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MEMORANDUM (DRAFT)

DATE: April 26, 2019

TO: Gary Danielson, SRG Partnership, Inc

FROM: Garth Appanaitis, PE

SUBJECT: Tualatin Ops Site Transportation Planning Rule Analysis

The purpose of this memorandum is to address Oregon Administrative Rule (OAR) 660-012-0060, Transportation Planning Rule (TPR), requirements for a map change amendment to rezone two parcels near SW 108th Ave/SW Herman Rd in Tualatin. The change in zoning may be pursued to support additional development on the site. Prior traffic analysis conducted for the site[1] addressed the additional traffic that would be added with the actual proposed development use but did not address TPR requirements.

TPR Overview

The TPR provides a means for ensuring that future land use and traffic growth is consistent with transportation system planning. The TPR requires that a change of allowable land uses do not create a significant impact on the transportation system beyond currently allowed (planned) uses. The TPR can be addressed through a variety of means, but typically compares the change in trip potential (simply trip generation or traffic impacts) between the allowed use (existing zoning) and proposed use (proposed zoning). In many cases the reasonable worst-case use (for either the existing or propose zoning) will not reflect the actual existing use for a site or the specific use that may ultimately be developed on a site. Rather, the reasonable worst case considers the allowed trip potential for either zoning condition and is rarely development specific (e.g., no site plan, nor intent to use the site for that purpose). In some cases, a “trip cap” or limit to the maximum trips generated by a site will be imposed with a change in zoning in order to limit the future trip potential while still allowing for the intended development.

Site Traffic Potential

The City of Tualatin Public Works Department is located in the northeast quadrant of SW 108th Ave/SW Herman Rd. The site is currently zoned as Light Manufacturing (ML) and composed of two parcels:

- 2S122AD00200 (approximately 5.18 acres)
- 2S122AD00300 (approximately 3.54 acres)

[1] *Tualatin City Operation Site Traffic Impact Analysis*, prepared by DKS Associates, December 2018.

For purposes of the TPR analysis, the existing uses on the site are ignored and redevelopment options allowed within zoning designations are considered. Applying typical industrial development assumptions, the combined size of the site (8.72 acres) could provide approximately 95,000 feet of floor area[2] based on overall size and not considering other site-specific limitations (topography, etc.) that may be identified through a site design process. This development potential of 95 ksf is considered for both the existing and proposed zoning designations.

Existing Zoning (ML) Traffic Potential

The existing ML zoning[3] allows several industrial uses, including manufacturing and warehousing. Some components of commercial uses are allowed as ancillary components of the site. *ITE Trip Generation, 10th Edition* was used to determine traffic potential for allowed uses. The allowed industrial use with the highest trip generation rate for the p.m. peak hour is 155 High-Cube Fulfilment Center Warehouse (1.37 trips/ksf). However, data in the ITE manual indicates that these uses typically exceed 500 ksf and would not be reasonable for the site given the size.

Under the existing ML zoning, the reasonable worst-case trip potential (that would scale to the size of the site) would fall under ITE Category 140 – Manufacturing, which generates approximately 0.67 trips/ksf during the p.m. peak hour. Therefore, the reasonable worst-case trip potential for a 95 ksf building would generate approximately 64 p.m. peak hour trips. Further, this trip potential is approximately the same as the government office building documented and analyzed in the related TIA (59 p.m. peak hour trips)[4].

Proposed Zoning (IN) Traffic Potential

The proposed Institutional (IN) zoning allows uses that serve the community, such as educational, religious, recreational, and government uses. The Community Services category within IN includes community recreation building, which is the reasonable worst-case use from a trip potential standpoint. ITE category 495 Recreational Community Center would generate approximately 2.31 p.m. peak hour vehicle trips/ksf. Therefore, a 95 ksf building would generate approximately 219 p.m. peak hour trips.

TEXT AMENDMENT IMPACTS

While the government office building analyzed in the prior TIA would fit within the general intent of the IN zone, it is not currently listed as an allowed use. A text amendment to specifically allow government office buildings in the IN zone may be required in addition to a map amendment for the site.

The potential text amendment action would not create a significant effect for TPR purposes. While a text amendment would affect all locations with IN zone designation, allowing government office uses would not increase the reasonable worst-case trip potential for IN zoning designation. The ITE trip rate for 730 Government Office Building is 1.71 trips/ksf[5] during the p.m. peak hour, which is less trips than a

[2] 8.72 acres * 0.25 FAR = 95 ksf
[3] https://www.tualatinoregon.gov/developmentcode/tdc-chapter-60-light-manufacturing-zone-ml
[4] TIA Table 5 lists 59 p.m. peak hour trips for the additional government office building.
[5] A higher effective trip rate of approximately 2.95 trips/ksf (59 trips/20 ksf) was used for the smaller 20 ksf building in the TIA to provide a conservative estimate and account for potential public service counter trips. However, for consideration of larger building sizes and reasonable worst-case trip potential, the overall ITE average rate of 1.71 (which includes building sizes approaching 80 ksf) is appropriate.

recreational community center (2.31 trips/ksf) and would not increase the trip potential for zones designated IN to allow this additional use.

FINDINGS

The TPR analysis addressed two potential actions, which, while related, include separate findings.

Map Amendment (ML to IN)

The trip generation potential for the existing zoning (ML) and proposed zoning (IN) was calculated using site redevelopment assumptions for a reasonable worst-case use and ITE trip generation rates. For the two subject parcels, a map amendment to change the zoning designation from ML to IN has the potential to add an increase of approximately 155 (219-64) p.m. peak hour vehicle trips. This action has the potential to create a significant effect on the transportation system, but can be resolved through either of the following actions:

1) Conduct additional traffic analysis to address TPR requirements and determine if additional offsite transportation improvements would be required to offset the impacts of the map amendment. This analysis would identify specific potential impacts related to adding 155 vehicle trips to the transportation system for the p.m. peak hour (during the future year Transportation System Plan horizon). This action would maximize flexibility for future uses allowed for the zoning designation, but would require additional analysis, and (pending the results of the analysis) may lead to unnecessary transportation system investments if the reasonable worst-case use is not developed.

--or--

2) Include a trip cap with the map amendment that would limit site trips and not further degrade the transportation system. The analysis indicates that the existing zoning would allow approximately 64 p.m. peak hour trips, which would exceed the number of trips required for the government office building included in the TIA (59 p.m. peak hour trips). A trip cap of 80 p.m. peak hour trips would provide some flexibility for the site design to add a nominal portion of trips, while not creating a significant increase above the reasonable worst-case trip potential of the existing ML zoning.

Text Amendment (Allow Government Office use in IN)

The potential text amendment to allow government office buildings in any IN zone would not increase the reasonable worst-case trip potential for IN zones beyond what is currently allowed for recreational community center. Therefore, such action would meet TPR requirements.

If you have any questions, please call.

Tualatin City Operations Site

Traffic Impact Analysis

Prepared for:

SRG Partnership, Inc.

Prepared by:

DKS Associates

December 2018

DKS

Contents

Introduction

The purpose of this study is to identify potential transportation system impacts and mitigations needed to support a proposed city operations site for the City of Tualatin. The proposed site is located at the northeast corner of Herman Road and 108th Avenue in Tualatin, Oregon. The current zoning of the site is Light Manufacturing (ML)[1], and the proposed land use is a government office building, which is similar to the existing use of the site but may vary in operational function with inclusion of visits from individuals that are not employed at the site.

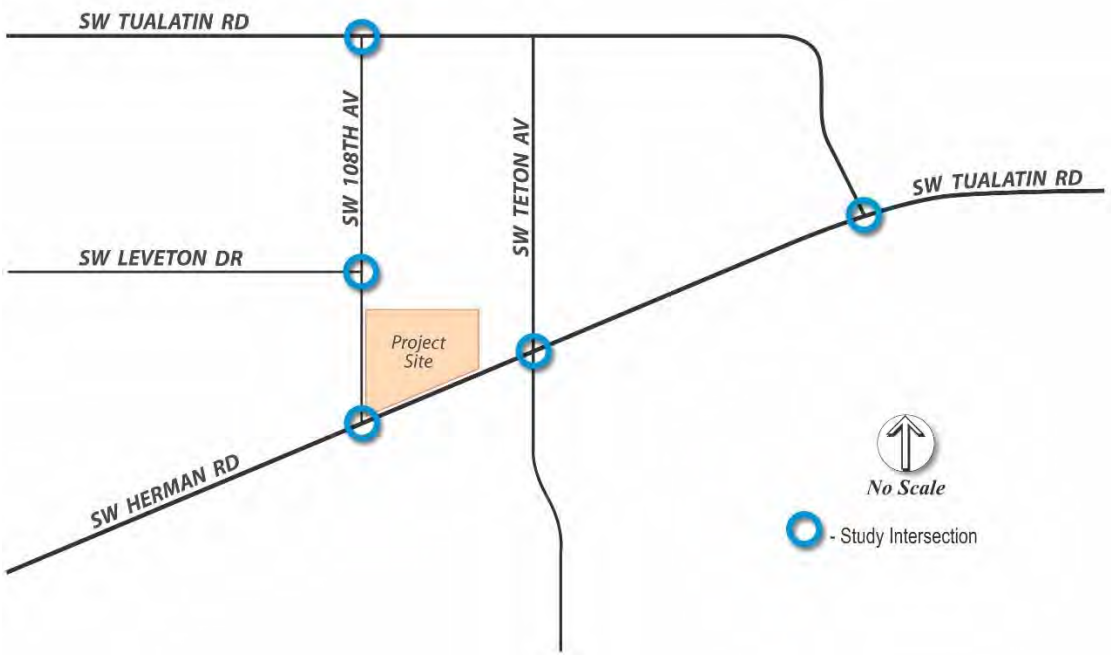
While general office buildings is allowed under the existing zoning, a government office building is not directly allowed and would ultimately require findings to address Transportation Planning Rule (TPR) requirements. The specific analysis required to address TPR requirements would vary based on the proposed action (minor modification to zoning, significant map change, or significant text change) and is not included in this analysis. The traffic analysis summarized in this TIA focuses on the direct impacts to the transportation system related to the proposed site development.

Assumptions related to the proposed site (relative to conservative vehicle trip generation assumptions) include:

- The building will have up to 20,000 square feet of gross floor area.
- The building will accommodate up to 60 employees in addition to the current employees.

Study Area

FIGURE 1: STUDY AREA



[1] Tualatin Development Code, City of Tualatin.

The study area (Figure 1) for traffic analysis was defined by reviewing the City of Tualatin Traffic Study Requirements[2], coordination with City staff, and identifying intersections that may be significantly impacted by the development of the proposed site. These intersections include:

1. SW Tualatin Road/SW 108th Avenue
2. SW Leveton Drive/SW 108th Avenue
3. SW Herman Road/SW 108th Avenue
4. SW Herman Road/SW Teton Avenue
5. SW Herman Road/SW Tualatin Road

Existing Conditions

This section summarizes current (year 2018) transportation conditions in the study area, including an inventory of the existing roadway network, identification of transit, pedestrian, and bicycle facilities, an analysis of recent study area collision history, and an operational analysis of study intersections.

Roadway Network

Table 1 summarizes the characteristics of the study area streets including functional classification, cross-section, posted speed, and presence of parking, sidewalks, and bike lanes.

TABLE 1: EXISTING ROADWAY NETWORK CHARACTERISTICS

Roadway	Functional Classification	Travel Lanes	Posted Speed (mph)	On-Street Parking	Sidewalks	Bike Lanes
SW Tualatin Road	Major Collector	3 Lanes	35	No	Yes	Yes
SW 108th Avenue[1]	Major/Minor Collector	2 Lanes	35	No	Yes	Yes
SW Leveton Drive[2]	Major Arterial	2 Lanes	40	No	Yes	Yes
SW Herman Road[3]	Major Arterial/ Major Collector	3 Lanes	45	No	Partial	Yes
SW Teton Avenue	Major Collector	2 Lanes	35	No	Partial	Yes

[1]SW 108th Avenue is classified as a minor collector between Tualatin Road and Leveton Drive, and a major collector between Leveton Drive and Herman Road.
[2]SW Leveton Drive is classified as a major arterial between 108th Avenue and 118th Avenues.
[3]SW Herman Road is classified as a major arterial between Teton Avenue and 108th Avenue, and a major collector elsewhere.

Public Transit

Currently there is one public transit line that operates in the study area. Tualatin Shuttle Blue Line provides fixed-route service linking WES Station to employment destinations along SW 124th Avenue, SW Leveton Drive, SW 108th Avenue, SW Herman Road, SW Teton Avenue, and SW Boones Ferry Road. Tualatin WES station provides commuter connections to Wilsonville Transit Center, Tigard Transit Center, and Beaverton Transit Center which provides regional connections to TriMet and SMART's transit systems in the Portland Metropolitan Area.

[2] City of Tualatin Traffic Study Requirements, 2016.

Pedestrian Environment

Sidewalks are generally available on both sides of the streets within the study area and provide connectivity for pedestrians. One larger gap in sidewalk availability exists along the south side of SW Herman Road due to the proximity to the railroad tracks. In addition, there is a lack of sidewalk for approximately 440 feet on the west side of SW Teton Avenue south of Herman Road. Sidewalks are available elsewhere within the study area.

Pedestrian crosswalks exist on all legs at the unsignalized intersections within the study area. All signalized intersections have striped pedestrian crosswalks with push button controls and pedestrian signal heads to indicate "Walk" and "Don't Walk" periods of time, with the exceptions at the following locations where crosswalks are closed with the indication of "Crosswalk Closed" signs:

- The west and east legs of SW Herman Road/SW 108th Avenue (no sidewalk present on south side of SW Herman Road due to rail proximity)
- The west and east legs of SW Herman Road/SW Tualatin Road (no sidewalk present on south side of SW Herman Road due to rail proximity)

Pedestrian activity counts for each of the legs of the study area intersections were collected during the weekday AM and PM peak hour. The heaviest utilized intersection (in aggregated pedestrian activity) was at Teton Avenue/Herman Road (4 total pedestrians during the AM peak hour).

Bicycle Environment

There are dedicated on-street bicycle facilities within most of the study area. Bicycle activity counts for each approach at study area intersections were collected during the weekday AM and PM peak hour. The heaviest utilized intersection (in aggregated bicycle activity) was at Tualatin Road/Herman Road (11 total bikes during the weekday PM peak hour), with the heaviest approach activity on the west leg (5 bikes).

Safety Analysis

Crash rates at study intersections were analyzed to identify potential safety issues. Collision history at study area intersections was obtained from ODOT spanning the most recent five-year period from October 2012 to September 2017. Table 2 summarizes the crash history at study intersections. There was a total of 17 crashes in the study area over the five years.

Crash rates at study intersections were also calculated to identify problem areas in need of further investigation. The total number of crashes experienced at an intersection is often proportional to the number of vehicles entering it. Therefore, a crash rate describing the frequency of crashes per million entering vehicles (MEV) is used to evaluate the intersection.

The observed crash rate at each site is compared to the critical crash rate, which is unique to each intersection and based on the critical crash rate procedure in the Highway Safety Manual (HSM)[3]. However, due to the small study area, there is an insufficient reference population of comparison

[3]2010 Highway Safety Manual (HSM), Chapter 4, Page 4-11: The critical crash rate is a threshold value that allows for relative comparison among sites with similar characteristics. The critical crash rate depends on the average crash rate at similar sites, traffic volume, and a statistical constant that represents a desired level of significance.

intersections from which to calculate a critical crash rate. Therefore, to broaden the field of comparison, study area crash rates were compared to 90th percentile crash rates for similar intersections in a statewide database provided in ODOT's Analysis Procedures Manual (Table 4-1). An observed crash rate greater than the 90th percentile crash rate is an indication that further investigation may be warranted. As listed in Table 2, all the study intersections have an observed crash rate less than the 90th percentile crash rates, indicating that the number of crashes experienced would be no more than expected.

TABLE 2: STUDY AREA INTERSECTION COLLISIONS (OCTOBER 2012 – SEPTEMBER 2017)

Intersection	Total Collisions	Collision Severity			Observed Crash Rate (per MEV)	90th Percentile Crash Rate (per MEV)
		Fatal	*Injury*	*Property Damage Only*		
SW Tualatin Road/ SW 108th Avenue	5	0	4	1	0.20	0.293
SW Leveton Drive/ SW 108TH Avenue	1	0	0	1	0.14	0.293
SW Herman Road/ SW 108th Avenue	2	0	1	1	0.09	0.509
SW Herman Road/ SW Teton Avenue	1	0	1	0	0.03	0.860
SW Herman Road/ SW Tualatin Road	8	0	7	1	0.23	0.509

SOURCE: Oregon Department of Transportation

Intersection Operations

This section describes the existing intersection operating conditions in the study area.

Intersection Performance Measures

All the study intersections fall under the jurisdiction of the City of Tualatin. Level of service (LOS) and volume-to-capacity (V/C) ratio are the two performance measures utilized in this analysis for determining intersection operations. A description of each is outlined below.

Level of Service

An intersection's level of service is similar to a "report card" rating (A through F), based on average vehicle delay. LOS A, B, and C indicate conditions where vehicles can move freely. LOS D and E are progressively worse. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.

