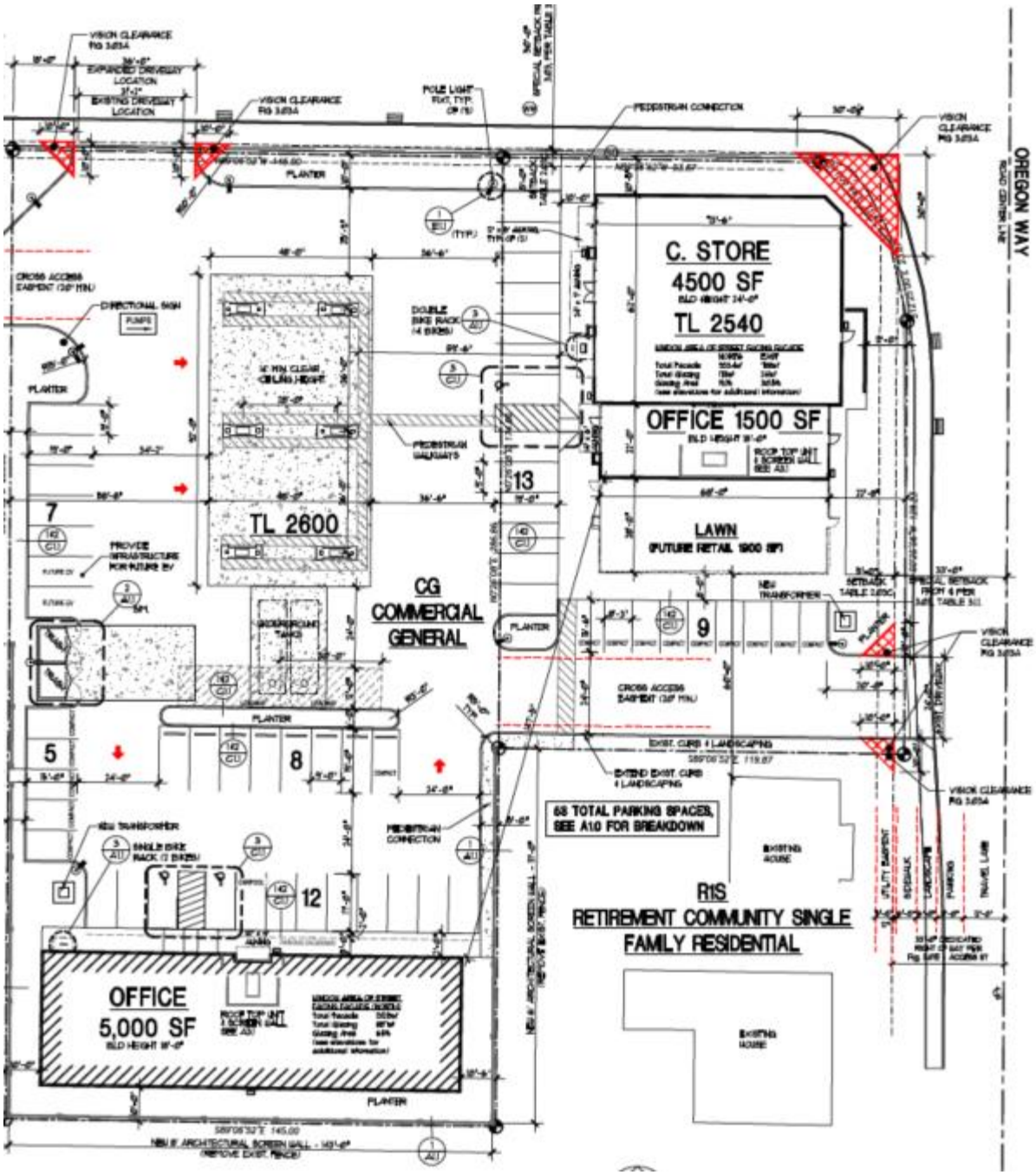


Figure 3. Proposed Site Plan.

WOODBURN INTERCHANGE AREA MANAGEMENT PLAN AND COORDINATION

The location of the site is just beyond the Woodburn Interchange Area Management Plan Overlay area that was adopted in November 2005, as shown in Figure 4. This plan identified various improvements that would function acceptably through the year 2020 if surrounding development was limited to an allocated trip rate. This plan allocated 33 weekday p.m. peak hour trips per commercial acre, allowing parcels within the boundary to exceed this allocation in accordance with Section 2.116.06(B) and subjecting future site plan applications to joint City and ODOT review. Since this plan was premised on build-out of properties that were undeveloped at the time, the developed status of the site with the banks excluded it from further review, and the parcel was not located within the IAMP boundary. As such, the trip budget requirements do not apply to the subject application, but other provisions of the ordinance are applicable as the site is within the Interchange Management Area Overlay District (see Figure 5).

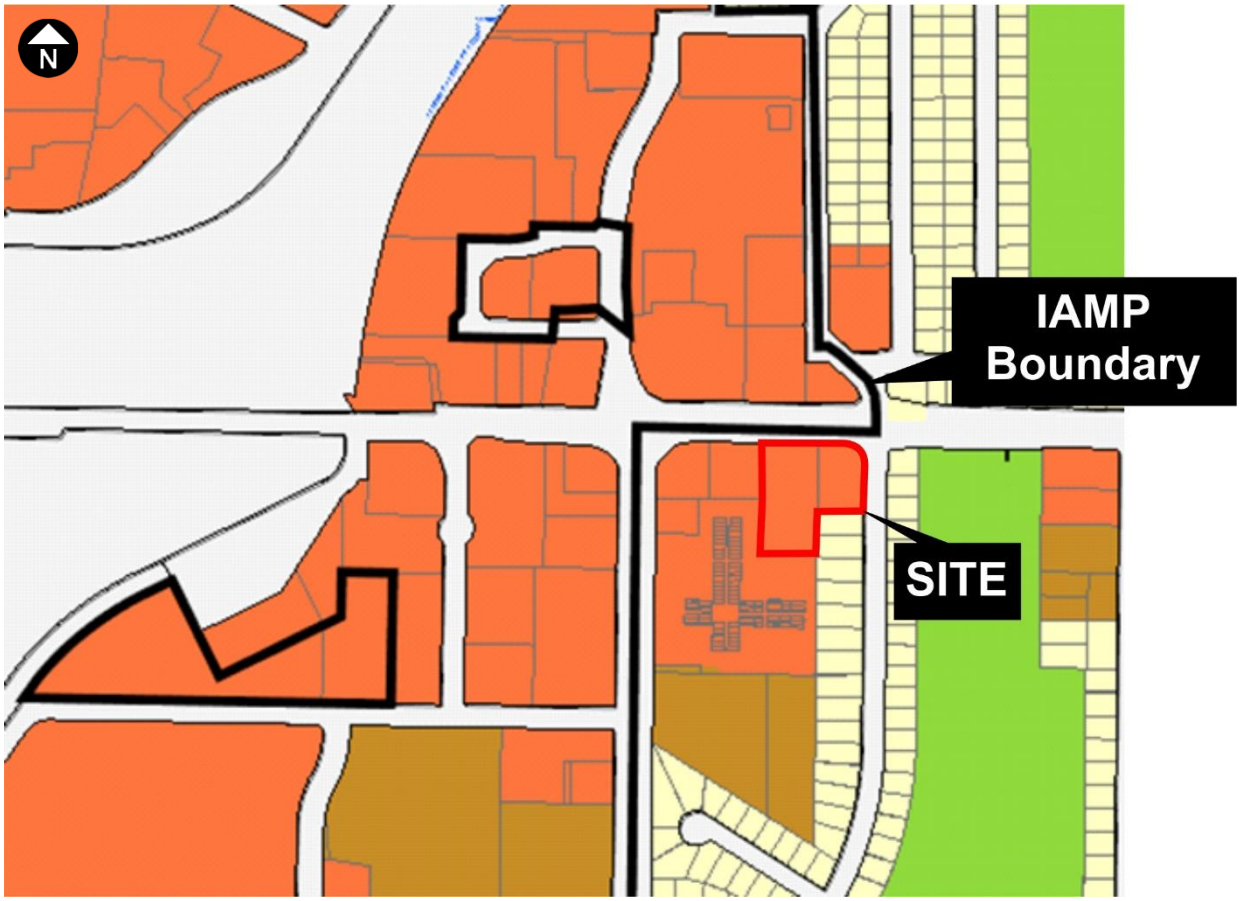


Figure 4. Woodburn Interchange Area Management Plan Overlay (shown as a Bold Black line).

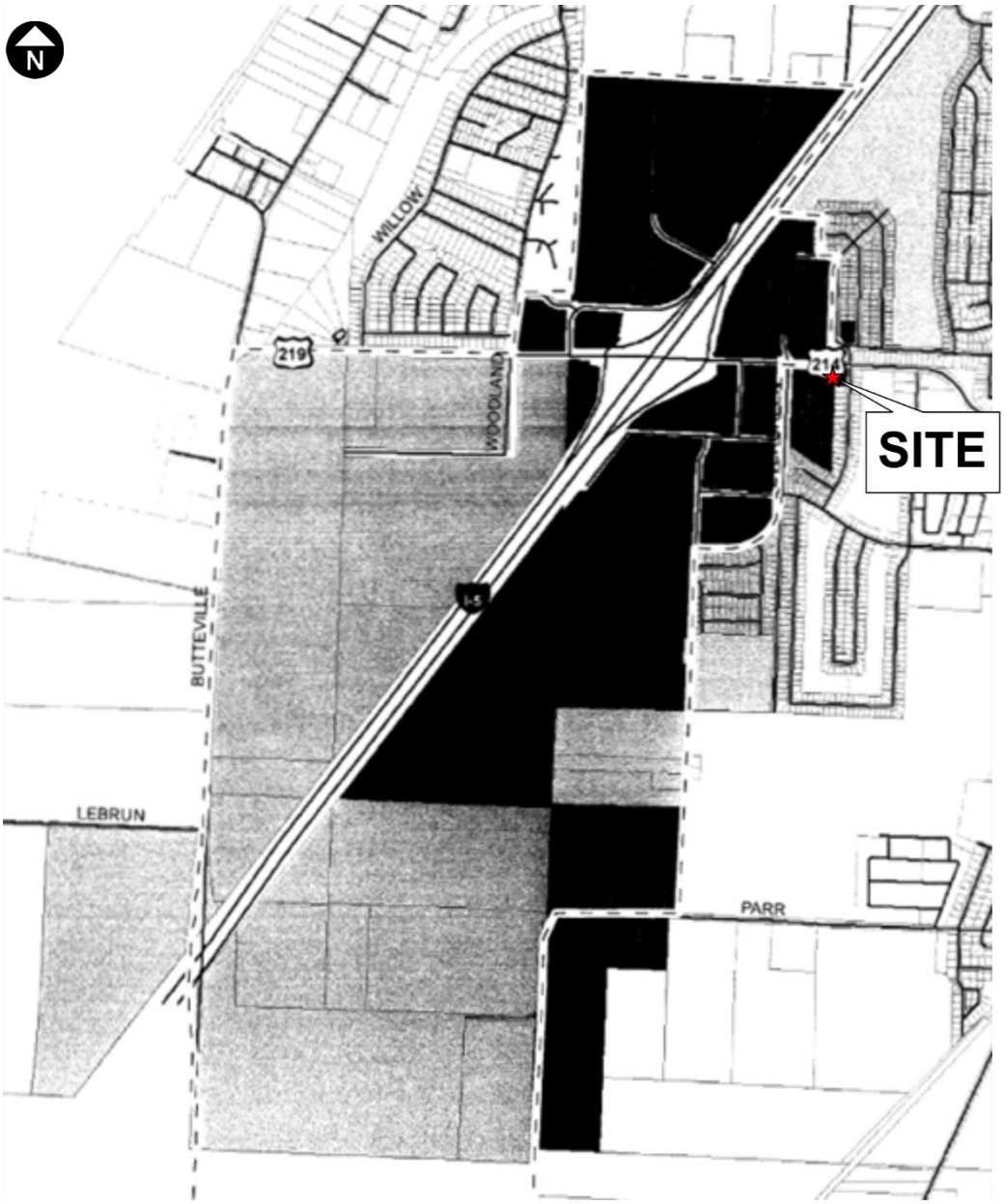


Figure 5. Interchange Management Area Overlay District.

AREA CONTEXT

The subject property is zoned for Commercial General (CG) uses, similar to other surrounding properties in the area that surround the interchange. The zoning transitions into *Retirement Community Single Family Residential* (R1S) immediately south, with *Medium Density Residential* (RM) farther south within the block.

The proposed site is located along Oregon Way, with primary access shown along the southernmost portion of the parcel and along the lowest-classified adjacent street ("Access Street") at an existing curb cut. Oregon Way contains a 25 mile per hour posted speed, and the location of the access maximizes the available spacing from the traffic signal. Access is also available onto the Newberg Highway at a right-in,

right-out connection that is enforced with a raised concrete median. The existing right-in, right-out curb cut is located nearly midway between the Evergreen Road and Oregon Way intersection.

Land uses immediately south of the project site transition into residential, with the Panor360 condominiums and single-family homes. A Dutch Bros. coffee shop and Dairy Queen drive-through fast-food restaurant are also located on the same block face.

The City's recently adopted Transportation System Plan identifies a planned project at the OR 214/Oregon Way intersection to improve the signal timing and coordination in collaboration with ODOT (TSP Project R11). The site also borders the Woodburn City Transit Loop, with a bus stop located along the Oregon Way frontage.

EXISTING TRAFFIC CONDITIONS

Existing Transportation Facilities

The proposed redevelopment will retain the existing right-in/right-out access on the Newberg Highway and the full access on Oregon Way. Table 1 summarizes the existing area roadways included in this study and the pertinent characteristics and the major adjacent roadway facilities are described below.

Table 1. Existing Transportation Facilities

Roadway	Jurisdiction	Functional Classification	Cross Section	Speed	Shoulder /Bicycle Lanes	Sidewalk	On-Street Parking
I-5 Ramps	ODOT	Freeway Ramps	1-3 lanes	20-45 mph	Paved shoulder	No	No
Newberg Highway (OR 214)	ODOT	District Highway/ Major Arterial	4 lanes	30 mph	Yes	Yes	No
Evergreen Road	City of Woodburn	Minor Arterial	2-3 lanes	25 mph	Partial	Partial	No
Oregon Way	City of Woodburn	Access Street	2 lanes	25 mph	No	Partial	Yes

Interstate 5 connects the City of Woodburn south to Salem and north to Portland and the surrounding suburbs. It carries approximately 97,800 vehicles per day within the vicinity of the interchange. At the interchange with the Newberg Highway the ramps form a partial cloverleaf with both ramp terminals controlled by traffic signals. The ramps are a single lane in width that widen to three lanes on the off ramps to accommodate additional turn lanes. Advisory speeds range from 20 mph in the cloverleaf to 45 mph on the northbound off-ramp.

The Newberg Highway (OR 214) provides a major east-west route through the City connecting I-5 and Highway 99E and is also identified as a Truck Route in the City's Transportation System Plan. ODOT classifies the highway as a *District Highway* while the City's TSP classifies it as a *Major Arterial*. Within the study area it is a four-lane divided highway. It widens to six lanes over I-5 to accommodate right-turn lanes for the on-ramps and narrows to a three-lane section east of the study area. Bicycle lanes and sidewalks are provided throughout with a posted speed of 30 miles per hour.

Evergreen Road, a *Minor Arterial*, is oriented north-south and connects to multiple residential areas to the south providing a connection between these areas and the commercial aeras near the Newberg Highway. The City's Transportation System Plan shows a future plan to extend Evergreen Road to the south to Parr Road, which will eventually connect to a future *Major Arterial* on the south side of the City. Evergreen Road generally has a three lane cross-section with a small segment of two-lane between Stacy Allison Way and W Hayes Street. Sidewalks are nearly complete on both sides of the road with the exception of the east side between Stacy Allison Way and W Hayes Street. Bicycle lanes are provided south of W Hayes Street. The posted speed is 25 miles per hour.

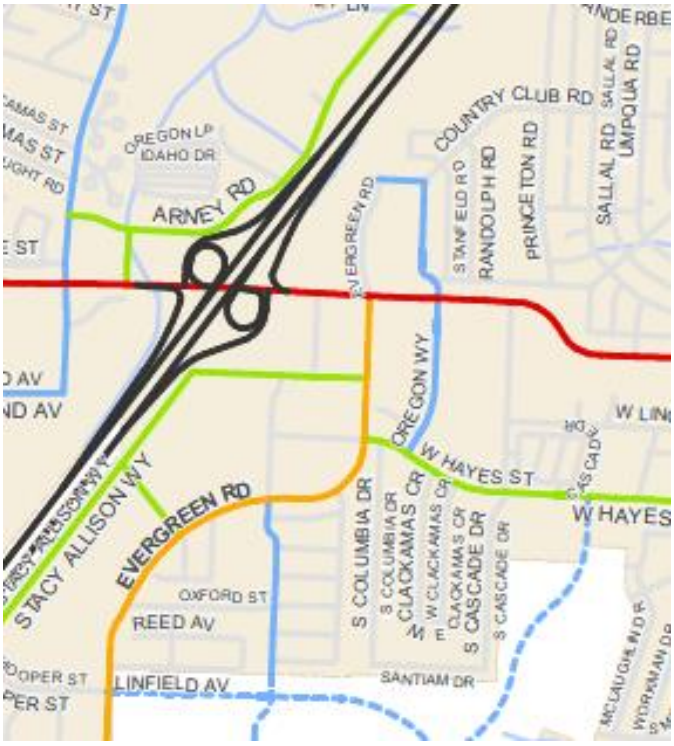


Figure 6. Functional Classification Map.
Black: Freeway. Red: Major Arterial. Orange: Minor Arterial. Green: Service Collector. Blue: Access Street.

Oregon Way is an approximately 1,400-foot long roadway connecting to the Newberg Highway to the north and W Hayes Street to the south. It is classified as an *Access Street* and has a posted speed of 25 miles per hour. Oregon Way has a two-lane cross-section with sidewalks for the first 275 feet from the Newberg Highway. The remaining length does not have any separate pedestrian or bicyclist facilities. On-street parking is permitted throughout most of Oregon Way with the exception of near the signalized intersection with the Newberg Highway.

Transit Service

The City of Woodburn no longer has fixed route transit but does offer an Express Loop that services the most frequented stops. The bus route starts at the Downtown Transit Center and heads clockwise through the City to Walmart, the Wo Memorial Transit Center, then east on the Newberg Highway to BiMart, then south on Highway 99E to circle back around to the Downtown Transit Center. At this point it changes

direction to a counterclockwise loop and heads back to Highway 99E, making a stop at the Goodwill and Safeway, and then heading west on the Newberg Highway to the Mid Valley Plaza, and then it circles to the Wo Memorial Transit Center, Walmart, and back down to the Downtown Transit Center. The closest stop to the site is located at the Wo Memorial Transit Center approximately 0.2 miles from the site. Hourly headways are provided from 9:00 a.m. to 6:00 p.m. on weekdays. Single rides cost $1.25 and all day passes cost $3.00. Dial-A-Ride is also an option for people with disabilities and the elderly within the City of Woodburn who are not able to use the fixed route bus. Figure 7 depicts the Express Loop route.

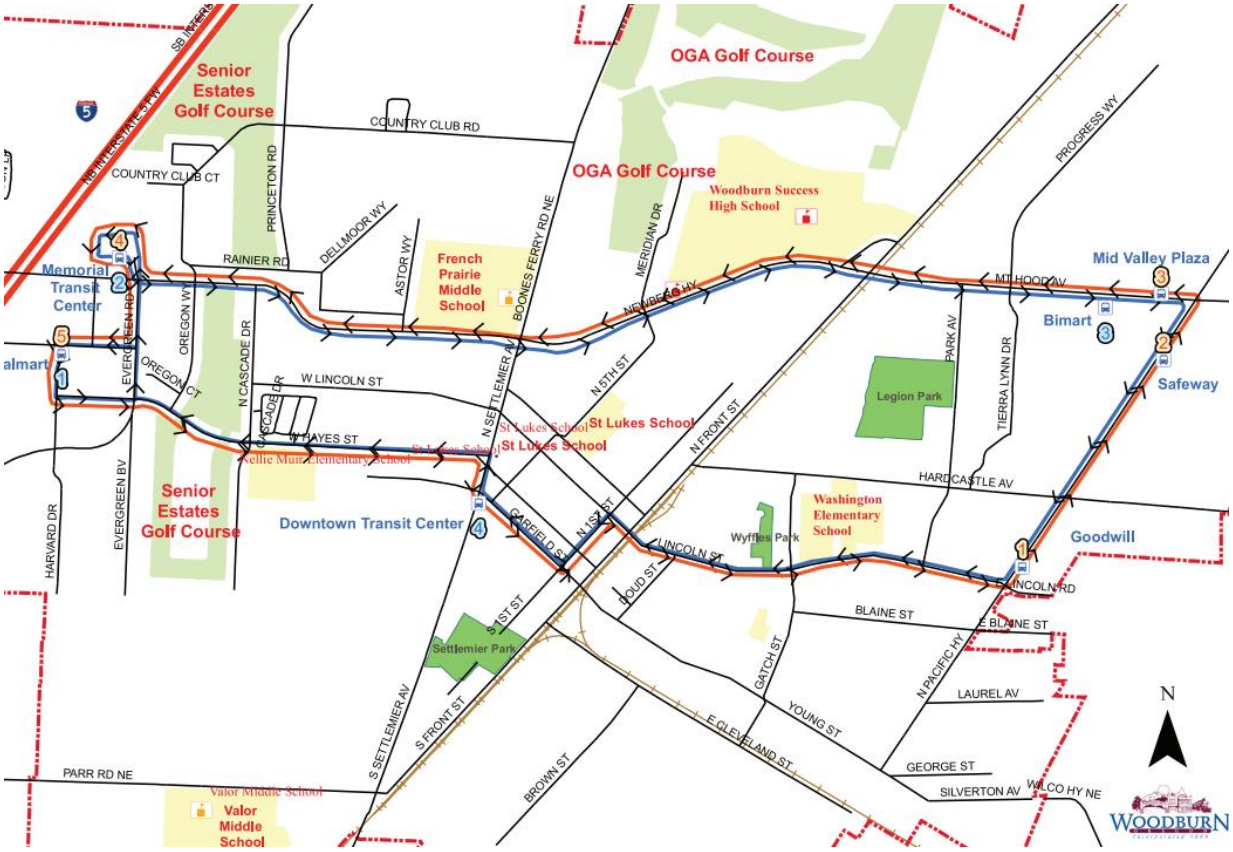


Figure 7. Woodburn Transit System – Express Loop.

STUDY INTERSECTIONS

Study intersections within the analysis were identified based on discussions with ODOT and City staff. This coordination and review of the site impacts resulted in the inclusion of the following study intersections:

- I-5 Southbound Ramps / Newberg Highway (OR 214)
- I-5 Northbound Ramps / Newberg Highway (OR 214)
- Evergreen Road / Newberg Highway (OR 214)
- Right-In/Right-Out Access / Newberg Highway (OR 214)
- Oregon Way / Newberg Highway (OR 214)
- Oregon Way / Full Access

TRAFFIC OPERATIONS

The traffic operations analysis was prepared using Synchro 10 software and Highway Capacity Manual 6th Edition and 2000 operations methods. All traffic operations within this report reflect peak fifteen-minute conditions during the peak hour. The study intersections are under the jurisdiction of ODOT and the City of Woodburn.

All of the study intersections along the Newberg Highway are under the jurisdiction of ODOT. Intersections under ODOT jurisdiction require compliance with the Oregon Highway Plan mobility targets based on Action 1F. Table 6 of the OHP summarizes the relevant ODOT mobility targets outside the Portland Metropolitan area; ODOT performance standards vary by location of the facility (urban vs. rural), State Functional Classification, and posted speed. Based on this table, intersections on the Newberg Highway have a target v/c ratio less than or equal to 0.95 in the City of Woodburn. Where there are interchange ramps, the maximum v/c ratio is 0.85. This can be increased to 0.90 in urban areas if it can be determined that 95th percentile queues would not extend onto the mainline and an adopted Interchange Area Management Plan is in place.

The City of Woodburn requires that signalized intersections operate at a level of service "E" or better. All intersections should operate with a v/c ratio of less than 1.00 regardless of the level of service. In addition, critical movements at unsignalized intersections should have a v/c ratio of less than 0.90 provided the queues can be accommodated.

EXISTING TRAFFIC OPERATIONS

The existing year 2021 traffic conditions reflect the current operations throughout the study area during the weekday a.m. and p.m. peak hour. This analysis is used to calibrate operational models to field conditions, and in conjunction with historical safety information, is intended to help understand and prioritize transportation system improvement needs.

All of the study intersections were assessed during the weekday a.m. and p.m. peak periods which is when traffic volumes are highest on the arterial roadways. Traffic counts were collected on June 30th of 2019 during the weekday morning (7:00 – 9:00 a.m.) and evening (4:00 – 6:00 p.m.) peak periods. This time period reflects typical midweek commute period conditions during near-peak season conditions and the continued impact of COVID-19. Within the commute periods the weekday morning peak hour (the single hour with the highest total entering volume) was found to occur between 7:10 and 8:10 a.m. and the weekday p.m. peak hour was found to occur between 4:00 and 5:00 p.m.

To account for seasonal variations at the study intersections on the Newberg Highway, ODOT's Automatic Traffic Recorders at Station 03-011 (located on I-5, 1.38 miles south of Wilsonville-Hubbard Highway) and Station 24-001 (located on Highway 99E, 0.11 miles south of NE Belle Passi Road) were reviewed for the past five years. It showed that June traffic counts should be increase by 1% to reflect peak August conditions on I-5 and peak July conditions on Highway 99E. A seasonal adjustment of 1% was applied to all Newberg Highway study intersections.

In addition, the data collected on I-5 between 2019 and 2021 was reviewed to identify the impact of COVID-19 on traffic patterns. The most recent published report, *Observed Statewide Traffic Volume Patterns: Related to COVID-19 Monitoring* dated July 9, 2021 reports the average weekday traffic volume on I-5 for the week of June 28th to July 4th to have increased 13% over 2020 volumes and is greater than

2019 traffic volumes. Traffic volumes on I-5 do not appear to have been impacted by COVID-19 during the collection of traffic counts. Therefore, no adjustment was made to the traffic counts for COVID-19 impacts.

The resulting turning movement counts from the weekday a.m. and p.m. peak hours are summarized and shown in Figure 8 and applied throughout all analysis scenarios. A summary of the existing conditions analysis is presented in Table 2. As shown in the table, all study intersections currently meet the applicable standards.

Table 2. Summary of Existing Traffic Conditions

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: I-5 SB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	15.1	0.38	B	18.3	0.52
2: I-5 NB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	12.5	0.39	B	12.8	0.49
3: Evergreen Rd/ Newberg Hwy	ODOT	v/c ≤ 0.95		C	20.7	0.41	C	22.9	0.63
4: RIRO Access/ Newberg Hwy	ODOT	v/c ≤ 0.95	NB R						
5: Oregon Way/ Newberg Hwy	ODOT	v/c ≤ 0.95		A	7.6	0.31	A	9.6	0.45
6: Oregon Way/ Access	City of Woodburn	v/c ≤ 0.90	EB LR						

SAFETY REVIEW

The safety review included field review of the area, review of historical crash data, and field verification of intersection sight distance at the accesses to the Newberg Highway and Oregon Way.

Historical Crash Records

Crash records were obtained for all of Marion County from the ODOT crash database between January 2015 and December 2019, which reflects the most recent five-years of data available. Crashes required for reporting during this period include those involving any level of personal injury or property damage exceeding $1,500 before 2018 or $2,500 after 2018.

Table 3 summarizes the number and severity of reported crashes at each of the study area intersections. The table also provides a crash rate per million entering vehicles, which is often used to assess whether a geometric or traffic control deficiency is present when the crash rate is greater than 1.0 per million entering vehicles. ODOT also provides crash rates separated by control type and the number of approaches, which better distinguish between varying intersection forms and are provided for reference.

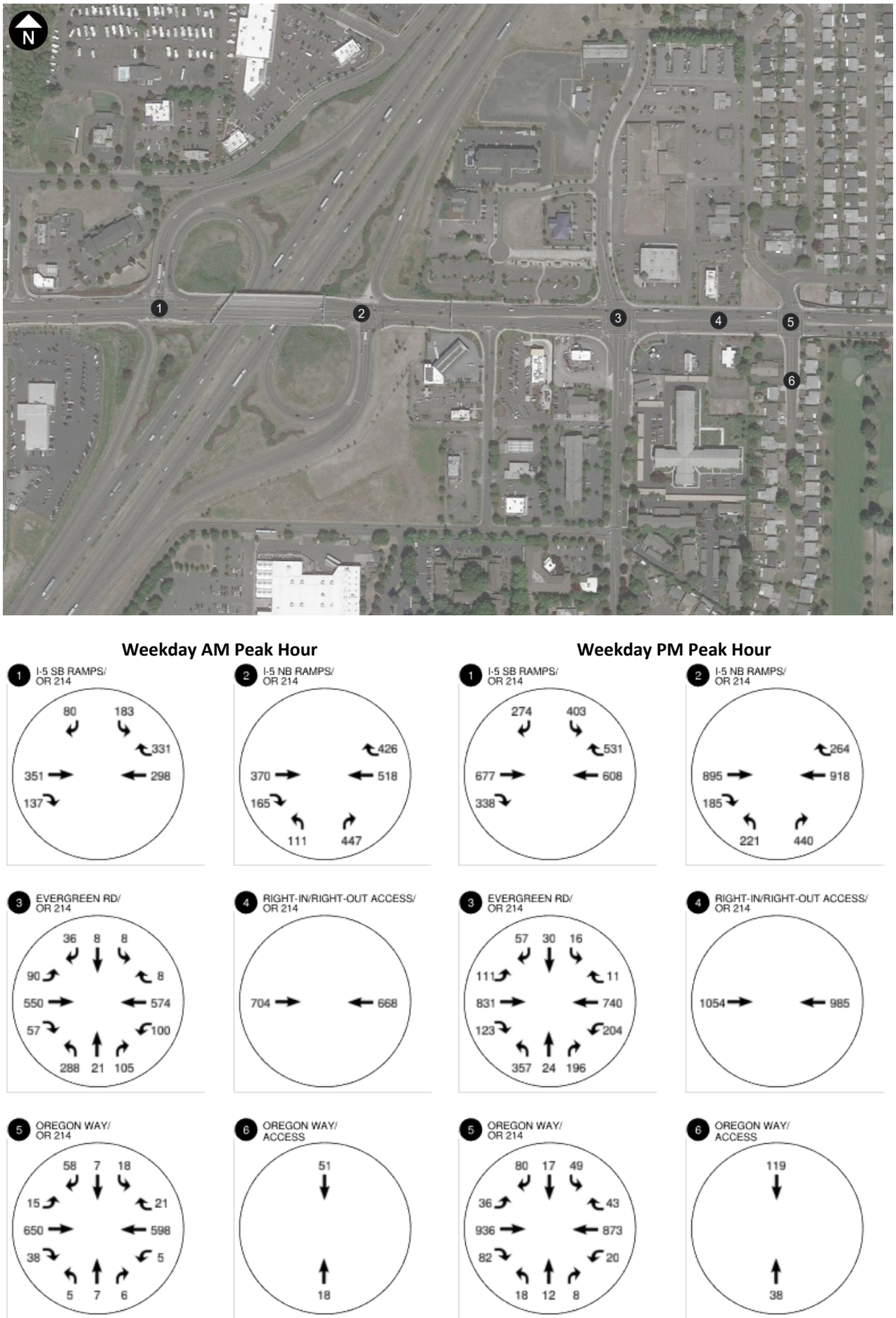


Figure 8. 2021 Existing Traffic Volumes, Weekday AM and PM Peak Hour.

Table 3. Intersection Crash Summary (January 2015 to December 2019)

Intersection	# of Crashes	Severity			Crash Rate per MEV	ODOT 90th % Rate
		Fatal	Injury	Non-Injury		
1: I-5 SB Ramps/ Newberg Hwy	48	0	35	13	0.93	3SG: 0.509 *Urban*
2: I-5 NB Ramps/ Newberg Hwy	48	0	27	21	0.90	3SG: 0.509 *Urban*
3: Evergreen Rd/ Newberg Hwy	67	0	39	28	1.36	4SG: 0.860 *Urban*
4: RIRO Access/ Newberg Hwy	1	0	0	1	0.05	Right-In/ Right-Out
5: Oregon Way/ Newberg Hwy	43	0	30	13	1.08	4SG: 0.860 *Urban*
6: Oregon Way/ Access	0	0	0	0	0.00	3ST: 0.293 *Urban*

3SG: Three-legged signalized, 4SG: Four-legged signalized, 3ST: Three-legged stop-controlled

As shown in Table 3, all of the signalized intersections on the Newberg Highway within the study area experienced a crash rate greater than ODOT's 90th percentile crash rates for similar intersections. Table 4 summarizes the types of collisions that occurred at the study intersections.

Table 4. Reported Collision Types (January 2015 through December 2019)

Intersection	Turning/ Angle	Rear-End	Fixed Object	Head-On	Pedestrian	Side-swipe	Non-Collision	Backing
1: I-5 SB Ramps/ Newberg Hwy	6	36	1	1	0	3	1	0
2: I-5 NB Ramps/ Newberg Hwy	26	17	4	0	0	0	0	1
3: Evergreen Rd/ Newberg Hwy	49	15	1	0	0	1	1	0
4: RIRO Access/ Newberg Hwy	0	1	0	0	0	0	0	0
5: Oregon Way/ Newberg Hwy	39	4	0	0	0	0	0	0
6: Oregon Way/ Access	0	0	0	0	0	0	0	0

I-5 Southbound Ramps / Newberg Highway

The I-5 southbound ramps at the Newberg Highway have experienced 48 crashes over the five-year study period. This results in a crash rate greater than ODOT's 90th percentile rate for similar, signalized intersections. The majority of the crashes were rear-end collisions that occurred consistently across each year with the exception of 2016. Most of these occurred on the southbound off-ramp.

I-5 Northbound Ramps / Newberg Highway

Forty-eight crashes were reported at the I-5 northbound ramp/Newberg Highway intersection. This resulted in a crash rate of 0.90 crashes per million entering vehicles, exceeding the state's 90th percentile rate for similar intersections. This intersection experienced a mix of turning, rear-end, fixed object, and backing collisions with turning collisions being the predominant crash type.