V/C Ratio

A volume-to-capacity (v/c) ratio is a measure of effectiveness that takes into account the total volume entering an intersection and compares it to the overall capacity at that intersection to determine a ratio on a scale of 0.0 to 1.0 for the intersection. As an intersection's v/c ratio becomes closer to 1.0, the intersection becomes more congested and performance is reduced. If the ratio is greater than 1.00, this indicates that demand is greater than the available capacity and the turn movement, approach leg, or intersection is oversaturated and typically experiences excessive queues and long delays.

Jurisdictional Operational Standards

The City of Tualatin has adopted a level-of-service (LOS) standard that is based on the average delay calculated at intersections. The operating standard is LOS D for signalized intersections and LOS E for unsignalized intersections[4].

Existing Traffic Volumes

Intersection turn movement counts were collected in August and September of 2018 during the weekday morning peak period (7:00 to 9:00 AM) and evening peak period (4:00 to 6:00 PM). Morning counts were collected when schools were in session. Figure 2 shows the balanced existing AM and PM hour traffic volumes.

Existing Operating Conditions

The existing traffic operating conditions at the study intersections were determined for the weekday AM and PM peak hour based on the 2000 Highway Capacity Manual (HCM) methodology for all signalized intersections and based on the 2010 HCM methodologies for intersections that are unsignalized. As listed in Table 3, all study intersections are currently operating in LOS D or better. However, the intersection of SW Herman Road/SW Teton Avenue is currently approaching LOS E (achieved at 55 seconds delay) during the AM peak hour.

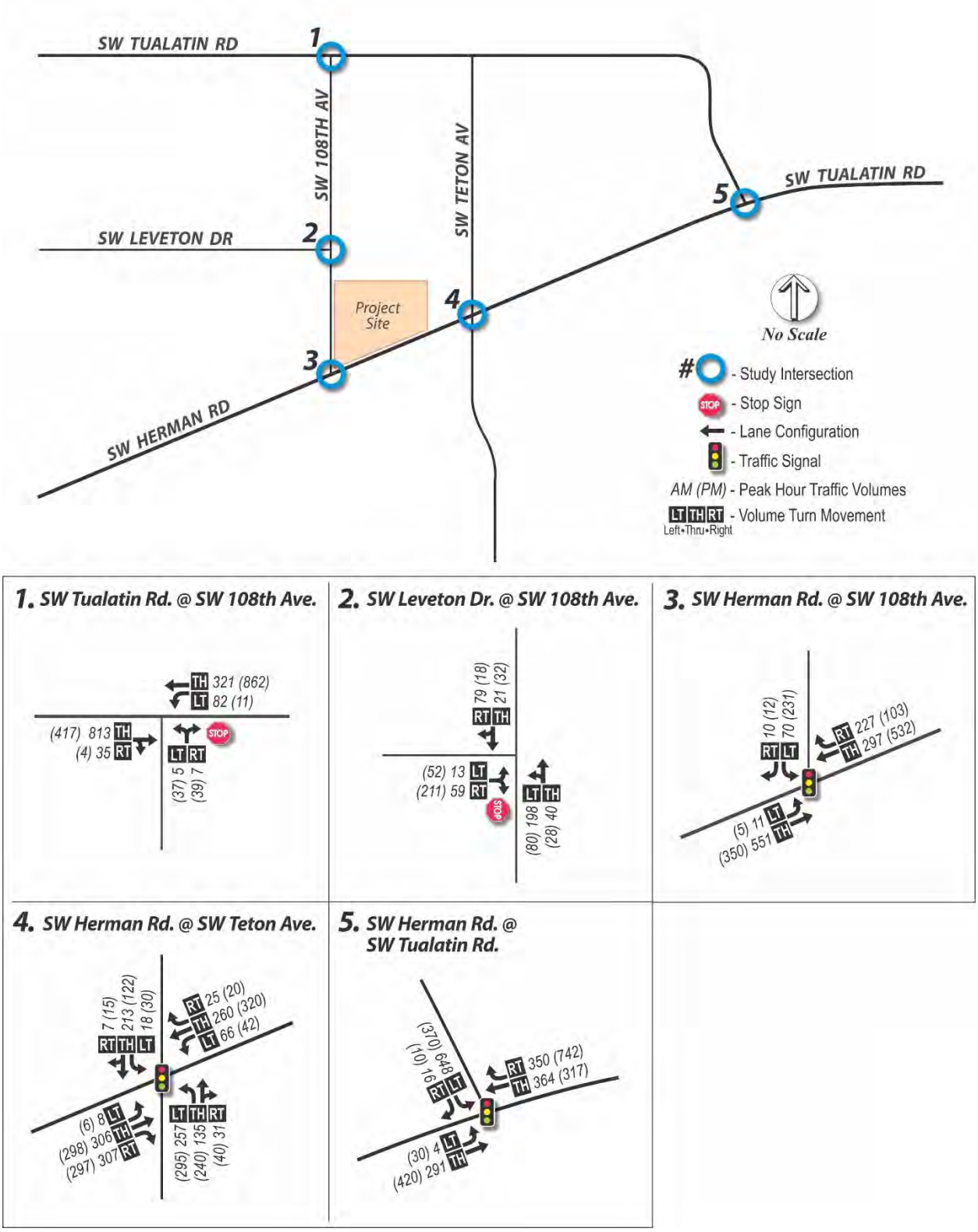
TABLE 3: 2018 EXISTING WEEKDAY AM AND PM PEAK HOUR INTERSECTION PERFORMANCE

Intersection	Control Type	Intersection Performance					
		AM Peak			PM Peak		
		Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS
SW Tualatin Road/ SW 108th Avenue	Two-way stop control	30.7	0.14	D	25.6	0.32	D
SW 108th Avenue/ SW Leveton Drive	Two-way stop control	10.2	0.15	B	10.5	0.31	B
SW Herman Road/ SW 108th Avenue	Signal	8.6	0.62	A	18.4	0.79	B
SW Herman Road/ SW Teton Avenue	Signal	53.8	0.93	D	33.4	0.84	C
SW Herman/ SW Tualatin Road	Signal	25.8	0.87	C	15.1	0.66	B
Site driveway on SW Herman Road	Two-way stop control	17.7	0.05	C	24.8	0.19	C

Delay and volume-to-capacity ratio for two-way stop intersections reported for the worst movement.
LOS for two-way stop control intersection reported for the worst major street/worst minor street movements.

[4] Tualatin Development Code 74.420 (17)

FIGURE 2: 2018 EXISTING WEEKDAY AM AND PM PEAK HOUR TRAFFIC VOLUMES



The HCM methodologies used to estimate intersection delay do not account for the interaction between adjacent intersections and the potential impact of queue spillbacks. Therefore, it is necessary to evaluate how the traffic moves between intersections. Queuing analysis was conducted for the study area to provide further information regarding transportation operations. SimTraffic microsimulation analysis was used to estimate the 95th percentile vehicle queues for each of the study area intersection approach movements under the existing conditions scenario. Table 4 indicates that queues in the study area during both the weekday AM and PM peak hours generally do not spill back into adjacent intersections or through travel lanes, with single exception of the southbound approach of SW Herman Road/SW 108th Avenue. Detailed queuing reports are included in the Appendix.

TABLE 4: 2018 EXISTING WEEKDAY AM AND PM PEAK HOUR MOTOR VEHICLE 95TH PERCENTILE QUEUEING

Intersection	Movement	Available Storage Length (ft.)	95th Percentile Queue (ft)*	
			AM Peak	PM Peak
SW Tualatin Road/ SW 108th Avenue	Westbound L	350	75	25
	Northbound L/R	>1000	50	75
SW Leveton Drive/ SW 108th Avenue	Eastbound L/R	>1000	75	100
	Northbound L/T	800	75	50
SW Herman Road/ SW 108th Avenue	Eastbound L	660	50	25
	Southbound L	170	75	**175**
SW Herman Road/ SW Teton Avenue	Westbound L	150	150	100
	Southbound L	140	50	75
SW Herman Road/ SW Tualatin Road	Eastbound L	140	50	100
	Westbound R	250	200	100
	Southbound L	>700	400	225

Note: This table only contains the movements in the study area that have potential queuing issues.
*The 95th percentile queue lengths are rounded up to the closest multiples of 25 feet.

Growth and Development Assumptions

The following section documents assumptions describing background traffic growth in future years and trip growth related to the proposed redevelopment.

Background Traffic

The amount of local and regional traffic growth independent of the project site is referred to as background traffic growth. Based on the historical traffic counts used in City of Tualatin's Transportation System Plan, the annual growth rates on the streets within the study area are in the range of 1 percent to 2 percent. The higher end of the range, a 2 percent annual growth rate, was applied to all intersection volumes within the study area to determine background traffic conditions for the 2021 future year scenarios.

There are no "in-process" trips assumed in the vicinity of the proposed site (related to approved but not yet built developments) that may impact the traffic conditions within the study area[5]. The background traffic growth was added to the 2018 existing traffic volumes to create 2021 "No Build" scenarios representing conditions that would exist if the project area did not develop as proposed. The 2021 No Build traffic volumes used in the traffic analysis are provided in Figure 3.

Trip Generation

The following section describes motor vehicle trip generations estimates for the proposed site. The trip estimate assumes the addition of a government office building with up to 20,000 square feet of gross floor area. The two access driveways to the site are assumed to be located on SW Herman Road and SW 108th Avenue.

The number of vehicle trips generated by a proposed land use is typically estimated using trip rates published in Institute of Transportation Engineers (ITE) *Trip Generation*. The ITE trip rates for Government Office (ITE land use code 730) were used to calculate the expected number of daily vehicle trips and AM peak hour vehicle trips generated with full buildout of the proposed site. The daily trip generation for the project is 452 vehicle trips. The AM peak hour trip generation is 67 vehicle trips.

In addition, a custom vehicle trip generation rate was also used to estimate the vehicle trips to and from the proposed City office during the PM peak hour. After consultation with the City of Tualatin staff, it was determined that applying the ITE trip rate alone may result in underestimating the motor vehicle trip generation potential of the site. The ITE trip rate for Government Office Building was used to calculate the baseline for expected number of vehicle trips generated with full buildout of 20,000 square feet of office space. On-site visitor (customer) arrival data was previously collected by City staff and used to supplement the ITE trip generation estimate. The custom rate adds additional 'customer' trips (based on the site survey) to 'employee' trips (based on the published ITE rate). The result is a higher vehicle trip generation estimate for the PM peak hour due to potential for "double counting" (customer trips included in the base ITE rate), which provides a conservative estimate for the potential traffic impacts at the proposed site. The estimated daily and peak hour trip generation is listed in Table 5.

[5] Per email communications with Tony Doran, Engineering Associate at City of Tualatin on August 24th, 2018.

TABLE 5: DAILY AND PEAK HOUR TRIP GENERATION ESTIMATES

Description	Land Use	Quan-tity	Units	Average Trips									
				Daily		AM Peak Hour				PM Peak Hour			
				Rate	Total	Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
City of Tualatin Operations Site Custom Trip Generation Estimates	ITE Code 730 (Government Office Building)	20	KSF	22.59	452	3.34	50	17	67	1.71	9	26	35
	Customer Trips (based on site survey; 12 customer trips for 30 employees)	60	# of Added Employees	-	-	-	-	-	-	0.4	12	12	24
			Total Trips	**-**	**452**	**-**	**50**	**17**	**67**	**-**	**21**	**38**	**59**

Source: ITE Trip Generations Manual, 10th Edition

Trip Distribution

Trip distribution reflects how site generated traffic will arrive and leave the proposed site and what roads those trips will use. The trip distribution for the proposed project was estimated based on a review of the regional travel demand model, existing traffic flows, and consideration for potential employees and customers. Rounding adjustments (within 5%) were applied based on existing travel patterns and likely travel paths of expected users. The site traffic was assigned to the street network using the trip distribution patterns shown in Figure 4. These trips, also illustrated in Figure 4, were added to the base "No Build" traffic volumes to develop the "Build" scenarios for the year of 2021. The Build scenario represents conditions that would exist with the proposed development in place. The Build scenario traffic volumes are shown in Figures 5.

FIGURE 3: 2021 NO BUILD WEEKDAY AM AND PM PEAK HOUR TRAFFIC VOLUMES

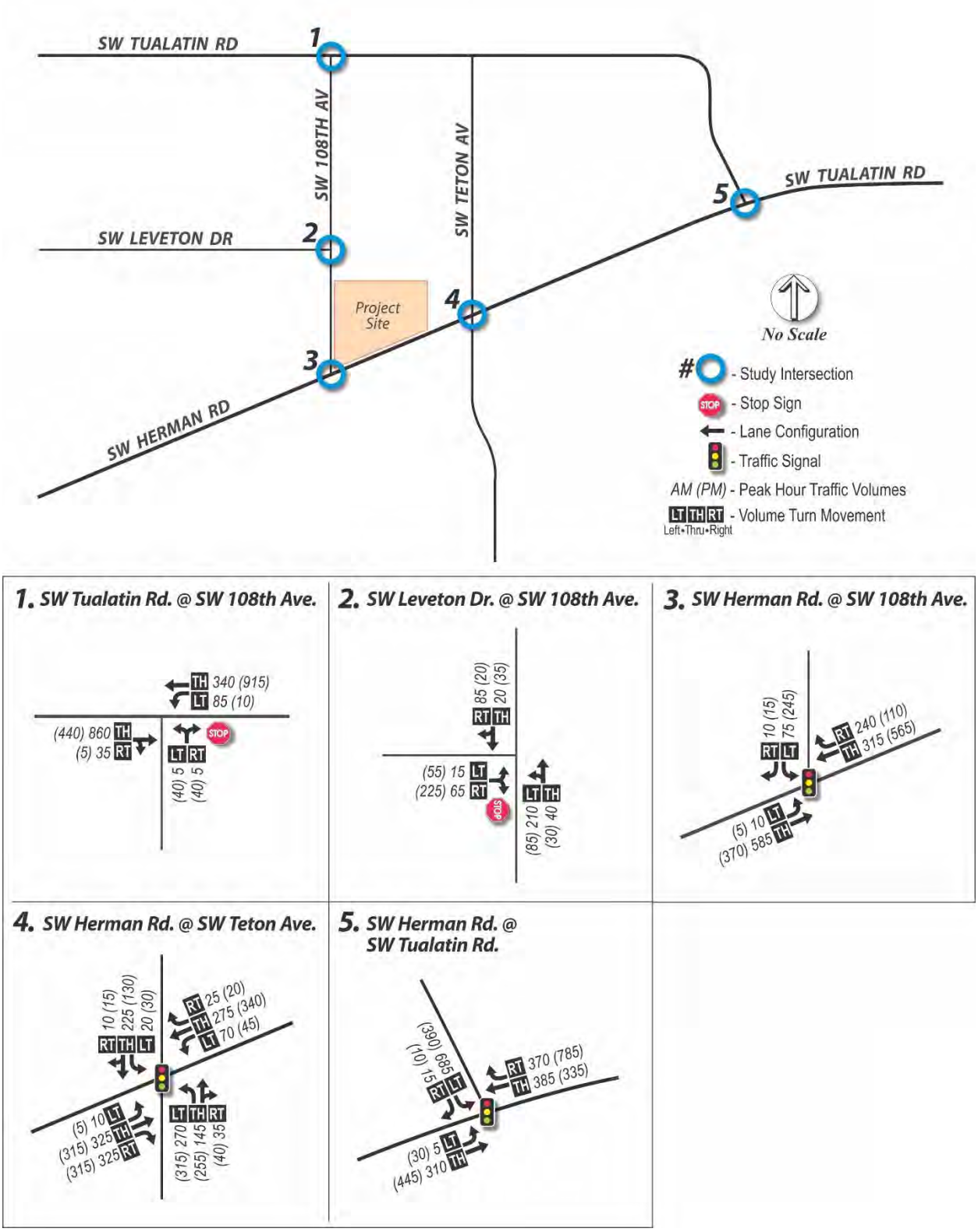


FIGURE 4: WEEKDAY AM AND PM PEAK HOUR TRIP DISTRIBUTION AND PROJECT ADDED TRIPS

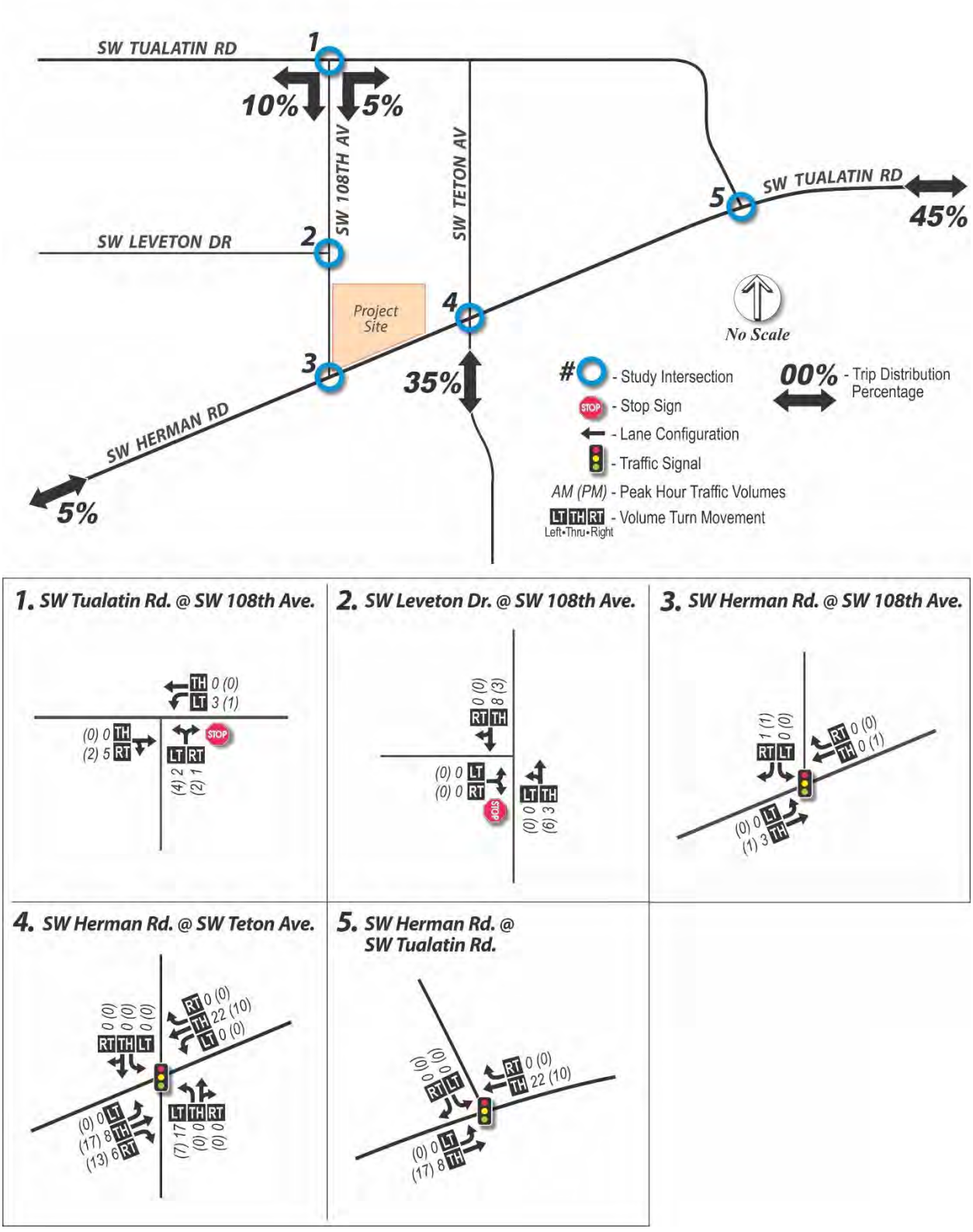
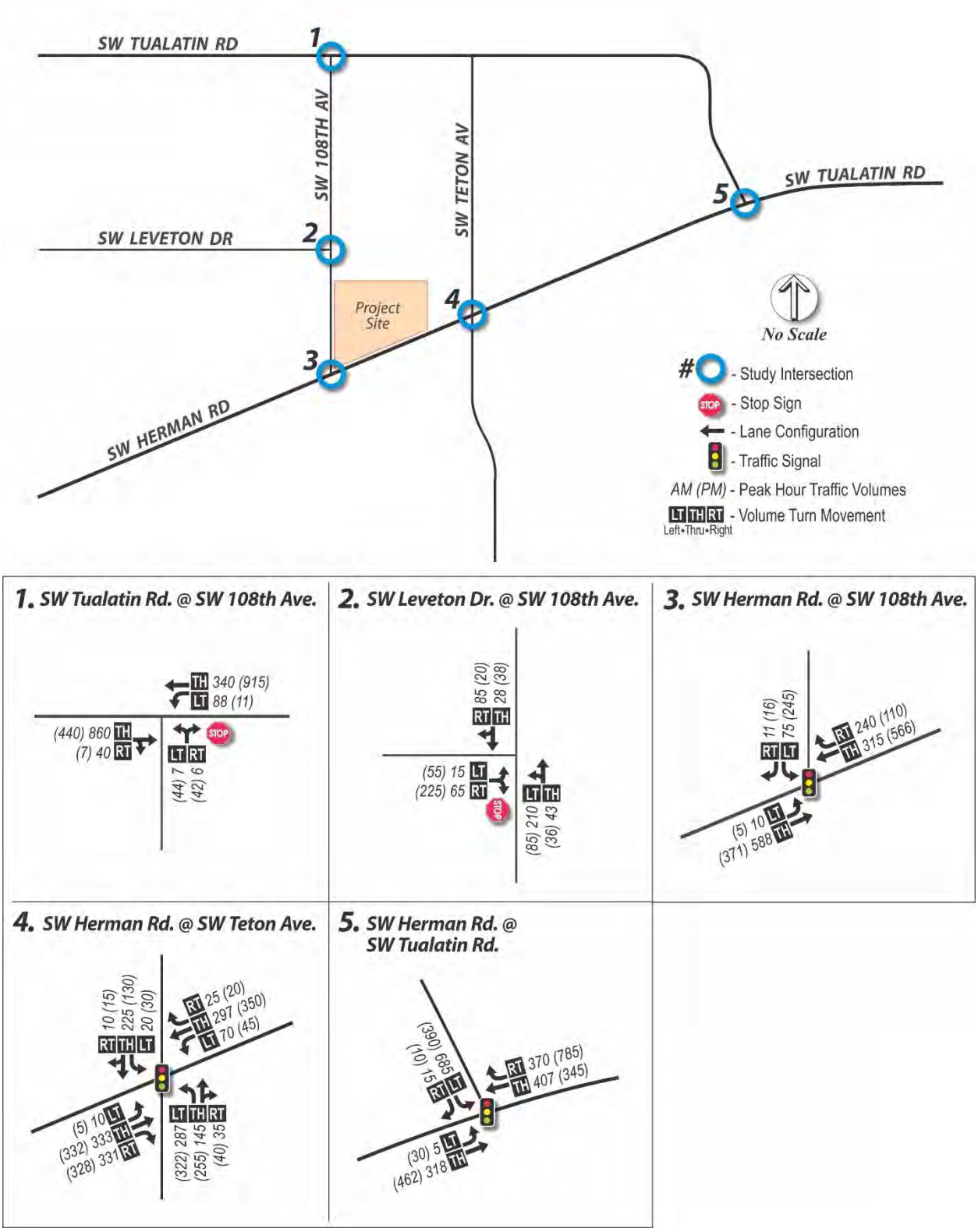


FIGURE 5: 2021 BUILD WEEKDAY AM AND PM PEAK HOUR TRAFFIC VOLUMES



Future Conditions

The following section summarizes the future weekday AM and PM peak hour traffic operating conditions for the expected year of opening (2021). Future traffic operating conditions were analyzed at the study intersections, as well as the site driveways, to determine if the transportation network can support traffic generated by the proposed development. The study area intersection operations were evaluated for both No Build and Build scenarios to determine if the proposed redevelopment would cause any intersections to not meet jurisdictional standards.

Intersection Operations

Table 6 and Table 7 list the future 2021 No Build and Build intersection performance, for the AM and PM peak hour, respectively. As listed, all intersections would operate within the acceptable mobility standards of City of Tualatin, except for the intersection of Herman Road/Teton Avenue. Under both 2021 No Build and Build scenarios, the intersection would operate at LOS E during AM peak hour and exceed the LOS D standard with existing signal timing parameters.

The intersection of Herman Road/Teton Avenue was analyzed to determine potential improvements to address performance standards. The intersection is currently approaching the performance standard[6] and would be exceeded in the 2021 No Build condition without project traffic. Based on projected traffic flows and the intersection configuration, adding an eastbound right turn lane would directly address the capacity needs at the intersection. However, this improvement would require significant cost and impact to adjacent properties to achieve given the proximity to the rail and reconfiguration required to construct the right turn lane. Therefore, this turn lane is not a recommended solution. A review of the current signal timing parameters indicated that minor adjustments to the signal timing (extending maximum duration of the eastbound phase) will help this intersection continue to meet performance standards with or without the proposed project. Given that the intersection is currently approaching the performance threshold, it is recommended that the performance continue to be monitored and signal timing adjustments made, regardless of project development.

[6] Table 4 indicates that the current intersection delay is 53.8 seconds during the AM peak hour, narrowly under the threshold of 55 seconds to maintain LOS D.

TABLE 6: 2021 WEEKDAY AM PEAK HOUR INTERSECTION PERFORMANCE

Intersection	Intersection Control	2021 No Build (AM)			2021 Build (AM)		
		Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS
SW Tualatin Road/ SW 108th Avenue	Two-way stop control	36.4	0.15	E	39.5	0.15	E
SW Leveton Drive/ SW 108th Avenue	Two-way stop control	10.4	0.16	B	10.5	0.16	B
SW Herman Road/ SW 108th Avenue	Signal	8.9	0.65	A	9.0	0.65	A
SW Herman Road/ SW Teton Avenue*	Signal	59.1 *(51.6)*	0.96 *(0.95)*	E *(D)*	57.3 *(51.4)*	0.97 *(0.96)*	E *(D)*
SW Herman Road/ SW Tualatin Road	Signal	28.7	0.91	C	30.1	0.92	C
Site driveway on SW Herman Road	Two-way stop control	20.6	0.09	C	26.2	0.18	D
Site driveway on SW 108th Avenue	Two-way stop control	-	-	-	10.0	0.01	B

Delay and volume-to-capacity ratio for two-way stop intersections reported for the worst movement.
LOS for two-way stop control intersection reported for the worst major street/worst minor street movements.
*The performance measures in parenthesis are under mitigated conditions with adjusted east/west max green.

TABLE 7: 2021 WEEKDAY PM PEAK HOUR INTERSECTION PERFORMANCE

Intersection	Intersection Control	2021 No Build (PM)			2021 Build (PM)		
		Delay (sec)	v/c	LOS	Delay (sec)	v/c	LOS
SW Tualatin Road/ SW 108th Avenue	Two-way stop control	30.1	0.37	D	31.8	0.41	D
SW Leveton Drive/ SW 108th Avenue	Two-way stop control	10.8	0.33	B	10.9	0.33	B
SW Herman Road/ SW 108th Avenue	Signal	19.8	0.81	B	19.8	0.81	B
SW Herman Road/ SW Teton Avenue	Signal	39.5	0.90	D	45.0	0.93	D
SW Herman Road/ SW Tualatin Road	Signal	16.0	0.69	B	16.1	0.70	B
Site driveway on SW Herman Road	Two-way stop control	27.4	0.21	D	39.9	0.43	E
Site driveway on SW 108th Avenue	Two-way stop control	-	-	-	9.2	0.01	A

Delay and volume-to-capacity ratio for two-way stop intersections reported for the worst movement.
LOS for two-way stop control intersection reported for the worst major street/worst minor street movements.

Queuing analysis was also conducted for the study area, with detailed reports included in the Appendix. Table 8 lists the 95th-percentile vehicle queue lengths for the study intersections. Vehicle queuing at

most locations under the No Build scenario is not substantially different than existing conditions. Build conditions also do not change significantly compared to No Build conditions, with the queue lengths generally increasing by less than two-car length (approximately 50 feet). The only location with a queue that is projected to exceed storage (by approximately one vehicle length) is the southbound left turn at the Herman Road/108th Avenue intersection. This location would experience the same 95th-percentile queue for both the No Build and Build condition and the project would not add any trips to this movement. This indicates that the proposed site does not have significant impact on the traffic conditions within the study area.

TABLE 8: 2021 WEEKDAY AM AND PM PEAK HOUR MOTOR VEHICLE 95TH PERCENTILE QUEUEING

Intersection	Movement	Available Storage (ft.)	95th Percentile Queue (ft)*			
			2021 AM Peak		2021 PM Peak	
			No Build	Build	No Build	Build
SW Tualatin Road/ SW 108th Avenue	Westbound L	350	75	100	25	25
	Northbound L/R	>1000	50	50	125	100
SW Leveton Drive/ SW 108th Avenue	Eastbound L/R	>1000	75	75	100	100
	Northbound L/T	800	75	75	50	50
SW Herman Road/ SW 108th Avenue	Eastbound L	660	100	75	50	50
	Southbound L	170	100	125	**200**	**200**
SW Herman Road/ SW Teton Avenue	Westbound L	150	150	150	125	100
	Southbound L	140	50	75	75	75
SW Herman Road/ SW Tualatin Road	Eastbound L	140	75	50	100	100
	Westbound R	250	200	250	100	125
	Southbound L	>700	400	425	250	250

Note: *The 95th percentile queue lengths are rounded up to the closest multiples of 25 feet.

Driveway Interaction

The site is assumed to continue using the existing driveways on both Herman Road and 108th Avenue. The southern site driveway located on the east side of SW 108th Avenue is within 100 feet of the closest opposing driveway on the west side of 108th Avenue. The proximity and configuration of these driveways have the potential to create vehicle interaction between the opposing driveways if there are left turning vehicles exiting from each driveway simultaneously. However, the existing site driveways on 108th Avenue are gated and during the data collection on weekday AM and PM peak hours, no driveway use was observed. Assuming the driveways on 108th Avenue remain gated and the access remain unchanged after the proposed city operations building is completed, the potential interaction with opposing driveways on 108th Avenue will remain minimal. Further, if the gate is removed from the driveway on 108th, the vehicle activity (and potential for conflicts) is anticipated to remain minimal due to the distribution of site trips and minimal use of the driveway (primarily entry/exit to/from the north on 108th Avenue).

Findings and Recommendations

Based on the analysis of existing transportation conditions and potential site traffic, no improvements were identified to mitigate the site development impacts. However, one traffic mobility need was noted

at the intersection of SW Herman Road/SW Teton Avenue. This traffic mobility item is not related to site development and should be monitored/addressed separately (regardless) of the proposed development. The intersection of SW 108th Avenue/SW Teton Avenue is currently approaching intersection performance standards during the AM peak hour and is projected to exceed standards by the 2021 No Build condition with minimal added growth. Continue to monitor the operations of the intersection and consider optimizing the existing signal timing parameters to reduce delay for the eastbound approach. Increasing the maximum green duration for these approaches would likely address performance needs at this intersection.

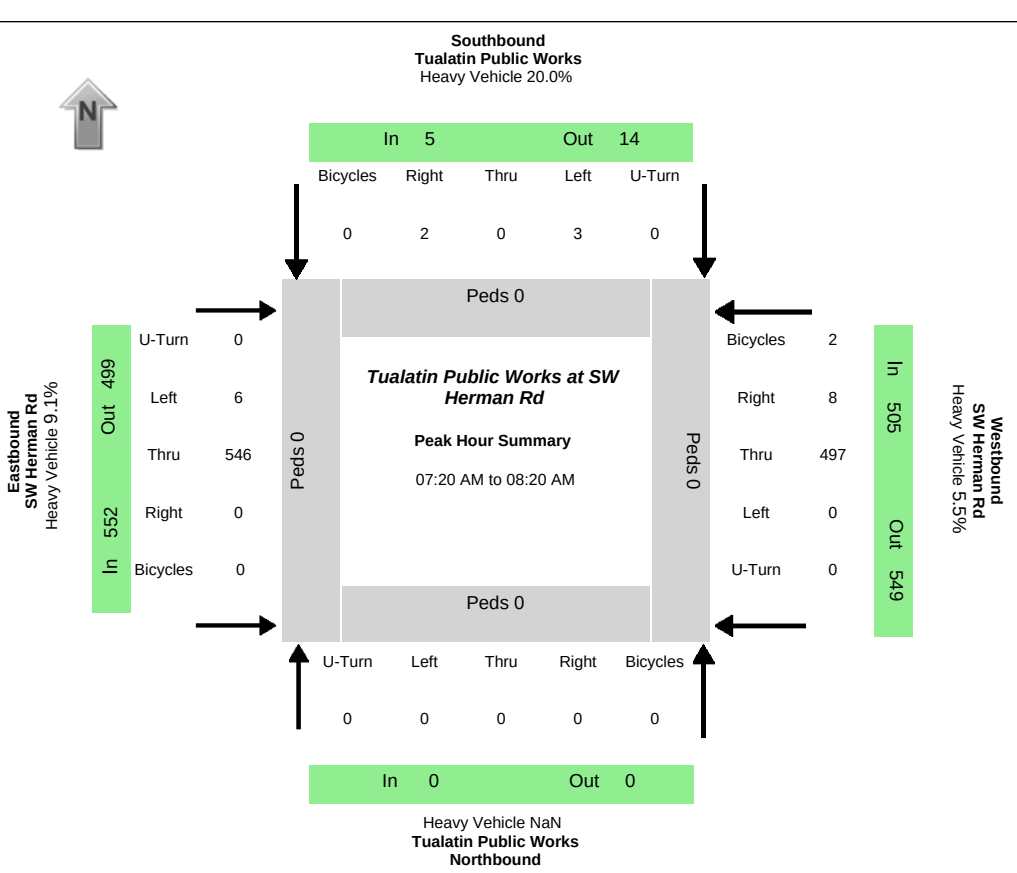
Appendix

The following items are included in the Appendix:

- Traffic Counts
- Intersection Operations Worksheets
- Intersection Queuing Worksheets

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Tualatin Public Works*
E/W street	*SW Herman Rd*
City, State	Tualatin OR
Site Notes	
Location	45.384202 - -122.786072
Start Date	Wednesday, October 10, 2018
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:20:00 AM
Peak 15 Min Start	07:45:00 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
0	0	0	0	3	0	2	0	6	546	0	0	0	497	8	0	0	5	552	505	0	14	499	549