Evergreen Road / Newberg Highway

Over the five-year review period 67 crashes were reported at this intersection resulting in a crash rate of 1.36. Of these crashes 42 were turning collisions with the predominant movements involved being the westbound left-turn and eastbound through movements with 25 crashes. Eight crashes involved the opposing eastbound left-turn and westbound through movements. Five turning crashes involved westbound through vehicles and vehicles in the eastbound left-turn lane making a U-turn maneuver.

The eastbound and westbound left-turn movements at this traffic signal are controlled by protected-permissive phasing. U-turns are permitted in the eastbound and westbound direction for passenger vehicles. The cross-section of the Newberg Highway at this intersection is four lanes with a paved median, providing adequate space for U-turn maneuvers. The westbound left-turn volume during the weekday p.m. peak hour is nearly double that of the eastbound left-turn volume, which would help account for the higher number of crashes involving the westbound left-turn movement. However, it is not clear why the crashes involving the westbound left-turn are three times as high as the opposing movement. It is recommended that ODOT monitor this intersection for continued crash patterns.

Oregon Way / Newberg Highway

Forty-three crashes were reported at this intersection, which resulted in 30 injury crashes and 13 non-injury crashes. This resulted in a crash rate of 1.08, which is greater than ODOT's 90th percentile crash rate. The majority of crashes, 34, were turning collisions. Seventeen of these crashes involved westbound left-turning vehicles and eastbound through while 13 involved eastbound left-turning vehicles and westbound through. The east and westbound left-turn movements are controlled by protected-permissive phasing.

SPIS Sites

The Safety Priority Index System (SPIS) is updated annually by ODOT and is a scoring method used to identify potential safety problems on state highways through a review of crash frequency, crash rate, and crash severity. The top 15% SPIS Groups list for year 2019 was reviewed for the Newberg Highway (OR 219 and OR 214). Table 5 summarizes the finding of the locations identified within the study area. As shown in the table, the site frontage and existing access are within the 95% SPIS segment.

Table 5. 2019 ODOT SPIS Site in Study Area

Highway	Beginning Milepoint	End Milepoint	Segment	SPIS Percent
Newberg Highway/OR 219 140 Hillsboro-Silverton	36.69	36.82	West of I-5 SB ramp to west of I-5 NB ramp	90%
Newberg Highway/OR 219 140 Hillsboro-Silverton	36.77	36.90	East of I-5 SB ramp to east of I-5 NB ramp	85%
Newberg Highway/OR 214 140 Hillsboro-Silverton	36.95	37.12	Lawson Ave to east of Evergreen Rd	95%
Newberg Highway/OR 214 140 Hillsboro-Silverton	37.04	37.23	East of Evergreen Rd to east of Oregon Way	95%

Intersection Sight Distance

Intersection sight distance was reviewed to ensure an adequate view of conflicting traffic is provided to drivers at the existing connection to the Newberg Highway and at the full access on Oregon Way. Standard engineering practice is to apply the minimum recommended sight distance criteria based on the standard reference *A Policy on Geometric Design of Highways and Streets, 7th Edition* published by the American Association of State Highway and Transportation Officials (AASHTO) in 2018 (commonly referred to as the *Green Book*).

Intersection Sight Triangles

For minor-street stop-control intersections, intersection sight triangles are based on guidance cited within Conditions B1 (left-turn from minor road) and B2 (right-turn from minor road) of the *Green Book*. All distances are measured from a vertex point located 14.5 feet from the major-road travel way along the center of the approaching travel lane, accounting for comfortable positioning distance from the travel way (6.5 feet) and the distance from the front of the vehicle to the driver eye (8.0 feet). The assumed eye height is 3.5 feet above the departing road for passenger vehicles. The object height is also 3.5 feet above the major road, providing enough space on the approaching vehicle to recognize it.

There are no horizontal or vertical alignment concerns along this portion of the Newberg Highway or Oregon Way to impede or limit sight distance for the existing accesses. Figure 9 illustrates the recommended minimum dimensions for the existing right-in/right-out access on the Newberg Highway. Figure 10 illustrates the recommended minimum dimensions for the existing full access on Oregon Way.

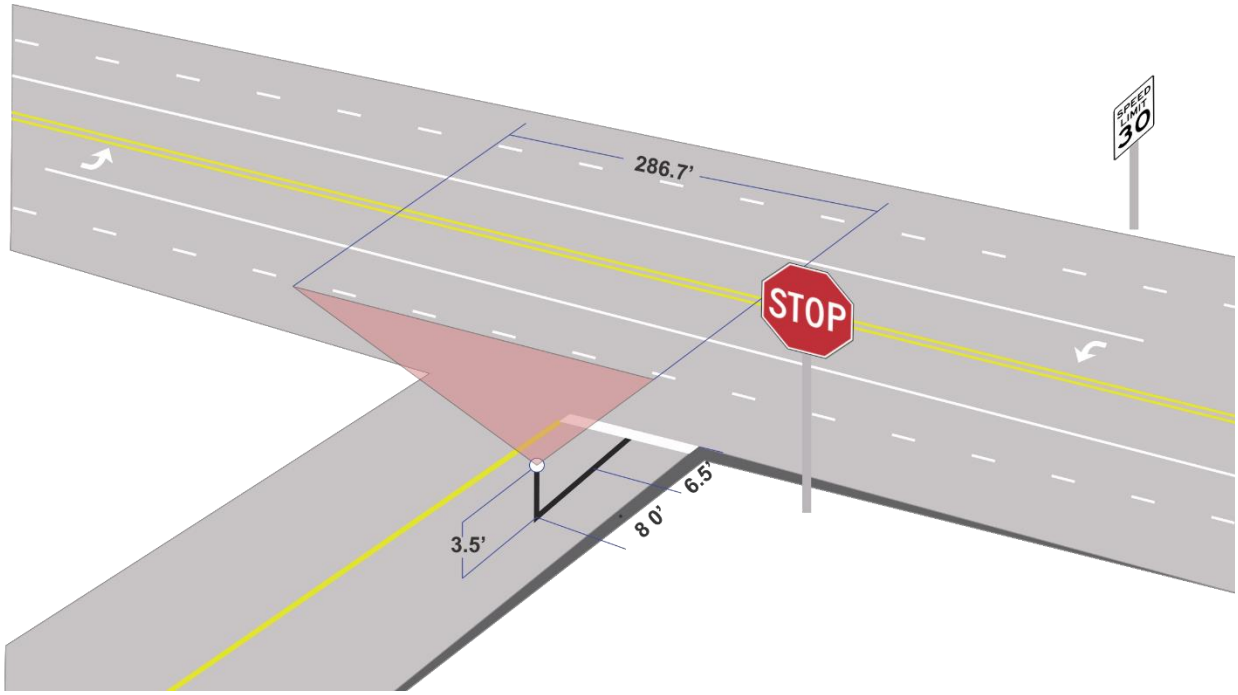


Figure 9. Recommended Intersection Sight Distance Measurements for Right-in/Right-out Access on Newberg Highway.

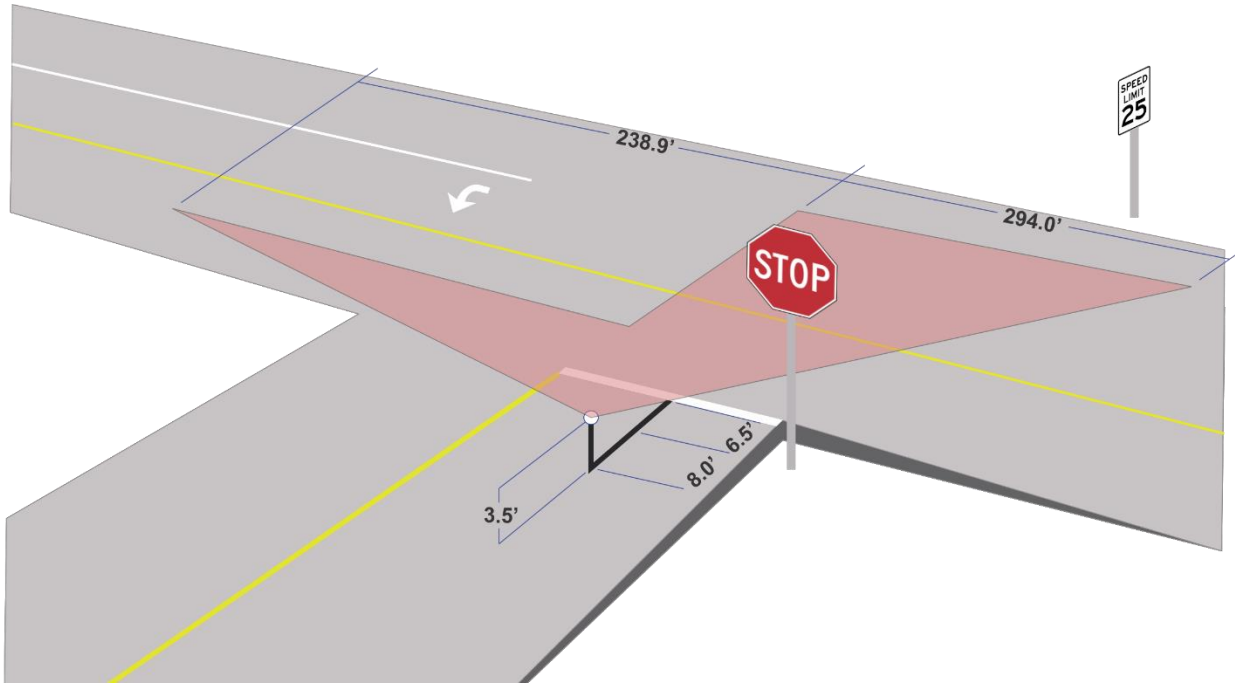


Figure 10. Recommended Intersection Sight Distance Measurements for Oregon Way Access.

The existing accesses were visited to ensure that no sight distance obstructions were present that would prevent these sight distances from being achieved. Figures 11 through 14 illustrate the available sight distance at the right-in/right-out and full access. These photos show that the area surrounding the site is flat with adequate sight distance available at both driveways. Vegetation along Oregon Way should be removed as already shown in the site plans.

Figure 11. Newberg Highway right-in, right-out access facing east highlighting the straight and flat topography (to highlight potential pedestrian conflicts at the access).

Figure 12. Newberg Highway right-in, right-out access facing west toward oncoming traffic.

Figure 13. Oregon Way access facing south.

Figure 14. Oregon Way access facing north toward the Newberg Highway.

Analysis Periods

It is anticipated that full build out will occur in year 2023. Therefore, all study intersections are analyzed for the future 2023 conditions. In addition, this report includes a 10-year planning horizon analysis.

YEAR 2023 BACKGROUND TRAFFIC OPERATIONS

Background traffic conditions identify conditions in the future year that the proposed development will be fully built-out but without the trips associated with the site. This scenario is presented to provide the basis for comparison to "with-site" conditions. This provides an understanding of area transportation needs that are attributable to the proposed development. These conditions consider the regional traffic growth and specific approved developments.

Growth Forecasts

ODOT forecasts future year volumes on their facilities throughout the state. This data is developed from the ODOT Transportation Volume Tables and travel demand models, where available. Based on the volumes 0.10 miles east and west of I-5 on the Newberg Highway, ODOT's Future Volumes Table shows that traffic volumes on the highway are expected to grow on average 0.3- to 0.4-percent per year. This is based on a travel demand model for the City.

Higher growth is expected on City streets. A review of the adopted Woodburn TSP shows existing 2017 and forecast 2040 traffic volumes at major intersections around the City. These volume forecasts are based on the information in the Woodburn travel demand model and anticipated land uses and planned transportation improvements in the area. A review of traffic forecasts at the Evergreen Road and Oregon Way intersections with the Newberg Highway show that traffic volumes are expected to grow an average of 1.7-percent per year on Evergreen Road and Oregon Way.

Table 6. Forecast Growth (2017 to 2040)

Location	Year 2017 Base Two-Way Volume Weekday PM Peak Hour	Year 2040 Future Two-Way Volume Weekday PM Peak Hour	Annual Growth
Evergreen Rd North of Newberg Hwy	245	244	-0.02%
Evergreen Rd South of Newberg Hwy	895	1,435	2.6%
Oregon Way Rd North of Newberg Hwy	360	499	1.7%
Oregon Way Rd South of Newberg Hwy	94	148	2.5%
		Average	**1.7%**

The year 2023 traffic forecasts were developed by applying a 0.4-percent annual growth rate to the Newberg Highway and 1.7-percent annual growth rate to Evergreen Road and Oregon Way, along with inclusion of approved development trips.

Approved Development Trips

Based on discussions with the City, multiple developments were identified for inclusion in the background volumes based on information from the City's online current project list. These are summarized in Table 7 along with the estimated level of development assumed in the analysis.

Table 7. Approved Development Trip Assumptions

Development	Size	Trip Generation		Estimated Level of Development		
		Weekday AM Peak Hour	Weekday PM Peak Hour	2021	2023	2033
Schultz Farm	154 units	114	152	0%	100%	100%
Woodburn Urgent Care	4,000 sf	11	14	0%	100%	100%
Allison Way Apartments	586 units	211	258	0%	30%	100%
Smith Creek Development	808 units	543	712	0%	30%	100%

The regional growth was applied to the existing traffic volumes and approved developments were added to forecast year 2023 "No-Build" conditions within the site vicinity. The resulting volumes are shown in Figure 15. The analysis results are summarized in Table 8.

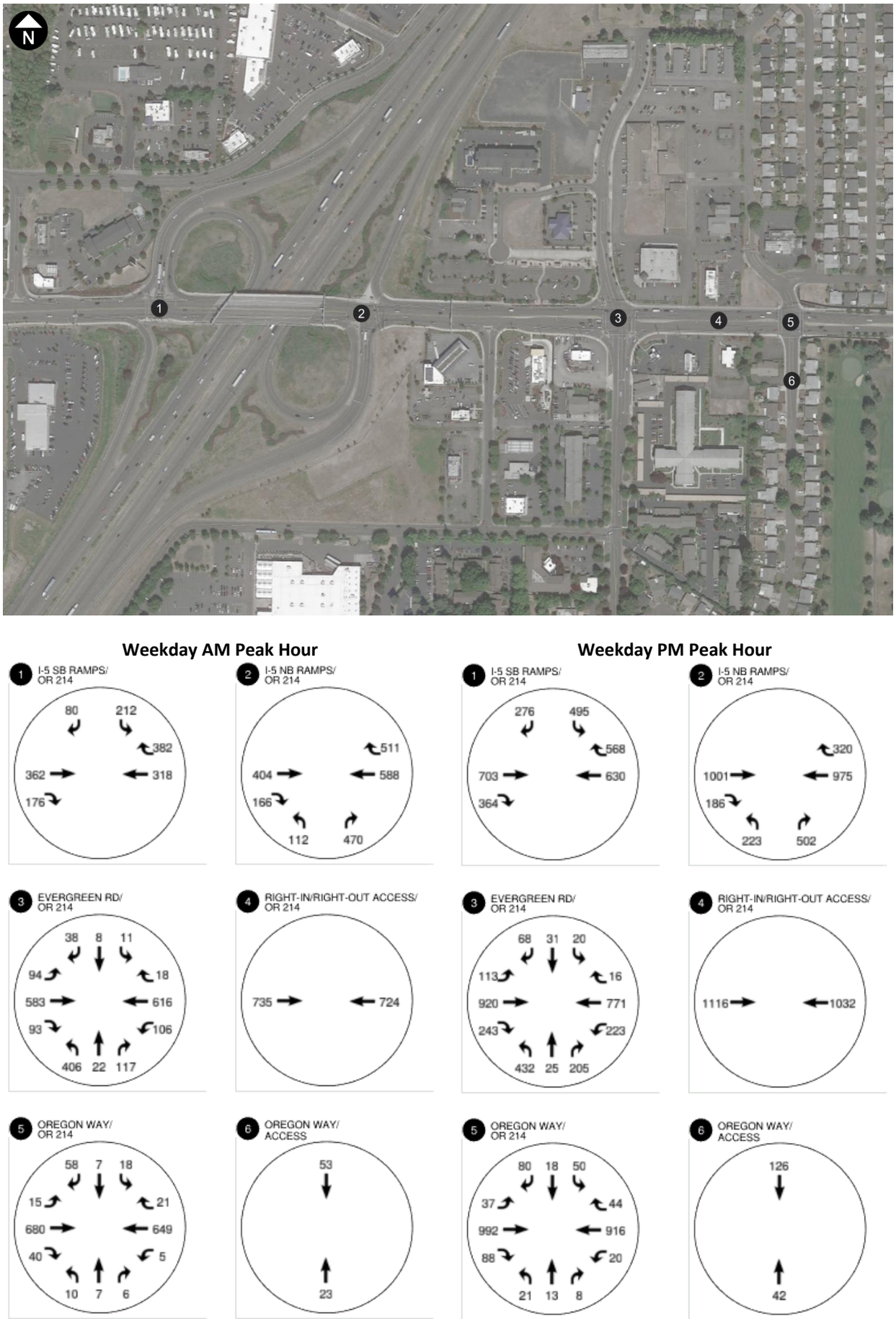


Figure 15. 2023 Background Traffic Volumes, Weekday AM and PM Peak Hour.

Table 8. Summary of 2023 Background (No Build) Traffic Conditions

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: I-5 SB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	15.4	0.43	B	19.2	0.56
2: I-5 NB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	12.2	0.46	B	14.0	0.55
3: Evergreen Rd/ Newberg Hwy	ODOT	v/c ≤ 0.95		C	23.7	0.49	C	28.9	0.74
4: RIRO Access/ Newberg Hwy	ODOT	v/c ≤ 0.95	NB R						
5: Oregon Way/ Newberg Hwy	ODOT	v/c ≤ 0.95		A	8.0	0.33	B	10.9	0.48
6: Oregon Way/ Access	City of Woodburn	v/c ≤ 0.90	EB LR						

As shown in Table 8, all study intersections currently meet standards during the weekday a.m. and p.m. peak hours.

PROPOSED DEVELOPMENT PLAN

The proposed site plan from Figure 3 shows that the project includes the construction of a fueling center and 4,500 square-foot convenience market with 1,500 square-foot of attached office space, and a separate 5,000 square-foot office building. The site will utilize the existing right-in/right-out access to the Newberg Highway and the existing access on the south edge of the site to Oregon Way. A connection is planned between this site and the Dairy Queen site to the west, which will provide an alternate route for the adjacent property. Sidewalks are already provided on the frontage of the site on the Newberg Highway and Oregon Way. Sidewalks and pedestrian crossings are planned adjacent to the new office building and convenience store, which will connect to the street sidewalks.

TRIP GENERATION

Trip generation estimates were prepared for the site based on the standard reference *Trip Generation, 10th Edition,* published by the Institute of Transportation Engineers. There are several types of fuel centers within this reference manual, but with the size of the convenience market and number of fueling positions the most applicable classification is ITE Land Use 960: Super Convenience Market/Gas Station, as defined below.

> *ITE Land Use 960: Super Convenience Market/Gas Station – This land use includes gasoline/service stations with convenience markets where there is significant business related to the sale of convenience items and the fueling of motor vehicles. Some commonly sold convenience items include newspapers, freshly brewed coffee, daily-made donuts, bakery items, hot and cold beverages, breakfast items, dairy items, fresh fruits, soups, light meals, ready-to-go and freshly made sandwiches and wraps, and ready-to-go salads. Stores typically also had automated teller machines (ATMs) and public restrooms. The sites included in this land use category have the following two specific characteristics:*
>
> - *The gross floor area of the convenience market is at least 3,000 square-feet*

- *The number of vehicle fueling positions is at least 10.*

The attached office portion of the building and separate 5,000 square-foot office building were classified using ITE's *Land Use 710: General Office Building*. This land use is described as follows:

> *A general office building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities. A general office building with a gross floor area of 5,000 square feet or less is classified as a small office building (Land Use 712).*
>
> *When the buildings are interrelated (defined by shared parking facilities or the ability to easily walk between buildings) or house one tenant, it is suggested that the total area or employment of all the buildings be used for calculating the trip generation.*

Since the convenience market with fuel center and office will be replacing two banks with drive-in windows the trips for these uses were estimated with ITE's Land Use 912: Drive-in Bank, as defined below:

> *A drive-in bank provides banking facilities for motorists who conduct financial transactions from their vehicles; many also serve patrons who walk into the building. The drive-in lanes may or may not provide automatic teller machines (ATMs).*

Table 9 summarizes the trip generation estimates for the existing and proposed site uses.

Table 9. Trip Generation Estimates (ITE 10th Edition)

Land Use	ITE Code	Metric	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Existing Uses									
Drive-in Bank	912	5,714 SF	572	54	31	23	117	59	58
Pass-by Trips			*-200*	*-16*	*-9*	*-7*	*-41*	*-21*	*-20*
Proposed Uses									
General Office Building	710	6,500 SF	63	8	6	2	7	1	6
Super Convenience Market/Gas Station	960	4,500 SF	3,769	374	187	187	312	156	156
Pass-by Trips			*-2,337*	*-232*	*-116*	*-116*	*-193*	*-97*	*-96*
Total Trips									
Total			3,832	382	193	189	319	157	162
Pass-by			*-2,337*	*-232*	*-116*	*-116*	*-193*	*-97*	*-96*
Net New			***1,495***	***150***	***77***	***73***	***126***	***60***	***66***

As shown in Table 9, the proposed super convenience market with office and fueling positions generates more trips than the uses it replaces and will require a formal Transportation Impact Analysis. This - Transportation Impact Analysis will be required to assess ODOT intersections impacted by 50 or more weekday p.m. peak hour trips. Woodburn Development Ordinance 3.04.05 cites City criteria for transportation analyses, and cites projects generating more than 100 weekday p.m. peak hour trips will require a formal TIA.

TRIP DISTRIBUTION AND ASSIGNMENT

A convenience store with fueling positions is likely to have its traffic oriented toward major nearby travel corridors. With this type of use primary trips (home to business) are less common, particularly with this site near the City's only interchange with I-5 and location along the OR 214 corridors. Figure 6 illustrates the functional classification of the surrounding streets as identified in the City's Transportation System Plan, highlighting the primary travel routes in the site vicinity.

With an Average Annual Daily Traffic flow of about 26,300 vehicles on OR 214 and 97,800 on I-5 south of the interchange these corridors will serve the majority of site trips and will be the primary routes for pass-by trips to the site. With the larger convenience store proposed, nearby residential areas will also access the site for essential goods. Figure 15 illustrates the trip distribution pattern for the site.

Site-generated trips shown in Table 9 were assigned to the transportation network in accordance with the trip distribution pattern. This trip assignment is also provided in Figure 15 and shows the general impact area of the site accounting for the available trip credits from the prior banks[1].

This figure shows that the impact area of the convenience market and fuel station is limited to the area between the I-5 interchange and the Evergreen Avenue access, with trip impacts beyond this area limited. It is also noted that the median-restricted right-in, right-out access onto OR 214 will experience more than 50 weekday p.m. peak hour trips, triggering ODOT's Change of Use criteria.

YEAR 2023 TOTAL TRAFFIC CONDITIONS (BUILDOUT)

The total traffic analysis identifies how the study area's transportation system will operate with the inclusion of the proposed development. It includes the traffic volumes from the background and adds in the site-generated trips. The resulting traffic volumes are shown in Figure 16. Table 10 summarizes the resulting traffic operations.

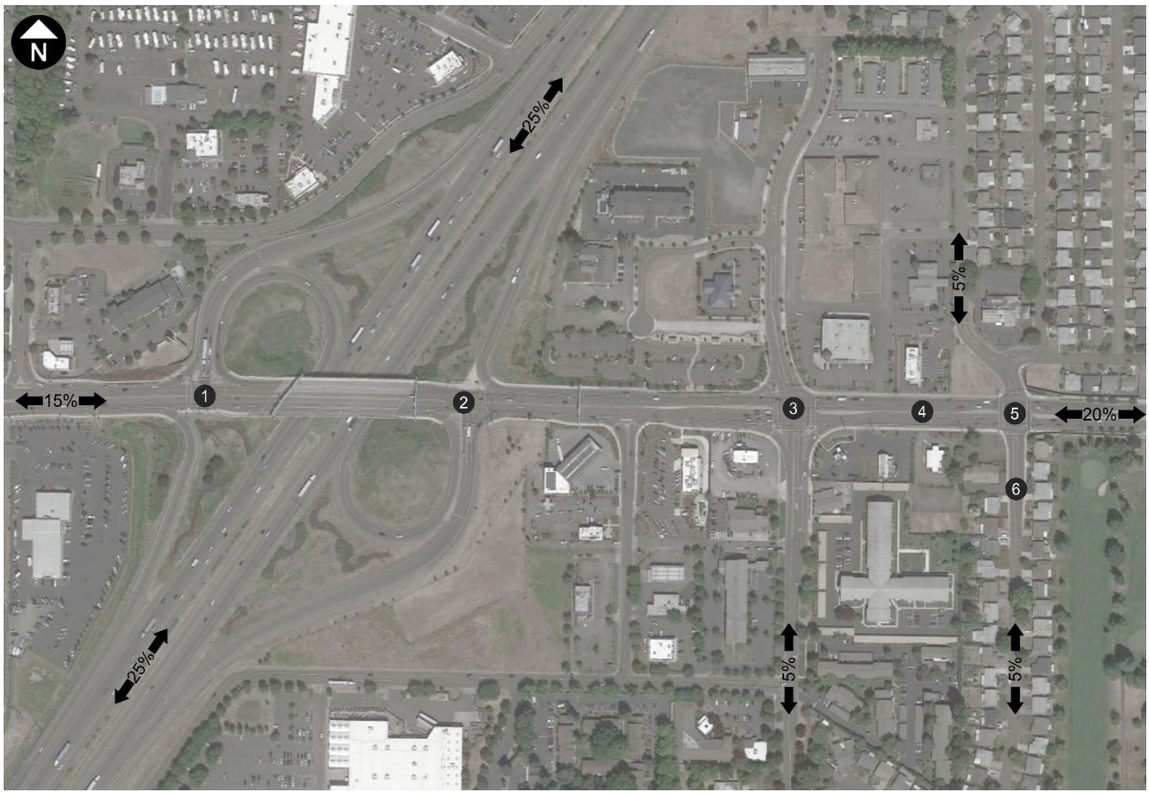
[1] The original traffic studies for the banks were not located, but trip rates for banks were significantly reduced within the newer versions of the ITE manual due to the proliferation of online banking. The vested trips from these older banks likely would have been filed using the older editions of the ITE Trip Generation manual that precede these banking trends.

Table 10. Summary of Total Traffic Conditions

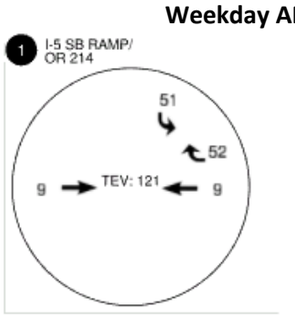
Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: I-5 SB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	16.5	0.49	B	19.7	0.60
2: I-5 NB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	12.7	0.50	B	14.6	0.59
3: Evergreen Rd/ Newberg Hwy	ODOT	v/c ≤ 0.95		C	23.2	0.54	C	31.0	0.78
4: RIRO Access/ Newberg Hwy	ODOT	v/c ≤ 0.95	NB R	B	12.0	0.07	B	14.0	0.03
5: Oregon Way/ Newberg Hwy	ODOT	v/c ≤ 0.95		B	15.4	0.42	B	16.5	0.54
6: Oregon Way/ Access	City of Woodburn	v/c ≤ 0.90	EB LR	A	9.9	0.17	B	10.3	0.14

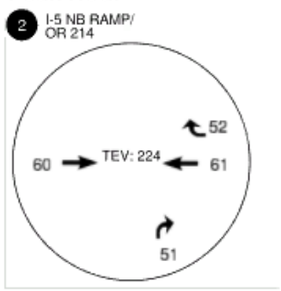
BOLD: Performance standard not met

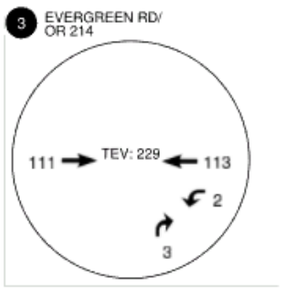
As shown in Table 10, the study intersections are expected to continue to meet City and State standards with buildout in 2023.

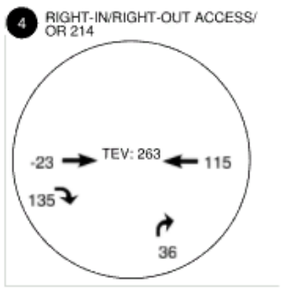


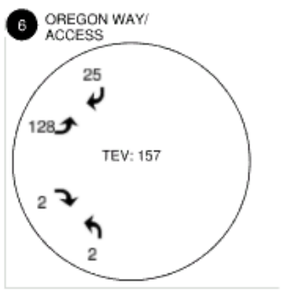
Weekday AM Peak Hour



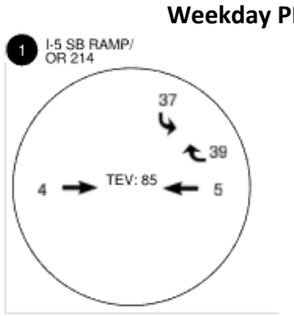


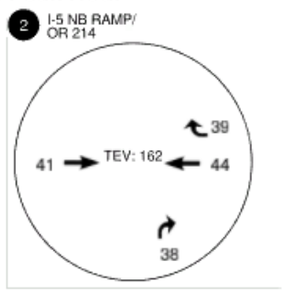


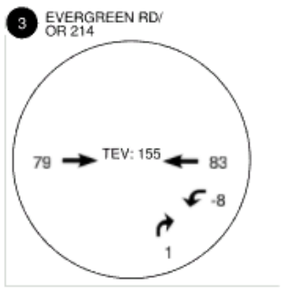


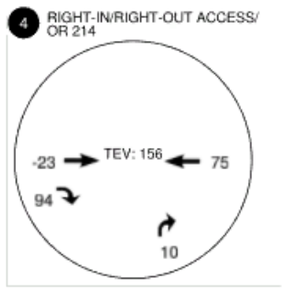


Weekday PM Peak Hour









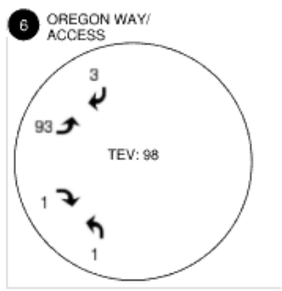


Figure 15. Estimated Trip Distribution and Net New Trip Assignment, Weekday AM and PM Peak Hour
Note: Includes existing bank trip credits (net new and pass-by) as well as primary and pass-by trips.

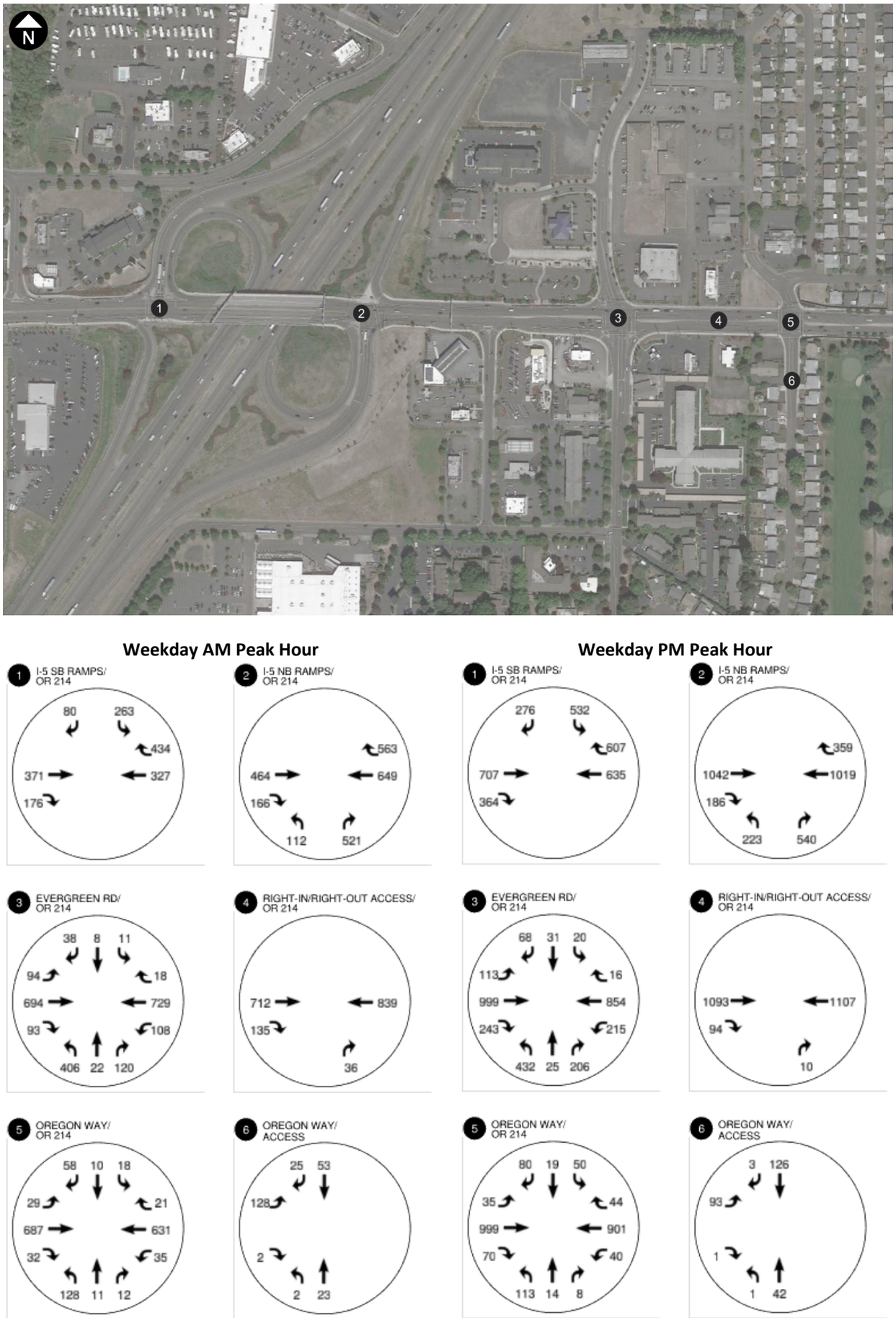


Figure 16. 2023 Total Traffic Volumes, Weekday AM and PM Peak Hour.