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	9.2%	0.0%	0.0%	0.0%	5.6%	0.0%	0.0%	NaN	20.0%	9.1%	5.5%	NaN	0.0%	5.8%	9.1%

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	0	0		0	2	0	0	2

PHV - Pedestrians

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

All Vehicle Volumes

	Northbound Tualatin Public Works				Southbound Tualatin Public Works				Eastbound SW Herman Rd				Westbound SW Herman Rd				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	0	0	0	0	32	0	0	0	49	0	0		
07:05:00 AM	0	0	0	0	2	0	0	0	1	42	0	0	0	46	2	0		
07:10:00 AM	0	0	0	0	0	0	0	0	1	20	0	0	0	23	1	0	219	
07:15:00 AM	0	0	0	0	0	0	0	0	1	44	0	0	0	35	3	0	221	
07:20:00 AM	0	0	0	0	1	0	0	0	1	52	0	0	0	32	1	0	215	
07:25:00 AM	0	0	0	0	0	0	0	0	2	40	0	0	0	44	1	0	257	
07:30:00 AM	0	0	0	0	0	0	0	0	1	66	0	0	0	38	0	0	279	
07:35:00 AM	0	0	0	0	0	0	0	0	1	56	0	0	0	39	0	0	288	
07:40:00 AM	0	0	0	0	0	0	0	0	0	46	0	0	0	36	0	0	283	
07:45:00 AM	0	0	0	0	0	0	0	0	0	55	0	0	0	43	0	0	276	
07:50:00 AM	0	0	0	0	0	0	0	0	0	44	0	0	0	56	0	0	280	
07:55:00 AM	0	0	0	0	0	0	0	0	0	47	0	0	0	52	1	0	298	1057
08:00:00 AM	0	0	0	0	0	0	0	0	1	29	0	0	0	26	1	0	257	1033
08:05:00 AM	0	0	0	0	0	0	1	0	0	43	0	0	0	50	4	0	255	1038
08:10:00 AM	0	0	0	0	0	0	1	0	0	24	0	0	0	38	0	0	218	1056
08:15:00 AM	0	0	0	0	2	0	0	0	0	44	0	0	0	43	0	0	250	1062
08:20:00 AM	0	0	0	0	0	0	0	0	0	24	0	0	0	32	2	0	210	1033
08:25:00 AM	0	0	0	0	4	0	0	0	0	37	0	0	0	47	0	0	235	1034
08:30:00 AM	0	0	0	0	2	0	0	0	0	21	0	0	0	17	0	0	186	969
08:35:00 AM	0	0	0	0	4	0	0	0	1	26	0	0	0	35	1	0	195	940
08:40:00 AM	0	0	0	0	1	0	0	0	1	35	0	0	0	35	0	0	179	930
08:45:00 AM	0	0	0	0	1	0	0	0	0	19	0	0	0	26	0	0	185	878
08:50:00 AM	0	0	0	0	0	0	0	0	0	14	0	0	0	42	0	0	174	834
08:55:00 AM	0	0	0	0	2	0	0	0	0	18	0	0	0	28	0	0	150	782

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 108th Ave -- SW Tualatin Rd

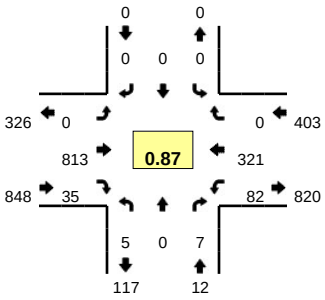
CITY/STATE: Tualatin, OR

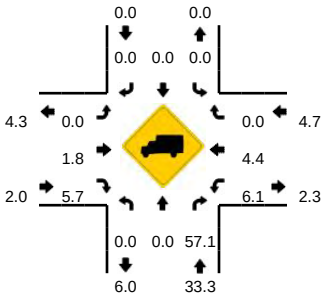
QC JOB #: 14768943

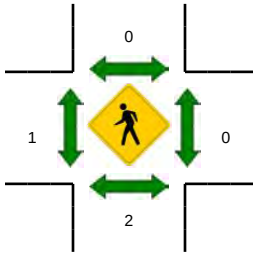
DATE: Tue, Sep 11 2018

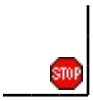
Peak-Hour: 7:25 AM -- 8:25 AM

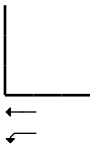
Peak 15-Min: 7:45 AM -- 8:00 AM

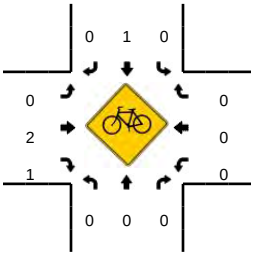


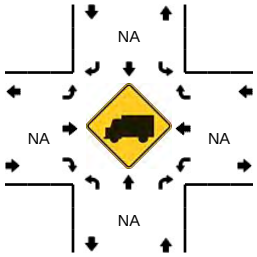


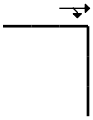


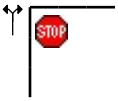


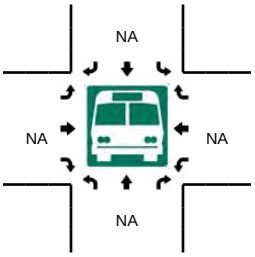












5-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	49	4	0	4	13	0	0	72	
7:05 AM	1	0	1	0	0	0	0	0	0	57	1	0	2	12	0	0	74	
7:10 AM	0	0	0	0	0	0	0	0	0	50	3	0	4	17	0	0	74	
7:15 AM	1	0	0	0	0	0	0	0	0	59	2	0	1	14	0	0	77	
7:20 AM	1	0	1	0	0	0	0	0	0	50	3	0	5	22	0	0	82	
7:25 AM	0	0	1	0	0	0	0	0	0	61	2	0	7	26	0	0	97	
7:30 AM	1	0	1	0	0	0	0	0	0	78	4	0	1	21	0	0	106	
7:35 AM	0	0	1	0	0	0	0	0	0	74	1	0	6	28	0	0	110	
7:40 AM	0	0	0	0	0	0	0	0	0	78	1	0	6	19	0	0	104	
7:45 AM	0	0	0	0	0	0	0	0	0	94	2	0	10	20	0	0	126	
7:50 AM	2	0	1	0	0	0	0	0	0	73	4	0	10	35	0	0	125	
7:55 AM	1	0	0	0	0	0	0	0	0	75	2	0	10	26	0	0	114	1161
8:00 AM	0	0	0	0	0	0	0	0	0	58	3	0	7	37	0	0	105	1194
8:05 AM	0	0	1	0	0	0	0	0	0	63	7	0	9	30	0	0	110	1230
8:10 AM	0	0	1	0	0	0	0	0	0	52	4	0	4	28	0	0	89	1245
8:15 AM	1	0	0	0	0	0	0	0	0	55	2	0	5	19	0	0	82	1250
8:20 AM	0	0	1	0	0	0	0	0	0	52	3	0	7	32	0	0	95	1263
8:25 AM	0	0	2	0	0	0	0	0	0	50	3	0	5	19	0	0	79	1245
8:30 AM	0	0	1	0	0	0	0	0	0	48	1	0	4	17	0	0	71	1210
8:35 AM	2	0	0	0	0	0	0	0	0	38	3	0	13	30	0	0	86	1186
8:40 AM	3	0	1	0	0	0	0	0	0	30	3	0	6	29	0	0	72	1154
8:45 AM	0	0	1	0	0	0	0	0	0	42	2	0	4	26	0	0	75	1103
8:50 AM	1	0	0	0	0	0	0	0	0	40	1	0	5	36	0	0	83	1061
8:55 AM	0	0	2	0	0	0	0	0	0	23	0	0	5	29	0	0	59	1006

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	4	0	0	0	0	0	0	968	32	0	120	324	0	0	1460
Heavy Trucks	0	0	0		0	0	0		0	20	0		4	8	0		32
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/17/2018 5:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 108th Ave -- SW Herman Rd

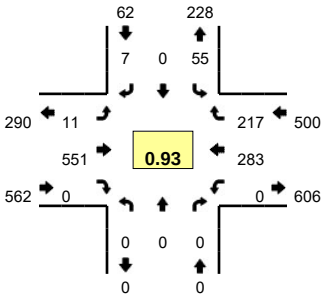
CITY/STATE: Tualatin, OR

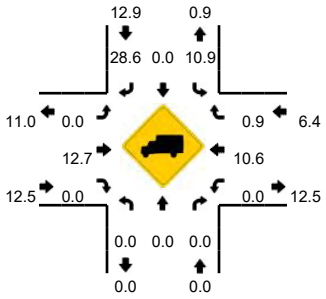
QC JOB #: 14768944

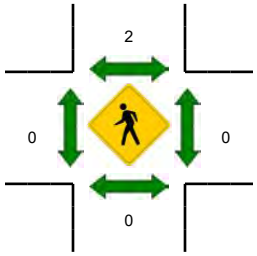
DATE: Tue, Sep 11 2018

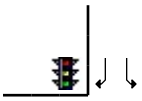
Peak-Hour: 7:15 AM -- 8:15 AM

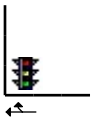
Peak 15-Min: 7:50 AM -- 8:05 AM

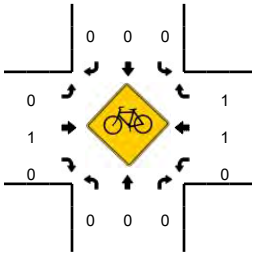


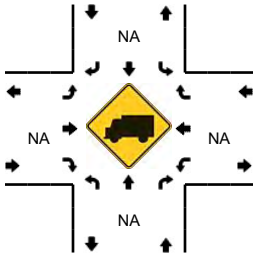


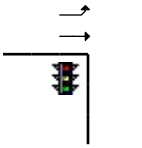


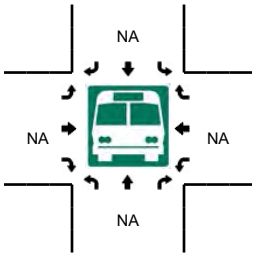












5-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	3	0	0	0	1	37	0	0	0	29	6	0	76	
7:05 AM	0	0	0	0	4	0	1	0	0	38	0	0	0	32	18	0	93	
7:10 AM	0	0	0	0	6	0	1	0	1	29	0	0	0	22	12	0	71	
7:15 AM	0	0	0	0	2	0	0	0	0	34	0	0	0	21	13	0	70	
7:20 AM	0	0	0	0	7	0	1	0	0	44	0	0	0	20	14	0	86	
7:25 AM	0	0	0	0	6	0	1	0	0	50	0	0	0	34	17	0	108	
7:30 AM	0	0	0	0	8	0	0	0	1	39	0	0	0	18	14	0	80	
7:35 AM	0	0	0	0	5	0	0	0	1	62	0	0	0	20	20	0	108	
7:40 AM	0	0	0	0	3	0	1	0	0	37	0	0	0	19	24	0	84	
7:45 AM	0	0	0	0	7	0	0	0	3	55	0	0	0	18	16	0	99	
7:50 AM	0	0	0	0	6	0	1	0	3	59	0	0	0	27	15	0	111	
7:55 AM	0	0	0	0	3	0	0	0	0	35	0	0	0	32	17	0	87	1073
8:00 AM	0	0	0	0	3	0	0	0	0	50	0	0	0	25	25	0	103	1100
8:05 AM	0	0	0	0	1	0	0	0	3	41	0	0	0	27	24	0	96	1103
8:10 AM	0	0	0	0	4	0	3	0	0	45	0	0	0	22	18	0	92	1124
8:15 AM	0	0	0	0	4	0	0	0	0	19	0	0	0	27	9	0	59	1113
8:20 AM	0	0	0	0	6	0	1	0	1	37	0	0	0	16	22	0	83	1110
8:25 AM	0	0	0	0	4	0	0	0	1	30	0	0	0	13	22	0	70	1072
8:30 AM	0	0	0	0	6	0	0	0	0	26	0	0	0	17	24	0	73	1065
8:35 AM	0	0	0	0	2	0	0	0	0	17	0	0	0	14	22	0	55	1012
8:40 AM	0	0	0	0	2	0	1	0	3	16	0	0	0	21	20	0	63	991
8:45 AM	0	0	0	0	2	0	1	0	1	18	0	0	0	20	19	0	61	953
8:50 AM	0	0	0	0	0	0	0	0	5	12	0	0	0	22	17	0	56	898
8:55 AM	0	0	0	0	0	0	0	0	1	23	0	0	0	20	21	0	65	876

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	48	0	4	0	12	576	0	0	0	336	228	0	1204
Heavy Trucks	0	0	0		8	0	0		0	60	0		0	28	4		100
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/17/2018 5:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

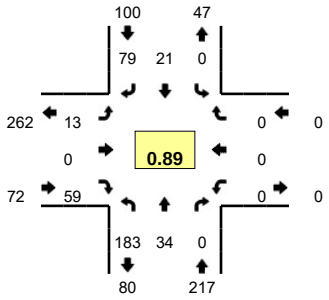
LOCATION: SW 108th Ave -- Leveton Dr

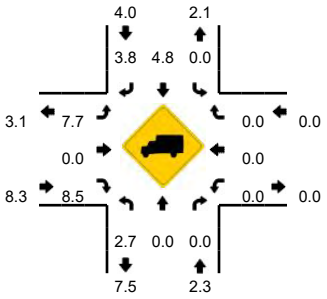
QC JOB #: 14768945

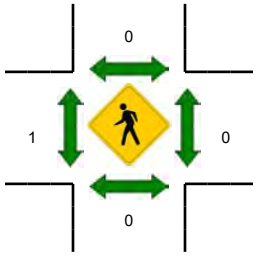
CITY/STATE: Tualatin, OR

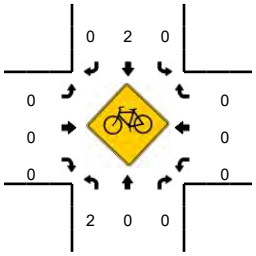
DATE: Tue, Sep 11 2018

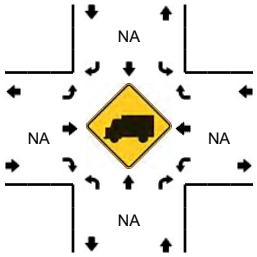
Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 8:25 AM -- 8:40 AM

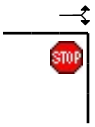


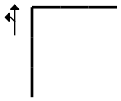


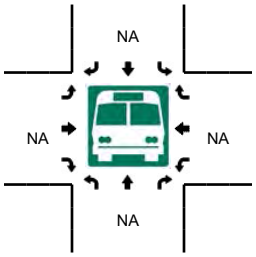












5-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				Leveton Dr (Eastbound)				Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	2	0	0	0	1	2	0	4	0	3	0	0	0	0	0	16	
7:05 AM	11	5	0	0	0	1	2	0	1	0	3	0	0	0	0	0	23	
7:10 AM	7	5	0	0	0	2	2	0	0	0	4	0	0	0	0	0	20	
7:15 AM	10	3	0	0	0	1	2	0	1	0	3	0	0	0	0	0	20	
7:20 AM	7	0	0	0	0	2	6	0	3	0	6	0	0	0	0	0	24	
7:25 AM	10	6	0	0	0	2	4	0	0	0	9	0	0	0	0	0	31	
7:30 AM	8	0	0	0	0	1	2	0	2	0	7	0	0	0	0	0	20	
7:35 AM	16	1	0	0	0	3	2	0	2	0	4	0	0	0	0	0	28	
7:40 AM	19	3	0	0	0	1	3	0	0	0	8	0	0	0	0	0	34	
7:45 AM	11	3	0	0	0	2	7	0	1	0	7	0	0	0	0	0	31	
7:50 AM	8	4	0	0	0	0	10	0	1	0	13	0	0	0	0	0	36	
7:55 AM	13	2	0	0	0	2	10	0	6	0	3	0	0	0	0	0	36	319
8:00 AM	12	7	0	0	0	1	7	0	2	0	6	0	0	0	0	0	35	338
8:05 AM	20	3	0	0	0	2	5	0	0	0	1	0	0	0	0	0	31	346
8:10 AM	13	1	0	0	0	1	4	0	1	0	6	0	0	0	0	0	26	352
8:15 AM	12	1	0	0	0	0	6	0	0	0	4	0	0	0	0	0	23	355
8:20 AM	15	1	0	0	0	2	6	0	0	0	4	0	0	0	0	0	28	359
8:25 AM	22	2	0	0	0	7	6	0	2	0	2	0	0	0	0	0	41	369
8:30 AM	20	4	0	0	0	2	2	0	0	0	3	0	0	0	0	0	31	380
8:35 AM	18	3	0	0	0	1	13	0	0	0	2	0	0	0	0	0	37	389
8:40 AM	10	4	0	0	0	1	8	0	1	0	2	0	0	0	0	0	26	381
8:45 AM	17	5	0	0	0	2	6	0	1	0	1	0	0	0	0	0	32	382
8:50 AM	15	1	0	0	0	0	4	0	1	0	4	0	0	0	0	0	25	371
8:55 AM	15	2	0	0	0	0	4	0	0	0	1	0	0	0	0	0	22	357