2033 PLANNING ANALYSIS

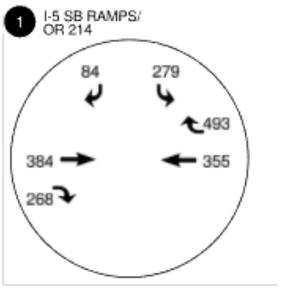
The year 2033 planning level analysis identifies how the study area's transportation system will operate in the future both with and without the proposed development. It includes full buildout of the approved developments identified in Table 7 and the application of the annual growth rates (0.4-percent per year on the Newberg Highway and 1.7-percent per year on City streets). Figures 17 and 18 illustrate the forecast background and total traffic volumes in 2033 and Table 11 includes the resulting traffic conditions.

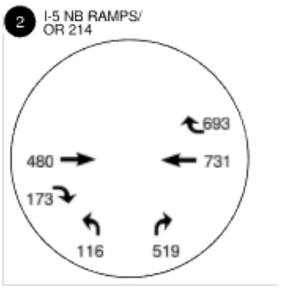
Table 11. Summary of 2033 Traffic Conditions

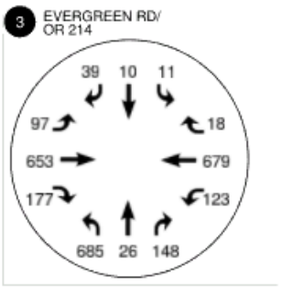
Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
Year 2033 Background Traffic Conditions									
1: I-5 SB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	16.5	0.54	C	22.4	0.66
2: I-5 NB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	12.0	0.62	B	16.5	0.71
3: Evergreen Rd/ Newberg Hwy	ODOT	v/c ≤ 0.95		C	30.1	0.64	E	55.8	0.94
4: RIRO Access/ Newberg Hwy	ODOT	v/c ≤ 0.95	NB R						
5: Oregon Way/ Newberg Hwy	ODOT	v/c ≤ 0.95		A	9.0	0.36	B	12.8	0.53
6: Oregon Way/ Access	City of Woodburn	v/c ≤ 0.90	EB LR						
Year 2033 Total Traffic Conditions									
1: I-5 SB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	17.4	0.60	C	22.9	0.69
2: I-5 NB Ramps/ Newberg Hwy	ODOT	v/c ≤ 0.85		B	13.8	0.66	B	17.5	0.75
3: Evergreen Rd/ Newberg Hwy	ODOT	v/c ≤ 0.95		C	30.1	0.70	E	65.8	**0.97**
4: RIRO Access/ Newberg Hwy	ODOT	v/c ≤ 0.95	NB R	B	12.4	0.07	B	14.8	0.03
5: Oregon Way/ Newberg Hwy	ODOT	v/c ≤ 0.95		B	17.9	0.46	C	23.1	0.59
6: Oregon Way/ Access	City of Woodburn	v/c ≤ 0.90	EB LR	B	10.0	0.18	B	10.6	0.15

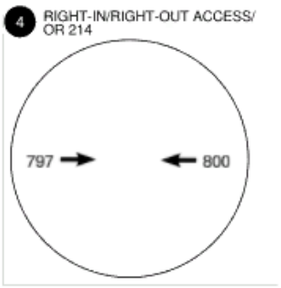
BOLD: Performance standard not met

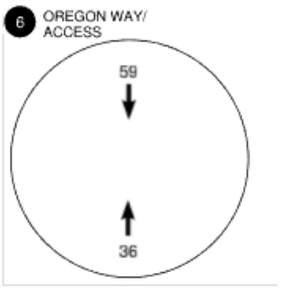
Weekday AM Peak Hour



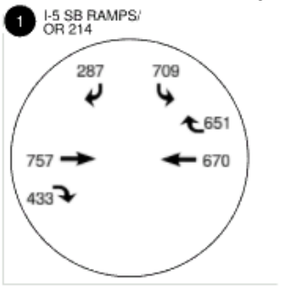


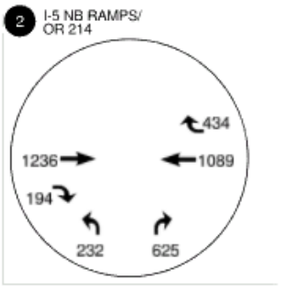


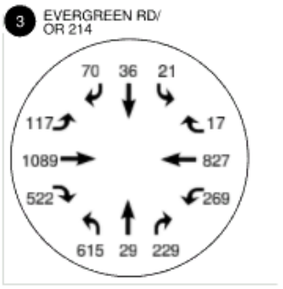


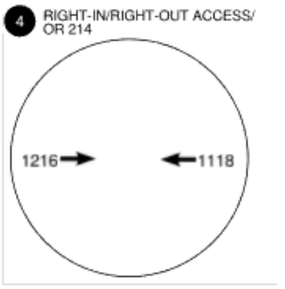


Weekday PM Peak Hour









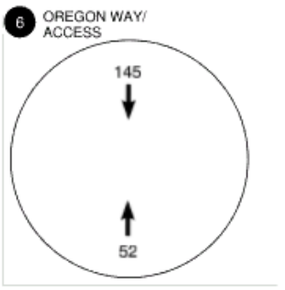
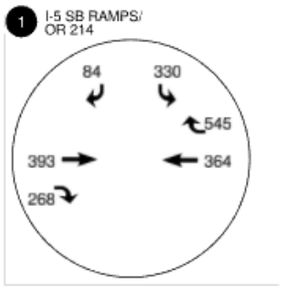
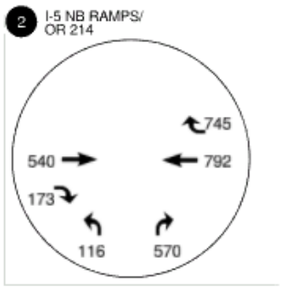
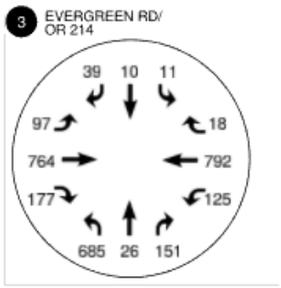


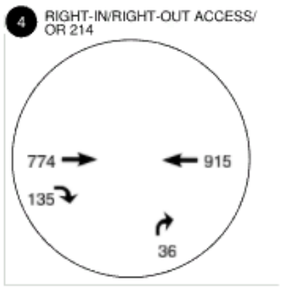
Figure 17. 2033 Background Traffic Volumes, Weekday AM and PM Peak Hour.

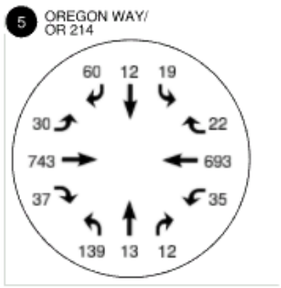
Weekday AM Peak Hour

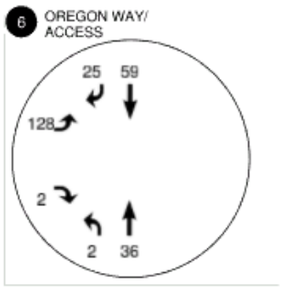




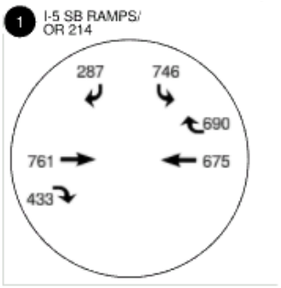


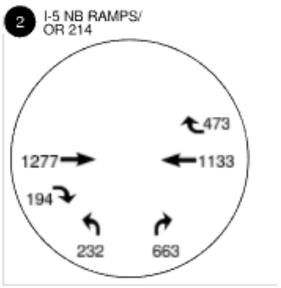


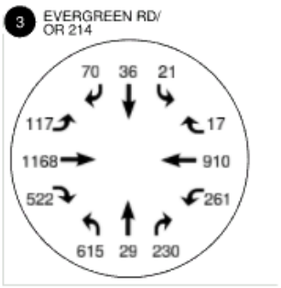


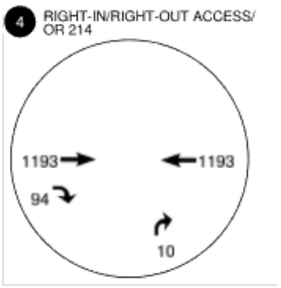


Weekday PM Peak Hour









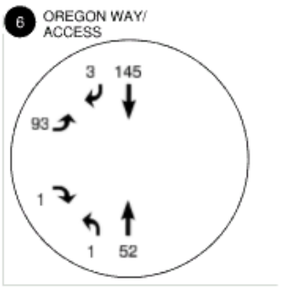


Figure 18. 2033 Total Traffic Volumes, Weekday AM and PM Peak Hour.

As shown in Table 11, all study intersections are expected to meet City and State standards in 2033 with the exception of the Evergreen Road/Newberg Highway intersection. The Evergreen Road/Newberg Highway intersection is expected to be approaching capacity in 2033 during the weekday p.m. peak hour with or without the proposed development. Two significant residential developments were conservatively assumed to have been fully built out by 2033 that are expected to generate a considerable number of trips through this intersection. The Smith Creek Development, an approximately 145-acre residential development, is expected to add 728 weekday p.m. trips to this intersection at full buildout. Allison Way Apartments, an approximately 19-acre multifamily developments, is expected to add 216 weekday p.m. trips to this intersection at full buildout. Both developments add a significant number of trips to the northbound left-turn and eastbound right-turn movements.

The Woodburn Transportation System Plan analyzed the Evergreen Road/Newberg Highway intersection in year 2040 and found that it would operate at a v/c ratio of 1.15 without any mitigation. The *Future Systems Conditions* memo within the Appendix states "As residential areas grow south of OR 214 and east of I-5, additional connections and alternative routing opportunities are likely going to be needed to help disperse this future demand from Evergreen Road while still connecting to the I-5 corridor." The TSP also includes signal projects at each of the study intersections, as shown in Figure 19. At Evergreen Road, Project R10 is a medium priority project to investigate and modify corridor signal timing for $15,000.

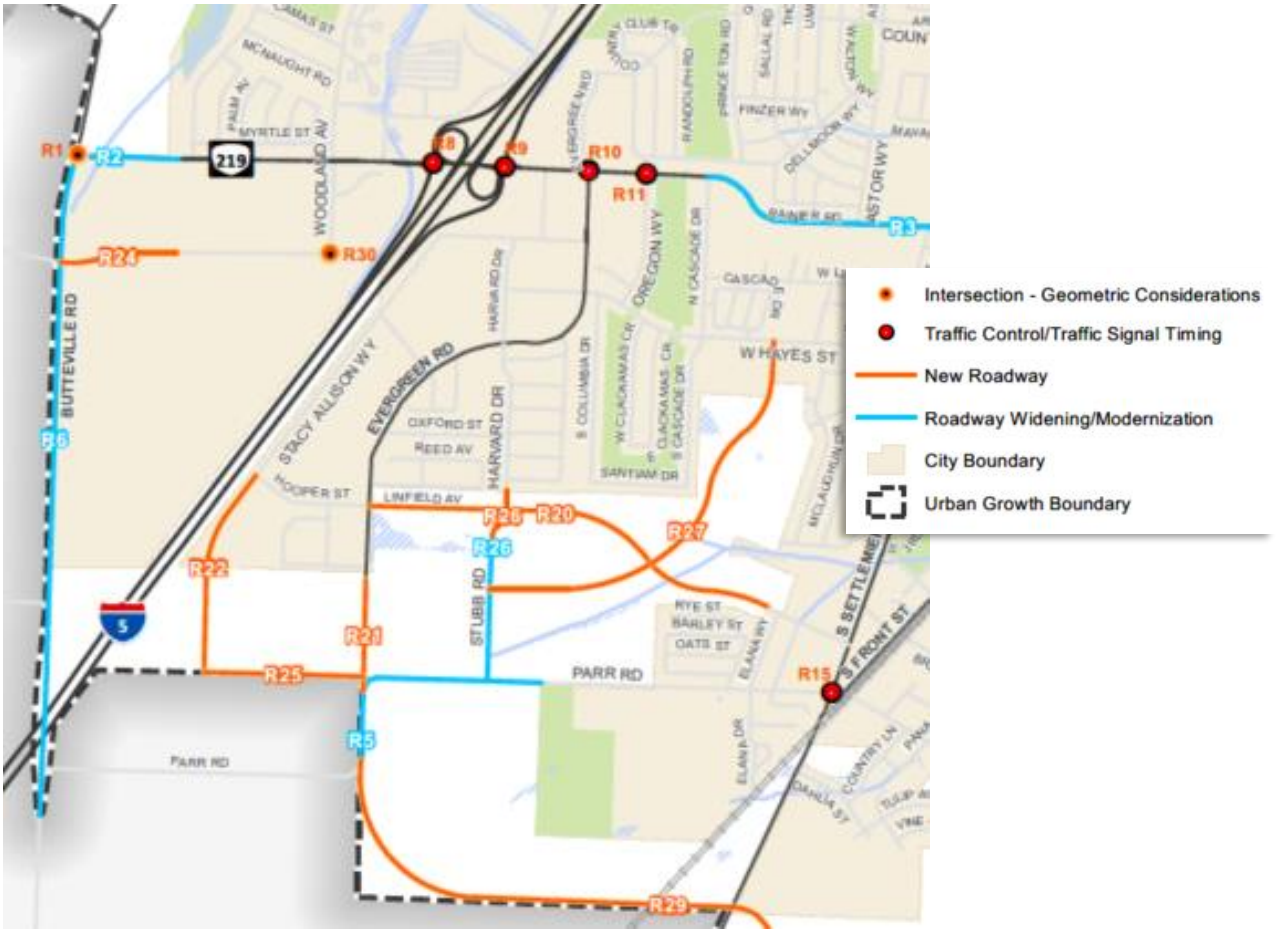


Figure 19. Transportation System Plan Projects.

FINDINGS AND RECOMMENDATIONS

The Transportation Impact Analysis prepared for the proposed fuel center and convenience market provides the following findings:

- The site is located outside of the Woodburn Interchange Area Management Plan boundary, but due to its proximity is still subject to agency review as the property appears to be located within the Interchange Management Area Overlay District.
- The proposed 12-position fueling station, 4,500 square-foot convenience market with attached office space, and separate 5,000 square-foot office building are consistent with the Commercial General zoning.
- Accounting for the recent demolition of the two on-site banks, the development is expected to generate 3,793 daily trips, of which 377 are expected during the weekday a.m. peak hour and 316 during the weekday p.m. peak hour.
- The site will utilize the existing right-in/right-out access on the Newberg Highway, which will require a Change of Use with ODOT due to the increased vehicular use of this driveway.
- The site will also use the existing full access on Oregon Way, which is located adjacent to the south property line.
- All study intersections meet State and City standards with buildout in 2023 during the weekday a.m. and p.m. peak hours.
- The Evergreen Road/Newberg Highway intersection will be approaching capacity in 2033 with or without the site during the weekday p.m. peak hour. The TSP did not identify any specific capacity improvements for this intersection, but identified the need to explore alternate routing options and signal timing strategies.

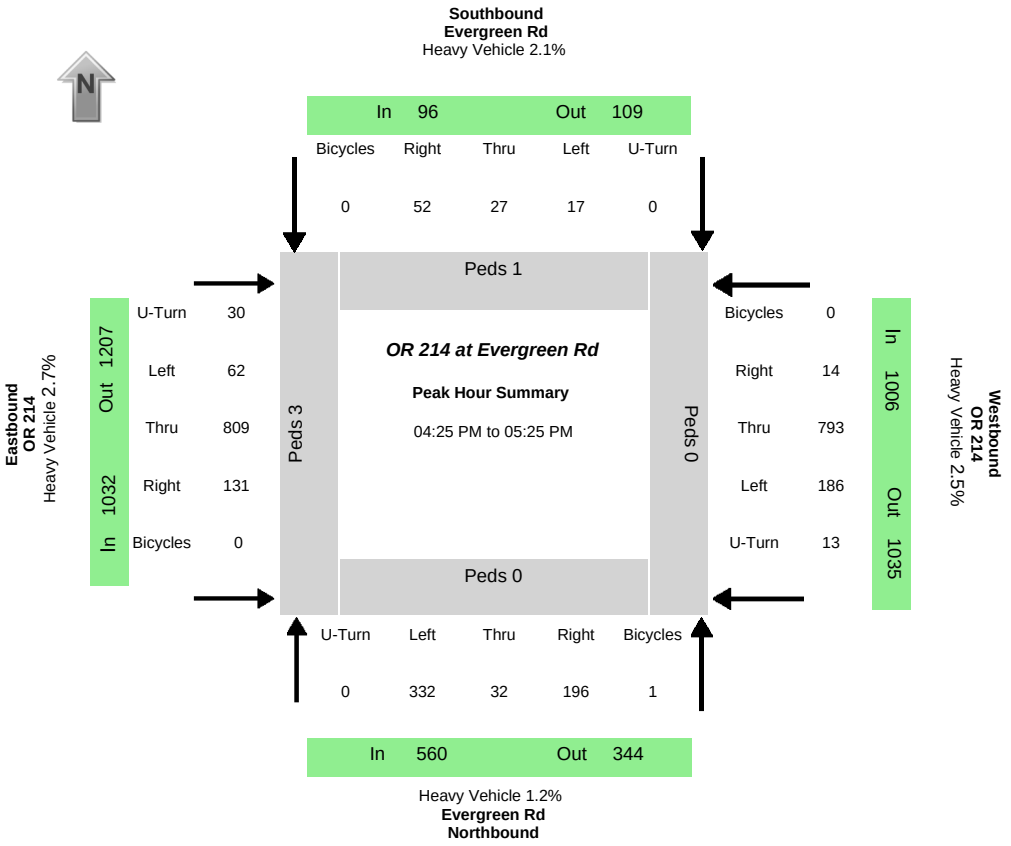
Please let me know if you have any questions or comments on this Transportation impact Analysis at (503) 997-4473 or via email at joe@transightconsulting.com.

Attachments:

- Traffic Count Worksheets
- Crash Summary Sheets
- Year 2021 Existing Conditions LOS Worksheets
- Year 2023 No-Build Conditions LOS Worksheets
- Year 2023 “With Project” Conditions LOS Worksheets
- Year 2033 No-Build Conditions LOS Worksheets
- Year 2033 “With Project” Conditions LOS Worksheets

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Evergreen Rd*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.150989 - -122.875784
Start Date	Wednesday, June 30, 2021
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:25:00 PM
Peak 15 Min Start	04:25:00 PM
PHF (15-Min Int)	0.95



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
332	32	196	0	17	27	52	0	62	809	131	30	186	793	14	13	560	96	1032	1006	344	108	1207	1035

Percent Heavy Vehicles

2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	0.0%	3.2%	1.5%	0.0%	0.0%	3.2%	0.0%	0.0%	1.3%	2.1%	2.7%	2.5%	0.6%	0.0%	2.8%	2.5%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

PHV - Pedestrians

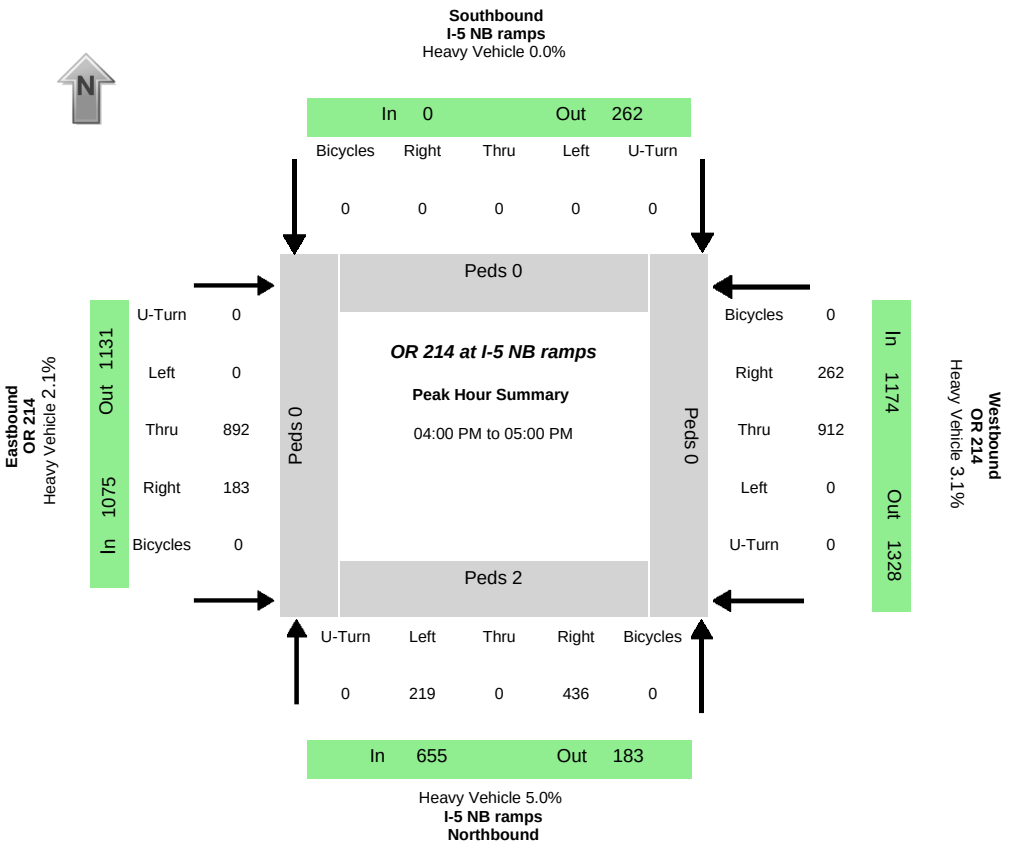
in Crosswalk				
NB	SB	EB	WB	**Sum**
0	1	3	0	4

All Vehicle Volumes

	Northbound Evergreen Rd				Southbound Evergreen Rd				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	29	4	18	0	0	2	3	0	5	65	5	0	22	49	0	1		
04:05:00 PM	39	3	20	0	2	3	6	0	7	78	7	4	10	60	0	2		
04:10:00 PM	22	1	16	0	0	5	7	0	8	57	15	4	15	57	2	1	654	
04:15:00 PM	27	1	15	0	1	4	5	0	4	36	12	3	7	57	0	0	623	
04:20:00 PM	34	3	13	0	3	1	5	0	13	63	7	2	20	65	1	1	613	
04:25:00 PM	34	2	19	0	2	1	9	0	8	73	10	4	16	61	0	0	642	
04:30:00 PM	31	1	19	0	3	1	3	0	7	84	9	2	20	69	3	1	723	
04:35:00 PM	24	0	13	0	4	1	5	0	9	65	9	4	11	70	1	2	710	
04:40:00 PM	28	1	18	0	0	4	4	0	6	71	15	2	13	52	0	0	685	
04:45:00 PM	32	3	15	0	0	2	2	0	5	45	12	1	15	57	1	1	623	
04:50:00 PM	27	3	16	0	1	5	3	0	5	68	14	0	19	63	0	2	631	
04:55:00 PM	25	2	12	0	0	1	4	0	5	68	7	2	19	71	3	4	640	2621
05:00:00 PM	35	5	20	0	1	4	4	0	4	61	10	4	13	69	1	0	680	2649
05:05:00 PM	23	5	13	0	2	1	5	0	2	58	7	4	11	90	2	0	677	2631
05:10:00 PM	27	1	18	0	0	5	2	0	4	65	11	1	18	67	1	1	675	2642
05:15:00 PM	20	2	15	0	2	1	10	0	2	67	12	4	14	59	1	1	654	2680
05:20:00 PM	26	7	18	0	2	1	1	0	5	84	15	2	17	65	1	1	676	2694
05:25:00 PM	31	5	10	0	0	2	4	0	4	78	12	3	17	66	0	1	688	2688
05:30:00 PM	24	1	9	0	3	2	6	0	6	59	6	5	8	63	2	0	672	2629
05:35:00 PM	20	3	20	0	2	2	3	0	6	68	8	1	11	58	1	2	632	2616
05:40:00 PM	31	1	10	0	4	3	9	0	6	55	5	4	16	44	3	0	590	2593
05:45:00 PM	23	2	10	0	2	2	1	0	6	61	7	1	9	55	0	1	576	2582
05:50:00 PM	22	0	11	0	2	1	1	0	7	69	12	5	10	57	2	1	571	2556
05:55:00 PM	36	0	17	0	3	3	2	0	7	80	23	1	12	42	2	0	608	2561

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*I-5 NB ramps*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.87928
Start Date	Wednesday, June 30, 2021
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:05:00 PM
PHF (15-Min Int)	0.94



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
219	0	436	0	0	0	0	0	0	892	183	0	0	912	262	0	655	0	1075	1174	183	262	1131	1328

Percent Heavy Vehicles

4.6%	0.0%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	6.0%	0.0%	0.0%	2.4%	5.3%	0.0%	5.0%	0.0%	2.1%	3.1%	6.0%	5.3%	2.8%	2.6%

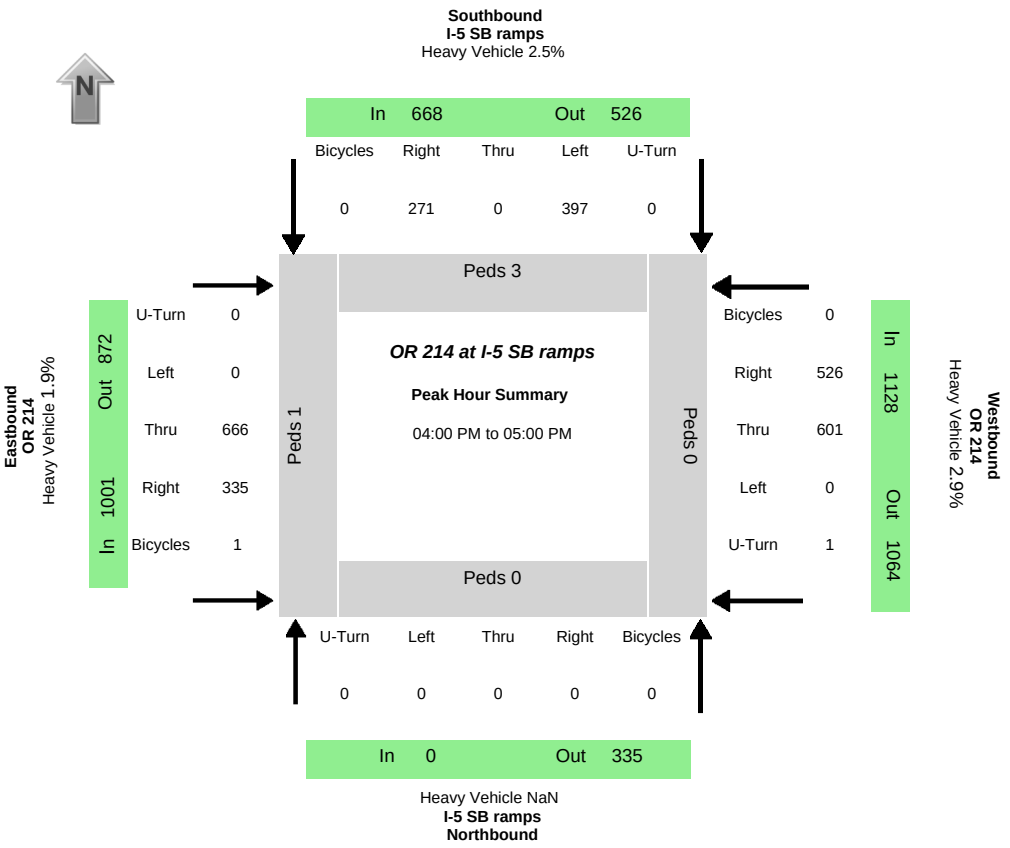
PHV- Bicycles																	PHV - Pedestrians				
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**	NB	SB	EB	WB	**Sum**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2

All Vehicle Volumes

	Northbound I-5 NB ramps				Southbound I-5 NB ramps				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	23	0	35	0	0	0	0	0	0	87	19	0	0	54	22	0		
04:05:00 PM	21	0	33	0	0	0	0	0	0	84	21	0	0	95	18	0		
04:10:00 PM	18	0	38	0	0	0	0	0	0	73	19	0	0	78	31	0	769	
04:15:00 PM	8	0	48	0	0	0	0	0	0	73	19	0	0	72	21	0	770	
04:20:00 PM	25	0	30	0	0	0	0	0	0	77	15	0	0	83	26	0	754	
04:25:00 PM	15	0	36	0	0	0	0	0	0	66	13	0	0	63	20	0	710	
04:30:00 PM	18	0	33	0	0	0	0	0	0	76	15	0	0	88	22	0	721	
04:35:00 PM	15	0	26	0	0	0	0	0	0	63	15	0	0	77	14	0	675	
04:40:00 PM	14	0	38	0	0	0	0	0	0	74	15	0	0	84	25	0	712	
04:45:00 PM	22	0	35	0	0	0	0	0	0	64	12	0	0	67	17	0	677	
04:50:00 PM	19	0	46	0	0	0	0	0	0	77	9	0	0	84	26	0	728	
04:55:00 PM	21	0	38	0	0	0	0	0	0	78	11	0	0	67	20	0	713	2904
05:00:00 PM	20	0	39	0	0	0	0	0	0	61	15	0	0	64	21	0	716	2884
05:05:00 PM	16	0	28	0	0	0	0	0	0	70	8	0	0	81	21	0	679	2836
05:10:00 PM	22	0	21	0	0	0	0	0	0	78	12	0	0	73	20	0	670	2805
05:15:00 PM	13	0	27	0	0	0	0	0	0	88	14	0	0	84	16	0	692	2806
05:20:00 PM	22	0	22	0	0	0	0	0	0	65	13	0	0	87	22	0	699	2781
05:25:00 PM	13	0	36	0	0	0	0	0	0	69	18	0	0	80	20	0	709	2804
05:30:00 PM	18	0	45	0	0	0	0	0	0	75	15	0	0	64	15	0	699	2784
05:35:00 PM	26	0	31	0	0	0	0	0	0	64	11	0	0	90	23	0	713	2819
05:40:00 PM	15	0	25	0	0	0	0	0	0	66	10	0	0	79	14	0	686	2778
05:45:00 PM	11	0	29	0	0	0	0	0	0	71	15	0	0	58	22	0	660	2767
05:50:00 PM	11	0	34	0	0	0	0	0	0	74	7	0	0	48	15	0	604	2695
05:55:00 PM	13	0	36	0	0	0	0	0	0	60	10	0	0	58	22	0	594	2659

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*I-5 SB ramps*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.882542
Start Date	Wednesday, June 30, 2021
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:00:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	397	0	271	0	0	666	335	0	0	601	526	1	0	668	1001	1128	335	526	872	1064

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	2.6%	0.0%	0.0%	2.0%	1.8%	0.0%	0.0%	2.3%	3.6%	0.0%	NaN	2.5%	1.9%	2.9%	1.8%	3.6%	2.4%	2.2%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

PHV - Pedestrians

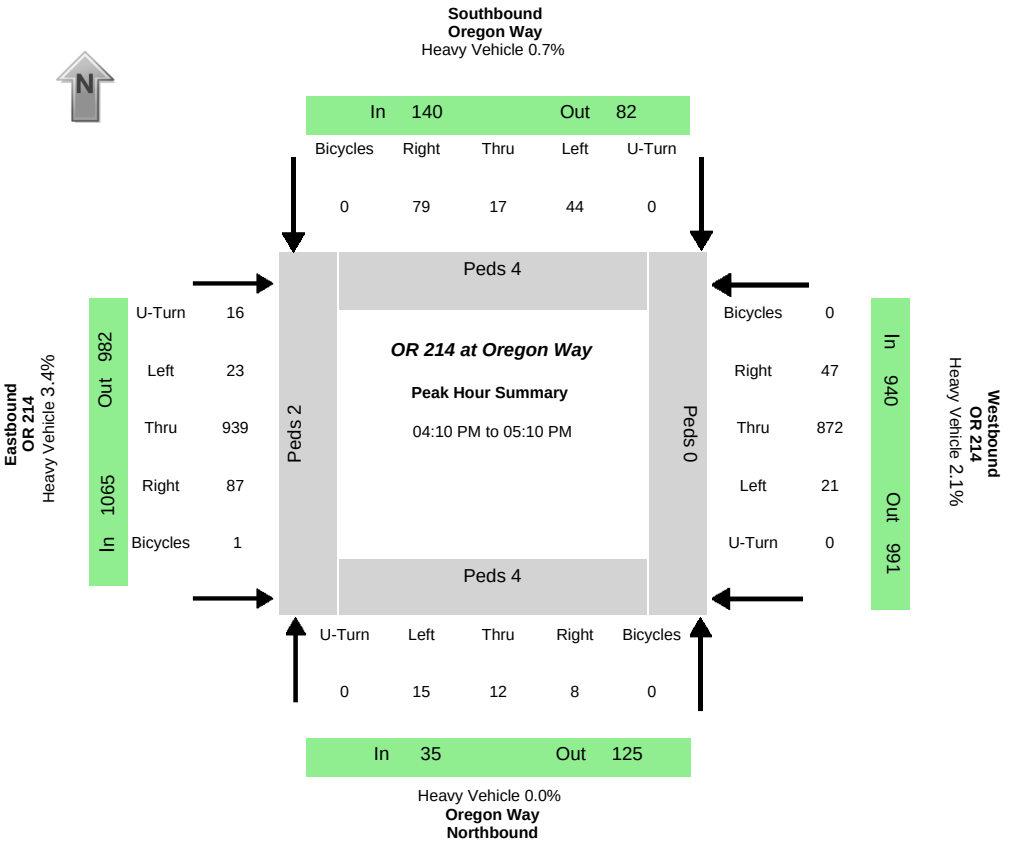
in Crosswalk				
NB	SB	EB	WB	**Sum**
0	3	1	0	4

All Vehicle Volumes

	Northbound I-5 SB ramps				Southbound I-5 SB ramps				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	0	0	0	41	0	30	0	0	67	26	0	0	50	39	1		
04:05:00 PM	0	0	0	0	45	0	23	0	0	58	35	0	0	60	43	0		
04:10:00 PM	0	0	0	0	30	0	21	0	0	58	29	0	0	43	59	0	758	
04:15:00 PM	0	0	0	0	29	0	20	0	0	62	22	0	0	50	38	0	725	
04:20:00 PM	0	0	0	0	30	0	22	0	0	52	28	0	0	58	32	0	683	
04:25:00 PM	0	0	0	0	34	0	19	0	0	57	30	0	0	50	42	0	675	
04:30:00 PM	0	0	0	0	25	0	23	0	0	54	34	0	0	44	51	0	685	
04:35:00 PM	0	0	0	0	29	0	18	0	0	52	22	0	0	56	43	0	683	
04:40:00 PM	0	0	0	0	37	0	19	0	0	44	31	0	0	56	48	0	686	
04:45:00 PM	0	0	0	0	29	0	31	0	0	65	28	0	0	38	46	0	692	
04:50:00 PM	0	0	0	0	29	0	20	0	0	51	22	0	0	52	43	0	689	
04:55:00 PM	0	0	0	0	39	0	25	0	0	46	28	0	0	44	42	0	678	2797
05:00:00 PM	0	0	0	0	32	0	20	0	0	47	22	0	0	47	41	0	650	2752
05:05:00 PM	0	0	0	0	32	0	18	0	0	49	37	0	0	50	43	0	662	2717
05:10:00 PM	0	0	0	0	46	0	20	0	0	61	33	0	0	57	42	0	697	2736
05:15:00 PM	0	0	0	0	27	0	23	0	0	53	28	0	0	41	49	0	709	2736
05:20:00 PM	0	0	0	0	46	0	18	0	0	55	24	0	0	53	52	0	728	2762
05:25:00 PM	0	0	0	0	32	0	18	0	0	46	29	0	0	44	43	0	681	2742
05:30:00 PM	0	0	0	0	32	0	19	0	0	50	30	0	0	41	43	0	675	2726
05:35:00 PM	0	0	0	0	38	0	26	0	0	35	21	0	0	61	42	0	650	2729
05:40:00 PM	0	0	0	0	23	0	17	0	0	57	29	0	0	61	33	0	658	2714
05:45:00 PM	0	0	0	0	36	0	16	0	0	41	30	0	0	38	27	0	631	2665
05:50:00 PM	0	0	0	0	32	0	32	0	0	42	34	0	0	33	19	0	600	2640
05:55:00 PM	0	0	0	0	28	0	15	0	0	45	17	0	0	55	20	0	560	2596

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Oregon Way*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.150928 - -122.873341
Start Date	Wednesday, June 30, 2021
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:10:00 PM
Peak 15 Min Start	04:10:00 PM
PHF (15-Min Int)	0.96



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
15	12	8	0	44	17	79	0	23	939	87	16	21	872	47	0	35	140	1065	940	125	82	982	991

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	3.7%	1.1%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.7%	3.4%	2.1%	0.8%	0.0%	2.1%	3.5%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

PHV - Pedestrians

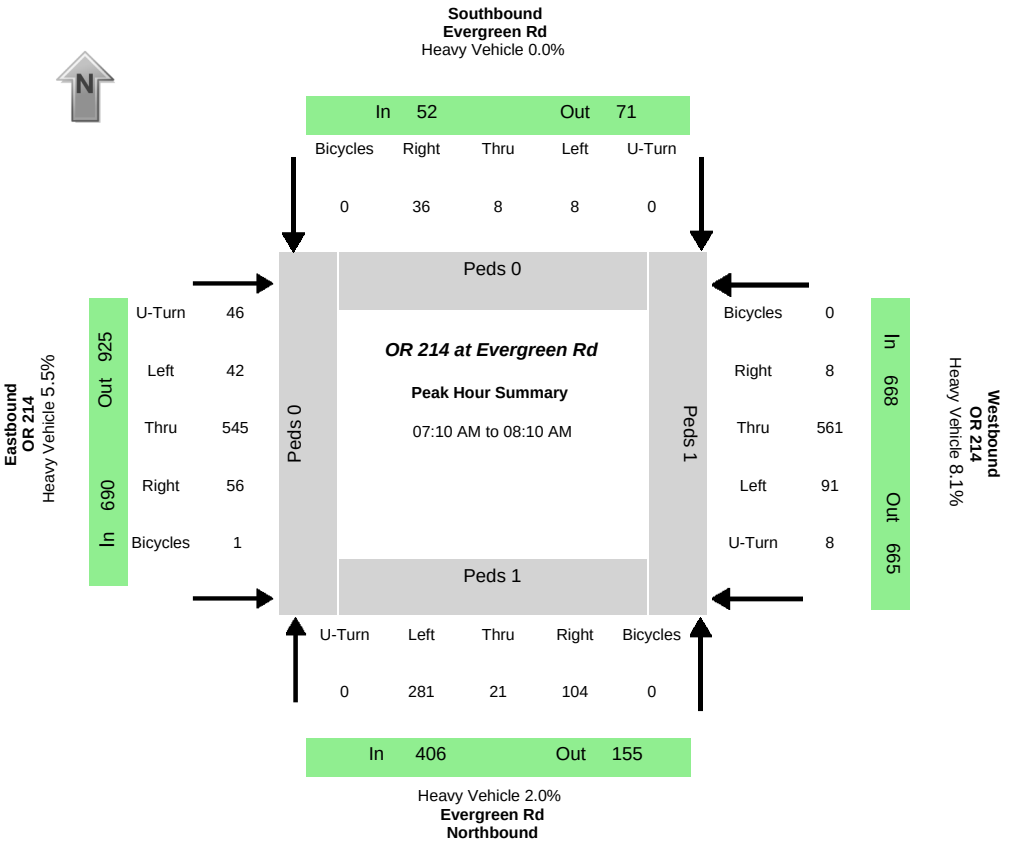
in Crosswalk				
NB	SB	EB	WB	Sum
4	4	2	0	10

All Vehicle Volumes

	Northbound Oregon Way				Southbound Oregon Way				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	2	0	2	0	4	1	7	0	2	70	7	0	0	60	5	0		
04:05:00 PM	3	1	0	0	8	2	3	0	1	69	9	1	3	78	0	0		
04:10:00 PM	1	1	0	0	2	4	7	0	1	99	4	1	4	71	6	0	539	
04:15:00 PM	2	0	1	0	4	0	3	0	4	82	12	1	0	77	2	0	567	
04:20:00 PM	1	1	0	0	3	1	7	0	2	81	4	1	1	71	5	0	567	
04:25:00 PM	0	2	1	0	6	1	12	0	5	65	11	4	6	64	4	0	547	
04:30:00 PM	3	0	0	0	2	1	4	0	0	69	11	0	0	76	2	0	527	
04:35:00 PM	3	4	0	0	4	1	8	0	1	62	3	1	1	85	2	0	524	
04:40:00 PM	1	0	0	0	3	1	9	0	3	92	5	3	3	70	3	0	536	
04:45:00 PM	1	2	2	0	4	1	8	0	1	72	6	0	1	77	2	0	545	
04:50:00 PM	0	0	1	0	4	2	6	0	1	89	3	1	1	79	6	0	563	
04:55:00 PM	1	1	1	0	5	2	5	0	1	77	6	1	0	56	6	0	532	2154
05:00:00 PM	0	0	2	0	4	0	5	0	2	71	9	2	3	69	6	0	528	2167
05:05:00 PM	2	1	0	0	3	3	5	0	2	80	13	1	1	77	3	0	526	2180
05:10:00 PM	1	0	0	0	5	1	4	0	3	67	7	4	1	69	4	0	530	2145
05:15:00 PM	0	1	0	0	4	2	8	0	0	78	7	1	1	70	3	0	532	2132
05:20:00 PM	1	0	0	0	2	4	3	0	3	77	11	1	2	69	3	1	518	2131
05:25:00 PM	2	0	0	0	1	0	5	0	0	72	10	1	3	68	4	0	518	2116
05:30:00 PM	0	1	0	0	2	1	8	0	1	72	11	0	1	77	4	0	521	2126
05:35:00 PM	1	1	0	0	4	2	12	0	1	74	2	2	0	72	2	0	517	2124
05:40:00 PM	0	1	0	0	5	1	3	0	0	71	9	0	2	77	5	0	525	2105
05:45:00 PM	0	1	1	0	3	0	5	0	1	83	4	1	0	52	1	0	499	2080
05:50:00 PM	1	2	0	0	3	1	4	0	2	68	8	1	0	48	2	0	466	2027
05:55:00 PM	3	2	0	0	5	2	5	0	2	68	9	0	2	56	6	0	452	2025

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Evergreen Rd*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.150989 - -122.875784
Start Date	Wednesday, June 30, 2021
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.93



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
281	21	104	0	8	8	36	0	42	545	56	47	91	561	8	8	406	52	690	668	155	71	925	665

Percent Heavy Vehicles

2.5%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	6.2%	3.6%	2.1%	2.2%	9.3%	0.0%	0.0%	2.0%	0.0%	5.5%	8.1%	2.6%	1.4%	6.5%	5.3%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1

PHV - Pedestrians

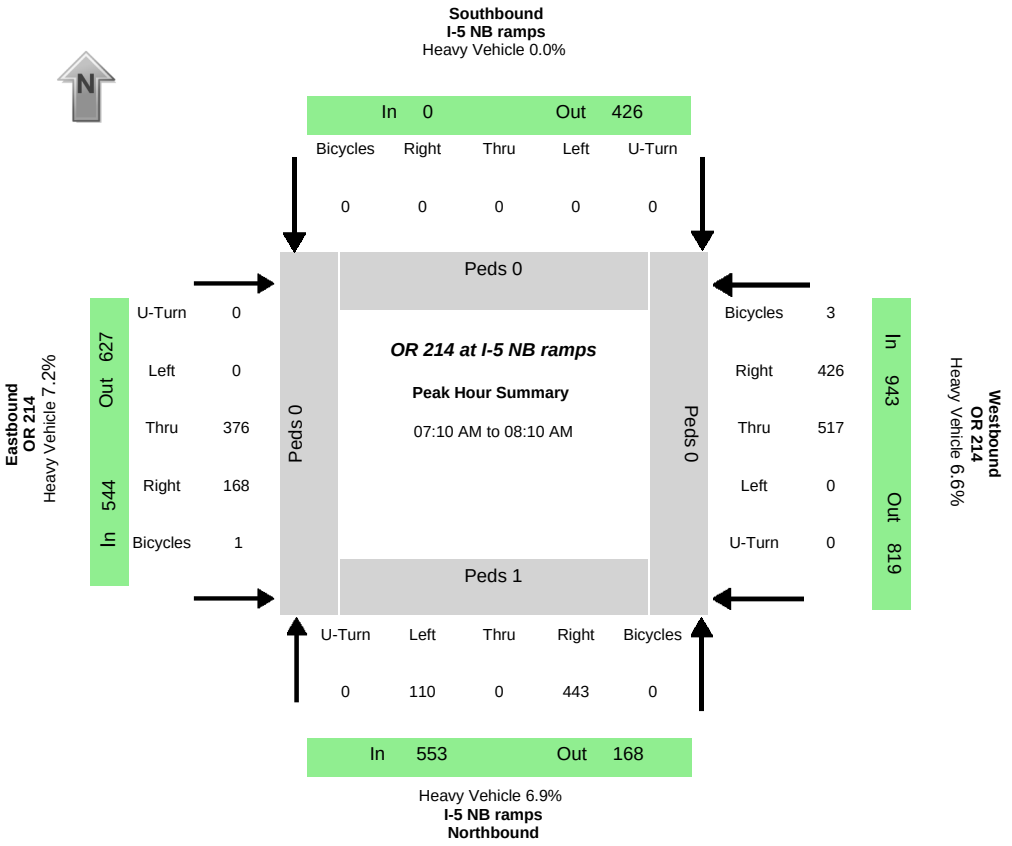
in Crosswalk				
NB	SB	EB	WB	Sum
1	0	0	1	2

All Vehicle Volumes

	Northbound Evergreen Rd				Southbound Evergreen Rd				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	17	0	8	0	0	1	3	0	2	29	1	3	5	52	2	0		
07:05:00 AM	24	2	9	0	0	0	0	0	3	39	1	5	6	38	1	0		
07:10:00 AM	16	1	11	0	0	0	3	0	2	34	3	2	6	45	1	0	375	
07:15:00 AM	27	1	7	0	1	0	3	0	2	39	6	5	2	44	0	0	389	
07:20:00 AM	21	0	7	0	1	3	3	0	1	49	3	3	4	59	0	2	417	
07:25:00 AM	29	2	8	0	0	0	1	0	3	49	6	7	8	53	2	0	461	
07:30:00 AM	29	1	8	0	1	1	2	0	3	55	3	9	5	46	0	2	489	
07:35:00 AM	24	1	7	0	1	0	2	0	4	44	3	1	6	58	0	1	485	
07:40:00 AM	25	2	15	0	0	1	2	0	5	45	4	3	8	51	1	1	480	
07:45:00 AM	24	2	11	0	0	0	1	0	4	55	13	2	13	41	0	0	481	
07:50:00 AM	28	2	10	0	1	1	1	0	6	38	2	7	10	33	1	1	470	
07:55:00 AM	24	0	7	0	1	1	3	0	5	38	7	3	5	37	2	0	440	1756
08:00:00 AM	17	4	8	0	1	1	8	0	3	47	2	2	10	47	0	0	424	1783
08:05:00 AM	17	5	5	0	1	0	7	0	4	52	4	3	14	47	1	1	444	1816
08:10:00 AM	16	0	6	0	1	0	9	0	2	36	6	4	5	37	1	0	434	1815
08:15:00 AM	13	0	6	0	4	2	2	0	5	42	3	1	5	37	0	1	405	1799
08:20:00 AM	21	2	9	0	1	0	2	0	7	40	5	0	10	53	0	0	394	1793
08:25:00 AM	15	1	11	0	1	1	2	0	3	28	5	4	10	33	2	0	387	1741
08:30:00 AM	19	0	4	0	2	3	5	0	4	51	4	2	6	44	0	1	411	1721
08:35:00 AM	19	2	7	0	2	0	2	0	4	44	2	1	10	28	0	1	383	1691
08:40:00 AM	22	1	3	1	1	1	2	0	3	40	2	5	4	41	1	1	395	1656
08:45:00 AM	14	1	13	0	2	1	3	0	5	32	3	2	7	35	2	1	371	1611
08:50:00 AM	15	1	10	0	0	2	3	0	2	45	4	4	8	44	1	0	388	1609
08:55:00 AM	13	0	8	0	1	1	2	0	6	43	7	2	12	31	1	0	387	1603

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*I-5 NB ramps*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.87928
Start Date	Wednesday, June 30, 2021
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:30:00 AM
PHF (15-Min Int)	0.89



Peak-Hour Volumes (PHV)																								
Northbound				**Southbound**				**Eastbound**				**Westbound**				**Entering**				**Leaving**			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
110	0	443	0	0	0	0	0	0	376	168	0	0	517	426	0	553	0	544	943	168	426	627	819
Percent Heavy Vehicles																							
8.2%	0.0%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	10.1%	0.0%	0.0%	8.5%	4.2%	0.0%	6.9%	0.0%	7.2%	6.6%	10.1%	4.2%	8.5%	6.2%

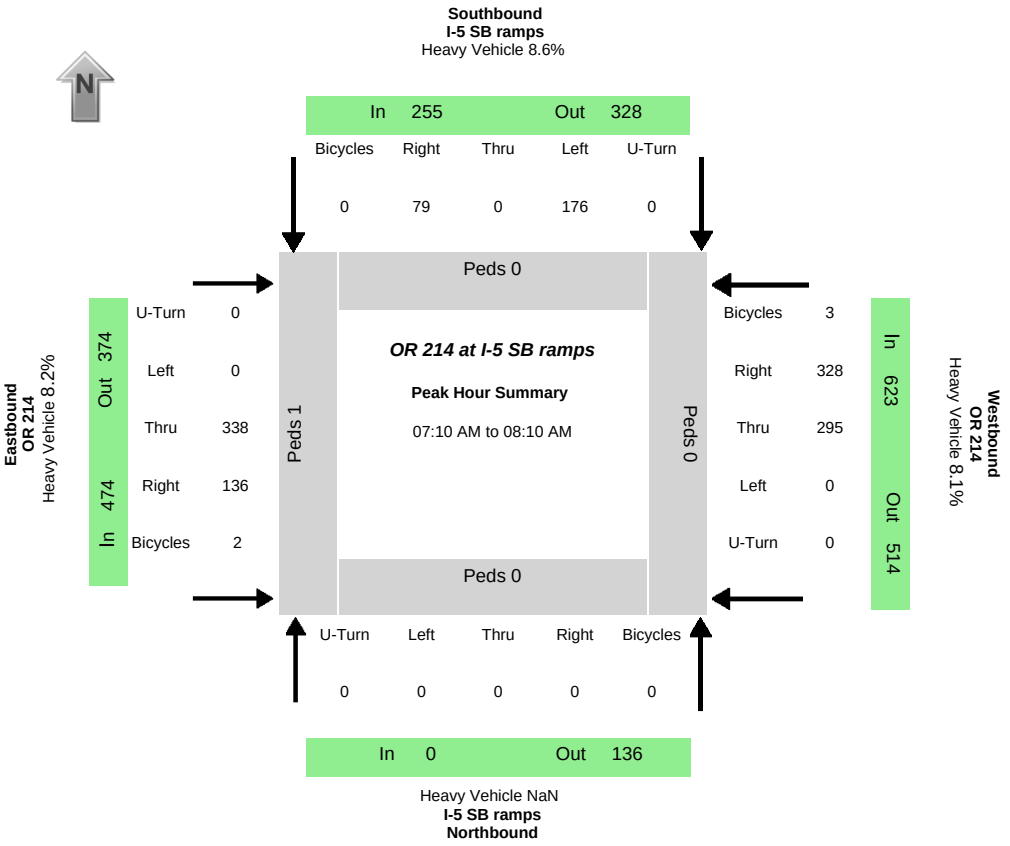
PHV- Bicycles																	PHV - Pedestrians					
Northbound				**Southbound**				**Eastbound**				**Westbound**					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**	NB	SB	EB	WB	**Sum**
0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	1	0	0	0	1

All Vehicle Volumes

	Northbound I-5 NB ramps				**Southbound** I-5 NB ramps				**Eastbound** OR 214				**Westbound** OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	3	0	31	0	0	0	0	0	0	32	5	0	0	36	31	0		
07:05:00 AM	9	0	32	0	0	0	0	0	0	24	9	0	0	30	39	0		
07:10:00 AM	6	0	26	0	0	0	0	0	0	36	15	0	0	28	51	0	443	
07:15:00 AM	7	0	27	0	0	0	0	0	0	32	10	0	0	46	42	0	469	
07:20:00 AM	9	0	31	0	0	0	0	0	0	23	6	0	0	36	43	0	474	
07:25:00 AM	8	0	43	0	0	0	0	0	0	27	7	0	0	36	35	0	468	
07:30:00 AM	9	0	35	0	0	0	0	0	0	21	17	0	0	55	35	0	476	
07:35:00 AM	5	0	39	0	0	0	0	0	0	31	23	0	0	52	56	0	534	
07:40:00 AM	11	0	45	0	0	0	0	0	0	34	27	0	0	42	37	0	574	
07:45:00 AM	16	0	27	0	0	0	0	0	0	32	18	0	0	47	22	0	564	
07:50:00 AM	15	0	55	0	0	0	0	0	0	42	9	0	0	37	23	0	539	
07:55:00 AM	9	0	42	0	0	0	0	0	0	40	14	0	0	41	20	0	509	1994
08:00:00 AM	10	0	28	0	0	0	0	0	0	28	8	0	0	56	28	0	505	2014
08:05:00 AM	5	0	45	0	0	0	0	0	0	30	14	0	0	41	34	0	493	2040
08:10:00 AM	7	0	29	0	0	0	0	0	0	23	6	0	0	30	29	0	451	2002
08:15:00 AM	4	0	19	0	0	0	0	0	0	25	12	0	0	38	31	0	422	1967
08:20:00 AM	8	0	31	0	0	0	0	0	0	29	9	0	0	33	26	0	389	1955
08:25:00 AM	7	0	31	0	0	0	0	0	0	24	8	0	0	30	32	0	397	1931
08:30:00 AM	5	0	27	0	0	0	0	0	0	30	9	0	0	35	28	0	402	1893
08:35:00 AM	8	0	16	0	0	0	0	0	0	44	10	0	0	46	34	0	424	1845
08:40:00 AM	8	0	26	0	0	0	0	0	0	36	11	0	0	42	16	0	431	1788
08:45:00 AM	9	0	18	0	0	0	0	0	0	29	6	0	0	43	29	0	431	1760
08:50:00 AM	8	0	36	0	0	0	0	0	0	35	8	0	0	37	19	0	416	1722
08:55:00 AM	9	0	26	0	0	0	0	0	0	29	5	0	0	48	23	0	417	1696

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*I-5 SB ramps*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.882542
Start Date	Wednesday, June 30, 2021
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:30:00 AM
PHF (15-Min Int)	0.85



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	176	0	79	0	0	338	136	0	0	295	328	0	0	255	474	623	136	328	374	514

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	7.4%	0.0%	11.4%	0.0%	0.0%	7.1%	11.0%	0.0%	0.0%	3.7%	12.2%	0.0%	NaN	8.6%	8.2%	8.2%	11.0%	12.2%	5.3%	7.2%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum
0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5

PHV - Pedestrians

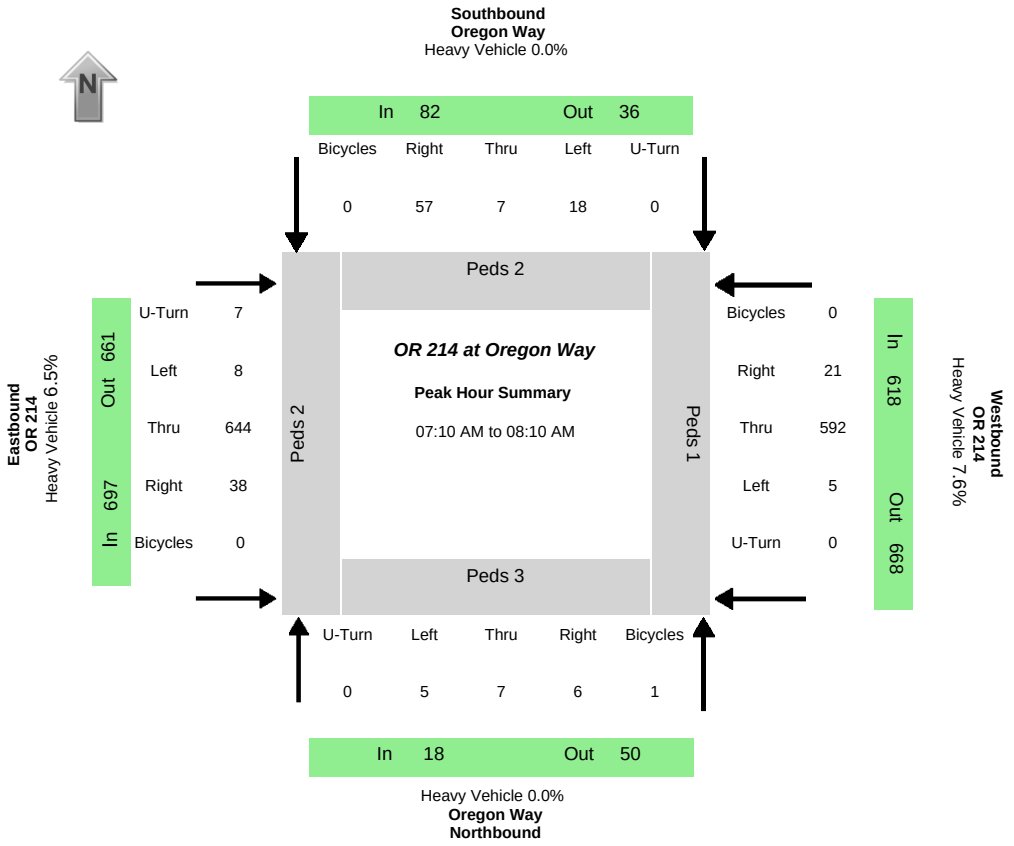
in Crosswalk				
NB	SB	EB	WB	Sum
0	0	1	0	1

All Vehicle Volumes

	Northbound I-5 SB ramps				Southbound I-5 SB ramps				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	0	0	0	0	16	0	5	0	0	25	10	0	0	17	17	0		
07:05:00 AM	0	0	0	0	12	0	11	0	0	25	7	0	0	17	29	0		
07:10:00 AM	0	0	0	0	13	0	6	0	0	36	8	0	0	14	21	0	289	
07:15:00 AM	0	0	0	0	18	0	4	0	0	24	12	0	0	25	26	0	308	
07:20:00 AM	0	0	0	0	11	0	3	0	0	20	3	0	0	24	24	0	292	
07:25:00 AM	0	0	0	0	18	0	9	0	0	17	10	0	0	25	24	0	297	
07:30:00 AM	0	0	0	0	10	0	7	0	0	28	16	0	0	26	41	0	316	
07:35:00 AM	0	0	0	0	10	0	13	0	0	42	17	0	0	18	31	0	362	
07:40:00 AM	0	0	0	0	22	0	2	0	0	38	22	0	0	25	32	0	400	
07:45:00 AM	0	0	0	0	12	0	7	0	0	23	5	0	0	41	24	0	384	
07:50:00 AM	0	0	0	0	22	0	12	0	0	33	8	0	0	31	20	0	379	
07:55:00 AM	0	0	0	0	14	0	7	0	0	25	8	0	0	24	20	0	336	1322
08:00:00 AM	0	0	0	0	14	0	3	0	0	25	14	0	0	28	34	0	342	1350
08:05:00 AM	0	0	0	0	12	0	6	0	0	27	13	0	0	14	31	0	319	1352
08:10:00 AM	0	0	0	0	10	0	9	0	0	22	4	0	0	16	22	0	304	1337
08:15:00 AM	0	0	0	0	16	0	10	0	0	19	5	0	0	15	27	0	278	1320
08:20:00 AM	0	0	0	0	18	0	5	0	0	23	9	0	0	27	15	0	272	1332
08:25:00 AM	0	0	0	0	13	0	15	0	0	26	16	0	0	19	16	0	294	1334
08:30:00 AM	0	0	0	0	17	0	6	0	0	25	6	0	0	20	27	0	303	1307
08:35:00 AM	0	0	0	0	29	0	8	0	0	27	7	0	0	22	26	0	325	1295
08:40:00 AM	0	0	0	0	18	0	13	0	0	24	11	0	0	25	23	0	334	1268
08:45:00 AM	0	0	0	0	9	0	10	0	0	29	9	0	0	30	18	0	338	1261
08:50:00 AM	0	0	0	0	16	0	10	0	0	26	12	0	0	29	16	0	328	1244
08:55:00 AM	0	0	0	0	14	0	10	0	0	20	3	0	0	27	31	0	319	1251

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Oregon Way*
E/W street	*OR 214*
City, State	Woodburn OR
Site Notes	
Location	45.150928 - -122.873341
Start Date	Wednesday, June 30, 2021
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																								
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB	
5	7	6	0	18	7	57	0	8	644	38	7	5	592	21	0	18	82	697	618	50	36	661	668	
Percent Heavy Vehicles																								
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	0.0%	0.0%	0.0%	7.9%	0.0%	0.0%	0.0%	0.0%	6.5%	7.6%	0.0%	0.0%	7.1%	6.7%	

PHV- Bicycles																	PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	2	1	8

All Vehicle Volumes

	Northbound Oregon Way				Southbound Oregon Way				Eastbound OR 214				Westbound OR 214				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	0	0	0	0	0	1	5	0	1	47	2	0	0	39	1	0		
07:05:00 AM	0	0	0	0	1	0	7	0	0	43	1	0	0	62	1	0		
07:10:00 AM	1	0	1	0	1	0	3	0	1	46	0	0	0	52	2	0	318	
07:15:00 AM	2	0	1	0	0	0	2	0	0	50	0	1	0	52	0	0	330	
07:20:00 AM	0	0	2	0	0	0	4	0	1	47	2	1	0	49	0	0	321	
07:25:00 AM	0	0	0	0	2	1	7	0	0	55	3	0	2	52	1	0	337	
07:30:00 AM	0	0	0	0	2	0	6	0	0	38	4	2	0	55	2	0	338	
07:35:00 AM	1	1	0	0	1	0	4	0	1	58	4	0	0	59	3	0	364	
07:40:00 AM	0	1	1	0	2	2	7	0	1	57	4	0	0	49	2	0	367	
07:45:00 AM	0	1	0	0	1	2	3	0	1	57	7	0	0	52	2	0	384	
07:50:00 AM	1	3	0	0	3	0	2	0	0	75	1	0	0	43	3	0	383	
07:55:00 AM	0	0	0	0	2	1	7	0	0	60	5	3	0	41	3	0	379	1401
08:00:00 AM	0	0	1	0	2	0	6	0	1	43	5	0	1	47	2	0	361	1413
08:05:00 AM	0	1	0	0	2	1	6	0	2	58	3	0	2	41	1	0	347	1415
08:10:00 AM	2	0	0	0	2	2	3	0	3	42	2	0	2	44	3	0	330	1413
08:15:00 AM	1	0	0	0	3	0	4	0	0	38	6	1	1	47	1	0	324	1407
08:20:00 AM	1	3	1	0	0	0	7	0	2	37	1	0	0	38	0	0	297	1391
08:25:00 AM	0	1	0	0	2	2	6	0	3	41	5	1	1	43	2	0	299	1375
08:30:00 AM	0	2	1	0	5	1	8	0	0	40	4	1	0	51	0	0	310	1379
08:35:00 AM	0	0	0	0	2	0	6	0	1	47	3	1	1	46	0	0	327	1354
08:40:00 AM	0	2	2	0	1	1	7	0	0	47	2	1	1	31	1	0	316	1324
08:45:00 AM	1	1	0	0	0	1	2	0	1	30	2	1	1	48	1	0	292	1287
08:50:00 AM	0	4	1	0	2	0	3	0	3	57	2	0	0	39	3	0	299	1270
08:55:00 AM	1	1	1	0	1	1	4	0	0	51	1	1	1	41	0	0	307	1252

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

1 - 4 of 31 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M J N V	S I H L	C N	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
04939	N	N	N	N	N	N	N	12/23/2018	MARION	1 11			STRGHT		N	Y	RAIN	FIX OBJ	01	NONE 0	STRGHT										120	16
STATE				SU				WOODBURN	MN 0	PACIFIC HY I-5		S	(DIVMD)	UNKNOWN	N	WET	FIX		PRVTE	N -S								000	120	00
Y				2P				WOODBURN UA	271.60	WB EXTO I-5 SB C4		01			N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	28	M	OTH-Y		081	025		16
N				45 8 53.4				-122 53 2.15		000100100S00			(06)														N-RES					
03022	N	N	N	N	N	N	N	08/09/2019	MARION	1 11			STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											07
STATE				FR				WOODBURN	MN 0	PACIFIC HY I-5		S	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	N -S								000		00
N				5P				WOODBURN UA	271.64	WB EXTO I-5 SB C4		03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	26	F	OR-Y		043,042	000		07
N				45 8 55.09				-122 53 .45		000100100S00			(06)														OR>25					
																			02	NONE 0	STRGHT											
																				PRVTE	N -S								000		00
																				PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		000	000		00
																											OR<25					
																			02	NONE 0	STRGHT											
																				PRVTE	N -S								000		00
																				PSNGR CAR		02	PSNG	INJB	19	M			000	000		00
03891	N	N	N	N				08/08/2018	MARION	1 11			STRGHT		N	N	CLR	S-STRGHT	01	NONE 9	STRGHT											27
STATE				WE				WOODBURN	MN 0	PACIFIC HY I-5		N	(DIVMD)	UNKNOWN	N	DRY	SS-O		N/A	N -S								000		00
N				9P				WOODBURN UA	271.81	WB EXTO I-5 SB C4		05			N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N				45 9 2.23				-122 52 53.09		000100100S00			(06)														UNK					
																			02	NONE 9	STRGHT											
																				N/A	N -S								000		00
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																											UNK					
04298	Y	N	N	N	N	N		11/12/2018	MARION	1 11			STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											30,29
STATE				MO				WOODBURN	MN 0	PACIFIC HY I-5		N	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	N -S								022		00
N				5P				WOODBURN UA	271.83	WB EXTO I-5 SB C4		03			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	63	M	OR-Y		050,042	022		30,29
N				45 9 3.07				-122 52 52.23		000100100S00			(06)														OR<25					
																			02	NONE 0	STRGHT											
																				PRVTE	N -S								000		00
																				PSNGR CAR		01	DRVR	NONE	25	M	OR-Y		000	000		00
																											OR<25					
																			03	NONE 0	STRGHT											
																				PRVTE	N -S								007		00
																				PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		045	022		00
																											OR>25					
04312	N	N	N	N				11/12/2018	MARION	1 11			STRGHT		N	N	UNK	S-STRGHT	01	NONE 9	STRGHT											13
NO RPT				MO				WOODBURN	MN 0	PACIFIC HY I-5		N	(DIVMD)	UNKNOWN	N	DRY	SS-O		N/A	N -S								000		00
N				7P				WOODBURN UA	271.83	WB EXTO I-5 SB C4		03			N	DLIT	PDO		SEMI TOW		01	DRVR	NONE	00	Unk	UNK		000	000		00
N				45 9 3.07				-122 52 52.24		000100100S00			(06)														UNK					

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	S P / E / D	A	L	G	C	U	N	S	I	M J / H / V	S / C / L	W / O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																								02	NONE 9 N/A PSNGR CAR	STRGHT N -S	01	DRVR	NONE	00	Unk	UNK UNK		000	000		00 00
00656	N	N	N	N									02/20/2019	MARION	1	11		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										013	29
NONE													WE	WOODBURN	MN	0	PACIFIC HY I-5	N	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	N -S								000		00
N													8P	WOODBURN UA	271.84		WB EXTO I-5 SB C4	00			N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	20	M	OTH-Y		026	000		29
N													45 9 3.49	-122 52 51.81			000100100S00		(06)													N-RES					
																								02	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	NONE	24	M	OR-Y OR<25		000	011 022	013	00 00
																								03	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	INJC	53	F	OR-Y OR<25		000	011 000		00 00
01662	N	N	N	N	N	N	N						05/15/2018	MARION	1	11		STRGHT		N	Y	CLR	FIX OBJ	01	NONE 9	STRGHT										119	25
STATE													TU	WOODBURN	MN	0	PACIFIC HY I-5	N	(DIVMD)	UNKNOWN	N	DRY	FIX		N/A	N -S								000		00
Y													11A	WOODBURN UA	271.84		WB EXTO I-5 SB C4	07			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N													45 9 3.5	-122 52 51.83			000100100S00		(06)													UNK					
00584	Y	N	N	N	N	N	N						02/15/2019	MARION	1	11		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										013,043	30,29
STATE													FR	WOODBURN	MN	0	PACIFIC HY I-5	N	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	N -S								000	013	00
N													3P	WOODBURN UA	271.86		WB EXTO I-5 SB C4	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	43	M	OR-Y	050,026	000			30,29
N													45 9 4.33	-122 52 50.95			000100100S00		(06)													OR>25					
																								01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	02	PSNG	INJB	07	M			000	000 000	013	00 00
																								01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	03	PSNG	INJB	40	F			000	000 000	013	00 00
																								01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	04	PSNG	INJB	11	M			000	000 000	013	00 00
																								02	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	INJB	36	F	OR-Y OR<25		000	011 022	013,043	00 00
																								02	NONE 0 PRVTE PSNGR CAR	STOP N -S	02	PSNG	INJB	07	M			000	011 000	013,043	00 00