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	240	36	0	0	0	40	84	0	8	0	28	0	0	0	0	0	436
Heavy Trucks	8	0	0		0	0	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	1	0	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/17/2018 5:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

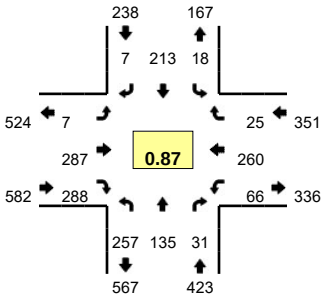
Method for determining peak hour: Total Entering Volume

LOCATION: SW Teton Ave -- SW Herman Rd

CITY/STATE: Tualatin, OR

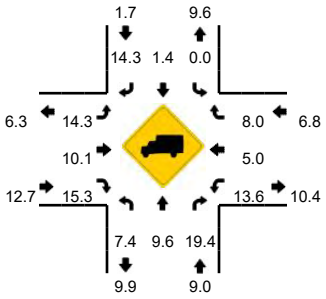
QC JOB #: 14768946

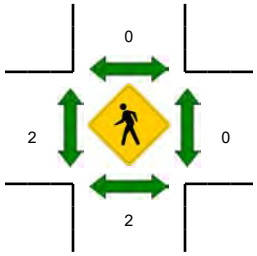
DATE: Tue, Sep 11 2018

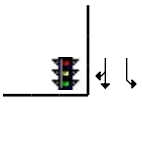


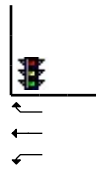
Peak-Hour: 7:20 AM -- 8:20 AM

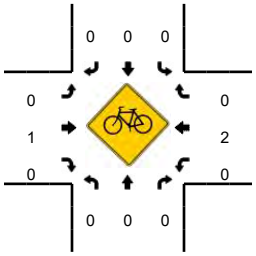
Peak 15-Min: 7:50 AM -- 8:05 AM

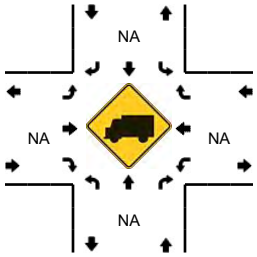


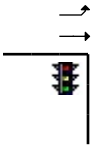


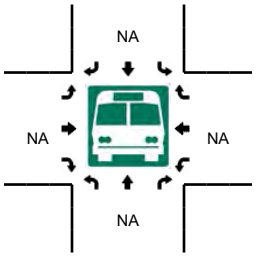












5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	23	6	0	0	2	8	0	0	0	19	21	0	1	17	1	0	98	
7:05 AM	29	5	3	0	0	13	0	0	0	25	20	0	1	24	0	0	120	
7:10 AM	20	5	1	0	1	17	0	0	1	11	12	0	2	17	0	0	87	
7:15 AM	18	9	2	0	1	16	0	0	2	20	22	0	0	18	0	0	108	
7:20 AM	15	9	1	0	0	9	0	0	0	21	23	0	5	26	1	0	110	
7:25 AM	21	11	3	0	3	13	0	0	0	27	26	0	3	27	2	0	136	
7:30 AM	14	6	1	0	1	26	0	0	0	27	22	0	2	17	0	0	116	
7:35 AM	20	12	4	0	3	18	0	0	2	21	33	0	5	27	1	0	146	
7:40 AM	27	7	5	0	1	24	0	0	0	27	20	0	2	18	1	0	132	
7:45 AM	15	10	3	0	0	23	3	0	2	20	26	0	6	16	2	0	126	
7:50 AM	21	16	0	0	1	21	0	0	0	37	35	0	7	21	7	0	166	
7:55 AM	29	12	5	0	4	23	0	0	0	16	19	0	10	25	1	0	144	1489
8:00 AM	26	13	4	0	1	17	0	0	0	23	27	0	10	25	4	0	150	1541
8:05 AM	26	11	3	0	0	18	2	0	1	22	22	0	6	23	3	0	137	1558
8:10 AM	22	11	1	0	3	13	1	0	1	26	20	0	4	17	1	0	120	1591
8:15 AM	21	17	1	0	1	8	1	0	1	20	15	0	6	18	2	0	111	1594
8:20 AM	15	11	0	0	0	13	0	0	1	20	23	0	2	20	2	0	107	1591
8:25 AM	20	17	2	0	0	13	1	0	0	26	16	0	2	15	1	0	113	1568
8:30 AM	24	12	2	0	0	10	0	0	0	25	7	0	3	16	1	0	100	1552
8:35 AM	22	23	5	0	2	7	1	0	0	16	6	0	0	24	0	0	106	1512
8:40 AM	19	31	6	0	0	13	1	0	0	10	4	0	2	17	0	0	103	1483
8:45 AM	16	15	3	0	2	19	0	0	1	13	8	0	4	19	0	0	100	1457
8:50 AM	22	21	2	0	5	15	0	0	0	18	7	0	3	18	0	0	111	1402
8:55 AM	21	6	4	0	1	7	0	0	1	16	8	0	3	22	3	0	92	1350

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	304	164	36	0	24	244	0	0	0	304	324	0	108	284	48	0	1840
Heavy Trucks	16	4	8		0	4	0		0	24	52		12	20	4		144
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/17/2018 5:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

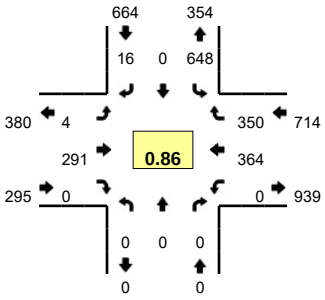
Method for determining peak hour: Total Entering Volume

LOCATION: SW Tualatin Rd -- SW Herman Rd

QC JOB #: 14768947

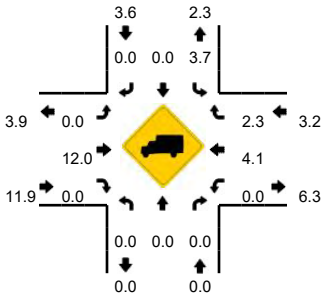
CITY/STATE: Washington, OR

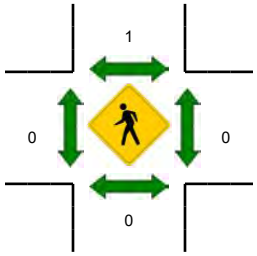
DATE: Tue, Sep 11 2018

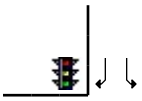


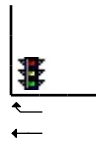
Peak-Hour: 7:25 AM -- 8:25 AM

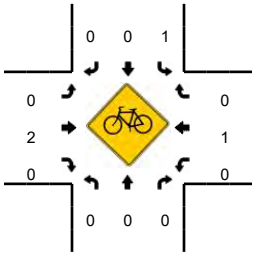
Peak 15-Min: 7:55 AM -- 8:10 AM

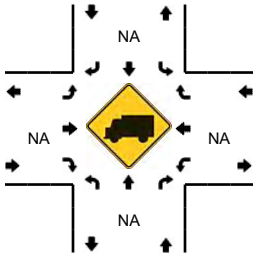


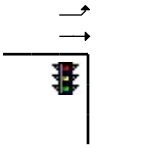


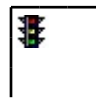


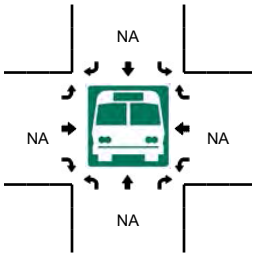












5-Min Count Period Beginning At	SW Tualatin Rd (Northbound)				SW Tualatin Rd (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	28	0	0	0	0	15	0	0	0	22	18	0	83	
7:05 AM	0	0	0	0	47	0	1	0	0	29	0	0	0	33	9	0	119	
7:10 AM	0	0	0	0	52	0	0	0	1	18	0	0	0	21	16	0	108	
7:15 AM	0	0	0	0	45	0	2	0	1	21	0	0	0	18	14	0	101	
7:20 AM	0	0	0	0	37	0	3	0	0	19	0	0	0	41	27	0	127	
7:25 AM	0	0	0	0	52	0	0	0	0	23	0	0	0	34	19	0	128	
7:30 AM	0	0	0	0	61	0	3	0	2	24	0	0	0	19	20	0	129	
7:35 AM	0	0	0	0	65	0	1	0	0	24	0	0	0	33	26	0	149	
7:40 AM	0	0	0	0	47	0	1	0	0	19	0	0	0	29	16	0	112	
7:45 AM	0	0	0	0	54	0	2	0	1	29	0	0	0	29	33	0	148	
7:50 AM	0	0	0	0	61	0	1	0	0	21	0	0	0	35	33	0	151	
7:55 AM	0	0	0	0	61	0	3	0	0	23	0	0	0	43	39	0	169	1524
8:00 AM	0	0	0	0	55	0	2	0	0	33	0	0	0	37	40	0	167	1608
8:05 AM	0	0	0	0	54	0	0	0	0	37	0	0	0	26	35	0	152	1641
8:10 AM	0	0	0	0	41	0	3	0	0	24	0	0	0	28	32	0	128	1661
8:15 AM	0	0	0	0	47	0	0	0	0	17	0	0	0	23	16	0	103	1663
8:20 AM	0	0	0	0	50	0	0	0	1	17	0	0	0	28	41	0	137	1673
8:25 AM	0	0	0	0	40	0	0	0	0	34	0	0	0	24	23	0	121	1666
8:30 AM	0	0	0	0	58	0	3	0	0	22	0	0	0	22	27	0	132	1669
8:35 AM	0	0	0	0	53	0	0	0	0	32	0	0	0	28	35	0	148	1668
8:40 AM	0	0	0	0	35	0	0	0	0	20	0	0	0	22	36	0	113	1669
8:45 AM	0	0	0	0	48	0	1	0	0	18	0	0	0	19	34	0	120	1641
8:50 AM	0	0	0	0	52	0	0	0	0	21	0	0	0	19	30	0	122	1612
8:55 AM	0	0	0	0	29	0	2	0	0	18	0	0	0	29	28	0	106	1549

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	680	0	20	0	0	372	0	0	0	424	456	0	1952
Heavy Trucks	0	0	0		24	0	0		0	44	0		0	16	12		96
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	1	0		1
Railroad																	
Stopped Buses																	

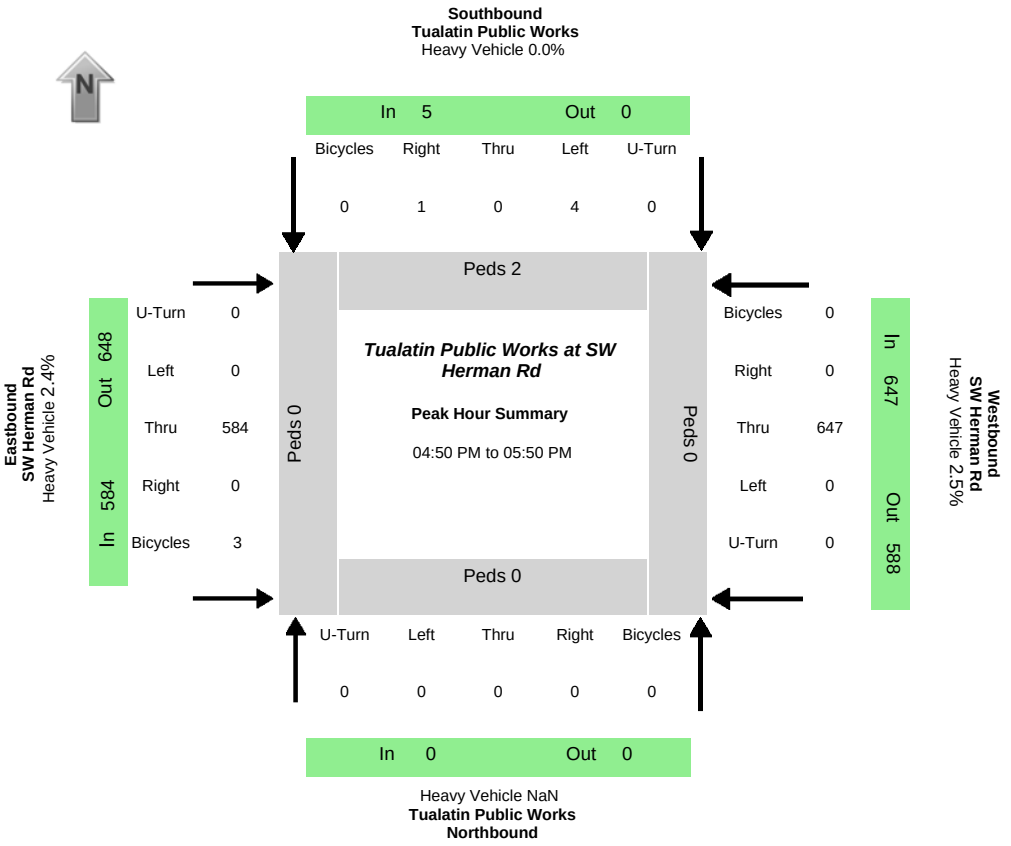
Comments:

Report generated on 9/17/2018 5:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*Tualatin Public Works*
E/W street	*SW Herman Rd*
City, State	Tualatin OR
Site Notes	
Location	45.384202 - -122.786072
Start Date	Wednesday, October 10, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:50:00 PM
Peak 15 Min Start	05:05:00 PM
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	4	0	1	0	0	584	0	0	0	647	0	0	0	5	584	647	0	0	648	588

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	NaN	0.0%	2.4%	2.5%	NaN	0.0%	2.5%	2.4%

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	3	0		0	0	0	0	3

PHV - Pedestrians

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

All Vehicle Volumes

	Northbound Tualatin Public Works				Southbound Tualatin Public Works				Eastbound SW Herman Rd				Westbound SW Herman Rd				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	18	0	10	0	1	38	0	0	0	40	1	0		
04:05:00 PM	0	0	0	0	5	0	3	0	0	32	0	0	0	45	1	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	41	1	0	265	
04:15:00 PM	0	0	0	0	0	0	0	0	0	31	0	0	0	38	0	0	226	
04:20:00 PM	0	0	0	0	0	0	1	0	0	48	0	0	0	60	1	0	250	
04:25:00 PM	0	0	0	0	1	0	1	0	0	32	0	0	0	29	0	0	242	
04:30:00 PM	0	0	0	0	0	0	0	0	0	35	0	0	0	37	0	0	245	
04:35:00 PM	0	0	0	0	0	0	0	0	0	53	0	0	0	57	0	0	245	
04:40:00 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	31	0	0	242	
04:45:00 PM	0	0	0	0	0	0	0	0	0	49	0	0	0	40	0	0	259	
04:50:00 PM	0	0	0	0	3	0	0	0	0	45	0	0	0	46	0	0	243	
04:55:00 PM	0	0	0	0	0	0	0	0	0	44	0	0	0	50	0	0	277	1026
05:00:00 PM	0	0	0	0	1	0	0	0	0	50	0	0	0	60	0	0	299	1029
05:05:00 PM	0	0	0	0	0	0	1	0	0	71	0	0	0	55	0	0	332	1070
05:10:00 PM	0	0	0	0	0	0	0	0	0	65	0	0	0	56	0	0	359	1120
05:15:00 PM	0	0	0	0	0	0	0	0	0	52	0	0	0	64	0	0	364	1167
05:20:00 PM	0	0	0	0	0	0	0	0	0	49	0	0	0	55	0	0	341	1161
05:25:00 PM	0	0	0	0	0	0	0	0	0	36	0	0	0	57	0	0	313	1191
05:30:00 PM	0	0	0	0	0	0	0	0	0	41	0	0	0	49	0	0	287	1209
05:35:00 PM	0	0	0	0	0	0	0	0	0	41	0	0	0	56	0	0	280	1196
05:40:00 PM	0	0	0	0	0	0	0	0	0	51	0	0	0	43	0	0	281	1230
05:45:00 PM	0	0	0	0	0	0	0	0	0	39	0	0	0	56	0	0	286	1236
05:50:00 PM	0	0	0	0	0	0	0	0	0	37	0	0	0	35	0	0	261	1214
05:55:00 PM	0	0	0	0	0	0	0	0	0	33	0	0	0	32	0	0	232	1185

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 108th Ave -- SW Tualatin Rd