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	SPEED / ALCHL / LGHT / SCHL / VEHS / WKZN / HOUR / RAIL / TIME / LAT	DATE / DAY	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
												02	NONE 0 PRVTE PSNGR CAR	STOP N -S	03	PSNG	INJB	02	F			000	011 000	013,043	00 00
												02	NONE 0 PRVTE PSNGR CAR	STOP N -S	04	PSNG	INJB	05	M			000	011 000	013,043	00 00
												03	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	INJB	47	M	OTH-Y N-RES		000	011 000		00 00
												03	NONE 0 PRVTE PSNGR CAR	STOP N -S	02	PSNG	INJB	40	F			000	011 000		00 00
												03	NONE 0 PRVTE PSNGR CAR	STOP N -S	03	PSNG	INJB	12	M			000	011 000		00 00
												03	NONE 0 PRVTE PSNGR CAR	STOP N -S	04	PSNG	INJB	13	F			000	000 000		00 00
												04	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	01	DRVR	INJC	44	F	OR-Y OR<25		000	000 022		00 00
												05	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	INJC	43	F	OTH-Y N-RES		000	011 000		00 00
												05	NONE 0 PRVTE PSNGR CAR	STOP N -S	02	PSNG	INJC	44	M			000	011 000		00 00
01823 NONE N N	N N N N 5P 45 9 4.76	05/15/2019 WE -122 52 50.51	MARION WOODBURN WOODBURN UA	1 11 MN 0 271.87	WB EXTO I-5 SB C4 000100100S00	STRGHT N 04	(DIVMD) (06)	N UNKNOWN	N N	CLD WET DAY	S-STRGHT SS-O PDO	01	NONE 9 N/A PSNGR CAR	STRGHT N -S	01	DRVR	NONE	00	Unk	UNK UNK		000	000		13 00 00
												02	NONE 9 N/A PSNGR CAR	STRGHT N -S	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
02165 STATE N N	N N N N N N 2P 45 9 5.18	06/08/2019 SA -122 52 50.07	MARION WOODBURN WOODBURN UA	1 11 MN 0 271.88	WB EXTO I-5 SB C4 000100100S00	STRGHT N 04	(DIVMD) (06)	N UNKNOWN	N N	CLR DRY DAY	S-STRGHT SS-O INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	01	DRVR	NONE	46	M	OTH-Y N-RES	045	000	092 007 092 092		26 26 26

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

10 - 15 of 31 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R G S	J U N V	S I H L	C N	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A GE	S EX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																			01	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	02	PSNG	INJC	44	F			000	007 000	092	26 00
																			02	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	01	DRVR	NONE	51	M	OR-Y OR>25		000	000		00 00
04809 STATE N N	N	N	N	N	N	N	12/02/2019 MO 4P 45 9 6.02	MARION WOODBURN WOODBURN UA -122 52 49.23	1 MN 271.90	11 0 WB EXTO I-5 SB C4 000100100S00	PACIFIC HY I-5	STRGHT N 05 (06)	(DIVMD)	N UNKNOWN	N N	CLR DRY DAY	S-STRGHT SS-O PDO	01	NONE 9 N/A PSNGR CAR	STRGHT N -S	01	DRVR	NONE	00	Unk	UNK UNK		000	051 000		02 00 00
																			02	NONE 9 N/A SEMI TOW	STRGHT N -S	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
02124 STATE N N	Y	N	N	N	N	N	06/05/2019 WE 4P 45 9 6.44	MARION WOODBURN WOODBURN UA -122 52 48.78	1 MN 271.91	11 0 WB EXTO I-5 SB C4 000100100S00	PACIFIC HY I-5	STRGHT N 03 (06)	(DIVMD)	N UNKNOWN	N N	CLD DRY DAY	S-STRGHT REAR INJ	01	NONE 0 PRVTE MTRCYCLE	STRGHT N -S	01	DRVR	INJC	29	M	OR-Y OR<25	047,042	000	000 000	001	01,29 01,29
																			02	NONE 0 PRVTE PSNGR CAR	STRGHT N -S	01	DRVR	NONE	39	F	NONE OR<25		000	006 000		00 00
04316 NONE N N	N	N	N	N			11/11/2018 SU 4P 45 9 8.58	MARION WOODBURN WOODBURN UA -122 53 1.33	1 FR 271.78	17 0 ROBIN AVE 0001QC100S00	ARNEY RD	STRGHT E 04 (03)	(NONE)	N L-GRN-SIG	N N	CLR DRY DAY	S-1STOP REAR PDO	01	NONE 9 N/A PSNGR CAR	STRGHT E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		29 00 00
																			02	NONE 9 N/A PSNGR CAR	STOP E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	012 000		00 00
01554 NO RPT Y N	N	N	N	N			05/07/2018 MO 12A 45 9 8.67	MARION WOODBURN WOODBURN UA -122 52 53.39	1 FR 271.88	17 0 ROBIN AVE 0001QC100S00	ARNEY RD	CURVE E 06 (02)	(NONE)	N UNKNOWN	Y N	CLR DRY DLIT	FIX OBJ FIX PDO	01	NONE 9 N/A PSNGR CAR	STRGHT E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	040,053 000 000		27 00 00
04472 STATE Y N	N	N	N	N	N	N	11/09/2019 SA 8P 45 8 57.52	MARION WOODBURN WOODBURN UA -122 52 53.72	1 CN 271.74	11 0 1 NB EX HILLS-SILV C1 PACIFIC HY I-5 0001YM100S00		CURVE NE 05 (02)	(NONE)	N ONE-WAY	Y N	CLR DRY DARK	FIX OBJ FIX INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT SW-NE	01	DRVR	INJB	27	Unk	OR-Y N-RES	016,079,081	038	079,058 ,010 079,058 ,010		27 00 27

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	S P / E / D	A	L / G / C	D R / U / S	M J / N / V	S / H / L	W / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03895	Y	Y	N	N	N	N	N	10/10/2018	MARION	1	11	1	CURVE		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										079	33,01
STATE							WE	WOODBURN	CN 0	NB EX HILLS-SILV C1		S	(NONE)	UNKNOWN	N	DRY	FIX		PRVTE	S -N								000	079	00
Y							12A	WOODBURN UA	271.84	HILLSBORO-SILV HY		06			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	22	M	SUSP		051,047,081	000		33,01
N							45 8 59.65	-122 52 47.11		0001YM100S00			(02)													OR>25					
02603	N	N	N	N	N	N	07/11/2019	MARION	1	11	1	STRGHT		Y	N	CLR	S-STRGHT	01	NONE 0	STRGHT										013	32,07
STATE							TH	WOODBURN	CN 0	NB EX HILLS-SILV C1		SW	(NONE)	ONE-WAY	N	DRY	REAR		PRVTE	SW-NE								000		00
N							4P	WOODBURN UA	271.90	HILLSBORO-SILV HY		03			N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	19	F	OR-Y		043,042	000		07
N							45 9 2.33	-122 52 45.38		0001YM100S00			(01)													OR<25					
																			01	NONE 0	STRGHT										
																				PRVTE	SW-NE								000		00
																				PSNGR CAR		02	PSNG	INJB	19	F		000	000		00
																			02	NONE 0	STOP										
																				PRVTE	SW-NE								011	013	00
																				PSNGR CAR		01	DRVR	INJC	54	M	OR-Y		052	022		32
																											OR<25					
																			03	NONE 0	STOP										
																				PRVTE	SW-NE								011		00
																				PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		045	000		00
																											OR<25					
02626	N	N	N	N			07/13/2019	MARION	1	11	1	STRGHT		Y	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE							SA	WOODBURN	CN 0	NB EX HILLS-SILV C1		SW	(NONE)	R-TURN PRO	N	DRY	REAR		PRVTE	SW-NE								000		00
N							1P	WOODBURN UA	271.91	HILLSBORO-SILV HY		03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	29	M	OR-Y		026	000		29
N							45 9 2.87	-122 52 45.37		0001YM100S00			(02)													OR>25					
																			02	NONE 0	STOP										
																				PRVTE	SW-NE								011		00
																				PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		000	000		00
																											OR<25					
																			02	NONE 0	STOP										
																				PRVTE	SW-NE								011		00
																				PSNGR CAR		02	PSNG	INJC	21	F		000	000		00
																			02	NONE 0	STOP										
																				PRVTE	SW-NE								011		00
																				PSNGR CAR		03	PSNG	INJC	13	F		000	000		00
																			02	NONE 0	STOP										
																				PRVTE	SW-NE								011		00
																				PSNGR CAR		04	PSNG	INJC	14	M		000	000		00
02120	N	N	N	N			06/14/2018	MARION	1	11	1	INTER	3-LEG	N	N	CLR	S-OTHER	01	NONE 9	TURN-R											29
NONE							TH	WOODBURN	CN 0	HILLSBORO-SILV HY		S		TRF SIGNAL	N	DRY	TURN		N/A	S -E								000		00
N							5P	WOODBURN UA	271.93	NB EX HILLS-SILV C1		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.79	-122 52 45.74		0001YM100S00																	UNK					

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M J N V	S I H L	C O R K	W DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																	02	NONE 9 N/A PSNGR CAR	TURN-R S -E	01	DRVR	NONE	00	Unk	UNK UNK		000	000		00 00
02078	N	N	N	N			06/03/2019	MARION	1 11	1	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE							MO	WOODBURN	CN 0	HILLSBORO-SILV HY	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N							2P	WOODBURN UA	271.93	NB EX HILLS-SILV C1	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	38	M	OR-Y		026	000		29
N							45 9 3.79	-122 52 45.75		0001YM100S00																OR<25				
																	02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	01	DRVR	INJC	65	F	OR-Y OR<25		000	011 000		00 00
02627	N	N	N	N			07/13/2019	MARION	1 11	1	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE							SA	WOODBURN	CN 0	HILLSBORO-SILV HY	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N							7P	WOODBURN UA	271.93	NB EX HILLS-SILV C1	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	24	M	OR-Y		026	000		29
N							45 9 3.8	-122 52 45.73		0001YM100S00																OR>25				
																	02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	01	DRVR	INJC	51	F	OR-Y OR<25		000	011 000		00 00
01021	Y	N	N	N	N	N	03/21/2019	MARION	2 11		STRGHT		N	N	CLD	S-STRGHT	01	NONE 9	STRGHT											01
STATE							TH	WOODBURN	MN 0	PACIFIC HY I-5	N	(DIVMD)	UNKNOWN	N	DRY	SS-O		N/A	S -N									000		00
N							4A	WOODBURN UA	271.67	NB EX HILLS-SILV C1	03			N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 8 55.51	-122 52 58.07		000100200S00		(06)														UNK				
																	02	NONE 9 N/A SEMI TOW	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
04296	N	N	N	N			11/10/2018	MARION	2 11		STRGHT		N	N	CLR	S-STRGHT	01	NONE 9	STRGHT											29
NONE							SA	WOODBURN	MN 0	PACIFIC HY I-5	N	(DIVMD)	UNKNOWN	N	UNK	REAR		N/A	S -N									000		00
N							10A	WOODBURN UA	271.68	NB EX HILLS-SILV C1	04			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 8 55.93	-122 52 57.64		000100200S00		(06)														UNK				
																	02	NONE 9 N/A PSNGR CAR	STRGHT S -N	01	DRVR	NONE	00	Unk	UNK UNK		000	000 000		00 00
01734	N	N	N	N	N	N	05/21/2018	MARION	2 11		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	07,27
STATE							MO	WOODBURN	MN 0	PACIFIC HY I-5	N	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	S -N									000		00
N							6P	WOODBURN UA	271.70	NB EX HILLS-SILV C1	04			N	DAY	INJ		PSNGR CAR		01	DRVR	INJA	38	M	OR-Y	043,026,016		038		07,27
N							45 8 56.77	-122 52 56.8		000100200S00		(06)														OR>25				

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R J U G	S N V	W H L	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TO	MOVE / FROM	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STOP										
																	PRVTE	S -N									011	013	00
																	PSNGR CAR		01	DRVR	INJB	26	M	OR-Y		000	022		00
																								OR>25					
																03	NONE 0	STOP										
																	PRVTE	S -N									011		00
																	PSNGR CAR		01	DRVR	INJC	53	M	OR-Y		000	000		00
																								OR<25					
																03	NONE 0	STOP										
																	PRVTE	S -N									011		00
																	PSNGR CAR		02	PSNG	INJC	49	F			000	000		00
																03	NONE 0	STOP										
																	PRVTE	S -N									011		00
																	PSNGR CAR		03	PSNG	INJC	17	M			000	000		00
03106	N	N	N N N N			08/15/2019	MARION	2 11		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										093	27,29
STATE			TH			WOODBURN	MN 0	PACIFIC HY I-5		S	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	S -N									000		00
N			2A			WOODBURN UA	271.82	EB EXTO I-5 NB C3		05			N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	31	F	OTH-Y		016,042	038	093	27,29
N			45 9 1.82			-122 52 51.81		000100200S00		(06)														N-RES					
																02	NONE 0	STRGHT										
																	PRVTE	S -N									000		00
																	PSNGR CAR		01	DRVR	NONE	48	M	OR-Y		000	000		00
																								OR>25					
01137	N	N	N N N N			04/06/2018	MARION	2 11		STRGHT		N	N	RAIN	S-STRGHT	01	NONE 9	STRGHT											13
STATE			FR			WOODBURN	MN 0	PACIFIC HY I-5		S	(DIVMD)	UNKNOWN	N	WET	SS-O		N/A	S -N									000		00
N			5A			WOODBURN UA	271.84	EB EXTO I-5 NB C3		04			N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 9 2.68			-122 52 50.96		000100200S00		(06)														UNK					
																02	NONE 9	STRGHT										
																	N/A	S -N									000		00
																	SEMI TOW		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
01261	N	Y	N N N N			04/06/2019	MARION	2 11		BRIDGE		N	Y	RAIN	FIX OBJ	01	NONE 9	STRGHT										119	16
CITY			SA			WOODBURN	MN 0	PACIFIC HY I-5		S	(DIVMD)	UNKNOWN	N	WET	FIX		N/A	S -N									000		00
Y			3A			WOODBURN UA	271.87	EB EXTO I-5 NB C3		01			N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 9 3.93			-122 52 49.71		000100200S00		(06)														UNK					
03532	N	N	N N			07/29/2019	MARION	2 11		STRGHT		N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE			MO			WOODBURN	MN 0	PACIFIC HY I-5		S	(DIVMD)	UNKNOWN	N	DRY	REAR		N/A	S -N									000		00
N			7A			WOODBURN UA	271.89	EB EXTO I-5 NB C3		00			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N			45 9 4.76			-122 52 48.9		000100200S00		(06)														UNK					
																02	NONE 9	STRGHT										
																	N/A	S -N									000		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D M R J U G	S N V	W H L	O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG TYP / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03749	N	N	N	N			09/27/2019	MARION	2	11		STRGHT		N	N	FOG	S-STRGHT	01	NONE 0	STRGHT										29
NO RPT							FR	WOODBURN	MN 0		PACIFIC HY I-5	S	(DIVMD)	UNKNOWN	N	DRY	REAR		PRVTE	S -N								000		00
N							6A	WOODBURN UA	271.89		EB EXTO I-5 NB C3	00			N	DAWN	INJ		PSNGR CAR		01	DRVR	INJB	20	M	OR-Y		042	000		29
N							45 9 4.77	-122 52 48.86			000100200S00		(06)													OR<25					
																		02	UNKN 0	STRGHT										
																			UNKN	S -N								000		00
																			UNKNOWN		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				
01058	N	N	N	N	N	N	03/22/2019	MARION	2	11		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										013	07,27
STATE							FR	WOODBURN	MN 0		PACIFIC HY I-5	S	(DIVMD)	UNKNOWN	N	WET	REAR		PRVTE	S -N								000		00
N							3P	WOODBURN UA	271.89		EB EXTO I-5 NB C3	05			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		043,026,016	038		07,27
N							45 9 4.75	-122 52 48.88			000100200S00		(06)													OR>25					
																		02	NONE 0	STOP										
																			PRVTE	S -N								011	013	00
																			PSNGR CAR		01	DRVR	NONE	22	M	OR-Y		000	022		00
																										OR>25				
																		03	NONE 0	STOP										
																			PRVTE	S -N								011	013	00
																			PSNGR CAR		01	DRVR	INJC	19	M	OR-Y		000	022		00
																										OR>25				
																		04	NONE 0	STOP										
																			PRVTE	S -N								011		00
																			PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		000	000		00
																										OR>25				
05191	N	N	N	N	N	N	12/23/2019	MARION	2	11		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											32,13
STATE							MO	WOODBURN	MN 0		PACIFIC HY I-5	S	(DIVMD)	UNKNOWN	N	DRY	SS-O		PRVTE	S -N								000		00
N							7P	WOODBURN UA	271.90		EB EXTO I-5 NB C3	04			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y		052,045	000		32,13
N							45 9 5.2	-122 52 48.46			000100200S00		(06)													OR>25					
																		02	NONE 0	STRGHT										
																			PRVTE	S -N								000		00
																			PSNGR CAR		01	DRVR	INJC	51	M	OR-Y		000	000		00
																										OR<25				

001: PACIFIC

Highway 001 ALL ROAD TYPES, MP 271.6 to 271.93 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 36.81 to 36.91 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

1 - 5 of 12 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P / E D	A	R U G L C	J N V	S H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01825	N	N	N	N			05/27/2018	MARION	1	14		STRGHT		N	N	CLR	S-1TURN	01	NONE 0	TURN-L										08
CITY							SU	WOODBURN	MN 0		HILLSBORO-SILV HY	W	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	E -S								000		00
N							12P	WOODBURN UA	36.81		EB EXTO I-5 NB C3	05			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	37	M	OTH-Y		008,006	000		08
N							45 9 3.81	-122 52 49.48			014000100S00		(04)													N-RES					
																		02	NONE 0	STRGHT											
																			PRVTE	E -W								000		00
																			PSNGR CAR		01	DRVR	INJC	24	M	OR-Y		000	000		00
																										OR<25					
																		02	NONE 0	STRGHT											
																			PRVTE	E -W								000		00
																			PSNGR CAR		02	PSNG	INJC	22	F			000	000		00
03252	N	N	N	N	N	N	08/31/2018	MARION	1	14		BRIDGE		N	N	CLD	FIX OBJ	01	NONE 9	STRGHT										074	10
CITY							FR	WOODBURN	MN 0		HILLSBORO-SILV HY	E	(NONE)	UNKNOWN	N	DRY	FIX		N/A	E -W								000		00
N							7A	WOODBURN UA	36.84		EB EXTO I-5 NB C3	05			N	DAY	PDO		SEMI TOW		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.8	-122 52 47.24			014000100S00		(04)													UNK					
05220	Y	N	N	N	N	N	12/25/2019	MARION	1	14		STRGHT		N	N	CLR	S-1STOP	01	NONE 9	STRGHT											01,27,29
CITY							WE	WOODBURN	MN 0		HILLSBORO-SILV HY	W	(NONE)	UNKNOWN	N	DRY	REAR		N/A	E -W								000		00
N							12P	WOODBURN UA	36.85		NB EX HILLS-SILV C1	06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.79	-122 52 46.5			014000100S00		(04)													UNK					
																		02	NONE 9	STOP											
																			N/A	E -W								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					
03289	N	N	N	N	N	N	09/03/2018	MARION	1	14		INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										093	07,27
CITY							MO	WOODBURN	MN 0		HILLSBORO-SILV HY	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N							12P	WOODBURN UA	36.86		NB EX HILLS-SILV C1	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	16	F	OR-Y		043,026,016	025	093	07,27
N							45 9 3.79	-122 52 45.74			014000100S00															OR<25					
																		02	NONE 0	STOP											
																			PRVTE	E -W								011		00
																			PSNGR CAR		01	DRVR	INJC	45	F	OR-Y		000	000		00
																										OR<25					
01389	N	N	N	N			04/24/2018	MARION	1	11		INTER	3-LEG	N	N	UNK	ANGL-OTH	01	NONE 0	TURN-L											04
NO RPT							TU	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	UNK	TURN		PRVTE	S -W								000		00
N							4P	WOODBURN UA	36.86		NB EX HILLS-SILV C1	00	1		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	23	F	OR-Y		097	000		00
N							45 9 3.8	-122 52 45.75			014000100S00															OR<25					
																		02	NONE 0	STRGHT											
																			PRVTE	UN-UN								000		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		097	000		00
																										UNK					

140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 36.81 to 36.91 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L C	M J U G S	S V N H L	W O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG TYP / MILEPNT	FC	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01879	N	N	N	N		05/30/2018	MARION	1	11		INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L										04
NO RPT						WE	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	S -W									000	00
N						1P	WOODBURN UA	36.86		NB EX HILLS-SILV C1	02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	53	F	OR-Y		097	000		00
N						45 9 3.79	-122 52 45.74			014000100S00															OR<25					
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									000	00
																		PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		097	000		00
																									OR<25					
01103	N	N	N	N		03/27/2019	MARION	1	11		INTER	5-LEG	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT										04
NO RPT						WE	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	DRY	TURN		N/A	E -W									000	00
N						10A	WOODBURN UA	36.86		NB EX HILLS-SILV C1	02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 9 3.8	-122 52 45.77			014000100S00															UNK					
																	02	NONE 9	TURN-L											
																		N/A	SW-W									000	00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
02875	N	N	N	N	N	08/04/2018	MARION	1	11		INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										04
CITY						SA	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	W -E									000	00
N						7A	WOODBURN UA	36.86		NB EX HILLS-SILV C1	04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	79	F	OR-Y		097	000		00
N						45 9 3.79	-122 52 45.74			014000100S00															OR<25					
																	02	NONE 0	TURN-R											
																		PRVTE	S -E									000	00
																		PSNGR CAR		01	DRVR	NONE	21	F	OR-Y		097	000		00
																									OR<25					
03676	N	N	N	N	N	09/29/2018	MARION	1	11		INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT										04
CITY						SA	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	DRY	TURN		N/A	W -E									000	00
N						7A	WOODBURN UA	36.86		NB EX HILLS-SILV C1	04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 9 3.83	-122 52 45.75			014000100S00															UNK					
																	02	NONE 9	TURN-L											
																		N/A	SW-W									000	00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
01168	N	N	N	N	N	04/01/2019	MARION	1	11		INTER	3-LEG	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT										04
CITY						MO	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	W -E									000	00
N						4P	WOODBURN UA	36.86		NB EX HILLS-SILV C1	04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	55	M	OR-Y		020	000		04
N						45 9 3.79	-122 52 45.74			014000100S00															OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	SW-W									000	00
																		PSNGR CAR		01	DRVR	INJC	24	F	OR-Y		000	000		00
																									OR<25					

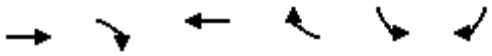
SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A C	M J U S	S N H V	W I C L	O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03673	Y	N	N	N			09/22/2019	MARION	1	11		INTER	5-LEG	N	N	RAIN	ANGL-OTH	01	NONE 9	STRGHT										30,04,27
CITY							SU	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	WET	TURN		N/A	W -E								000		00
N							9A	WOODBURN UA	36.86		NB EX HILLS-SILV C1	04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.82	-122 52 45.75			014000100S00															UNK					
																		02	NONE 9	TURN-L										
																			N/A	S -W								000		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					
03000	Y	N	N	N	N	N	08/08/2019	MARION	1	11	2	CURVE		N	Y	CLD	FIX OBJ	01	NONE 9	STRGHT										040,058,080	01
STATE							TH	WOODBURN	CN 0		NB EF HILLS-SILV C2	NW	(NONE)	ONE-WAY	N	WET	FIX		N/A	SE-NW								000		00
Y							7A	WOODBURN UA	36.91		HILLSBORO-SILV HY	01			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 4.51	-122 52 44.7			0140AD100S00		(01)													UNK					
																		02	NONE 9	STOP										
																			N/A	SW-NE								011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					

140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 36.67 to 36.78 01/01/2018 to 12/31/2019, Both Add and Non-Add mileage

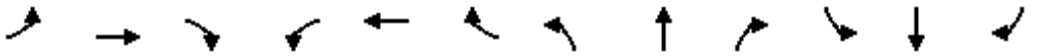
1 - 4 of 4 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	D R A L	M J U G	S I N S	C N H V	W O R L	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / TO / FROM	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02772	N	N	N	N			07/23/2019	MARION	1	14		STRGHT		N	N	CLR	S-1STOP	01	NONE 9	STRGHT										29
NONE							TU	WOODBURN	MN 0		HILLSBORO-SILV HY	W	(RSDMD)	UNKNOWN	N	DRY	REAR		N/A	E -W									000	00
N							4P	WOODBURN UA	36.70		SB EX HILLS-SILV C2	06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.97	-122 52 57.76			014000100S00		(04)													UNK					
																		02	NONE 9	STOP										
																			N/A	E -W									011	00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				
03002	N	N	N	N	N	N	08/10/2018	MARION	1	14		INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										27,29
STATE							FR	WOODBURN	MN 0		HILLSBORO-SILV HY	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000	00
N							5P	WOODBURN UA	36.73		SB EX HILLS-SILV C2	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		016,026	038		27,29
N							45 9 3.96	-122 52 55.44			014000100S00															OR<25					
																		02	NONE 0	STOP										
																			PRVTE	E -W									011	00
																			PSNGR CAR		01	DRVR	INJC	22	M	OR-Y		000	000		00
																										OR<25				
																		02	NONE 0	STOP										
																			PRVTE	E -W									011	00
																			PSNGR CAR		02	PSNG	INJC	30	F			000	000		00
01526	N	N	N	N	N	N	04/25/2019	MARION	1	14		INTER	CROSS	N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										13
CITY							TH	WOODBURN	MN 0		HILLSBORO-SILV HY	E		TRF SIGNAL	N	DRY	SS-O		PRVTE	E -W									000	00
N							7P	WOODBURN UA	36.73		SB EX HILLS-SILV C2	06	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	INJC	36	F	NONE		045	000		13
N							45 9 3.97	-122 52 55.42			014000100S00															OR<25					
																		01	NONE 0	STRGHT										
																			PRVTE	E -W									000	00
																			PSNGR CAR		02	PSNG	INJC	06	F			000	000		00
																		01	NONE 0	STRGHT										
																			PRVTE	E -W									000	00
																			PSNGR CAR		03	PSNG	INJC	13	F			000	000		00
																		02	NONE 1	STRGHT										
																			PRVTE	E -W									000	00
																			PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		000	000		00
																										OR>25				
00780	N	N	N	N			03/01/2019	MARION	1	11		INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 9	TURN-L										04
CITY							FR	WOODBURN	MN 0		HILLSBORO-SILV HY	CN		TRF SIGNAL	N	DRY	TURN		N/A	N -E									000	00
N							8P	WOODBURN UA	36.73		SB EX HILLS-SILV C2	01	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 9 3.95	-122 52 55.43			014000100S00															UNK					
																		02	NONE 9	STRGHT										
																			N/A	E -W									000	00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK				



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	418	163	355	394	218	95
v/c Ratio	0.17	0.12	0.17	0.30	0.60	0.22
Control Delay	3.0	0.2	7.1	0.8	48.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	0.2	7.1	0.8	48.1	7.0
Queue Length 50th (ft)	26	0	33	0	69	0
Queue Length 95th (ft)	43	0	52	14	94	30
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2449	1312	2149	1300	1069	536
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.12	0.17	0.30	0.20	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (vph)	0	351	137	0	298	331	0	0	0	183	0	80
Future Volume (vph)	0	351	137	0	298	331	0	0	0	183	0	80
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3107	1312		3197	1300				3014		1340
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340
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)	0	418	163	0	355	394	0	0	0	218	0	95
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	418	163	0	355	394	0	0	0	218	0	23
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			2			3						
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		78.8	100.0		66.3	100.0				12.2		24.7
Effective Green, g (s)		78.8	100.0		66.3	100.0				12.2		24.7
Actuated g/C Ratio		0.79	1.00		0.66	1.00				0.12		0.25
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2448	1312		2119	1300				367		330
v/s Ratio Prot		0.13			0.11					c0.07		
v/s Ratio Perm			0.12			c0.30						0.02
v/c Ratio		0.17	0.12		0.17	0.30				0.59		0.07
Uniform Delay, d1		2.6	0.0		6.4	0.0				41.6		28.9
Progression Factor		1.00	1.00		0.97	1.00				1.00		1.00
Incremental Delay, d2		0.2	0.2		0.1	0.6				2.2		0.1
Delay (s)		2.7	0.2		6.3	0.6				43.7		28.9
Level of Service		A	A		A	A				D		C
Approach Delay (s)		2.0			3.3			0.0			39.2	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	23.7%	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												
Traffic Volume (veh/h)	0	351	137	0	298	331	0	0	0	183	0	80
Future Volume (veh/h)	0	351	137	0	298	331	0	0	0	183	0	80
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	418	0	0	355	0				218	0	95
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2554		0	2618					298	0	132
Arrive On Green	0.00	0.81	0.00	0.00	0.81	0.00				0.10	0.00	0.10
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	418	0	0	355	0				218	0	95
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	2.9	0.0	0.0	2.3	0.0				6.9	0.0	6.8
Cycle Q Clear(g_c), s	0.0	2.9	0.0	0.0	2.3	0.0				6.9	0.0	6.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2554		0	2618					298	0	132
V/C Ratio(X)	0.00	0.16		0.00	0.14					0.73	0.00	0.72
Avail Cap(c_a), veh/h	0	2554		0	2618					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.0	0.0	0.0	2.0	0.0				43.9	0.0	43.8
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0				2.6	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.0	0.5	0.0				2.7	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.2	0.0	0.0	2.0	0.0				46.5	0.0	49.2
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		418	A		355	A					313	
Approach Delay, s/veh		2.2			2.0						47.3	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		85.8		14.2		85.8						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		4.9		8.9		4.3						
Green Ext Time (p_c), s		8.0		0.8		3.6						

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

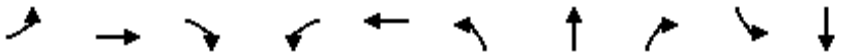
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	416	185	582	479	112	259	256
v/c Ratio	0.17	0.14	0.25	0.34	0.58	0.68	0.65
Control Delay	2.4	0.2	4.5	0.8	51.7	15.5	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.4	0.2	4.5	0.8	51.7	15.5	12.8
Queue Length 50th (ft)	17	0	27	0	72	7	0
Queue Length 95th (ft)	33	0	118	0	118	84	68
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2412	1325	2345	1399	666	714	741
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.14	0.25	0.34	0.17	0.36	0.35

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	370	165	0	518	426	111	0	447	0	0	0
Future Volume (vph)	0	370	165	0	518	426	111	0	447	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3137	1325		3050	1399	1462	1272	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1272	1321			
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)	0	416	185	0	582	479	125	0	502	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	214	222	0	0	0
Lane Group Flow (vph)	0	416	185	0	582	479	112	45	34	0	0	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		76.9	100.0		76.9	100.0	13.2	13.2	13.2			
Effective Green, g (s)		76.9	100.0		76.9	100.0	13.2	13.2	13.2			
Actuated g/C Ratio		0.77	1.00		0.77	1.00	0.13	0.13	0.13			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2412	1325		2345	1399	192	167	174			
v/s Ratio Prot		0.13			0.19							
v/s Ratio Perm			0.14			c0.34	c0.08	0.04	0.03			
v/c Ratio		0.17	0.14		0.25	0.34	0.58	0.27	0.19			
Uniform Delay, d1		3.1	0.0		3.3	0.0	40.8	39.1	38.7			
Progression Factor		0.64	1.00		1.11	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.2		0.2	0.6	3.7	0.6	0.4			
Delay (s)		2.1	0.2		3.8	0.6	44.5	39.7	39.1			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		1.5			2.4			40.3			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	97	591	61	108	626	167	166	113	9	48
v/c Ratio	0.20	0.33	0.07	0.21	0.35	0.69	0.67	0.35	0.07	0.32
Control Delay	8.1	14.7	2.6	8.1	13.6	53.7	52.8	9.6	44.0	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	14.7	2.6	8.1	13.6	53.7	52.8	9.6	44.0	23.8
Queue Length 50th (ft)	15	113	0	24	119	107	106	0	5	5
Queue Length 95th (ft)	57	225	11	47	205	168	167	44	21	40
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	496	1768	836	513	1782	487	493	541	143	166
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.33	0.07	0.21	0.35	0.34	0.34	0.21	0.06	0.29

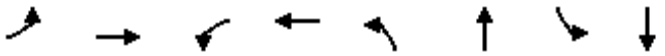
Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	47	43	550	57	8	92	574	8	288	21	105	8
Future Volume (vph)	47	43	550	57	8	92	574	8	288	21	105	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frpb, ped/bikes		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
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1637	3137	1401		1630	3047		1548	1567	1473	1662
Flt Permitted		0.37	1.00	1.00		0.39	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		645	3137	1401		669	3047		1548	1567	1473	1662
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	46	591	61	9	99	617	9	310	23	113	9
RTOR Reduction (vph)	0	0	0	28	0	0	1	0	0	0	95	0
Lane Group Flow (vph)	0	97	591	33	0	108	625	0	167	166	18	9
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		62.2	54.6	54.6		62.2	55.9		15.7	15.7	15.7	4.6
Effective Green, g (s)		62.2	54.6	54.6		62.2	55.9		15.7	15.7	15.7	4.6
Actuated g/C Ratio		0.62	0.55	0.55		0.62	0.56		0.16	0.16	0.16	0.05
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		463	1712	764		489	1703		243	246	231	76
v/s Ratio Prot		0.01	0.19			c0.02	c0.21		c0.11	0.11		0.01
v/s Ratio Perm		0.12		0.02		0.12					0.01	
v/c Ratio		0.21	0.35	0.04		0.22	0.37		0.69	0.67	0.08	0.12
Uniform Delay, d1		7.8	12.7	10.6		7.8	12.2		39.8	39.7	36.0	45.8
Progression Factor		0.92	0.98	3.44		0.91	0.92		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.5	0.1		0.2	0.6		7.2	6.5	0.1	0.5
Delay (s)		7.3	13.0	36.4		7.2	11.9		47.0	46.2	36.1	46.3
Level of Service		A	B	D		A	B		D	D	D	D
Approach Delay (s)			14.2				11.2			43.9		
Approach LOS			B				B			D		

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	8	36
Future Volume (vph)	8	36
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.88	
Flt Protected	1.00	
Satd. Flow (prot)	1514	
Flt Permitted	1.00	
Satd. Flow (perm)	1514	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	9	39
RTOR Reduction (vph)	37	0
Lane Group Flow (vph)	11	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	4.6	
Effective Green, g (s)	4.6	
Actuated g/C Ratio	0.05	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	69	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.16	
Uniform Delay, d1	45.8	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	46.6	
Level of Service	D	
Approach Delay (s)	46.6	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	748	5	673	5	15	20	71
v/c Ratio	0.03	0.30	0.01	0.27	0.06	0.15	0.19	0.38
Control Delay	3.1	3.7	3.4	5.2	45.8	35.2	47.9	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	3.7	3.4	5.2	45.8	35.2	47.9	19.2
Queue Length 50th (ft)	1	27	0	25	3	5	12	5
Queue Length 95th (ft)	m7	122	4	135	15	25	36	47
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	602	2527	572	2448	100	554	110	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.30	0.01	0.27	0.05	0.03	0.18	0.13

Intersection Summary

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

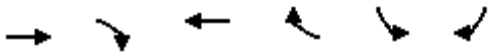
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	8	650	38	5	598	21	5	7	6	18	7
Future Volume (vph)	7	8	650	38	5	598	21	5	7	6	18	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	0.99		1.00	0.99		1.00	0.93		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1646	3089		1662	3068		1662	1617		1662	1500
Flt Permitted		0.38	1.00		0.35	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		665	3089		618	3068		1662	1617		1662	1500
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)	8	9	707	41	5	650	23	5	8	7	20	8
RTOR Reduction (vph)	0	0	2	0	0	1	0	0	7	0	0	58
Lane Group Flow (vph)	0	17	746	0	5	672	0	5	8	0	20	13
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		74.8	73.7		74.8	72.6		1.2	5.7		3.0	7.5
Effective Green, g (s)		74.8	73.7		74.8	72.6		1.2	5.7		3.0	7.5
Actuated g/C Ratio		0.75	0.74		0.75	0.73		0.01	0.06		0.03	0.08
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		519	2276		473	2227		19	92		49	112
v/s Ratio Prot		c0.00	c0.24		0.00	0.22		0.00	0.01		c0.01	c0.01
v/s Ratio Perm		0.02			0.01							
v/c Ratio		0.03	0.33		0.01	0.30		0.26	0.09		0.41	0.11
Uniform Delay, d1		3.2	4.6		3.2	4.8		49.0	44.7		47.6	43.1
Progression Factor		0.92	0.84		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.4		0.0	0.3		5.3	0.3		4.0	0.3
Delay (s)		3.0	4.2		3.2	5.2		54.3	45.0		51.6	43.5
Level of Service		A	A		A	A		D	D		D	D
Approach Delay (s)			4.2			5.1			47.3			45.3
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

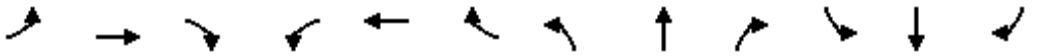
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	58
Future Volume (vph)	58
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	63
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	736	367	661	577	438	298
v/c Ratio	0.31	0.26	0.35	0.40	0.74	0.52
Control Delay	5.9	0.4	14.0	1.0	45.7	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	0.4	14.0	1.0	45.7	16.4
Queue Length 50th (ft)	76	0	134	0	136	76
Queue Length 95th (ft)	124	0	148	13	178	144
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2347	1426	1875	1430	1048	599
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.26	0.35	0.40	0.42	0.50

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	677	338	0	608	531	0	0	0	403	0	274
Future Volume (vph)	0	677	338	0	608	531	0	0	0	403	0	274
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		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	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3260	1426		3260	1430				3131		1444
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444
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	736	367	0	661	577	0	0	0	438	0	298
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	93
Lane Group Flow (vph)	0	736	367	0	661	577	0	0	0	438	0	205
Confl. Peds. (#/hr)			3	3					1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		72.0	100.0		57.5	100.0				19.0		33.5
Effective Green, g (s)		72.0	100.0		57.5	100.0				19.0		33.5
Actuated g/C Ratio		0.72	1.00		0.58	1.00				0.19		0.34
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2347	1426		1874	1430				594		483
v/s Ratio Prot		0.23			0.20					c0.14		
v/s Ratio Perm			0.26			c0.40						0.14
v/c Ratio		0.31	0.26		0.35	0.40				0.74		0.42
Uniform Delay, d1		5.1	0.0		11.3	0.0				38.1		25.8
Progression Factor		1.00	1.00		1.13	1.00				1.00		1.00
Incremental Delay, d2		0.3	0.4		0.1	0.8				4.5		0.4
Delay (s)		5.4	0.4		12.9	0.8				42.6		26.2
Level of Service		A	A		B	A				D		C
Approach Delay (s)		3.8			7.3			0.0			36.0	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	44.2%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	677	338	0	608	531	0	0	0	403	0	274
Future Volume (veh/h)	0	677	338	0	608	531	0	0	0	403	0	274
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	736	0	0	661	0				438	0	298
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2208		0	2208					743	0	341
Arrive On Green	0.00	0.67	0.00	0.00	0.67	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	736	0	0	661	0				438	0	298
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	9.4	0.0	0.0	8.2	0.0				12.3	0.0	19.8
Cycle Q Clear(g_c), s	0.0	9.4	0.0	0.0	8.2	0.0				12.3	0.0	19.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2208		0	2208					743	0	341
V/C Ratio(X)	0.00	0.33		0.00	0.30					0.59	0.00	0.87
Avail Cap(c_a), veh/h	0	2208		0	2208					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.88	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.8	0.0	0.0	6.6	0.0				33.9	0.0	36.8
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.1	0.0				0.6	0.0	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	0.0	0.0	2.6	0.0				4.7	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.2	0.0	0.0	6.7	0.0				34.5	0.0	47.7
LnGrp LOS	A	A		A	A					C	A	D
Approach Vol, veh/h		736	A		661	A					736	
Approach Delay, s/veh		7.2			6.7						39.8	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		72.0		28.0		72.0						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		11.4		21.8		10.2						
Green Ext Time (p_c), s		15.6		1.7		7.2						

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

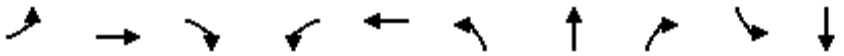
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	952	197	977	281	211	249	243
v/c Ratio	0.41	0.14	0.43	0.20	0.70	0.74	0.70
Control Delay	6.7	0.2	5.6	0.3	49.0	34.6	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	0.2	5.6	0.3	49.0	34.6	31.9
Queue Length 50th (ft)	60	0	68	0	132	100	90
Queue Length 95th (ft)	215	0	188	0	191	176	161
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2308	1403	2286	1387	565	551	567
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.14	0.43	0.20	0.37	0.45	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	895	185	0	918	264	221	0	440	0	0	0
Future Volume (vph)	0	895	185	0	918	264	221	0	440	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3292	1403		3260	1387	1504	1305	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1305	1346			
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)	0	952	197	0	977	281	235	0	468	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	78	78	0	0	0
Lane Group Flow (vph)	0	952	197	0	977	281	211	171	165	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		70.1	100.0		70.1	100.0	20.0	20.0	20.0			
Effective Green, g (s)		70.1	100.0		70.1	100.0	20.0	20.0	20.0			
Actuated g/C Ratio		0.70	1.00		0.70	1.00	0.20	0.20	0.20			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2307	1403		2285	1387	300	261	269			
v/s Ratio Prot		0.29			c0.30							
v/s Ratio Perm			0.14			0.20	c0.14	0.13	0.12			
v/c Ratio		0.41	0.14		0.43	0.20	0.70	0.65	0.61			
Uniform Delay, d1		6.3	0.0		6.4	0.0	37.2	36.8	36.5			
Progression Factor		0.85	1.00		0.69	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.5	0.2		0.3	0.3	6.8	5.2	3.5			
Delay (s)		5.9	0.2		4.7	0.3	44.0	42.0	40.0			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		4.9			3.7			41.9			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



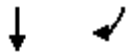
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	121	913	135	224	825	208	210	215	18	96
v/c Ratio	0.33	0.62	0.18	0.59	0.50	0.72	0.72	0.48	0.16	0.58
Control Delay	8.6	20.9	2.3	23.2	14.6	52.0	51.7	8.2	47.1	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	20.9	2.3	23.2	14.6	52.0	51.7	8.2	47.1	34.0
Queue Length 50th (ft)	25	288	10	33	186	132	133	0	11	20
Queue Length 95th (ft)	41	291	13	126	229	196	198	56	34	#82
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	368	1473	754	388	1641	444	450	573	116	165
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.62	0.18	0.58	0.50	0.47	0.47	0.38	0.16	0.58

Intersection Summary

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

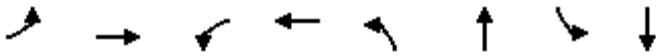
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	28	83	831	123	15	189	740	11	357	24	196	16
Future Volume (vph)	28	83	831	123	15	189	740	11	357	24	196	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		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	0.98	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1654	3197	1458		1660	3192		1533	1552	1450	1662
Flt Permitted		0.27	1.00	1.00		0.21	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		461	3197	1458		359	3192		1533	1552	1450	1662
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	30	91	913	135	16	208	813	12	392	26	215	18
RTOR Reduction (vph)	0	0	0	74	0	0	1	0	0	0	175	0
Lane Group Flow (vph)	0	121	913	61	0	224	824	0	208	210	40	18
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		58.2	45.2	45.2		58.2	50.5		18.7	18.7	18.7	5.6
Effective Green, g (s)		58.2	45.2	45.2		58.2	50.5		18.7	18.7	18.7	5.6
Actuated g/C Ratio		0.58	0.45	0.45		0.58	0.50		0.19	0.19	0.19	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		360	1445	659		378	1611		286	290	271	93
v/s Ratio Prot		0.03	c0.29			c0.08	0.26		c0.14	0.14		0.01
v/s Ratio Perm		0.17		0.04		0.27					0.03	
v/c Ratio		0.34	0.63	0.09		0.59	0.51		0.73	0.72	0.15	0.19
Uniform Delay, d1		10.2	21.0	15.7		12.1	16.5		38.3	38.2	34.0	45.0
Progression Factor		0.67	0.82	0.64		1.63	0.74		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.4	2.0	0.3		2.0	1.1		8.4	8.1	0.2	0.7
Delay (s)		7.2	19.1	10.4		21.8	13.3		46.6	46.4	34.2	45.8
Level of Service		A	B	B		C	B		D	D	C	D
Approach Delay (s)			16.9				15.1			42.3		
Approach LOS			B				B			D		

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	30	57
Future Volume (vph)	30	57
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1520	
Flt Permitted	1.00	
Satd. Flow (perm)	1520	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	33	63
RTOR Reduction (vph)	59	0
Lane Group Flow (vph)	37	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	5.6	
Effective Green, g (s)	5.6	
Actuated g/C Ratio	0.06	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	85	
v/s Ratio Prot	c0.02	
v/s Ratio Perm		
v/c Ratio	0.43	
Uniform Delay, d1	45.7	
Progression Factor	1.00	
Incremental Delay, d2	2.5	
Delay (s)	48.2	
Level of Service	D	
Approach Delay (s)	47.8	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	1071	21	964	19	21	52	102
v/c Ratio	0.09	0.43	0.05	0.39	0.21	0.17	0.50	0.52
Control Delay	4.4	5.6	3.7	7.0	50.7	34.3	62.0	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	5.6	3.7	7.0	50.7	34.3	62.0	23.2
Queue Length 50th (ft)	2	30	1	96	12	8	32	11
Queue Length 95th (ft)	m13	174	10	220	36	30	#79	60
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	440	2486	404	2457	95	547	108	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.43	0.05	0.39	0.20	0.04	0.48	0.18

Intersection Summary

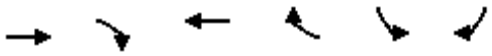
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	22	936	82	20	873	43	18	12	8	49	17
Future Volume (vph)	14	22	936	82	20	873	43	18	12	8	49	17
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	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		1.00	1.00
Frt		1.00	0.99		1.00	0.99		1.00	0.94		1.00	0.88
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1649	3159		1662	3206		1662	1641		1662	1521
Flt Permitted		0.27	1.00		0.24	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		465	3159		414	3206		1662	1641		1662	1521
Peak-hour factor, PHF	0.92	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)	15	23	985	86	21	919	45	19	13	8	52	18
RTOR Reduction (vph)	0	0	3	0	0	2	0	0	8	0	0	78
Lane Group Flow (vph)	0	38	1068	0	21	962	0	19	13	0	52	24
Confl. Peds. (#/hr)		3		3	3		3			2	2	
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		74.4	72.1		74.4	70.9		2.2	3.8		5.3	6.9
Effective Green, g (s)		74.4	72.1		74.4	70.9		2.2	3.8		5.3	6.9
Actuated g/C Ratio		0.74	0.72		0.74	0.71		0.02	0.04		0.05	0.07
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		387	2277		336	2273		36	62		88	104
v/s Ratio Prot		c0.00	c0.34		0.00	0.30		0.01	0.01		c0.03	c0.02
v/s Ratio Perm		0.07			0.04							
v/c Ratio		0.10	0.47		0.06	0.42		0.53	0.21		0.59	0.23
Uniform Delay, d1		3.6	5.9		3.7	6.0		48.4	46.7		46.3	44.0
Progression Factor		1.23	0.83		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.6		0.1	0.6		10.2	1.3		8.6	0.8
Delay (s)		4.5	5.5		3.7	6.6		58.6	47.9		54.9	44.9
Level of Service		A	A		A	A		E	D		D	D
Approach Delay (s)			5.4			6.6			53.0			48.2
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

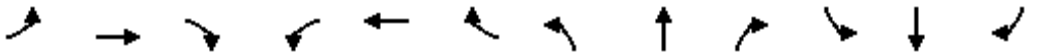
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	84
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	431	210	379	455	252	95
v/c Ratio	0.18	0.16	0.18	0.35	0.63	0.22
Control Delay	3.3	0.3	7.1	1.2	47.8	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.3	0.3	7.1	1.2	47.8	6.7
Queue Length 50th (ft)	30	0	40	0	79	0
Queue Length 95th (ft)	47	0	42	24	106	29
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2414	1312	2113	1300	1069	536
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.16	0.18	0.35	0.24	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	362	176	0	318	382	0	0	0	212	0	80
Future Volume (vph)	0	362	176	0	318	382	0	0	0	212	0	80
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3107	1312		3197	1300				3014		1340
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340
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)	0	431	210	0	379	455	0	0	0	252	0	95
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	70
Lane Group Flow (vph)	0	431	210	0	379	455	0	0	0	252	0	25
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			2			3						
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		77.7	100.0		65.2	100.0				13.3		25.8
Effective Green, g (s)		77.7	100.0		65.2	100.0				13.3		25.8
Actuated g/C Ratio		0.78	1.00		0.65	1.00				0.13		0.26
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2414	1312		2084	1300				400		345
v/s Ratio Prot		0.14			0.12					c0.08		
v/s Ratio Perm			0.16			c0.35						0.02
v/c Ratio		0.18	0.16		0.18	0.35				0.63		0.07
Uniform Delay, d1		2.9	0.0		6.9	0.0				41.0		28.0
Progression Factor		1.00	1.00		0.90	1.00				1.00		1.00
Incremental Delay, d2		0.2	0.3		0.1	0.7				2.8		0.1
Delay (s)		3.0	0.3		6.2	0.7				43.8		28.1
Level of Service		A	A		A	A				D		C
Approach Delay (s)		2.1			3.2			0.0			39.5	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	24.9%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	362	176	0	318	382	0	0	0	212	0	80
Future Volume (veh/h)	0	362	176	0	318	382	0	0	0	212	0	80
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	431	0	0	379	0				252	0	95
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2518		0	2580					333	0	148
Arrive On Green	0.00	0.80	0.00	0.00	0.80	0.00				0.11	0.00	0.11
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	431	0	0	379	0				252	0	95
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	3.2	0.0	0.0	2.7	0.0				8.0	0.0	6.7
Cycle Q Clear(g_c), s	0.0	3.2	0.0	0.0	2.7	0.0				8.0	0.0	6.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2518		0	2580					333	0	148
V/C Ratio(X)	0.00	0.17		0.00	0.15					0.76	0.00	0.64
Avail Cap(c_a), veh/h	0	2518		0	2580					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.3	0.0	0.0	2.2	0.0				43.3	0.0	42.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0				2.6	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.0	0.6	0.0				3.1	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.4	0.0	0.0	2.3	0.0				45.9	0.0	46.1
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		431	A		379	A					347	
Approach Delay, s/veh		2.4			2.3						45.9	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		84.6		15.4		84.6						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		5.2		10.0		4.7						
Green Ext Time (p_c), s		8.3		0.9		3.9						

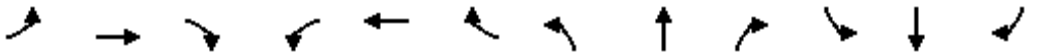
Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

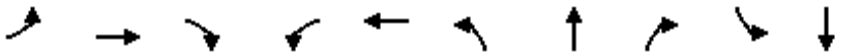
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	454	187	661	574	113	272	269
v/c Ratio	0.19	0.14	0.28	0.41	0.57	0.69	0.65
Control Delay	2.7	0.2	5.5	1.1	50.7	15.3	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	0.2	5.5	1.1	50.7	15.3	12.7
Queue Length 50th (ft)	20	0	31	1	71	7	0
Queue Length 95th (ft)	40	0	146	0	120	85	70
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2402	1325	2335	1399	666	720	748
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.28	0.41	0.17	0.38	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	404	166	0	588	511	112	0	470	0	0	0
Future Volume (vph)	0	404	166	0	588	511	112	0	470	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3137	1325		3050	1399	1462	1272	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1272	1321			
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)	0	454	187	0	661	574	126	0	528	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	224	233	0	0	0
Lane Group Flow (vph)	0	454	187	0	661	574	113	48	36	0	0	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		76.6	100.0		76.6	100.0	13.5	13.5	13.5			
Effective Green, g (s)		76.6	100.0		76.6	100.0	13.5	13.5	13.5			
Actuated g/C Ratio		0.77	1.00		0.77	1.00	0.14	0.14	0.14			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2402	1325		2336	1399	197	171	178			
v/s Ratio Prot		0.14			0.22							
v/s Ratio Perm			0.14			c0.41	0.08	0.04	0.03			
v/c Ratio		0.19	0.14		0.28	0.41	0.57	0.28	0.20			
Uniform Delay, d1		3.2	0.0		3.5	0.0	40.6	38.9	38.5			
Progression Factor		0.66	1.00		1.28	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.2		0.2	0.8	3.3	0.7	0.4			
Delay (s)		2.3	0.2		4.6	0.8	43.8	39.5	38.9			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		1.7			2.9			40.0			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	102	627	100	114	681	232	229	126	12	50
v/c Ratio	0.25	0.40	0.13	0.26	0.43	0.75	0.73	0.32	0.10	0.34
Control Delay	10.9	19.2	5.1	10.7	18.1	52.0	50.7	7.6	44.9	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	19.2	5.1	10.7	18.1	52.0	50.7	7.6	44.9	23.8
Queue Length 50th (ft)	17	138	3	29	146	148	145	0	7	6
Queue Length 95th (ft)	77	251	26	55	246	213	209	42	25	42
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	417	1553	748	439	1577	487	492	550	141	166
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.40	0.13	0.26	0.43	0.48	0.47	0.23	0.09	0.30

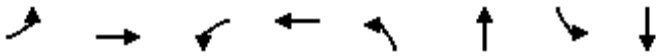
Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	47	47	583	93	8	98	616	18	406	22	117	11
Future Volume (vph)	47	47	583	93	8	98	616	18	406	22	117	11
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frpb, ped/bikes		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
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1638	3137	1401		1630	3043		1548	1563	1473	1662
Flt Permitted		0.33	1.00	1.00		0.35	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		570	3137	1401		607	3043		1548	1563	1473	1662
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	51	51	627	100	9	105	662	19	437	24	126	12
RTOR Reduction (vph)	0	0	0	51	0	0	1	0	0	0	101	0
Lane Group Flow (vph)	0	102	627	49	0	114	680	0	232	229	25	12
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		56.6	48.6	48.6		56.6	50.1		20.0	20.0	20.0	5.9
Effective Green, g (s)		56.6	48.6	48.6		56.6	50.1		20.0	20.0	20.0	5.9
Actuated g/C Ratio		0.57	0.49	0.49		0.57	0.50		0.20	0.20	0.20	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		392	1524	680		425	1524		309	312	294	98
v/s Ratio Prot		0.02	0.20			c0.02	c0.22		c0.15	0.15		0.01
v/s Ratio Perm		0.13		0.03		0.13					0.02	
v/c Ratio		0.26	0.41	0.07		0.27	0.45		0.75	0.73	0.09	0.12
Uniform Delay, d1		10.4	16.5	13.7		10.4	16.0		37.7	37.5	32.6	44.6
Progression Factor		0.92	0.99	1.29		0.89	0.94		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	0.8	0.2		0.2	0.9		9.4	8.2	0.1	0.4
Delay (s)		9.8	17.1	17.8		9.6	16.0		47.0	45.7	32.6	45.0
Level of Service		A	B	B		A	B		D	D	C	D
Approach Delay (s)			16.3				15.1			43.4		
Approach LOS			B				B			D		

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	8	38
Future Volume (vph)	8	38
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.88	
Flt Protected	1.00	
Satd. Flow (prot)	1513	
Flt Permitted	1.00	
Satd. Flow (perm)	1513	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	9	41
RTOR Reduction (vph)	39	0
Lane Group Flow (vph)	11	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	5.9	
Effective Green, g (s)	5.9	
Actuated g/C Ratio	0.06	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	89	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.13	
Uniform Delay, d1	44.6	
Progression Factor	1.00	
Incremental Delay, d2	0.5	
Delay (s)	45.1	
Level of Service	D	
Approach Delay (s)	45.1	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	782	5	728	11	15	20	71
v/c Ratio	0.03	0.31	0.01	0.30	0.11	0.14	0.19	0.38
Control Delay	3.6	4.3	3.6	5.5	46.8	34.6	47.9	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	4.3	3.6	5.5	46.8	34.6	47.9	19.2
Queue Length 50th (ft)	1	28	0	27	7	5	12	5
Queue Length 95th (ft)	m8	144	4	153	25	25	36	47
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	569	2522	552	2443	104	554	110	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.31	0.01	0.30	0.11	0.03	0.18	0.13

Intersection Summary

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

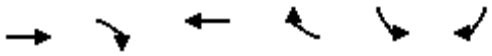
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	8	680	40	5	649	21	10	7	6	18	7
Future Volume (vph)	7	8	680	40	5	649	21	10	7	6	18	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1646	3089		1662	3069		1662	1617		1662	1500
Flt Permitted		0.36	1.00		0.34	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		623	3089		594	3069		1662	1617		1662	1500
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)	8	9	739	43	5	705	23	11	8	7	20	8
RTOR Reduction (vph)	0	0	2	0	0	1	0	0	7	0	0	58
Lane Group Flow (vph)	0	17	780	0	5	727	0	11	8	0	20	13
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		74.6	73.5		74.6	72.4		1.4	5.9		3.0	7.5
Effective Green, g (s)		74.6	73.5		74.6	72.4		1.4	5.9		3.0	7.5
Actuated g/C Ratio		0.75	0.74		0.75	0.72		0.01	0.06		0.03	0.08
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		487	2270		454	2221		23	95		49	112
v/s Ratio Prot		c0.00	c0.25		0.00	0.24		0.01	0.01		c0.01	c0.01
v/s Ratio Perm		0.03			0.01							
v/c Ratio		0.03	0.34		0.01	0.33		0.48	0.09		0.41	0.11
Uniform Delay, d1		3.3	4.7		3.3	5.0		48.9	44.5		47.6	43.1
Progression Factor		1.03	0.93		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.4		0.0	0.4		11.0	0.3		4.0	0.3
Delay (s)		3.4	4.8		3.3	5.4		59.9	44.8		51.6	43.5
Level of Service		A	A		A	A		E	D		D	D
Approach Delay (s)			4.7			5.4			51.2			45.3
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

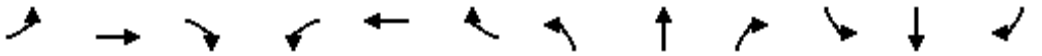
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	58
Future Volume (vph)	58
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	63
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	764	396	685	617	538	300
v/c Ratio	0.34	0.28	0.39	0.43	0.78	0.49
Control Delay	7.3	0.5	16.3	1.1	44.4	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	0.5	16.3	1.1	44.4	15.5
Queue Length 50th (ft)	92	0	143	0	167	79
Queue Length 95th (ft)	147	0	160	14	209	142
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2243	1426	1771	1430	1048	623
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.28	0.39	0.43	0.51	0.48

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	703	364	0	630	568	0	0	0	495	0	276
Future Volume (vph)	0	703	364	0	630	568	0	0	0	495	0	276
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		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	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3260	1426		3260	1430				3131		1444
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444
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	764	396	0	685	617	0	0	0	538	0	300
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	82
Lane Group Flow (vph)	0	764	396	0	685	617	0	0	0	538	0	218
Confl. Peds. (#/hr)			3	3					1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		68.8	100.0		54.3	100.0				22.2		36.7
Effective Green, g (s)		68.8	100.0		54.3	100.0				22.2		36.7
Actuated g/C Ratio		0.69	1.00		0.54	1.00				0.22		0.37
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2242	1426		1770	1430				695		529
v/s Ratio Prot		0.23			0.21					c0.17		
v/s Ratio Perm			0.28			c0.43						0.15
v/c Ratio		0.34	0.28		0.39	0.43				0.77		0.41
Uniform Delay, d1		6.4	0.0		13.2	0.0				36.5		23.6
Progression Factor		1.00	1.00		1.12	1.00				1.00		1.00
Incremental Delay, d2		0.4	0.5		0.2	0.9				5.2		0.4
Delay (s)		6.8	0.5		15.0	0.9				41.7		24.0
Level of Service		A	A		B	A				D		C
Approach Delay (s)		4.6			8.3			0.0			35.4	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	703	364	0	630	568	0	0	0	495	0	276
Future Volume (veh/h)	0	703	364	0	630	568	0	0	0	495	0	276
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	764	0	0	685	0				538	0	300
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2197		0	2197					754	0	346
Arrive On Green	0.00	0.67	0.00	0.00	0.67	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	764	0	0	685	0				538	0	300
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	10.0	0.0	0.0	8.7	0.0				15.6	0.0	19.9
Cycle Q Clear(g_c), s	0.0	10.0	0.0	0.0	8.7	0.0				15.6	0.0	19.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2197		0	2197					754	0	346
V/C Ratio(X)	0.00	0.35		0.00	0.31					0.71	0.00	0.87
Avail Cap(c_a), veh/h	0	2197		0	2197					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.1	0.0	0.0	6.8	0.0				34.9	0.0	36.5
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.1	0.0				1.0	0.0	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.2	0.0	0.0	2.7	0.0				6.0	0.0	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.5	0.0	0.0	6.9	0.0				35.9	0.0	46.9
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		764	A		685	A					838	
Approach Delay, s/veh		7.5			6.9						39.9	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		71.6		28.4		71.6						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		12.0		21.9		10.7						
Green Ext Time (p_c), s		16.3		2.0		7.5						

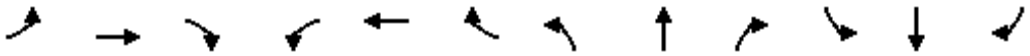
Intersection Summary		
HCM 6th Ctrl Delay		19.2
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1065	198	1037	340	213	280	278
v/c Ratio	0.48	0.14	0.47	0.25	0.62	0.79	0.77
Control Delay	10.3	0.2	6.4	0.3	41.1	41.6	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	0.2	6.4	0.3	41.1	41.6	39.0
Queue Length 50th (ft)	202	0	70	0	129	139	130
Queue Length 95th (ft)	374	0	185	0	177	210	197
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2214	1403	2192	1387	565	535	551
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.14	0.47	0.25	0.38	0.52	0.50

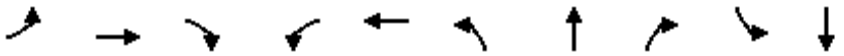
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1001	186	0	975	320	223	0	502	0	0	0
Future Volume (vph)	0	1001	186	0	975	320	223	0	502	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3292	1403		3260	1387	1504	1303	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1303	1346			
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)	0	1065	198	0	1037	340	237	0	534	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	56	56	0	0	0
Lane Group Flow (vph)	0	1065	198	0	1037	340	213	224	222	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		67.3	100.0		67.3	100.0	22.8	22.8	22.8			
Effective Green, g (s)		67.3	100.0		67.3	100.0	22.8	22.8	22.8			
Actuated g/C Ratio		0.67	1.00		0.67	1.00	0.23	0.23	0.23			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2215	1403		2193	1387	342	297	306			
v/s Ratio Prot		c0.32			0.32							
v/s Ratio Perm			0.14			0.25	0.14	0.17	0.16			
v/c Ratio		0.48	0.14		0.47	0.25	0.62	0.75	0.72			
Uniform Delay, d1		7.9	0.0		7.8	0.0	34.7	36.0	35.7			
Progression Factor		1.01	1.00		0.62	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.2		0.4	0.3	3.0	9.8	7.7			
Delay (s)		8.7	0.2		5.2	0.3	37.8	45.8	43.4			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		7.4			4.0			42.7			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	123	1011	267	245	865	252	250	225	22	109
v/c Ratio	0.39	0.80	0.36	0.73	0.58	0.77	0.76	0.46	0.19	0.62
Control Delay	12.8	31.5	5.3	37.6	17.7	51.9	50.7	7.2	48.0	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	31.5	5.3	37.6	17.7	51.9	50.7	7.2	48.0	34.0
Queue Length 50th (ft)	28	347	21	59	213	160	158	0	13	21
Queue Length 95th (ft)	65	#427	44	#240	243	230	227	54	38	#90
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	314	1256	735	337	1492	444	449	580	116	175
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.80	0.36	0.73	0.58	0.57	0.56	0.39	0.19	0.62

Intersection Summary

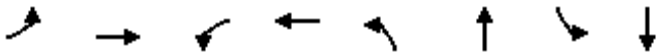
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	28	85	920	243	15	208	771	16	432	25	205	20
Future Volume (vph)	28	85	920	243	15	208	771	16	432	25	205	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		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	0.98	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1654	3197	1458		1660	3190		1533	1550	1451	1662
Flt Permitted		0.23	1.00	1.00		0.13	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		405	3197	1458		231	3190		1533	1550	1451	1662
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	30	93	1011	267	16	229	847	18	475	27	225	22
RTOR Reduction (vph)	0	0	0	162	0	0	1	0	0	0	177	0
Lane Group Flow (vph)	0	123	1011	105	0	245	864	0	252	250	48	22
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		54.1	39.3	39.3		54.1	46.7		21.4	21.4	21.4	7.0
Effective Green, g (s)		54.1	39.3	39.3		54.1	46.7		21.4	21.4	21.4	7.0
Actuated g/C Ratio		0.54	0.39	0.39		0.54	0.47		0.21	0.21	0.21	0.07
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		311	1256	572		336	1489		328	331	310	116
v/s Ratio Prot		0.03	c0.32			c0.11	0.27		c0.16	0.16		0.01
v/s Ratio Perm		0.18		0.07		0.29					0.03	
v/c Ratio		0.40	0.80	0.18		0.73	0.58		0.77	0.76	0.16	0.19
Uniform Delay, d1		12.5	26.9	19.9		17.9	19.5		37.0	36.8	32.0	43.8
Progression Factor		0.85	0.92	1.34		1.36	0.77		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	4.9	0.6		6.9	1.6		9.9	9.0	0.2	0.6
Delay (s)		11.2	29.8	27.3		31.2	16.6		46.9	45.8	32.1	44.4
Level of Service		B	C	C		C	B		D	D	C	D
Approach Delay (s)			27.7				19.8			42.0		
Approach LOS			C				B			D		

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	31	68
Future Volume (vph)	31	68
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1510	
Flt Permitted	1.00	
Satd. Flow (perm)	1510	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	34	75
RTOR Reduction (vph)	70	0
Lane Group Flow (vph)	39	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.0	
Effective Green, g (s)	7.0	
Actuated g/C Ratio	0.07	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	105	
v/s Ratio Prot	c0.03	
v/s Ratio Perm		
v/c Ratio	0.37	
Uniform Delay, d1	44.4	
Progression Factor	1.00	
Incremental Delay, d2	1.6	
Delay (s)	46.0	
Level of Service	D	
Approach Delay (s)	45.8	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	1137	21	1010	22	22	53	103
v/c Ratio	0.09	0.46	0.06	0.41	0.24	0.18	0.49	0.52
Control Delay	5.6	8.0	3.8	7.3	51.6	35.0	61.2	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	8.0	3.8	7.3	51.6	35.0	61.2	23.1
Queue Length 50th (ft)	8	171	2	106	14	9	33	12
Queue Length 95th (ft)	m11	182	10	236	39	32	#82	61
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	418	2481	378	2451	95	548	112	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.46	0.06	0.41	0.23	0.04	0.47	0.18

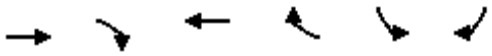
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	14	23	992	88	20	916	44	21	13	8	50	18
Future Volume (vph)	14	23	992	88	20	916	44	21	13	8	50	18
Ideal Flow (vphpl)	1900	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	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		1.00	1.00
Frt		1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.88
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1649	3158		1662	3207		1662	1646		1662	1523
Flt Permitted		0.25	1.00		0.22	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		438	3158		380	3207		1662	1646		1662	1523
Peak-hour factor, PHF	0.92	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)	15	24	1044	93	21	964	46	22	14	8	53	19
RTOR Reduction (vph)	0	0	3	0	0	2	0	0	8	0	0	78
Lane Group Flow (vph)	0	39	1134	0	21	1008	0	22	14	0	53	25
Confl. Peds. (#/hr)		3		3	3		3			2	2	
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		74.2	71.9		74.2	70.6		2.2	3.8		5.5	7.1
Effective Green, g (s)		74.2	71.9		74.2	70.6		2.2	3.8		5.5	7.1
Actuated g/C Ratio		0.74	0.72		0.74	0.71		0.02	0.04		0.06	0.07
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		368	2270		311	2264		36	62		91	108
v/s Ratio Prot		c0.00	c0.36		0.00	0.31		0.01	0.01		c0.03	c0.02
v/s Ratio Perm		0.07			0.05							
v/c Ratio		0.11	0.50		0.07	0.45		0.61	0.23		0.58	0.23
Uniform Delay, d1		3.7	6.2		3.8	6.3		48.5	46.7		46.1	43.9
Progression Factor		1.56	1.17		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.5		0.1	0.6		23.4	1.4		7.6	0.8
Delay (s)		5.9	7.7		3.9	6.9		71.9	48.1		53.8	44.7
Level of Service		A	A		A	A		E	D		D	D
Approach Delay (s)			7.7			6.9			60.0			47.8
Approach LOS			A			A			E			D