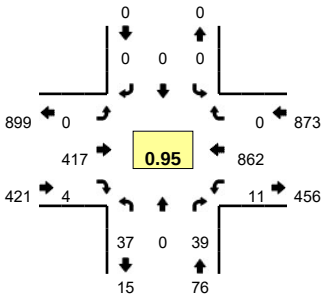
CITY/STATE: Tualatin, OR

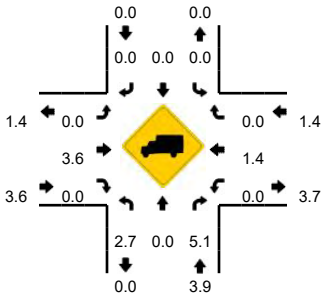
QC JOB #: 14768914

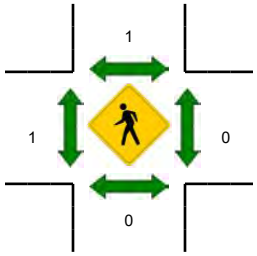
DATE: Thu, Aug 16 2018

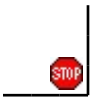
Peak-Hour: 4:20 PM -- 5:20 PM

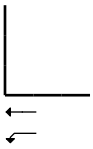
Peak 15-Min: 4:50 PM -- 5:05 PM

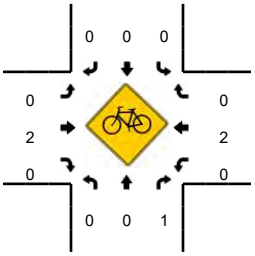


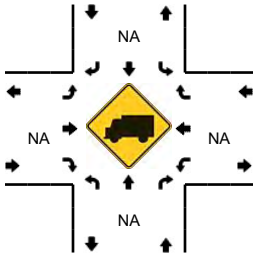


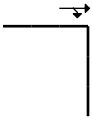


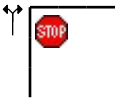


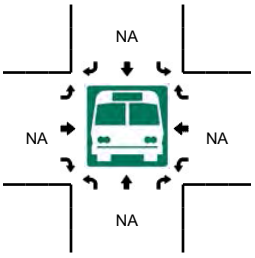












5-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	0	2	0	0	0	0	0	0	33	0	0	0	62	0	0	105	
4:05 PM	6	0	4	0	0	0	0	0	0	45	0	0	2	60	0	0	117	
4:10 PM	2	0	1	0	0	0	0	0	0	24	0	0	0	73	0	0	100	
4:15 PM	0	0	1	0	0	0	0	0	0	19	1	0	1	57	0	0	79	
4:20 PM	1	0	3	0	0	0	0	0	0	32	1	0	0	67	0	0	104	
4:25 PM	0	0	3	0	0	0	0	0	0	35	0	0	0	71	0	0	109	
4:30 PM	3	0	2	0	0	0	0	0	0	36	1	0	1	72	0	0	115	
4:35 PM	3	0	3	0	0	0	0	0	0	29	0	0	0	77	0	0	112	
4:40 PM	5	0	4	0	0	0	0	0	0	32	0	0	2	77	0	0	120	
4:45 PM	3	0	0	0	0	0	0	0	0	40	0	0	1	70	0	0	114	
4:50 PM	1	0	6	0	0	0	0	0	0	40	0	0	1	68	0	0	116	
4:55 PM	2	0	3	0	0	0	0	0	0	42	0	0	2	70	0	0	119	1310
5:00 PM	6	0	4	0	0	0	0	0	0	36	0	0	2	77	0	0	125	1330
5:05 PM	6	0	5	0	0	0	0	0	0	25	1	0	1	63	0	0	101	1314
5:10 PM	2	0	1	0	0	0	0	0	0	38	0	0	0	76	0	0	117	1331
5:15 PM	5	0	5	0	0	0	0	0	0	32	1	0	1	74	0	0	118	1370
5:20 PM	3	0	8	0	0	0	0	0	0	20	0	0	0	61	0	0	92	1358
5:25 PM	1	0	4	0	0	0	0	0	0	24	0	0	1	69	0	0	99	1348
5:30 PM	2	0	4	0	0	0	0	0	0	29	0	0	0	61	0	0	96	1329
5:35 PM	2	0	3	0	0	0	0	0	0	21	1	0	0	70	0	0	97	1314
5:40 PM	1	0	5	1	0	0	0	0	0	34	0	0	0	53	0	0	94	1288
5:45 PM	1	0	3	0	0	0	0	0	0	31	1	0	1	44	0	0	81	1255
5:50 PM	4	0	3	0	0	0	0	0	0	28	3	0	0	50	0	0	88	1227
5:55 PM	1	0	4	0	0	0	0	0	0	28	1	0	1	62	0	0	97	1205

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	0	52	0	0	0	0	0	0	472	0	0	20	860	0	0	1440
Heavy Trucks	4	0	4		0	0	0		0	8	0		0	8	0		24
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/24/2018 11:44 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW 108th Ave -- SW Herman Rd

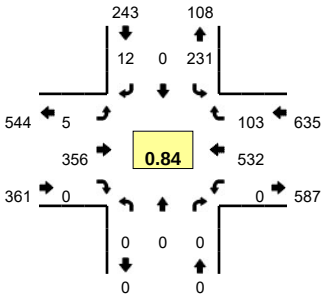
CITY/STATE: Tualatin, OR

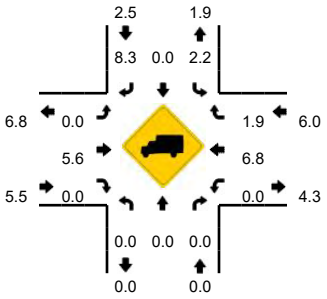
QC JOB #: 14768926

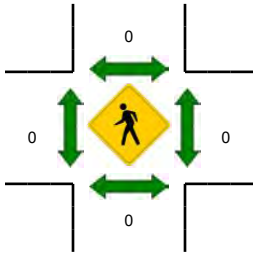
DATE: Thu, Aug 16 2018

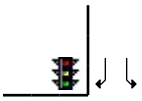
Peak-Hour: 4:25 PM -- 5:25 PM

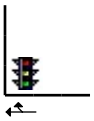
Peak 15-Min: 4:30 PM -- 4:45 PM

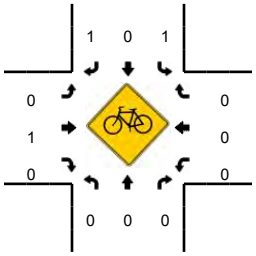


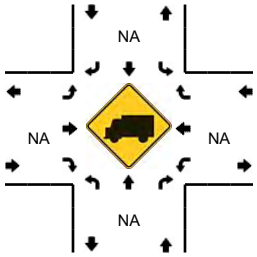


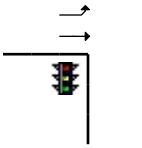


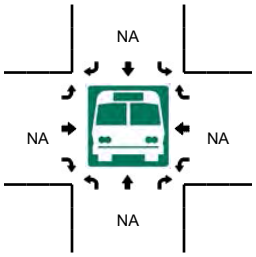












5-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	9	0	2	0	0	38	0	0	0	32	8	0	89	
4:05 PM	0	0	0	0	12	0	0	0	1	37	0	0	0	35	10	0	95	
4:10 PM	0	0	0	0	15	0	2	0	0	32	0	0	0	53	6	0	108	
4:15 PM	0	0	0	0	10	0	4	0	0	29	0	0	0	37	8	0	88	
4:20 PM	0	0	0	0	5	0	1	0	1	23	0	0	0	42	9	0	81	
4:25 PM	0	0	0	0	21	0	0	0	0	30	0	0	0	31	5	0	87	
4:30 PM	0	0	0	0	19	0	1	0	1	39	0	0	0	54	10	0	124	
4:35 PM	0	0	0	0	19	0	2	0	0	30	0	0	0	58	12	0	121	
4:40 PM	0	0	0	0	34	0	1	0	1	28	0	0	0	51	8	0	123	
4:45 PM	0	0	0	0	13	0	0	0	1	25	0	0	0	24	9	0	72	
4:50 PM	0	0	0	0	8	0	1	0	0	19	0	0	0	52	14	0	94	
4:55 PM	0	0	0	0	15	0	1	0	0	32	0	0	0	47	8	0	103	1185
5:00 PM	0	0	0	0	21	0	1	0	1	26	0	0	0	44	11	0	104	1200
5:05 PM	0	0	0	0	18	0	0	0	0	37	0	0	0	48	8	0	111	1216
5:10 PM	0	0	0	0	14	0	0	0	0	28	0	0	0	46	5	0	93	1201
5:15 PM	0	0	0	0	20	0	3	0	0	35	0	0	0	47	9	0	114	1227
5:20 PM	0	0	0	0	29	0	2	0	1	27	0	0	0	30	4	0	93	1239
5:25 PM	0	0	0	0	19	0	3	0	0	16	0	0	0	38	3	0	79	1231
5:30 PM	0	0	0	0	31	0	2	0	0	17	0	0	0	39	1	0	90	1197
5:35 PM	0	0	0	0	20	0	0	0	0	18	0	0	0	34	1	0	73	1149
5:40 PM	0	0	0	0	23	0	2	0	0	20	0	0	0	32	4	0	81	1107
5:45 PM	0	0	0	0	24	0	2	0	0	18	0	0	0	22	2	0	68	1103
5:50 PM	0	0	0	0	16	0	1	0	0	19	0	0	0	22	5	0	63	1072
5:55 PM	0	0	0	0	17	0	2	0	0	16	0	0	0	29	8	0	72	1041

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	288	0	16	0	8	388	0	0	0	652	120	0	1472
Heavy Trucks	0	0	0		0	0	4		0	16	0		0	44	0		64
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/24/2018 11:44 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: SW Teton Ave -- SW Herman Rd

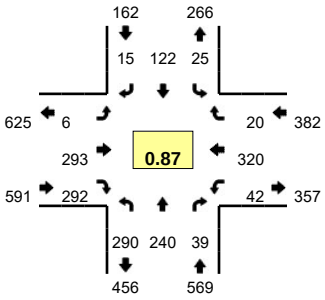
CITY/STATE: Tualatin, OR

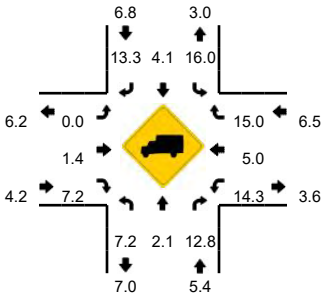
QC JOB #: 14768932

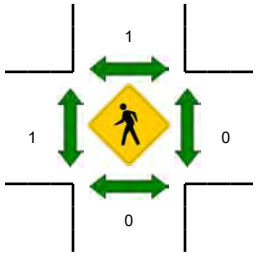
DATE: Thu, Aug 16 2018

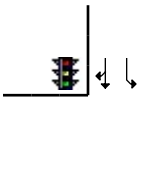
Peak-Hour: 4:25 PM -- 5:25 PM

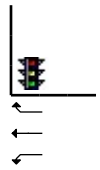
Peak 15-Min: 4:30 PM -- 4:45 PM

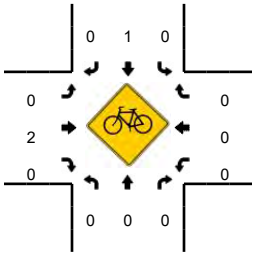


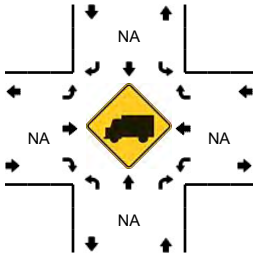


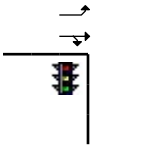


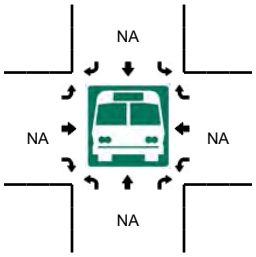












5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	18	16	3	0	3	7	2	0	0	28	19	0	1	16	1	0	114	
4:05 PM	17	15	1	0	1	16	1	0	2	30	21	0	3	19	0	0	126	
4:10 PM	35	25	3	0	3	9	0	0	1	29	23	0	1	29	6	0	164	
4:15 PM	23	16	3	0	1	2	0	0	0	22	19	0	2	20	0	0	108	
4:20 PM	17	12	5	0	0	4	2	0	1	16	13	0	5	23	1	0	99	
4:25 PM	19	13	5	0	0	7	0	0	0	14	28	0	2	28	0	0	116	
4:30 PM	19	13	2	0	2	6	1	0	0	36	23	0	2	40	2	0	146	
4:35 PM	37	31	8	0	0	17	2	0	1	24	24	0	6	24	6	0	180	
4:40 PM	22	12	3	0	1	9	2	0	2	35	30	0	8	37	1	0	162	
4:45 PM	17	24	1	0	6	15	2	0	0	12	23	0	5	14	1	0	120	
4:50 PM	33	19	6	0	1	10	2	0	1	17	15	0	3	31	1	0	139	
4:55 PM	18	19	5	0	1	13	0	0	1	24	20	0	2	38	0	0	141	1615
5:00 PM	31	22	2	0	5	10	1	0	0	16	23	0	0	23	2	0	135	1636
5:05 PM	31	18	2	0	3	12	4	0	0	30	25	0	5	15	1	0	146	1656
5:10 PM	26	24	2	0	1	6	0	0	0	31	25	0	5	25	1	0	146	1638
5:15 PM	19	23	2	0	3	10	0	0	1	22	27	0	2	32	2	0	143	1673
5:20 PM	18	22	1	0	2	7	1	0	0	32	29	0	2	13	3	0	130	1704
5:25 PM	12	8	2	0	2	4	0	0	0	14	23	0	2	23	0	0	90	1678
5:30 PM	15	20	1	0	1	7	3	0	0	25	22	0	4	20	0	0	118	1650
5:35 PM	14	14	3	0	1	5	3	0	1	23	15	0	0	23	0	0	102	1572
5:40 PM	15	7	5	0	2	9	0	0	1	20	17	0	4	16	0	0	96	1506
5:45 PM	9	13	2	0	2	12	0	0	0	19	23	0	6	19	1	0	106	1492
5:50 PM	9	16	3	0	0	10	0	0	0	17	23	0	2	15	3	0	98	1451
5:55 PM	12	16	1	0	0	3	1	0	0	15	16	0	1	20	1	0	86	1396

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	312	224	52	0	12	128	20	0	12	380	308	0	64	404	36	0	1952
Heavy Trucks	24	12	12		8	8	4		0	4	8		8	20	4		112
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/24/2018 11:44 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

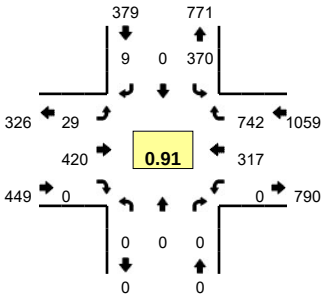
LOCATION: SW Tualatin Rd -- SW Herman Rd

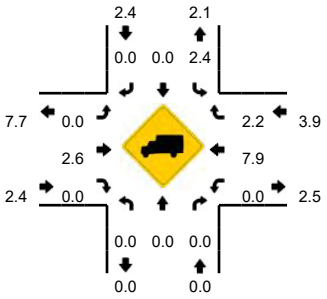
QC JOB #: 14768938

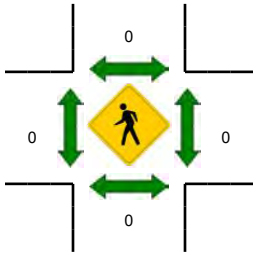
CITY/STATE: Tualatin, OR

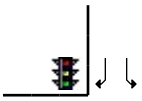
DATE: Thu, Aug 16 2018

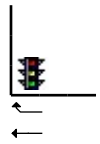
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

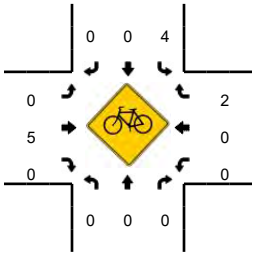


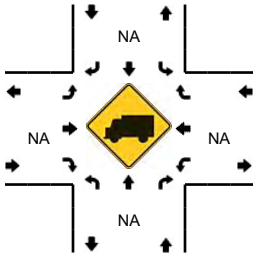


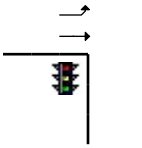


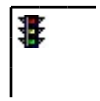


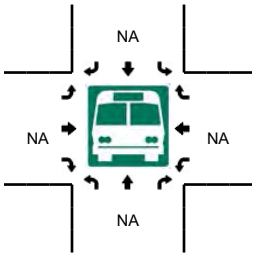












5-Min Count Period Beginning At	SW Tualatin Rd (Northbound)				SW Tualatin Rd (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	26	0	0	0	2	42	0	0	0	22	60	0	152	
4:05 PM	0	0	0	0	44	0	0	0	0	32	0	0	0	18	39	0	133	
4:10 PM	0	0	0	0	21	0	0	0	2	39	0	0	0	33	57	0	152	
4:15 PM	0	0	0	0	24	0	1	0	2	29	0	0	0	20	43	0	119	
4:20 PM	0	0	0	0	30	0	1	0	1	27	0	0	0	19	64	0	142	
4:25 PM	0	0	0	0	31	0	1	0	2	22	0	0	0	32	63	0	151	
4:30 PM	0	0	0	0	29	0	1	0	4	53	0	0	0	33	63	0	183	
4:35 PM	0	0	0	0	24	0	0	0	6	54	0	0	0	30	56	0	170	
4:40 PM	0	0	0	0	24	0	3	0	3	43	0	0	0	25	68	0	166	
4:45 PM	0	0	0	0	31	0	1	0	4	32	0	0	0	17	59	0	144	
4:50 PM	0	0	0	0	29	0	0	0	2	33	0	0	0	31	58	0	153	
4:55 PM	0	0	0	0	37	0	0	0	1	33	0	0	0	38	58	0	167	1832
5:00 PM	0	0	0	0	39	0	0	0	1	22	0	0	0	19	66	0	147	1827
5:05 PM	0	0	0	0	36	0	0	0	3	40	0	0	0	21	58	0	158	1852
5:10 PM	0	0	0	0	24	0	1	0	2	29	0	0	0	27	73	0	156	1856
5:15 PM	0	0	0	0	36	0	1	0	0	32	0	0	0	25	56	0	150	1887
5:20 PM	0	0	0	0	24	0	0	0	2	37	0	0	0	20	54	0	137	1882
5:25 PM	0	0	0	0	29	0	0	0	0	21	0	0	0	19	61	0	130	1861
5:30 PM	0	0	0	0	30	0	0	0	0	26	0	0	0	24	62	0	142	1820
5:35 PM	0	0	0	0	33	0	0	0	1	28	0	0	0	22	66	0	150	1800
5:40 PM	0	0	0	0	20	0	1	0	0	25	0	0	0	18	50	0	114	1748
5:45 PM	0	0	0	0	35	0	0	0	0	26	0	0	0	23	50	0	134	1738
5:50 PM	0	0	0	0	24	0	0	0	0	20	0	0	0	18	44	0	106	1691
5:55 PM	0	0	0	0	28	0	1	0	0	19	0	0	0	22	52	0	122	1646