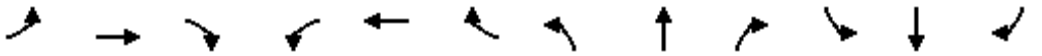
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	84
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	442	210	389	517	313	95
v/c Ratio	0.19	0.16	0.19	0.40	0.67	0.20
Control Delay	4.0	0.3	8.4	2.0	47.1	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	0.3	8.4	2.0	47.1	6.1
Queue Length 50th (ft)	34	0	77	2	98	0
Queue Length 95th (ft)	55	0	50	32	125	28
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2348	1312	2046	1300	1069	536
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.16	0.19	0.40	0.29	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	371	176	0	327	434	0	0	0	263	0	80
Future Volume (vph)	0	371	176	0	327	434	0	0	0	263	0	80
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3107	1312		3197	1300				3014		1340
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340
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)	0	442	210	0	389	517	0	0	0	313	0	95
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	68
Lane Group Flow (vph)	0	442	210	0	389	517	0	0	0	313	0	27
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			2			3						
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		75.6	100.0		63.1	100.0				15.4		27.9
Effective Green, g (s)		75.6	100.0		63.1	100.0				15.4		27.9
Actuated g/C Ratio		0.76	1.00		0.63	1.00				0.15		0.28
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2348	1312		2017	1300				464		373
v/s Ratio Prot		0.14			0.12					c0.10		
v/s Ratio Perm			0.16			c0.40						0.02
v/c Ratio		0.19	0.16		0.19	0.40				0.67		0.07
Uniform Delay, d1		3.5	0.0		7.8	0.0				39.9		26.5
Progression Factor		1.00	1.00		0.95	1.00				1.00		1.00
Incremental Delay, d2		0.2	0.3		0.1	0.9				3.5		0.1
Delay (s)		3.6	0.3		7.4	0.9				43.4		26.6
Level of Service		A	A		A	A				D		C
Approach Delay (s)		2.6			3.7			0.0			39.5	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	26.8%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	371	176	0	327	434	0	0	0	263	0	80
Future Volume (veh/h)	0	371	176	0	327	434	0	0	0	263	0	80
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	442	0	0	389	0				313	0	95
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2452		0	2513					397	0	176
Arrive On Green	0.00	0.78	0.00	0.00	0.78	0.00				0.13	0.00	0.13
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	442	0	0	389	0				313	0	95
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	3.6	0.0	0.0	3.0	0.0				9.9	0.0	6.6
Cycle Q Clear(g_c), s	0.0	3.6	0.0	0.0	3.0	0.0				9.9	0.0	6.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2452		0	2513					397	0	176
V/C Ratio(X)	0.00	0.18		0.00	0.15					0.79	0.00	0.54
Avail Cap(c_a), veh/h	0	2452		0	2513					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.8	0.0	0.0	2.8	0.0				42.2	0.0	40.7
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.0				2.6	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.0	0.0	0.7	0.0				3.9	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.0	0.0	0.0	2.8	0.0				44.8	0.0	42.6
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		442	A		389	A					408	
Approach Delay, s/veh		3.0			2.8						44.3	
Approach LOS		A			A						D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	82.5	17.5	82.5
Change Period (Y+Rc), s	4.5	4.5	4.5
Max Green Setting (Gmax), s	55.5	35.5	40.5
Max Q Clear Time (g_c+I1), s	5.6	11.9	5.0
Green Ext Time (p_c), s	8.6	1.1	4.0

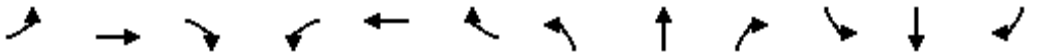
Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

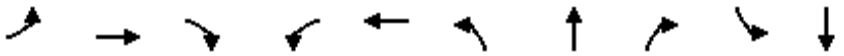
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	521	187	729	633	113	300	298
v/c Ratio	0.22	0.14	0.32	0.45	0.51	0.77	0.74
Control Delay	3.7	0.2	7.3	1.4	45.2	22.7	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.7	0.2	7.3	1.4	45.2	22.7	21.1
Queue Length 50th (ft)	21	0	61	1	71	41	37
Queue Length 95th (ft)	125	0	153	1	110	125	115
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2351	1325	2286	1399	666	707	730
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.32	0.45	0.17	0.42	0.41

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	464	166	0	649	563	112	0	521	0	0	0
Future Volume (vph)	0	464	166	0	649	563	112	0	521	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3137	1325		3050	1399	1462	1271	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1271	1321			
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)	0	521	187	0	729	633	126	0	585	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	200	200	0	0	0
Lane Group Flow (vph)	0	521	187	0	729	633	113	100	98	0	0	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		75.0	100.0		75.0	100.0	15.1	15.1	15.1			
Effective Green, g (s)		75.0	100.0		75.0	100.0	15.1	15.1	15.1			
Actuated g/C Ratio		0.75	1.00		0.75	1.00	0.15	0.15	0.15			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2352	1325		2287	1399	220	191	199			
v/s Ratio Prot		0.17			0.24							
v/s Ratio Perm			0.14			c0.45	0.08	0.08	0.07			
v/c Ratio		0.22	0.14		0.32	0.45	0.51	0.52	0.49			
Uniform Delay, d1		3.7	0.0		4.1	0.0	39.1	39.1	38.9			
Progression Factor		0.76	1.00		1.38	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.2		0.2	1.0	1.5	2.0	1.4			
Delay (s)		3.1	0.2		5.9	1.0	40.6	41.1	40.3			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		2.3			3.6			40.7			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	102	746	100	116	803	232	229	129	12	50
v/c Ratio	0.28	0.48	0.13	0.30	0.51	0.75	0.73	0.32	0.10	0.34
Control Delay	11.4	21.3	5.4	10.7	16.5	52.0	50.7	7.6	44.9	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	21.3	5.4	10.7	16.5	52.0	50.7	7.6	44.9	23.8
Queue Length 50th (ft)	25	205	4	21	82	148	145	0	7	6
Queue Length 95th (ft)	53	306	41	45	314	213	209	43	25	42
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	366	1552	747	387	1577	487	492	552	141	166
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.48	0.13	0.30	0.51	0.48	0.47	0.23	0.09	0.30

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	47	47	694	93	10	98	729	18	406	22	120	11
Future Volume (vph)	47	47	694	93	10	98	729	18	406	22	120	11
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frpb, ped/bikes		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
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1638	3137	1401		1630	3044		1548	1563	1473	1662
Flt Permitted		0.27	1.00	1.00		0.29	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		471	3137	1401		504	3044		1548	1563	1473	1662
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	51	746	100	11	105	784	19	437	24	129	12
RTOR Reduction (vph)	0	0	0	51	0	0	1	0	0	0	103	0
Lane Group Flow (vph)	0	102	746	49	0	116	802	0	232	229	26	12
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		56.6	48.6	48.6		56.6	50.1		20.0	20.0	20.0	5.9
Effective Green, g (s)		56.6	48.6	48.6		56.6	50.1		20.0	20.0	20.0	5.9
Actuated g/C Ratio		0.57	0.49	0.49		0.57	0.50		0.20	0.20	0.20	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		342	1524	680		375	1525		309	312	294	98
v/s Ratio Prot		0.02	0.24			c0.02	c0.26		c0.15	0.15		0.01
v/s Ratio Perm		0.15		0.03		0.15					0.02	
v/c Ratio		0.30	0.49	0.07		0.31	0.53		0.75	0.73	0.09	0.12
Uniform Delay, d1		10.7	17.3	13.7		10.7	16.9		37.7	37.5	32.6	44.6
Progression Factor		0.92	1.04	1.36		0.84	0.80		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3	1.1	0.2		0.3	1.2		9.4	8.2	0.1	0.4
Delay (s)		10.2	19.0	18.8		9.4	14.7		47.0	45.7	32.7	45.0
Level of Service		B	B	B		A	B		D	D	C	D
Approach Delay (s)			18.1				14.0			43.4		
Approach LOS			B				B			D		

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	8	38
Future Volume (vph)	8	38
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.88	
Flt Protected	1.00	
Satd. Flow (prot)	1513	
Flt Permitted	1.00	
Satd. Flow (perm)	1513	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	9	41
RTOR Reduction (vph)	39	0
Lane Group Flow (vph)	11	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	5.9	
Effective Green, g (s)	5.9	
Actuated g/C Ratio	0.06	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	89	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.13	
Uniform Delay, d1	44.6	
Progression Factor	1.00	
Incremental Delay, d2	0.5	
Delay (s)	45.1	
Level of Service	D	
Approach Delay (s)	45.1	
Approach LOS	D	

Intersection Summary

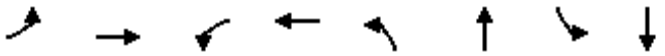
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	712	135	0	839	0	36
Future Vol, veh/h	712	135	0	839	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	774	147	0	912	0	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	461
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	553
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	553	-	-	-
HCM Lane V/C Ratio	0.071	-	-	-
HCM Control Delay (s)	12	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	782	38	709	139	25	20	74
v/c Ratio	0.07	0.42	0.09	0.38	0.51	0.07	0.19	0.47
Control Delay	6.0	8.6	6.2	11.7	48.7	25.0	47.9	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	8.6	6.2	11.7	48.7	25.0	47.9	24.1
Queue Length 50th (ft)	4	56	8	127	82	6	12	7
Queue Length 95th (ft)	m15	134	16	160	#209	32	36	49
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	436	1860	409	1849	272	553	110	554
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.42	0.09	0.38	0.51	0.05	0.18	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	22	7	687	32	35	631	21	128	11	12	18	10
Future Volume (vph)	22	7	687	32	35	631	21	128	11	12	18	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.92		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1637	3092		1662	3068		1662	1602		1662	1510
Flt Permitted		0.34	1.00		0.30	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		577	3092		528	3068		1662	1602		1662	1510
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)	24	8	747	35	38	686	23	139	12	13	20	11
RTOR Reduction (vph)	0	0	2	0	0	2	0	0	10	0	0	58
Lane Group Flow (vph)	0	32	780	0	38	707	0	139	15	0	20	16
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		59.9	56.2		59.9	56.3		16.4	20.6		3.0	7.2
Effective Green, g (s)		59.9	56.2		59.9	56.3		16.4	20.6		3.0	7.2
Actuated g/C Ratio		0.60	0.56		0.60	0.56		0.16	0.21		0.03	0.07
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		383	1737		358	1727		272	330		49	108
v/s Ratio Prot		0.00	c0.25		c0.00	0.23		c0.08	0.01		0.01	c0.01
v/s Ratio Perm		0.05			0.06							
v/c Ratio		0.08	0.45		0.11	0.41		0.51	0.04		0.41	0.14
Uniform Delay, d1		8.5	12.8		8.6	12.4		38.1	31.8		47.6	43.5
Progression Factor		0.99	0.69		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.8		0.1	0.7		1.2	0.0		4.0	0.4
Delay (s)		8.4	9.7		8.7	13.1		39.4	31.9		51.6	44.0
Level of Service		A	A		A	B		D	C		D	D
Approach Delay (s)			9.6			12.9			38.2			45.6
Approach LOS			A			B			D			D

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	58
Future Volume (vph)	58
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	63
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

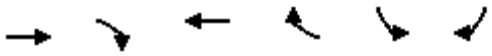
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	128	2	2	23	53	25
Future Vol, veh/h	128	2	2	23	53	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	151	2	2	27	62	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	108	77	91	0	-	0
Stage 1	77	-	-	-	-	-
Stage 2	31	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	894	990	1517	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	893	990	1517	-	-	-
Mov Cap-2 Maneuver	893	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	997	-	-	-	-	-

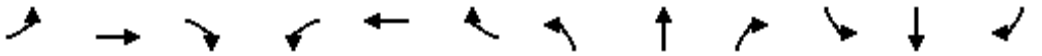
Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1517	-	894	-	-
HCM Lane V/C Ratio	0.002	-	0.171	-	-
HCM Control Delay (s)	7.4	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-



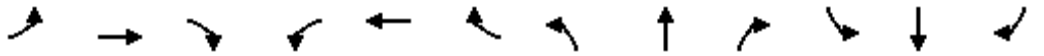
Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	768	396	690	660	578	300
v/c Ratio	0.35	0.28	0.40	0.46	0.79	0.48
Control Delay	7.9	0.5	17.0	1.3	43.9	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	0.5	17.0	1.3	43.9	15.0
Queue Length 50th (ft)	97	0	115	5	178	78
Queue Length 95th (ft)	155	0	167	18	222	139
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2202	1426	1729	1430	1048	636
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.28	0.40	0.46	0.55	0.47

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	707	364	0	635	607	0	0	0	532	0	276
Future Volume (vph)	0	707	364	0	635	607	0	0	0	532	0	276
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		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	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3260	1426		3260	1430				3131		1444
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444
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	768	396	0	690	660	0	0	0	578	0	300
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	768	396	0	690	660	0	0	0	578	0	221
Confl. Peds. (#/hr)			3	3					1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		67.6	100.0		53.1	100.0				23.4		37.9
Effective Green, g (s)		67.6	100.0		53.1	100.0				23.4		37.9
Actuated g/C Ratio		0.68	1.00		0.53	1.00				0.23		0.38
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2203	1426		1731	1430				732		547
v/s Ratio Prot		0.24			0.21					c0.18		
v/s Ratio Perm			0.28			c0.46						0.15
v/c Ratio		0.35	0.28		0.40	0.46				0.79		0.40
Uniform Delay, d1		6.9	0.0		14.0	0.0				36.0		22.8
Progression Factor		1.00	1.00		1.10	1.00				1.00		1.00
Incremental Delay, d2		0.4	0.5		0.2	1.0				5.5		0.4
Delay (s)		7.3	0.5		15.6	1.0				41.5		23.1
Level of Service		A	A		B	A				D		C
Approach Delay (s)		5.0			8.4			0.0			35.2	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.2%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	707	364	0	635	607	0	0	0	532	0	276
Future Volume (veh/h)	0	707	364	0	635	607	0	0	0	532	0	276
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	768	0	0	690	0				578	0	300
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2194		0	2194					757	0	347
Arrive On Green	0.00	0.67	0.00	0.00	0.67	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	768	0	0	690	0				578	0	300
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	10.1	0.0	0.0	8.8	0.0				17.0	0.0	19.9
Cycle Q Clear(g_c), s	0.0	10.1	0.0	0.0	8.8	0.0				17.0	0.0	19.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2194		0	2194					757	0	347
V/C Ratio(X)	0.00	0.35		0.00	0.31					0.76	0.00	0.86
Avail Cap(c_a), veh/h	0	2194		0	2194					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.84	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.1	0.0	0.0	6.9	0.0				35.4	0.0	36.5
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.1	0.0				1.8	0.0	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	0.0	0.0	2.8	0.0				6.6	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.5	0.0	0.0	7.0	0.0				37.2	0.0	46.6
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		768	A		690	A					878	
Approach Delay, s/veh		7.5			7.0						40.4	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		71.5		28.5		71.5						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		12.1		21.9		10.8						
Green Ext Time (p_c), s		16.4		2.1		7.6						

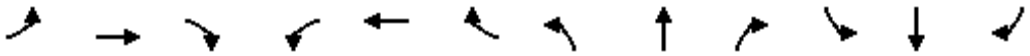
Intersection Summary												
HCM 6th Ctrl Delay			19.7									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1109	198	1084	382	213	300	298
v/c Ratio	0.52	0.14	0.51	0.28	0.57	0.80	0.77
Control Delay	12.6	0.2	7.2	0.4	37.0	42.3	39.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	0.2	7.2	0.4	37.0	42.3	39.5
Queue Length 50th (ft)	218	0	62	0	125	157	147
Queue Length 95th (ft)	402	0	184	0	171	229	213
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2141	1403	2120	1387	565	530	546
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.14	0.51	0.28	0.38	0.57	0.55

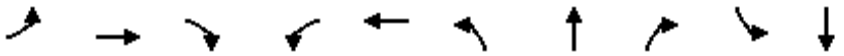
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1042	186	0	1019	359	223	0	540	0	0	0
Future Volume (vph)	0	1042	186	0	1019	359	223	0	540	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3292	1403		3260	1387	1504	1302	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1302	1346			
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)	0	1109	198	0	1084	382	237	0	574	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	49	49	0	0	0
Lane Group Flow (vph)	0	1109	198	0	1084	382	213	251	249	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		65.1	100.0		65.1	100.0	25.0	25.0	25.0			
Effective Green, g (s)		65.1	100.0		65.1	100.0	25.0	25.0	25.0			
Actuated g/C Ratio		0.65	1.00		0.65	1.00	0.25	0.25	0.25			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2143	1403		2122	1387	376	325	336			
v/s Ratio Prot		c0.34			0.33							
v/s Ratio Perm			0.14			0.28	0.14	0.19	0.19			
v/c Ratio		0.52	0.14		0.51	0.28	0.57	0.77	0.74			
Uniform Delay, d1		9.2	0.0		9.1	0.0	32.8	34.9	34.5			
Progression Factor		1.08	1.00		0.60	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.8	0.2		0.4	0.4	1.6	10.5	8.1			
Delay (s)		10.8	0.2		5.9	0.4	34.4	45.3	42.6			
Level of Service		B	A		A	A	C	D	D			
Approach Delay (s)		9.2			4.5			41.5			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	1098	267	237	956	252	250	226	22	109
v/c Ratio	0.44	0.87	0.36	0.78	0.65	0.76	0.75	0.46	0.18	0.60
Control Delay	15.0	35.3	6.0	46.7	20.4	51.0	49.7	7.1	46.7	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	35.3	6.0	46.7	20.4	51.0	49.7	7.1	46.7	31.8
Queue Length 50th (ft)	25	383	11	92	257	160	158	0	13	21
Queue Length 95th (ft)	81	#516	64	m#258	374	226	223	54	38	#77
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	284	1257	735	305	1461	459	465	593	132	189
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.87	0.36	0.78	0.65	0.55	0.54	0.38	0.17	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	28	85	999	243	6	209	854	16	432	25	206	20
Future Volume (vph)	28	85	999	243	6	209	854	16	432	25	206	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		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	0.98	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1654	3197	1458		1662	3190		1533	1550	1451	1662
Flt Permitted		0.19	1.00	1.00		0.10	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		333	3197	1458		178	3190		1533	1550	1451	1662
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)	31	93	1098	267	7	230	938	18	475	27	226	22
RTOR Reduction (vph)	0	0	0	162	0	0	1	0	0	0	177	0
Lane Group Flow (vph)	0	124	1098	105	0	237	955	0	252	250	49	22
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		53.4	39.3	39.3		53.4	45.8		21.6	21.6	21.6	7.5
Effective Green, g (s)		53.4	39.3	39.3		53.4	45.8		21.6	21.6	21.6	7.5
Actuated g/C Ratio		0.53	0.39	0.39		0.53	0.46		0.22	0.22	0.22	0.08
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		278	1256	572		304	1461		331	334	313	124
v/s Ratio Prot		0.03	c0.34			c0.11	0.30		c0.16	0.16		0.01
v/s Ratio Perm		0.20		0.07		0.31					0.03	
v/c Ratio		0.45	0.87	0.18		0.78	0.65		0.76	0.75	0.16	0.18
Uniform Delay, d1		13.5	28.1	19.9		23.6	21.0		36.8	36.7	31.8	43.4
Progression Factor		0.92	0.90	1.50		1.35	0.80		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.7	7.5	0.6		10.5	2.1		9.5	8.4	0.2	0.5
Delay (s)		13.1	32.7	30.3		42.3	18.8		46.3	45.1	32.0	43.9
Level of Service		B	C	C		D	B		D	D	C	D
Approach Delay (s)			30.6				23.5			41.4		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	31	68
Future Volume (vph)	31	68
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1511	
Flt Permitted	1.00	
Satd. Flow (perm)	1511	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	34	75
RTOR Reduction (vph)	69	0
Lane Group Flow (vph)	40	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.5	
Effective Green, g (s)	7.5	
Actuated g/C Ratio	0.08	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	113	
v/s Ratio Prot	c0.03	
v/s Ratio Perm		
v/c Ratio	0.35	
Uniform Delay, d1	43.9	
Progression Factor	1.00	
Incremental Delay, d2	1.4	
Delay (s)	45.3	
Level of Service	D	
Approach Delay (s)	45.1	
Approach LOS	D	

Intersection Summary

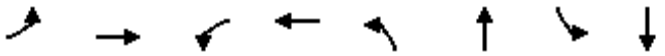
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1093	94	0	1107	0	10
Future Vol, veh/h	1093	94	0	1107	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1214	104	0	1230	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	659
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	411
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	411
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	411	-	-	-
HCM Lane V/C Ratio	0.027	-	-	-
HCM Control Delay (s)	14	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	1126	42	994	119	23	53	104
v/c Ratio	0.11	0.55	0.14	0.48	0.78	0.12	0.29	0.55
Control Delay	5.7	9.9	5.0	10.2	80.7	33.0	47.0	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	9.9	5.0	10.2	80.7	33.0	47.0	25.0
Queue Length 50th (ft)	5	96	5	146	~97	9	30	12
Queue Length 95th (ft)	m9	m172	16	231	#210	33	#82	62
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	353	2057	310	2085	153	550	188	568
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.55	0.14	0.48	0.78	0.04	0.28	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	12	23	999	70	40	901	44	113	14	8	50	19
Future Volume (vph)	12	23	999	70	40	901	44	113	14	8	50	19
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	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	0.99		1.00	0.95		1.00	0.88
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1651	3166		1662	3206		1662	1651		1662	1526
Flt Permitted		0.23	1.00		0.19	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		407	3166		336	3206		1662	1651		1662	1526
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)	13	24	1052	74	42	948	46	119	15	8	53	20
RTOR Reduction (vph)	0	0	3	0	0	2	0	0	7	0	0	76
Lane Group Flow (vph)	0	37	1123	0	42	992	0	119	16	0	53	28
Confl. Peds. (#/hr)		3		3	3		3			2	2	
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		64.6	60.9		64.6	61.0		9.2	8.8		10.1	9.7
Effective Green, g (s)		64.6	60.9		64.6	61.0		9.2	8.8		10.1	9.7
Actuated g/C Ratio		0.65	0.61		0.65	0.61		0.09	0.09		0.10	0.10
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		307	1928		266	1955		152	145		167	148
v/s Ratio Prot		0.00	c0.35		c0.01	0.31		c0.07	0.01		0.03	c0.02
v/s Ratio Perm		0.07			0.10							
v/c Ratio		0.12	0.58		0.16	0.51		0.78	0.11		0.32	0.19
Uniform Delay, d1		7.1	11.8		7.6	11.0		44.4	42.0		41.7	41.5
Progression Factor		1.34	0.91		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.8		0.2	0.9		21.9	0.2		0.8	0.5
Delay (s)		9.6	11.6		7.8	12.0		66.3	42.2		42.5	42.0
Level of Service		A	B		A	B		E	D		D	D
Approach Delay (s)			11.6			11.8			62.4			42.2
Approach LOS			B			B			E			D

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	84
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

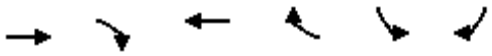
Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	93	1	1	42	126	3
Future Vol, veh/h	93	1	1	42	126	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	109	1	1	49	148	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	201	150	152	0	-	0
Stage 1	150	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	792	902	1441	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	902	1441	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	977	-	-	-	-	-

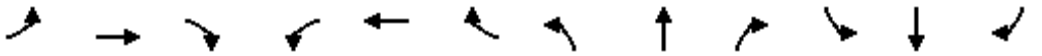
Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1441	-	792	-	-
HCM Lane V/C Ratio	0.001	-	0.14	-	-
HCM Control Delay (s)	7.5	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	457	319	423	587	332	100
v/c Ratio	0.20	0.24	0.21	0.45	0.69	0.21
Control Delay	4.2	0.4	7.4	2.3	47.0	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	0.4	7.4	2.3	47.0	5.9
Queue Length 50th (ft)	37	0	44	34	104	0
Queue Length 95th (ft)	59	0	60	14	131	29
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2329	1312	2026	1300	1069	541
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.24	0.21	0.45	0.31	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	384	268	0	355	493	0	0	0	279	0	84
Future Volume (vph)	0	384	268	0	355	493	0	0	0	279	0	84
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3107	1312		3197	1300				3014		1340
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340
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)	0	457	319	0	423	587	0	0	0	332	0	100
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	457	319	0	423	587	0	0	0	332	0	29
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			2			3						
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		75.0	100.0		62.5	100.0				16.0		28.5
Effective Green, g (s)		75.0	100.0		62.5	100.0				16.0		28.5
Actuated g/C Ratio		0.75	1.00		0.62	1.00				0.16		0.28
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2330	1312		1998	1300				482		381
v/s Ratio Prot		0.15			0.13					c0.11		
v/s Ratio Perm			0.24			c0.45						0.02
v/c Ratio		0.20	0.24		0.21	0.45				0.69		0.07
Uniform Delay, d1		3.7	0.0		8.1	0.0				39.6		26.1
Progression Factor		1.00	1.00		0.80	1.00				1.00		1.00
Incremental Delay, d2		0.2	0.4		0.1	1.1				3.7		0.1
Delay (s)		3.9	0.4		6.5	1.1				43.4		26.2
Level of Service		A	A		A	A				D		C
Approach Delay (s)		2.4			3.4			0.0			39.4	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	27.7%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	384	268	0	355	493	0	0	0	279	0	84
Future Volume (veh/h)	0	384	268	0	355	493	0	0	0	279	0	84
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	457	0	0	423	0				332	0	100
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2431		0	2492					417	0	185
Arrive On Green	0.00	0.77	0.00	0.00	0.77	0.00				0.14	0.00	0.14
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	457	0	0	423	0				332	0	100
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	3.9	0.0	0.0	3.4	0.0				10.5	0.0	6.9
Cycle Q Clear(g_c), s	0.0	3.9	0.0	0.0	3.4	0.0				10.5	0.0	6.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2431		0	2492					417	0	185
V/C Ratio(X)	0.00	0.19		0.00	0.17					0.80	0.00	0.54
Avail Cap(c_a), veh/h	0	2431		0	2492					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.0	0.0	0.0	3.0	0.0				41.8	0.0	40.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.0				2.6	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	0.0	0.0	0.8	0.0				4.1	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.2	0.0	0.0	3.0	0.0				44.4	0.0	42.1
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		457	A		423	A					432	
Approach Delay, s/veh		3.2			3.0						43.9	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		81.8		18.2		81.8						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		5.9		12.5		5.4						
Green Ext Time (p_c), s		8.9		1.1		4.4						

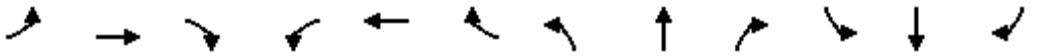
Intersection Summary		
HCM 6th Ctrl Delay		16.5
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

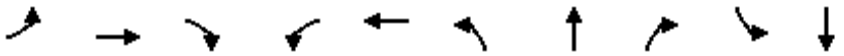
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	539	194	821	779	117	299	297
v/c Ratio	0.23	0.15	0.36	0.56	0.51	0.77	0.75
Control Delay	4.4	0.2	6.8	2.1	44.6	24.3	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	0.2	6.8	2.1	44.6	24.3	22.7
Queue Length 50th (ft)	22	0	122	12	74	48	45
Queue Length 95th (ft)	127	0	106	4	112	131	123
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2336	1325	2271	1399	666	701	724
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.15	0.36	0.56	0.18	0.43	0.41

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	480	173	0	731	693	116	0	519	0	0	0
Future Volume (vph)	0	480	173	0	731	693	116	0	519	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3137	1325		3050	1399	1462	1271	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1271	1321			
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)	0	539	194	0	821	779	130	0	583	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	189	189	0	0	0
Lane Group Flow (vph)	0	539	194	0	821	779	117	110	108	0	0	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		74.5	100.0		74.5	100.0	15.6	15.6	15.6			
Effective Green, g (s)		74.5	100.0		74.5	100.0	15.6	15.6	15.6			
Actuated g/C Ratio		0.74	1.00		0.74	1.00	0.16	0.16	0.16			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2337	1325		2272	1399	228	198	206			
v/s Ratio Prot		0.17			0.27							
v/s Ratio Perm			0.15			c0.56	0.08	0.09	0.08			
v/c Ratio		0.23	0.15		0.36	0.56	0.51	0.56	0.52			
Uniform Delay, d1		3.9	0.0		4.4	0.0	38.7	39.0	38.8			
Progression Factor		0.85	1.00		1.17	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.2	0.2		0.2	1.2	1.5	2.7	1.8			
Delay (s)		3.6	0.2		5.4	1.2	40.2	41.7	40.6			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		2.7			3.4			41.0			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	105	702	190	133	749	383	382	159	12	53
v/c Ratio	0.34	0.54	0.27	0.41	0.56	0.87	0.86	0.30	0.10	0.35
Control Delay	16.3	26.3	6.4	14.6	21.7	54.0	52.8	5.7	44.8	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	26.3	6.4	14.6	21.7	54.0	52.8	5.7	44.8	24.8
Queue Length 50th (ft)	44	218	13	47	211	235	233	0	7	7
Queue Length 95th (ft)	57	289	41	36	281	#385	#382	45	25	44
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	309	1301	692	328	1347	491	495	575	141	167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.54	0.27	0.41	0.56	0.78	0.77	0.28	0.09	0.32

Intersection Summary

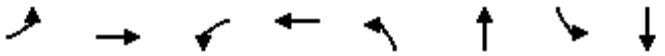
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	49	48	653	177	8	115	679	18	685	26	148	11
Future Volume (vph)	49	48	653	177	8	115	679	18	685	26	148	11
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frpb, ped/bikes		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
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1638	3137	1400		1630	3044		1548	1560	1473	1662
Flt Permitted		0.27	1.00	1.00		0.28	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		460	3137	1400		484	3044		1548	1560	1473	1662
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	52	702	190	9	124	730	19	737	28	159	12
RTOR Reduction (vph)	0	0	0	113	0	0	2	0	0	0	114	0
Lane Group Flow (vph)	0	105	702	77	0	133	747	0	383	382	45	12
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		48.0	40.6	40.6		48.0	42.5		28.6	28.6	28.6	5.9
Effective Green, g (s)		48.0	40.6	40.6		48.0	42.5		28.6	28.6	28.6	5.9
Actuated g/C Ratio		0.48	0.41	0.41		0.48	0.42		0.29	0.29	0.29	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		285	1273	568		317	1293		442	446	421	98
v/s Ratio Prot		0.02	0.22			c0.03	c0.25		c0.25	0.24		0.01
v/s Ratio Perm		0.16		0.06		0.17					0.03	
v/c Ratio		0.37	0.55	0.14		0.42	0.58		0.87	0.86	0.11	0.12
Uniform Delay, d1		15.3	22.7	18.7		15.5	21.9		33.9	33.8	26.3	44.6
Progression Factor		0.93	1.02	1.55		0.74	0.85		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6	1.7	0.5		0.6	1.8		16.0	14.7	0.1	0.4
Delay (s)		14.8	24.8	29.4		12.1	20.4		49.9	48.5	26.4	45.0
Level of Service		B	C	C		B	C		D	D	C	D
Approach Delay (s)			24.6				19.2			45.3		
Approach LOS			C				B			D		

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	10	39
Future Volume (vph)	10	39
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.88	
Flt Protected	1.00	
Satd. Flow (prot)	1521	
Flt Permitted	1.00	
Satd. Flow (perm)	1521	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	11	42
RTOR Reduction (vph)	40	0
Lane Group Flow (vph)	13	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	5.9	
Effective Green, g (s)	5.9	
Actuated g/C Ratio	0.06	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	89	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.15	
Uniform Delay, d1	44.7	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	45.2	
Level of Service	D	
Approach Delay (s)	45.2	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	849	5	797	23	17	21	75
v/c Ratio	0.03	0.34	0.01	0.33	0.23	0.15	0.22	0.47
Control Delay	4.8	5.9	3.6	5.7	50.4	34.4	50.1	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	5.9	3.6	5.7	50.4	34.4	50.1	23.7
Queue Length 50th (ft)	4	123	0	31	14	6	13	6
Queue Length 95th (ft)	m5	100	4	168	40	27	37	49
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	532	2515	519	2437	104	559	103	554
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.34	0.01	0.33	0.22	0.03	0.20	0.14

Intersection Summary

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

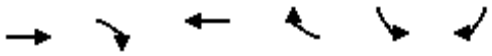
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	9	736	45	5	711	22	21	9	6	19	9
Future Volume (vph)	7	9	736	45	5	711	22	21	9	6	19	9
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.94		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1647	3088		1662	3069		1662	1633		1662	1505
Flt Permitted		0.33	1.00		0.31	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		576	3088		550	3069		1662	1633		1662	1505
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)	8	10	800	49	5	773	24	23	10	7	21	10
RTOR Reduction (vph)	0	0	2	0	0	1	0	0	7	0	0	61
Lane Group Flow (vph)	0	18	847	0	5	796	0	23	10	0	21	14
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		75.2	74.1		75.2	72.9		2.6	5.7		2.6	5.7
Effective Green, g (s)		75.2	74.1		75.2	72.9		2.6	5.7		2.6	5.7
Actuated g/C Ratio		0.75	0.74		0.75	0.73		0.03	0.06		0.03	0.06
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		457	2288		425	2237		43	93		43	85
v/s Ratio Prot		c0.00	c0.27		0.00	0.26		c0.01	0.01		0.01	c0.01
v/s Ratio Perm		0.03			0.01							
v/c Ratio		0.04	0.37		0.01	0.36		0.53	0.11		0.49	0.16
Uniform Delay, d1		3.2	4.6		3.2	5.0		48.1	44.7		48.0	44.9
Progression Factor		1.41	1.25		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.4		0.0	0.4		9.6	0.4		6.2	0.7
Delay (s)		4.5	6.2		3.2	5.4		57.7	45.1		54.3	45.5
Level of Service		A	A		A	A		E	D		D	D
Approach Delay (s)			6.2			5.4			52.3			47.4
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