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	308	0	16	0	52	600	0	0	0	352	748	0	2076
Heavy Trucks	0	0	0		4	0	0		0	12	0		0	32	28		76
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	3	0		0	0	0		3
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/24/2018 11:44 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

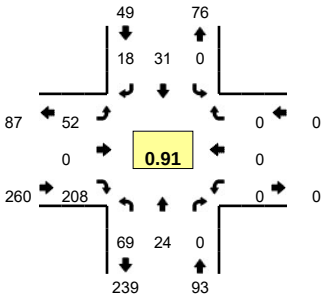
Method for determining peak hour: Total Entering Volume

LOCATION: SW 108th Ave -- Leveton Dr

QC JOB #: 14768948

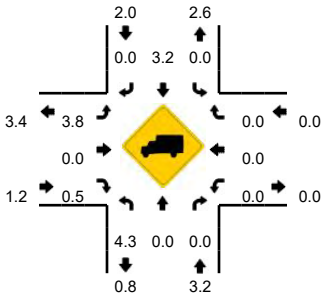
CITY/STATE: Tualatin, OR

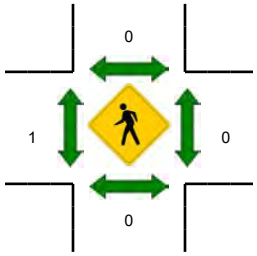
DATE: Tue, Sep 11 2018

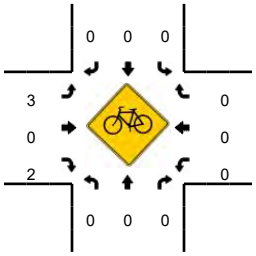


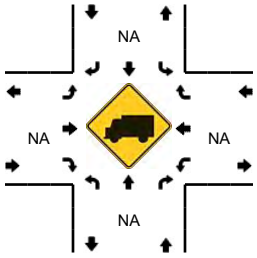
Peak-Hour: 4:40 PM -- 5:40 PM

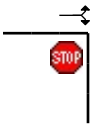
Peak 15-Min: 5:25 PM -- 5:40 PM

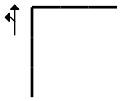


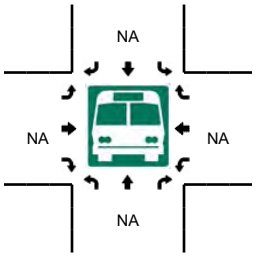












5-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				Leveton Dr (Eastbound)				Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	3	0	0	0	2	1	0	8	0	14	0	0	0	0	0	38	
4:05 PM	6	3	0	0	0	4	0	0	3	0	10	0	0	0	0	0	26	
4:10 PM	3	1	0	0	0	4	0	0	3	0	8	0	0	0	0	0	19	
4:15 PM	4	3	0	0	0	1	0	0	0	0	9	0	0	0	0	0	17	
4:20 PM	8	2	0	0	0	3	0	0	5	0	8	0	0	0	0	0	26	
4:25 PM	10	2	0	0	0	3	1	0	2	0	5	0	0	0	0	0	23	
4:30 PM	8	4	0	0	0	4	1	0	1	0	12	0	0	0	0	0	30	
4:35 PM	9	2	0	0	0	5	2	0	3	0	12	0	0	0	0	0	33	
4:40 PM	9	5	0	0	0	4	4	0	7	0	11	0	0	0	0	0	40	
4:45 PM	8	1	0	0	0	6	0	0	2	0	8	0	0	0	0	0	25	
4:50 PM	13	1	0	0	0	0	0	0	3	0	8	0	0	0	0	0	25	
4:55 PM	7	1	0	0	0	3	0	0	4	0	17	0	0	0	0	0	32	334
5:00 PM	13	0	0	0	0	3	2	0	3	0	15	0	0	0	0	0	36	332
5:05 PM	3	2	0	0	0	2	2	0	4	0	19	0	0	0	0	0	32	338
5:10 PM	4	2	0	0	0	2	3	0	3	0	18	0	0	0	0	0	32	351
5:15 PM	2	6	0	0	0	4	3	0	7	0	19	0	0	0	0	0	41	375
5:20 PM	5	1	0	0	0	4	0	0	2	0	16	0	0	0	0	0	28	377
5:25 PM	1	1	0	0	0	0	1	0	8	0	21	0	0	0	0	0	32	386
5:30 PM	2	4	0	0	0	2	0	0	3	0	31	0	0	0	0	0	42	398
5:35 PM	2	0	0	0	0	1	3	0	6	0	25	0	0	0	0	0	37	402
5:40 PM	2	0	0	0	0	1	0	0	3	0	18	0	0	0	0	0	24	386
5:45 PM	4	3	0	0	0	1	2	0	3	0	15	0	0	0	0	0	28	389
5:50 PM	4	1	0	0	0	2	1	0	3	0	15	0	0	0	0	0	26	390
5:55 PM	1	0	0	0	0	2	1	0	5	0	15	0	0	0	0	0	24	382

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	20	0	0	0	12	16	0	68	0	308	0	0	0	0	0	444
Heavy Trucks	0	0	0		0	0	0		0	0	4		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		2	0	1		0	0	0		3
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/17/2018 5:02 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	813	35	82	321	5	7
Future Vol, veh/h	813	35	82	321	5	7
Conflicting Peds, #/hr	0	2	2	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	5	5	33	33
Mvmt Flow	934	40	94	369	6	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	976	0	1514	956
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	558	-
Critical Hdwy	-	-	4.15	-	6.73	6.53
Critical Hdwy Stg 1	-	-	-	-	5.73	-
Critical Hdwy Stg 2	-	-	-	-	5.73	-
Follow-up Hdwy	-	-	2.245	-	3.797	3.597
Pot Cap-1 Maneuver	-	-	695	-	112	274
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	516	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	693	-	96	273
Mov Cap-2 Maneuver	-	-	-	-	96	-
Stage 1	-	-	-	-	328	-
Stage 2	-	-	-	-	445	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	30.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	154	-	-	693	-
HCM Lane V/C Ratio	0.09	-	-	0.136	-
HCM Control Delay (s)	30.7	-	-	11	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	-

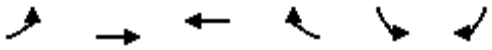
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	59	198	40	21	79
Future Vol, veh/h	13	59	198	40	21	79
Conflicting Peds, #/hr	0	0	1	0	0	1
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	89	89	89	89	89	89
Heavy Vehicles, %	8	8	2	2	4	4
Mvmt Flow	15	66	222	45	24	89

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	559	70	114	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.12	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.218	-	-	-
Pot Cap-1 Maneuver	480	976	1475	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	405	975	1474	-	-	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	603	-	-	-	-	-

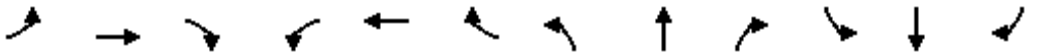
Approach	EB	NB	SB
HCM Control Delay, s	10.2	6.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1474	-	777	-	-
HCM Lane V/C Ratio	0.151	-	0.104	-	-
HCM Control Delay (s)	7.9	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.3	-	-



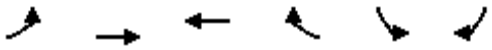
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	551	297	227	70	10
Future Volume (vph)	11	551	297	227	70	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.4		6.5	6.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1702	1792	1566		1597	1429
Flt Permitted	0.38	1.00	1.00		0.95	1.00
Satd. Flow (perm)	675	1792	1566		1597	1429
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	12	592	319	244	75	11
RTOR Reduction (vph)	0	0	22	0	0	10
Lane Group Flow (vph)	12	592	541	0	75	1
Confl. Peds. (#/hr)	2			2		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	6%	6%	13%	13%	13%	13%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	35.1	35.1	29.0		6.6	6.6
Effective Green, g (s)	35.1	35.1	29.0		6.6	6.6
Actuated g/C Ratio	0.65	0.65	0.54		0.12	0.12
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	455	1173	847		196	175
v/s Ratio Prot	0.00	c0.33	c0.35		c0.05	
v/s Ratio Perm	0.02					0.00
v/c Ratio	0.03	0.50	0.64		0.38	0.01
Uniform Delay, d1	5.6	4.8	8.6		21.6	20.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.4	1.6		1.0	0.0
Delay (s)	5.6	5.1	10.2		22.6	20.6
Level of Service	A	A	B		C	C
Approach Delay (s)		5.1	10.2		22.4	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	17.3
Intersection Capacity Utilization	43.7%	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 (vph)	8	306	307	66	260	25	257	135	31	18	213	7
Future Volume (vph)	8	306	307	66	260	25	257	135	31	18	213	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		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	0.92		1.00	0.99		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1533		1687	1749		1655	1694		1770	1852	
Flt Permitted	0.53	1.00		0.08	1.00		0.30	1.00		0.64	1.00	
Satd. Flow (perm)	887	1533		151	1749		531	1694		1187	1852	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	9	352	353	76	299	29	295	155	36	21	245	8
RTOR Reduction (vph)	0	22	0	0	2	0	0	5	0	0	1	0
Lane Group Flow (vph)	9	683	0	76	326	0	295	186	0	21	252	0
Confl. Peds. (#/hr)			2	2			2					2
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	13%	13%	13%	7%	7%	7%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.2	43.1		52.9	47.8		42.1	36.0		23.8	21.7	
Effective Green, g (s)	44.2	43.1		52.9	47.8		42.1	36.0		23.8	21.7	
Actuated g/C Ratio	0.42	0.41		0.50	0.45		0.40	0.34		0.23	0.21	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	379	626		160	792		386	578		279	380	
v/s Ratio Prot	0.00	c0.45		c0.03	0.19		c0.12	0.11		0.00	0.14	
v/s Ratio Perm	0.01			0.21			c0.19			0.02		
v/c Ratio	0.02	1.09		0.47	0.41		0.76	0.32		0.08	0.66	
Uniform Delay, d1	17.9	31.2		21.5	19.4		24.2	25.7		32.0	38.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	63.3		0.8	0.4		7.9	0.3		0.0	4.4	
Delay (s)	18.0	94.5		22.3	19.8		32.1	26.1		32.1	42.9	
Level of Service	B	F		C	B		C	C		C	D	
Approach Delay (s)		93.6			20.3			29.7			42.1	
Approach LOS		F			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	53.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	291	364	350	648	16
Future Volume (vph)	4	291	364	350	648	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	1696	1845	1532	1736	1553
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	1696	1845	1532	1736	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	5	338	423	407	753	19
RTOR Reduction (vph)	0	0	0	285	0	10
Lane Group Flow (vph)	5	338	423	122	753	9
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	12%	12%	3%	3%	4%	4%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	1.1	28.1	22.0	22.0	35.2	35.2
Effective Green, g (s)	1.1	28.1	22.0	22.0	35.2	35.2
Actuated g/C Ratio	0.02	0.38	0.30	0.30	0.48	0.48
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	24	650	553	459	833	745
v/s Ratio Prot	0.00	c0.20	c0.23		c0.43	0.01
v/s Ratio Perm				0.08		
v/c Ratio	0.21	0.52	0.76	0.27	0.90	0.01
Uniform Delay, d1	35.7	17.4	23.3	19.5	17.5	10.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	0.8	6.2	0.3	13.1	0.0
Delay (s)	40.0	18.2	29.5	19.8	30.6	10.0
Level of Service	D	B	C	B	C	A
Approach Delay (s)		18.5	24.8		30.1	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	73.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	615	516	8	6	8
Future Vol, veh/h	6	615	516	8	6	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	668	561	9	7	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	570	0	-	0	1248	566
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	682	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1002	-	-	-	191	524
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1002	-	-	-	190	524
Mov Cap-2 Maneuver	-	-	-	-	190	-
Stage 1	-	-	-	-	564	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1002	-	-	-	299
HCM Lane V/C Ratio	0.007	-	-	-	0.051
HCM Control Delay (s)	8.6	-	-	-	17.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	417	4	11	862	37	39
Future Vol, veh/h	417	4	11	862	37	39
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	1	1	4	4
Mvmt Flow	439	4	12	907	39	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	1373	441
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	932	-
Critical Hdwy	-	-	4.11	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.209	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1122	-	159	612
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	380	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1122	-	157	612
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	375	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	25.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	254	-	-	1122	-
HCM Lane V/C Ratio	0.315	-	-	0.01	-
HCM Control Delay (s)	25.6	-	-	8.2	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0	-

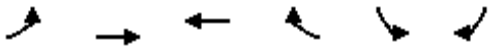
Intersection	
Int Delay, s/veh	8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	211	80	28	32	18
Future Vol, veh/h	52	211	80	28	32	18
Conflicting Peds, #/hr	0	0	0	0	0	1
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	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	57	232	88	31	35	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	253	46	56	0	-	0
Stage 1	46	-	-	-	-	-
Stage 2	207	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	738	1026	1542	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	1025	1541	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	829	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	5.5	0
HCM LOS	B		

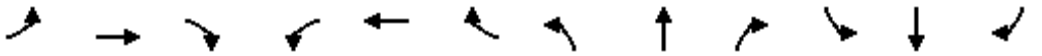
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1541	-	937	-	-
HCM Lane V/C Ratio	0.057	-	0.308	-	-
HCM Control Delay (s)	7.5	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	350	532	103	231	12
Future Volume (vph)	5	350	532	103	231	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.4		6.5	6.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1703	1792	1753		1752	1534
Flt Permitted	0.21	1.00	1.00		0.95	1.00
Satd. Flow (perm)	376	1792	1753		1752	1534
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	6	417	633	123	275	14
RTOR Reduction (vph)	0	0	6	0	0	11
Lane Group Flow (vph)	6	417	750	0	275	3
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	6%	6%	6%	6%	3%	3%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	44.7	44.7	38.6		16.6	16.6
Effective Green, g (s)	44.7	44.7	38.6		16.6	16.6
Actuated g/C Ratio	0.61	0.61	0.53		0.23	0.23
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	242	1094	924		397	347
v/s Ratio Prot	0.00	c0.23	c0.43		c0.16	
v/s Ratio Perm	0.01					0.00
v/c Ratio	0.02	0.38	0.81		0.69	0.01
Uniform Delay, d1	16.0	7.2	14.3		26.0	21.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	5.5		4.8	0.0
Delay (s)	16.0	7.5	19.8		30.8	21.9
Level of Service	B	A	B		C	C
Approach Delay (s)		7.6	19.8		30.4	
Approach LOS		A	B		C	