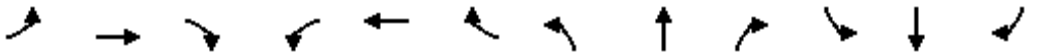
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	65
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	823	471	728	708	771	312
v/c Ratio	0.41	0.33	0.47	0.50	0.84	0.45
Control Delay	11.3	0.6	19.5	1.9	41.8	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	0.6	19.5	1.9	41.8	13.5
Queue Length 50th (ft)	131	0	130	21	236	82
Queue Length 95th (ft)	202	0	143	34	280	135
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2024	1426	1548	1430	1062	694
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.33	0.47	0.50	0.73	0.45

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	757	433	0	670	651	0	0	0	709	0	287
Future Volume (vph)	0	757	433	0	670	651	0	0	0	709	0	287
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		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	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3260	1426		3260	1430				3131		1444
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444
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	823	471	0	728	708	0	0	0	771	0	312
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	64
Lane Group Flow (vph)	0	823	471	0	728	708	0	0	0	771	0	248
Confl. Peds. (#/hr)			3	3					1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		61.7	100.0		47.2	100.0				29.3		43.8
Effective Green, g (s)		61.7	100.0		47.2	100.0				29.3		43.8
Actuated g/C Ratio		0.62	1.00		0.47	1.00				0.29		0.44
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2011	1426		1538	1430				917		632
v/s Ratio Prot		0.25			0.22					c0.25		
v/s Ratio Perm			0.33			c0.50						0.17
v/c Ratio		0.41	0.33		0.47	0.50				0.84		0.39
Uniform Delay, d1		9.8	0.0		17.9	0.0				33.2		19.1
Progression Factor		1.00	1.00		0.97	1.00				1.00		1.00
Incremental Delay, d2		0.6	0.6		0.3	1.0				6.9		0.3
Delay (s)		10.4	0.6		17.8	1.0				40.1		19.4
Level of Service		B	A		B	A				D		B
Approach Delay (s)		6.9			9.5			0.0			34.1	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.2%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	757	433	0	670	651	0	0	0	709	0	287
Future Volume (veh/h)	0	757	433	0	670	651	0	0	0	709	0	287
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	823	0	0	728	0				771	0	312
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2073		0	2073					873	0	401
Arrive On Green	0.00	0.63	0.00	0.00	0.63	0.00				0.28	0.00	0.28
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	823	0	0	728	0				771	0	312
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	12.3	0.0	0.0	10.5	0.0				23.4	0.0	19.9
Cycle Q Clear(g_c), s	0.0	12.3	0.0	0.0	10.5	0.0				23.4	0.0	19.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2073		0	2073					873	0	401
V/C Ratio(X)	0.00	0.40		0.00	0.35					0.88	0.00	0.78
Avail Cap(c_a), veh/h	0	2073		0	2073					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.0	0.0	0.0	8.6	0.0				34.6	0.0	33.3
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.1	0.0				7.4	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.2	0.0	0.0	3.5	0.0				9.7	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.5	0.0	0.0	8.8	0.0				42.0	0.0	39.3
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		823	A		728	A					1083	
Approach Delay, s/veh		9.5			8.8						41.2	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		67.8		32.2		67.8						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		14.3		25.4		12.5						
Green Ext Time (p_c), s		17.6		2.3		8.0						

Intersection Summary		
HCM 6th Ctrl Delay		22.4
HCM 6th LOS		C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1315	206	1159	462	222	344	346
v/c Ratio	0.66	0.15	0.59	0.33	0.50	0.84	0.82
Control Delay	16.8	0.2	9.0	0.4	31.9	47.0	44.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	0.2	9.0	0.4	31.9	47.0	44.4
Queue Length 50th (ft)	402	0	220	0	120	198	189
Queue Length 95th (ft)	503	m0	231	m0	175	293	277
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	1996	1403	1976	1387	565	512	529
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.15	0.59	0.33	0.39	0.67	0.65

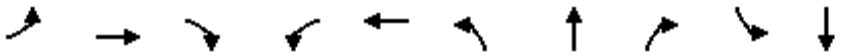
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1236	194	0	1089	434	232	0	625	0	0	0
Future Volume (vph)	0	1236	194	0	1089	434	232	0	625	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3292	1403		3260	1387	1504	1301	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1301	1346			
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)	0	1315	206	0	1159	462	247	0	665	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	26	26	0	0	0
Lane Group Flow (vph)	0	1315	206	0	1159	462	222	318	320	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		60.6	100.0		60.6	100.0	29.5	29.5	29.5			
Effective Green, g (s)		60.6	100.0		60.6	100.0	29.5	29.5	29.5			
Actuated g/C Ratio		0.61	1.00		0.61	1.00	0.29	0.29	0.29			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		1994	1403		1975	1387	443	383	397			
v/s Ratio Prot		c0.40			0.36							
v/s Ratio Perm			0.15			0.33	0.15	0.24	0.24			
v/c Ratio		0.66	0.15		0.59	0.33	0.50	0.83	0.81			
Uniform Delay, d1		12.9	0.0		12.0	0.0	29.2	32.9	32.6			
Progression Factor		1.05	1.00		0.60	1.00	1.00	1.00	1.00			
Incremental Delay, d2		1.4	0.2		0.6	0.4	0.7	13.9	11.0			
Delay (s)		15.0	0.2		7.8	0.4	29.8	46.8	43.6			
Level of Service		B	A		A	A	C	D	D			
Approach Delay (s)		13.0			5.7			41.5			0.0	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	1197	574	296	928	352	356	252	23	117
v/c Ratio	0.52	1.12	0.68	0.94	0.71	0.86	0.86	0.44	0.18	0.64
Control Delay	20.5	94.7	9.3	70.5	23.0	55.6	55.6	6.1	46.7	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	94.7	9.3	70.5	23.0	55.6	55.6	6.1	46.7	35.1
Queue Length 50th (ft)	30	~454	25	~153	274	216	220	0	14	26
Queue Length 95th (ft)	m77	#592	146	#344	310	#355	#358	56	39	#95
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	249	1070	849	315	1310	459	464	611	132	190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	1.12	0.68	0.94	0.71	0.77	0.77	0.41	0.17	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

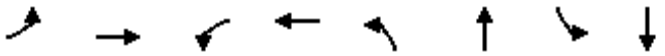
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	29	88	1089	522	16	253	827	17	615	29	229	21
Future Volume (vph)	29	88	1089	522	16	253	827	17	615	29	229	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		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	0.99	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1654	3197	1458		1660	3190		1533	1548	1451	1662
Flt Permitted		0.18	1.00	1.00		0.12	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		308	3197	1458		209	3190		1533	1548	1451	1662
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)	32	97	1197	574	18	278	909	19	676	32	252	23
RTOR Reduction (vph)	0	0	0	361	0	0	1	0	0	0	185	0
Lane Group Flow (vph)	0	129	1197	213	0	296	927	0	352	356	67	23
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		48.2	33.5	33.5		48.2	41.0		26.7	26.7	26.7	7.6
Effective Green, g (s)		48.2	33.5	33.5		48.2	41.0		26.7	26.7	26.7	7.6
Actuated g/C Ratio		0.48	0.34	0.34		0.48	0.41		0.27	0.27	0.27	0.08
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		245	1070	488		314	1307		409	413	387	126
v/s Ratio Prot		0.04	c0.37			c0.14	0.29		0.23	c0.23		0.01
v/s Ratio Perm		0.22		0.15		0.32					0.05	
v/c Ratio		0.53	1.12	0.44		0.94	0.71		0.86	0.86	0.17	0.18
Uniform Delay, d1		16.6	33.2	25.9		27.8	24.5		34.9	34.9	28.2	43.3
Progression Factor		1.05	0.95	1.82		1.35	0.77		1.00	1.00	1.00	1.00
Incremental Delay, d2		1.2	63.4	2.1		34.0	3.0		16.5	16.5	0.2	0.5
Delay (s)		18.5	95.0	49.3		71.4	22.0		51.4	51.4	28.3	43.8
Level of Service		B	F	D		E	C		D	D	C	D
Approach Delay (s)			76.0				34.0			45.3		
Approach LOS			E				C			D		

Intersection Summary			
HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	36	70
Future Volume (vph)	36	70
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1521	
Flt Permitted	1.00	
Satd. Flow (perm)	1521	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	40	77
RTOR Reduction (vph)	69	0
Lane Group Flow (vph)	48	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.6	
Effective Green, g (s)	7.6	
Actuated g/C Ratio	0.08	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	115	
v/s Ratio Prot	c0.03	
v/s Ratio Perm		
v/c Ratio	0.41	
Uniform Delay, d1	44.1	
Progression Factor	1.00	
Incremental Delay, d2	1.8	
Delay (s)	45.8	
Level of Service	D	
Approach Delay (s)	45.5	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	1240	22	1091	31	24	55	110
v/c Ratio	0.11	0.53	0.07	0.47	0.34	0.19	0.41	0.55
Control Delay	5.6	10.8	4.2	8.8	55.8	35.3	54.0	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	10.8	4.2	8.8	55.8	35.3	54.0	24.5
Queue Length 50th (ft)	7	132	3	168	19	10	31	14
Queue Length 95th (ft)	m8	m143	10	268	50	34	#85	64
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	366	2341	322	2309	93	551	136	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.53	0.07	0.47	0.33	0.04	0.40	0.19

Intersection Summary

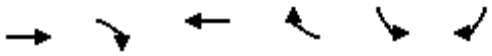
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	23	1075	103	21	991	46	29	15	8	52	21
Future Volume (vph)	15	23	1075	103	21	991	46	29	15	8	52	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	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	0.99		1.00	0.95		1.00	0.88
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1649	3156		1662	3207		1662	1655		1662	1528
Flt Permitted		0.22	1.00		0.18	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		384	3156		321	3207		1662	1655		1662	1528
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)	16	24	1132	108	22	1043	48	31	16	8	55	22
RTOR Reduction (vph)	0	0	4	0	0	2	0	0	8	0	0	81
Lane Group Flow (vph)	0	40	1236	0	22	1089	0	31	16	0	55	29
Confl. Peds. (#/hr)		3		3	3		3			2	2	
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		71.6	69.3		71.6	68.0		3.4	4.9		7.0	8.5
Effective Green, g (s)		71.6	69.3		71.6	68.0		3.4	4.9		7.0	8.5
Actuated g/C Ratio		0.72	0.69		0.72	0.68		0.03	0.05		0.07	0.08
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		320	2187		260	2180		56	81		116	129
v/s Ratio Prot		c0.00	c0.39		0.00	0.34		0.02	0.01		c0.03	c0.02
v/s Ratio Perm		0.08			0.06							
v/c Ratio		0.12	0.57		0.08	0.50		0.55	0.20		0.47	0.23
Uniform Delay, d1		4.7	7.7		5.0	7.8		47.6	45.7		44.7	42.7
Progression Factor		1.44	1.37		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.3		0.1	0.8		9.1	0.9		2.2	0.7
Delay (s)		6.8	10.9		5.1	8.6		56.7	46.6		46.9	43.4
Level of Service		A	B		A	A		E	D		D	D
Approach Delay (s)			10.8			8.5			52.3			44.5
Approach LOS			B			A			D			D

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

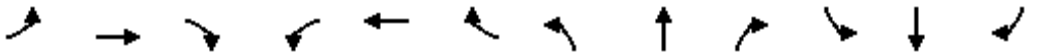
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	84
Future Volume (vph)	84
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	88
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	468	319	433	649	393	100
v/c Ratio	0.21	0.24	0.22	0.50	0.72	0.20
Control Delay	5.0	0.4	7.7	3.4	46.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	0.4	7.7	3.4	46.1	5.4
Queue Length 50th (ft)	42	0	32	52	122	0
Queue Length 95th (ft)	67	0	72	82	150	28
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2265	1312	1960	1300	1069	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.24	0.22	0.50	0.37	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	393	268	0	364	545	0	0	0	330	0	84
Future Volume (vph)	0	393	268	0	364	545	0	0	0	330	0	84
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98				1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00		1.00
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3107	1312		3197	1300				3014		1340
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340
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)	0	468	319	0	433	649	0	0	0	393	0	100
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	69
Lane Group Flow (vph)	0	468	319	0	433	649	0	0	0	393	0	31
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			2			3						
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		72.9	100.0		60.4	100.0				18.1		30.6
Effective Green, g (s)		72.9	100.0		60.4	100.0				18.1		30.6
Actuated g/C Ratio		0.73	1.00		0.60	1.00				0.18		0.31
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		2265	1312		1930	1300				545		410
v/s Ratio Prot		0.15			0.14					c0.13		
v/s Ratio Perm			0.24			c0.50						0.02
v/c Ratio		0.21	0.24		0.22	0.50				0.72		0.07
Uniform Delay, d1		4.3	0.0		9.1	0.0				38.6		24.6
Progression Factor		1.00	1.00		0.74	1.00				1.00		1.00
Incremental Delay, d2		0.2	0.4		0.1	1.3				4.4		0.1
Delay (s)		4.5	0.4		6.8	1.3				43.0		24.7
Level of Service		A	A		A	A				D		C
Approach Delay (s)		2.9			3.5			0.0			39.3	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	29.5%	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												
Traffic Volume (veh/h)	0	393	268	0	364	545	0	0	0	330	0	84
Future Volume (veh/h)	0	393	268	0	364	545	0	0	0	330	0	84
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	468	0	0	433	0				393	0	100
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2366		0	2425					481	0	213
Arrive On Green	0.00	0.75	0.00	0.00	0.75	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	468	0	0	433	0				393	0	100
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	4.3	0.0	0.0	3.8	0.0				12.4	0.0	6.7
Cycle Q Clear(g_c), s	0.0	4.3	0.0	0.0	3.8	0.0				12.4	0.0	6.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2366		0	2425					481	0	213
V/C Ratio(X)	0.00	0.20		0.00	0.18					0.82	0.00	0.47
Avail Cap(c_a), veh/h	0	2366		0	2425					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.91	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.6	0.0	0.0	3.5	0.0				40.7	0.0	38.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.0				2.6	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.0	0.0				4.8	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.8	0.0	0.0	3.6	0.0				43.3	0.0	39.5
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		468	A		433	A					493	
Approach Delay, s/veh		3.8			3.6						42.6	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		79.8		20.2		79.8						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		6.3		14.4		5.8						
Green Ext Time (p_c), s		9.1		1.3		4.5						

Intersection Summary		
HCM 6th Ctrl Delay		17.4
HCM 6th LOS		B

Notes

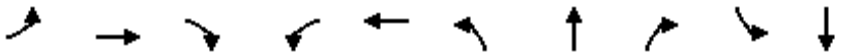
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	607	194	890	837	117	327	326
v/c Ratio	0.28	0.15	0.42	0.60	0.40	0.82	0.80
Control Delay	8.5	0.2	9.9	2.4	35.9	32.0	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	0.2	9.9	2.4	35.9	32.0	29.7
Queue Length 50th (ft)	26	0	144	12	69	100	93
Queue Length 95th (ft)	211	0	230	0	101	175	164
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2201	1325	2140	1399	666	678	701
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.15	0.42	0.60	0.18	0.48	0.47

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	540	173	0	792	745	116	0	570	0	0	0
Future Volume (vph)	0	540	173	0	792	745	116	0	570	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3137	1325		3050	1399	1462	1271	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1271	1321			
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)	0	607	194	0	890	837	130	0	640	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	146	146	0	0	0
Lane Group Flow (vph)	0	607	194	0	890	837	117	181	180	0	0	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)			1			3						
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		70.2	100.0		70.2	100.0	19.9	19.9	19.9			
Effective Green, g (s)		70.2	100.0		70.2	100.0	19.9	19.9	19.9			
Actuated g/C Ratio		0.70	1.00		0.70	1.00	0.20	0.20	0.20			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2202	1325		2141	1399	290	252	262			
v/s Ratio Prot		0.19			0.29							
v/s Ratio Perm			0.15			c0.60	0.08	0.14	0.14			
v/c Ratio		0.28	0.15		0.42	0.60	0.40	0.72	0.69			
Uniform Delay, d1		5.5	0.0		6.3	0.0	34.9	37.4	37.2			
Progression Factor		1.15	1.00		1.18	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.2		0.3	1.4	0.7	8.8	6.7			
Delay (s)		6.6	0.2		7.6	1.4	35.6	46.3	43.9			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		5.1			4.6			43.6			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	105	822	190	135	871	383	382	162	12	53
v/c Ratio	0.40	0.63	0.27	0.48	0.65	0.87	0.86	0.30	0.10	0.35
Control Delay	16.2	26.9	5.6	17.3	24.2	54.0	52.8	5.7	44.8	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	26.9	5.6	17.3	24.2	54.0	52.8	5.7	44.8	24.8
Queue Length 50th (ft)	46	271	21	24	268	235	233	0	7	7
Queue Length 95th (ft)	56	290	33	m54	346	#385	#382	45	25	44
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	266	1301	691	284	1347	491	495	578	141	167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.63	0.27	0.48	0.65	0.78	0.77	0.28	0.09	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	49	48	764	177	10	115	792	18	685	26	151	11
Future Volume (vph)	49	48	764	177	10	115	792	18	685	26	151	11
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frpb, ped/bikes		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
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1638	3137	1400		1630	3044		1548	1560	1473	1662
Flt Permitted		0.21	1.00	1.00		0.22	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		361	3137	1400		380	3044		1548	1560	1473	1662
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	52	822	190	11	124	852	19	737	28	162	12
RTOR Reduction (vph)	0	0	0	113	0	0	1	0	0	0	116	0
Lane Group Flow (vph)	0	105	822	77	0	135	870	0	383	382	46	12
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		48.0	40.6	40.6		48.0	42.5		28.6	28.6	28.6	5.9
Effective Green, g (s)		48.0	40.6	40.6		48.0	42.5		28.6	28.6	28.6	5.9
Actuated g/C Ratio		0.48	0.41	0.41		0.48	0.42		0.29	0.29	0.29	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		243	1273	568		274	1293		442	446	421	98
v/s Ratio Prot		0.02	0.26			c0.04	c0.29		c0.25	0.24		0.01
v/s Ratio Perm		0.18		0.06		0.20					0.03	
v/c Ratio		0.43	0.65	0.14		0.49	0.67		0.87	0.86	0.11	0.12
Uniform Delay, d1		15.9	23.9	18.7		16.1	23.2		33.9	33.8	26.3	44.6
Progression Factor		0.84	0.96	1.34		0.81	0.88		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.8	2.4	0.5		0.9	2.6		16.0	14.7	0.1	0.4
Delay (s)		14.1	25.4	25.4		13.9	22.9		49.9	48.5	26.4	45.0
Level of Service		B	C	C		B	C		D	D	C	D
Approach Delay (s)			24.4				21.7			45.2		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	10	39
Future Volume (vph)	10	39
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.88	
Flt Protected	1.00	
Satd. Flow (prot)	1521	
Flt Permitted	1.00	
Satd. Flow (perm)	1521	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	11	42
RTOR Reduction (vph)	40	0
Lane Group Flow (vph)	13	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	5.9	
Effective Green, g (s)	5.9	
Actuated g/C Ratio	0.06	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	89	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.15	
Uniform Delay, d1	44.7	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	45.2	
Level of Service	D	
Approach Delay (s)	45.2	
Approach LOS	D	

Intersection Summary

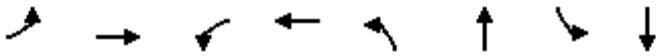
Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	774	135	0	915	0	36
Future Vol, veh/h	774	135	0	915	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	841	147	0	995	0	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	494
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	526
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	526
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	526	-	-	-
HCM Lane V/C Ratio	0.074	-	-	-
HCM Control Delay (s)	12.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	33	848	38	777	151	27	21	78
v/c Ratio	0.08	0.45	0.10	0.41	0.61	0.08	0.21	0.48
Control Delay	8.5	13.0	5.7	11.2	54.6	26.0	49.9	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	13.0	5.7	11.2	54.6	26.0	49.9	24.6
Queue Length 50th (ft)	10	157	8	144	90	7	13	8
Queue Length 95th (ft)	m11	133	15	166	#260	34	37	52
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	415	1900	390	1886	249	557	103	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.45	0.10	0.41	0.61	0.05	0.20	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	22	8	743	37	35	693	22	139	13	12	19	12
Future Volume (vph)	22	8	743	37	35	693	22	139	13	12	19	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93		1.00	0.88
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1638	3092		1662	3069		1662	1613		1662	1515
Flt Permitted		0.31	1.00		0.28	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		530	3092		486	3069		1662	1613		1662	1515
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)	24	9	808	40	38	753	24	151	14	13	21	13
RTOR Reduction (vph)	0	0	3	0	0	2	0	0	10	0	0	60
Lane Group Flow (vph)	0	33	845	0	38	775	0	151	17	0	21	18
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		61.1	57.4		61.1	57.5		15.0	19.8		2.6	7.4
Effective Green, g (s)		61.1	57.4		61.1	57.5		15.0	19.8		2.6	7.4
Actuated g/C Ratio		0.61	0.57		0.61	0.58		0.15	0.20		0.03	0.07
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		363	1774		340	1764		249	319		43	112
v/s Ratio Prot		0.00	c0.27		c0.00	0.25		c0.09	0.01		0.01	c0.01
v/s Ratio Perm		0.05			0.06							
v/c Ratio		0.09	0.48		0.11	0.44		0.61	0.05		0.49	0.16
Uniform Delay, d1		8.1	12.5		8.2	12.1		39.7	32.5		48.0	43.4
Progression Factor		1.59	1.13		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.8		0.1	0.8		3.5	0.0		6.2	0.5
Delay (s)		12.9	14.9		8.3	12.9		43.2	32.5		54.3	43.9
Level of Service		B	B		A	B		D	C		D	D
Approach Delay (s)			14.9			12.7			41.6			46.1
Approach LOS			B			B			D			D

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	65
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

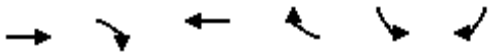
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	128	2	2	36	59	25
Future Vol, veh/h	128	2	2	36	59	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	151	2	2	42	69	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	130	84	98	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	46	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	869	981	1508	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	868	981	1508	-	-	-
Mov Cap-2 Maneuver	868	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	982	-	-	-	-	-

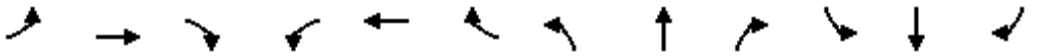
Approach	EB	NB	SB
HCM Control Delay, s	10	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1508	-	870	-	-
HCM Lane V/C Ratio	0.002	-	0.176	-	-
HCM Control Delay (s)	7.4	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	827	471	734	750	811	312
v/c Ratio	0.42	0.33	0.49	0.52	0.85	0.44
Control Delay	12.0	0.6	20.4	2.3	41.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	0.6	20.4	2.3	41.3	13.0
Queue Length 50th (ft)	136	0	137	25	248	81
Queue Length 95th (ft)	209	0	139	46	293	132
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	1991	1426	1514	1430	1070	714
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.33	0.48	0.52	0.76	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (vph)	0	761	433	0	675	690	0	0	0	746	0	287
Future Volume (vph)	0	761	433	0	675	690	0	0	0	746	0	287
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00
Frpb, ped/bikes		1.00	0.98		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	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3260	1426		3260	1430				3131		1444
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444
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	827	471	0	734	750	0	0	0	811	0	312
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	61
Lane Group Flow (vph)	0	827	471	0	734	750	0	0	0	811	0	251
Confl. Peds. (#/hr)			3	3					1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%
Turn Type		NA	Free		NA	Free				Prot		Perm
Protected Phases		2			6					4		
Permitted Phases			Free			Free						4 5
Actuated Green, G (s)		60.4	100.0		45.9	100.0				30.6		45.1
Effective Green, g (s)		60.4	100.0		45.9	100.0				30.6		45.1
Actuated g/C Ratio		0.60	1.00		0.46	1.00				0.31		0.45
Clearance Time (s)		4.5			4.5					4.5		
Vehicle Extension (s)		6.0			4.0					2.5		
Lane Grp Cap (vph)		1969	1426		1496	1430				958		651
v/s Ratio Prot		0.25			0.23					c0.26		
v/s Ratio Perm			0.33			c0.52						0.17
v/c Ratio		0.42	0.33		0.49	0.52				0.85		0.39
Uniform Delay, d1		10.5	0.0		18.9	0.0				32.5		18.2
Progression Factor		1.00	1.00		0.97	1.00				1.00		1.00
Incremental Delay, d2		0.7	0.6		0.3	1.1				6.9		0.3
Delay (s)		11.2	0.6		18.6	1.1				39.4		18.5
Level of Service		B	A		B	A				D		B
Approach Delay (s)		7.3			9.8			0.0			33.6	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.4%	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		↑↑	↱		↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	761	433	0	675	690	0	0	0	746	0	287
Future Volume (veh/h)	0	761	433	0	675	690	0	0	0	746	0	287
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	827	0	0	734	0				811	0	312
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2036		0	2036					909	0	417
Arrive On Green	0.00	0.62	0.00	0.00	0.62	0.00				0.29	0.00	0.29
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	827	0	0	734	0				811	0	312
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	12.8	0.0	0.0	10.9	0.0				24.6	0.0	19.6
Cycle Q Clear(g_c), s	0.0	12.8	0.0	0.0	10.9	0.0				24.6	0.0	19.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2036		0	2036					909	0	417
V/C Ratio(X)	0.00	0.41		0.00	0.36					0.89	0.00	0.75
Avail Cap(c_a), veh/h	0	2036		0	2036					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.77	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	0.0	0.0	9.2	0.0				34.1	0.0	32.3
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.1	0.0				8.5	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	0.0	0.0	3.6	0.0				10.3	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.2	0.0	0.0	9.3	0.0				42.6	0.0	37.2
LnGrp LOS	A	B		A	A					D	A	D
Approach Vol, veh/h		827	A		734	A					1123	
Approach Delay, s/veh		10.2			9.3						41.1	
Approach LOS		B			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		66.7		33.3		66.7						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		14.8		26.6		12.9						
Green Ext Time (p_c), s		17.6		2.2		8.0						

Intersection Summary												
HCM 6th Ctrl Delay			22.9									
HCM 6th LOS			C									

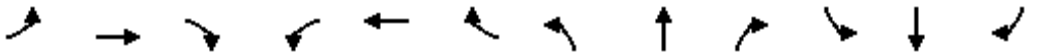
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1359	206	1205	503	222	363	367
v/c Ratio	0.70	0.15	0.62	0.36	0.48	0.86	0.84
Control Delay	19.0	0.2	9.9	0.5	30.3	48.2	45.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	0.2	9.9	0.5	30.3	48.2	45.7
Queue Length 50th (ft)	426	0	220	0	116	212	204
Queue Length 95th (ft)	524	m0	236	m0	175	319	304
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	1950	1403	1931	1387	565	509	526
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.15	0.62	0.36	0.39	0.71	0.70

Intersection Summary

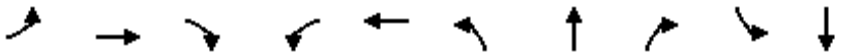
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1277	194	0	1133	473	232	0	663	0	0	0
Future Volume (vph)	0	1277	194	0	1133	473	232	0	663	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3292	1403		3260	1387	1504	1300	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1300	1346			
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)	0	1359	206	0	1205	503	247	0	705	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	23	23	0	0	0
Lane Group Flow (vph)	0	1359	206	0	1205	503	222	340	344	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		59.2	100.0		59.2	100.0	30.9	30.9	30.9			
Effective Green, g (s)		59.2	100.0		59.2	100.0	30.9	30.9	30.9			
Actuated g/C Ratio		0.59	1.00		0.59	1.00	0.31	0.31	0.31			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		1948	1403		1929	1387	464	401	415			
v/s Ratio Prot		c0.41			0.37							
v/s Ratio Perm			0.15			0.36	0.15	0.26	0.26			
v/c Ratio		0.70	0.15		0.62	0.36	0.48	0.85	0.83			
Uniform Delay, d1		14.2	0.0		13.2	0.0	28.0	32.4	32.1			
Progression Factor		1.09	1.00		0.61	1.00	1.00	1.00	1.00			
Incremental Delay, d2		1.7	0.2		0.7	0.5	0.6	15.1	12.6			
Delay (s)		17.1	0.2		8.7	0.5	28.6	47.4	44.7			
Level of Service		B	A		A	A	C	D	D			
Approach Delay (s)		14.9			6.3			42.0			0.0	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.9
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	1284	574	287	1019	352	356	253	23	117
v/c Ratio	0.58	1.20	0.70	0.91	0.78	0.86	0.86	0.44	0.18	0.64
Control Delay	24.3	127.6	11.0	62.2	27.0	55.6	55.6	6.1	46.7	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	127.6	11.0	62.2	27.0	55.6	55.6	6.1	46.7	35.1
Queue Length 50th (ft)	35	~517	28	~142	319	216	220	0	14	26
Queue Length 95th (ft)	m73	#657	169	m#310	m388	#355	#358	56	39	#95
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	223	1070	824	315	1307	459	464	612	132	190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	1.20	0.70	0.91	0.78	0.77	0.77	0.41	0.17	0.62

Intersection Summary

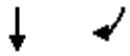
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	29	88	1168	522	7	254	910	17	615	29	230	21
Future Volume (vph)	29	88	1168	522	7	254	910	17	615	29	230	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		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	0.99	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1654	3197	1458		1662	3190		1533	1548	1451	1662
Flt Permitted		0.14	1.00	1.00		0.12	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		243	3197	1458		209	3190		1533	1548	1451	1662
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)	32	97	1284	574	8	279	1000	19	676	32	253	23
RTOR Reduction (vph)	0	0	0	336	0	0	1	0	0	0	185	0
Lane Group Flow (vph)	0	129	1284	238	0	287	1018	0	352	356	68	23
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		48.2	33.5	33.5		48.2	40.9		26.7	26.7	26.7	7.6
Effective Green, g (s)		48.2	33.5	33.5		48.2	40.9		26.7	26.7	26.7	7.6
Actuated g/C Ratio		0.48	0.34	0.34		0.48	0.41		0.27	0.27	0.27	0.08
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		220	1070	488		314	1304		409	413	387	126
v/s Ratio Prot		0.04	c0.40			c0.13	0.32		0.23	c0.23		0.01
v/s Ratio Perm		0.24		0.16		0.31					0.05	
v/c Ratio		0.59	1.20	0.49		0.91	0.78		0.86	0.86	0.17	0.18
Uniform Delay, d1		17.4	33.2	26.4		27.1	25.7		34.9	34.9	28.2	43.3
Progression Factor		1.15	0.98	1.69		1.26	0.84		1.00	1.00	1.00	1.00
Incremental Delay, d2		2.3	96.6	2.4		26.8	4.1		16.5	16.5	0.2	0.5
Delay (s)		22.3	129.1	47.0		61.1	25.6		51.4	51.4	28.3	43.8
Level of Service		C	F	D		E	C		D	D	C	D
Approach Delay (s)			98.4				33.4			45.3		
Approach LOS			F				C			D		

Intersection Summary			
HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	36	70
Future Volume (vph)	36	70
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1521	
Flt Permitted	1.00	
Satd. Flow (perm)	1521	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	40	77
RTOR Reduction (vph)	69	0
Lane Group Flow (vph)	48	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.6	
Effective Green, g (s)	7.6	
Actuated g/C Ratio	0.08	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	115	
v/s Ratio Prot	c0.03	
v/s Ratio Perm		
v/c Ratio	0.41	
Uniform Delay, d1	44.1	
Progression Factor	1.00	
Incremental Delay, d2	1.8	
Delay (s)	45.8	
Level of Service	D	
Approach Delay (s)	45.5	
Approach LOS	D	

Intersection Summary

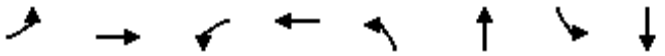
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1193	94	0	1193	0	10
Future Vol, veh/h	1193	94	0	1193	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1326	104	0	1326	0	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	715
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	378
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	378
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	378	-	-	-
HCM Lane V/C Ratio	0.029	-	-	-
HCM Control Delay (s)	14.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	1228	43	1075	127	25	55	111
v/c Ratio	0.11	0.57	0.15	0.50	1.20	0.15	0.34	0.57
Control Delay	5.7	12.5	5.0	9.8	194.6	34.0	49.7	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	12.5	5.0	9.8	194.6	34.0	49.7	25.4
Queue Length 50th (ft)	7	138	6	165	~107	11	31	14
Queue Length 95th (ft)	m8	m134	17	262	#223	35	#85	65
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	342	2140	294	2170	106	552	164	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.57	0.15	0.50	1.20	0.05	0.34	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	13	23	1082	85	41	976	46	121	16	8	52	22
Future Volume (vph)	13	23	1082	85	41	976	46	121	16	8	52	22
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	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	0.99		1.00	0.95		1.00	0.88
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1650	3163		1662	3207		1662	1659		1662	1530
Flt Permitted		0.22	1.00		0.17	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		374	3163		300	3207		1662	1659		1662	1530
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)	14	24	1139	89	43	1027	48	127	17	8	55	23
RTOR Reduction (vph)	0	0	3	0	0	2	0	0	7	0	0	79
Lane Group Flow (vph)	0	38	1225	0	43	1073	0	127	18	0	55	32
Confl. Peds. (#/hr)		3		3	3		3			2	2	
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%
Turn Type	D.P+P	D.P+P	NA		D.P+P	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases	6	6			2							
Actuated Green, G (s)		67.3	63.6		67.3	63.7		6.4	7.6		8.6	9.8
Effective Green, g (s)		67.3	63.6		67.3	63.7		6.4	7.6		8.6	9.8
Actuated g/C Ratio		0.67	0.64		0.67	0.64		0.06	0.08		0.09	0.10
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		297	2011		252	2042		106	126		142	149
v/s Ratio Prot		0.00	c0.39		c0.01	0.33		c0.08	0.01		0.03	c0.02
v/s Ratio Perm		0.08			0.11							
v/c Ratio		0.13	0.61		0.17	0.53		1.20	0.14		0.39	0.21
Uniform Delay, d1		6.3	10.8		6.9	9.9		46.8	43.1		43.2	41.5
Progression Factor		1.44	1.27		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.0	0.1		0.2	1.0		150.1	0.4		1.3	0.5
Delay (s)		9.1	13.8		7.1	10.9		196.9	43.5		44.5	42.1
Level of Service		A	B		A	B		F	D		D	D
Approach Delay (s)			13.7			10.7			171.7			42.9
Approach LOS			B			B			F			D

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	84
Future Volume (vph)	84
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	88
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	93	1	1	52	145	3
Future Vol, veh/h	93	1	1	52	145	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	109	1	1	61	171	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	236	173	175	0	-	0
Stage 1	173	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	757	876	1414	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	756	876	1414	-	-	-
Mov Cap-2 Maneuver	756	-	-	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1414	-	757	-	-
HCM Lane V/C Ratio	0.001	-	0.146	-	-
HCM Control Delay (s)	7.5	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-