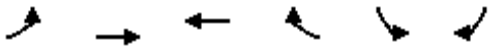
Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	17.3
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	298	297	42	320	20	295	240	40	30	122	15
Future Volume (vph)	6	298	297	42	320	20	295	240	40	30	122	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		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	0.93		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1672		1687	1758		1719	1771		1687	1742	
Flt Permitted	0.46	1.00		0.12	1.00		0.43	1.00		0.57	1.00	
Satd. Flow (perm)	847	1672		212	1758		772	1771		1004	1742	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	7	343	341	48	368	23	339	276	46	34	140	17
RTOR Reduction (vph)	0	20	0	0	1	0	0	4	0	0	3	0
Lane Group Flow (vph)	7	664	0	48	390	0	339	318	0	34	154	0
Confl. Peds. (#/hr)						1						1
Confl. Bikes (#/hr)			2									1
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.0	42.9		51.4	46.6		37.2	29.6		19.5	15.9	
Effective Green, g (s)	44.0	42.9		51.4	46.6		37.2	29.6		19.5	15.9	
Actuated g/C Ratio	0.44	0.43		0.52	0.47		0.37	0.30		0.20	0.16	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	384	721		180	824		453	527		221	278	
v/s Ratio Prot	0.00	c0.40		c0.01	0.22		c0.13	0.18		0.01	0.09	
v/s Ratio Perm	0.01			0.12			c0.15			0.02		
v/c Ratio	0.02	0.92		0.27	0.47		0.75	0.60		0.15	0.55	
Uniform Delay, d1	15.7	26.6		17.7	18.0		24.6	29.9		32.8	38.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	17.1		0.3	0.5		5.8	2.0		0.1	2.5	
Delay (s)	15.7	43.8		18.0	18.5		30.4	31.9		32.9	40.9	
Level of Service	B	D		B	B		C	C		C	D	
Approach Delay (s)		43.5			18.4			31.1			39.5	
Approach LOS		D			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	99.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	420	317	742	370	10
Future Volume (vph)	30	420	317	742	370	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1827	1553	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1827	1553	1770	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.92
Adj. Flow (vph)	33	462	348	815	407	11
RTOR Reduction (vph)	0	0	0	530	0	7
Lane Group Flow (vph)	33	462	348	285	407	4
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	2.4	26.7	19.3	19.3	18.5	18.5
Effective Green, g (s)	2.4	26.7	19.3	19.3	18.5	18.5
Actuated g/C Ratio	0.04	0.48	0.35	0.35	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	76	901	638	542	593	530
v/s Ratio Prot	0.02	c0.25	0.19		c0.23	0.00
v/s Ratio Perm				0.18		
v/c Ratio	0.43	0.51	0.55	0.53	0.69	0.01
Uniform Delay, d1	25.7	9.8	14.4	14.3	15.8	12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.5	1.0	0.9	3.3	0.0
Delay (s)	29.7	10.3	15.4	15.2	19.1	12.2
Level of Service	C	B	B	B	B	B
Approach Delay (s)		11.6	15.3		19.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	576	620	10	25	15
Future Vol, veh/h	5	576	620	10	25	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	626	674	11	27	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	685	0	-	0	1316	680
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	636	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	908	-	-	-	174	451
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	908	-	-	-	173	451
Mov Cap-2 Maneuver	-	-	-	-	173	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	527	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	24.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	908	-	-	-	225
HCM Lane V/C Ratio	0.006	-	-	-	0.193
HCM Control Delay (s)	9	-	-	-	24.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	860	35	85	340	5	5
Future Vol, veh/h	860	35	85	340	5	5
Conflicting Peds, #/hr	0	2	2	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	5	5	33	33
Mvmt Flow	989	40	98	391	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1031	0	1599	1011
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	588	-
Critical Hdwy	-	-	4.15	-	6.73	6.53
Critical Hdwy Stg 1	-	-	-	-	5.73	-
Critical Hdwy Stg 2	-	-	-	-	5.73	-
Follow-up Hdwy	-	-	2.245	-	3.797	3.597
Pot Cap-1 Maneuver	-	-	662	-	99	254
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	499	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	660	-	84	253
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	425	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	36.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	126	-	-	660	-
HCM Lane V/C Ratio	0.091	-	-	0.148	-
HCM Control Delay (s)	36.4	-	-	11.4	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	-

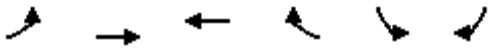
Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	65	210	40	20	85
Future Vol, veh/h	15	65	210	40	20	85
Conflicting Peds, #/hr	0	0	1	0	0	1
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	89	89	89	89	89	89
Heavy Vehicles, %	8	8	2	2	4	4
Mvmt Flow	17	73	236	45	22	96

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	588	71	119	0	-	0
Stage 1	71	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.12	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.218	-	-	-
Pot Cap-1 Maneuver	462	975	1469	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	385	974	1468	-	-	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	781	-	-	-	-	-
Stage 2	585	-	-	-	-	-

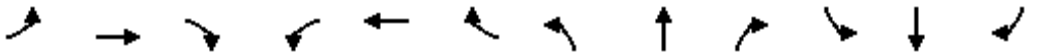
Approach	EB	NB	SB
HCM Control Delay, s	10.4	6.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	757	-	-
HCM Lane V/C Ratio	0.161	-	0.119	-	-
HCM Control Delay (s)	7.9	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.4	-	-



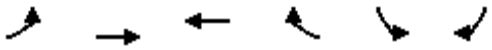
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	585	315	240	75	10
Future Volume (vph)	10	585	315	240	75	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.4		6.5	6.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1702	1792	1567		1597	1429
Flt Permitted	0.36	1.00	1.00		0.95	1.00
Satd. Flow (perm)	638	1792	1567		1597	1429
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	629	339	258	81	11
RTOR Reduction (vph)	0	0	21	0	0	10
Lane Group Flow (vph)	11	629	576	0	81	1
Confl. Peds. (#/hr)	2			2		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	6%	6%	13%	13%	13%	13%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	37.2	37.2	31.1		6.8	6.8
Effective Green, g (s)	37.2	37.2	31.1		6.8	6.8
Actuated g/C Ratio	0.67	0.67	0.56		0.12	0.12
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	437	1192	871		194	173
v/s Ratio Prot	0.00	c0.35	c0.37		c0.05	
v/s Ratio Perm	0.02					0.00
v/c Ratio	0.03	0.53	0.66		0.42	0.01
Uniform Delay, d1	5.9	4.8	8.7		22.7	21.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.4	1.9		1.1	0.0
Delay (s)	6.0	5.3	10.6		23.9	21.6
Level of Service	A	A	B		C	C
Approach Delay (s)		5.3	10.6		23.6	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	17.3
Intersection Capacity Utilization	45.4%	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 (vph)	10	325	325	70	275	25	270	145	35	20	225	10
Future Volume (vph)	10	325	325	70	275	25	270	145	35	20	225	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		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	0.93		1.00	0.99		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1533		1687	1750		1655	1693		1770	1849	
Flt Permitted	0.50	1.00		0.08	1.00		0.29	1.00		0.63	1.00	
Satd. Flow (perm)	848	1533		151	1750		503	1693		1170	1849	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	374	374	80	316	29	310	167	40	23	259	11
RTOR Reduction (vph)	0	60	0	0	2	0	0	6	0	0	2	0
Lane Group Flow (vph)	11	688	0	80	343	0	310	201	0	23	268	0
Confl. Peds. (#/hr)			2	2			2					2
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	13%	13%	13%	7%	7%	7%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.3	43.1		53.1	47.9		44.0	37.8		25.3	23.1	
Effective Green, g (s)	44.3	43.1		53.1	47.9		44.0	37.8		25.3	23.1	
Actuated g/C Ratio	0.41	0.40		0.49	0.45		0.41	0.35		0.24	0.21	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	357	614		160	779		386	594		287	396	
v/s Ratio Prot	0.00	c0.45		c0.03	0.20		c0.13	0.12		0.00	0.15	
v/s Ratio Perm	0.01			0.22			c0.20			0.02		
v/c Ratio	0.03	1.12		0.50	0.44		0.80	0.34		0.08	0.68	
Uniform Delay, d1	18.8	32.2		23.5	20.6		24.4	25.7		31.9	38.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	74.2		0.9	0.4		10.8	0.4		0.0	4.6	
Delay (s)	18.9	106.4		24.4	21.0		35.3	26.1		31.9	43.5	
Level of Service	B	F		C	C		D	C		C	D	
Approach Delay (s)		105.2			21.7			31.6			42.6	
Approach LOS		F			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	310	385	370	685	15
Future Volume (vph)	5	310	385	370	685	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	1696	1845	1532	1736	1553
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	1696	1845	1532	1736	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	6	360	448	430	797	17
RTOR Reduction (vph)	0	0	0	307	0	8
Lane Group Flow (vph)	6	360	448	123	797	9
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	12%	12%	3%	3%	4%	4%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	1.1	28.2	22.1	22.1	38.9	38.9
Effective Green, g (s)	1.1	28.2	22.1	22.1	38.9	38.9
Actuated g/C Ratio	0.01	0.37	0.29	0.29	0.50	0.50
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	22	620	528	439	875	783
v/s Ratio Prot	0.00	c0.21	c0.24		c0.46	0.01
v/s Ratio Perm				0.08		
v/c Ratio	0.27	0.58	0.85	0.28	0.91	0.01
Uniform Delay, d1	37.6	19.7	25.9	21.3	17.5	9.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.6	1.4	12.1	0.4	13.5	0.0
Delay (s)	44.2	21.1	38.0	21.7	31.0	9.5
Level of Service	D	C	D	C	C	A
Approach Delay (s)		21.5	30.0		30.5	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

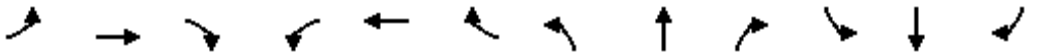
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	650	545	10	10	10
Future Vol, veh/h	10	650	545	10	10	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	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	707	592	11	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	603	0	-	0	1327	598
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	729	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	975	-	-	-	171	502
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	975	-	-	-	169	502
Mov Cap-2 Maneuver	-	-	-	-	169	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	477	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	975	-	-	-	253
HCM Lane V/C Ratio	0.011	-	-	-	0.086
HCM Control Delay (s)	8.7	-	-	-	20.6
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	325	325	70	275	25	270	145	35	20	225	10
Future Volume (vph)	10	325	325	70	275	25	270	145	35	20	225	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	0.93		1.00	0.99		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1532		1687	1750		1656	1693		1770	1849	
Flt Permitted	0.51	1.00		0.07	1.00		0.25	1.00		0.63	1.00	
Satd. Flow (perm)	852	1532		123	1750		437	1693		1170	1849	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	374	374	80	316	29	310	167	40	23	259	11
RTOR Reduction (vph)	0	56	0	0	2	0	0	5	0	0	1	0
Lane Group Flow (vph)	11	692	0	80	343	0	310	202	0	23	269	0
Confl. Peds. (#/hr)			2	2			2					2
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	13%	13%	13%	7%	7%	7%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	54.8	53.6		63.8	58.6		47.8	40.4		27.6	24.2	
Effective Green, g (s)	54.8	53.6		63.8	58.6		47.8	40.4		27.6	24.2	
Actuated g/C Ratio	0.45	0.44		0.52	0.48		0.39	0.33		0.23	0.20	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	389	672		143	839		366	560		281	366	
v/s Ratio Prot	0.00	c0.45		c0.03	0.20		c0.14	0.12		0.00	0.15	
v/s Ratio Perm	0.01			0.26			c0.20			0.02		
v/c Ratio	0.03	1.03		0.56	0.41		0.85	0.36		0.08	0.74	
Uniform Delay, d1	18.8	34.2		24.9	20.5		29.4	31.0		37.1	45.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	42.5		2.7	0.3		15.8	0.4		0.0	7.6	
Delay (s)	18.8	76.8		27.6	20.9		45.1	31.5		37.1	53.5	
Level of Service	B	E		C	C		D	C		D	D	
Approach Delay (s)		75.9			22.2			39.7			52.2	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	122.1	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	440	5	10	915	40	40
Future Vol, veh/h	440	5	10	915	40	40
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	1	1	4	4
Mvmt Flow	463	5	11	963	42	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	468	0	1452	466
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	986	-
Critical Hdwy	-	-	4.11	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.209	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1099	-	142	592
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	358	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1099	-	140	592
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	354	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	30.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	226	-	-	1099	-
HCM Lane V/C Ratio	0.373	-	-	0.01	-
HCM Control Delay (s)	30.1	-	-	8.3	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.6	-	-	0	-

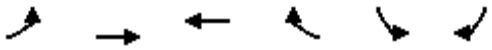
Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	225	85	30	35	20
Future Vol, veh/h	55	225	85	30	35	20
Conflicting Peds, #/hr	0	0	0	0	0	1
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	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	60	247	93	33	38	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	269	50	61	0	-	0
Stage 1	50	-	-	-	-	-
Stage 2	219	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	722	1021	1536	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	820	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	676	1020	1535	-	-	-
Mov Cap-2 Maneuver	676	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	819	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	5.5	0
HCM LOS	B		

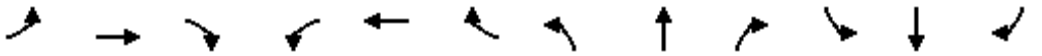
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1535	-	927	-	-
HCM Lane V/C Ratio	0.061	-	0.332	-	-
HCM Control Delay (s)	7.5	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.5	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	370	565	110	245	15
Future Volume (vph)	5	370	565	110	245	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.4		6.5	6.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1703	1792	1753		1752	1534
Flt Permitted	0.20	1.00	1.00		0.95	1.00
Satd. Flow (perm)	352	1792	1753		1752	1534
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	6	440	673	131	292	18
RTOR Reduction (vph)	0	0	5	0	0	14
Lane Group Flow (vph)	6	440	799	0	292	4
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	6%	6%	6%	6%	3%	3%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	51.8	51.8	45.6		17.5	17.5
Effective Green, g (s)	51.8	51.8	45.6		17.5	17.5
Actuated g/C Ratio	0.64	0.64	0.56		0.22	0.22
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	237	1143	984		377	330
v/s Ratio Prot	0.00	c0.25	c0.46		c0.17	
v/s Ratio Perm	0.02					0.00
v/c Ratio	0.03	0.38	0.81		0.77	0.01
Uniform Delay, d1	17.3	7.1	14.3		30.0	25.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	5.2		9.3	0.0
Delay (s)	17.3	7.3	19.5		39.3	25.1
Level of Service	B	A	B		D	C
Approach Delay (s)		7.4	19.5		38.4	
Approach LOS		A	B		D	

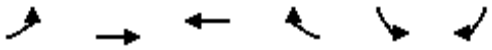
Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	81.2	Sum of lost time (s)	17.3
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	315	315	45	340	20	315	255	40	30	130	15
Future Volume (vph)	5	315	315	45	340	20	315	255	40	30	130	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		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	0.93		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1672		1687	1759		1719	1773		1687	1744	
Flt Permitted	0.44	1.00		0.09	1.00		0.41	1.00		0.56	1.00	
Satd. Flow (perm)	801	1672		152	1759		745	1773		989	1744	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	362	362	52	391	23	362	293	46	34	149	17
RTOR Reduction (vph)	0	21	0	0	1	0	0	4	0	0	3	0
Lane Group Flow (vph)	6	703	0	52	413	0	362	335	0	34	163	0
Confl. Peds. (#/hr)						1						1
Confl. Bikes (#/hr)			2									1
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.0	42.9		51.8	46.8		38.3	30.7		20.1	16.5	
Effective Green, g (s)	44.0	42.9		51.8	46.8		38.3	30.7		20.1	16.5	
Actuated g/C Ratio	0.44	0.43		0.51	0.46		0.38	0.30		0.20	0.16	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	360	712		154	817		455	540		222	285	
v/s Ratio Prot	0.00	c0.42		c0.02	0.23		c0.14	0.19		0.01	0.09	
v/s Ratio Perm	0.01			0.16			c0.16			0.03		
v/c Ratio	0.02	0.99		0.34	0.51		0.80	0.62		0.15	0.57	
Uniform Delay, d1	16.2	28.6		19.7	18.9		24.9	30.0		32.9	38.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	30.2		0.5	0.5		8.7	2.3		0.1	2.8	
Delay (s)	16.3	58.8		20.1	19.4		33.6	32.3		33.0	41.7	
Level of Service	B	E		C	B		C	C		C	D	
Approach Delay (s)		58.5			19.5			33.0			40.2	
Approach LOS		E			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	18.5
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	445	335	785	390	10
Future Volume (vph)	30	445	335	785	390	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1827	1553	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1827	1553	1770	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.92
Adj. Flow (vph)	33	489	368	863	429	11
RTOR Reduction (vph)	0	0	0	562	0	7
Lane Group Flow (vph)	33	489	368	301	429	4
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	2.5	27.4	19.9	19.9	19.6	19.6
Effective Green, g (s)	2.5	27.4	19.9	19.9	19.6	19.6
Actuated g/C Ratio	0.04	0.48	0.35	0.35	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	77	895	637	542	608	544
v/s Ratio Prot	0.02	c0.26	0.20		c0.24	0.00
v/s Ratio Perm				0.19		
v/c Ratio	0.43	0.55	0.58	0.56	0.71	0.01
Uniform Delay, d1	26.6	10.4	15.1	15.0	16.2	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.7	1.3	1.2	3.7	0.0
Delay (s)	30.4	11.1	16.4	16.2	19.9	12.3
Level of Service	C	B	B	B	B	B
Approach Delay (s)		12.3	16.3		19.7	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	610	660	10	25	15
Future Vol, veh/h	5	610	660	10	25	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	663	717	11	27	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	728	0	-	0	1396	723
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	673	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	876	-	-	-	156	426
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	876	-	-	-	155	426
Mov Cap-2 Maneuver	-	-	-	-	155	-
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	507	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	27.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	876	-	-	-	204
HCM Lane V/C Ratio	0.006	-	-	-	0.213
HCM Control Delay (s)	9.1	-	-	-	27.4
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.8

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	860	40	88	340	7	6
Future Vol, veh/h	860	40	88	340	7	6
Conflicting Peds, #/hr	0	2	2	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	5	5	33	33
Mvmt Flow	989	46	101	391	8	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1037	0	1608	1014
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	594	-
Critical Hdwy	-	-	4.15	-	6.73	6.53
Critical Hdwy Stg 1	-	-	-	-	5.73	-
Critical Hdwy Stg 2	-	-	-	-	5.73	-
Follow-up Hdwy	-	-	2.245	-	3.797	3.597
Pot Cap-1 Maneuver	-	-	659	-	97	253
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	496	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	657	-	82	252
Mov Cap-2 Maneuver	-	-	-	-	82	-
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	419	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	39.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	119	-	-	657	-
HCM Lane V/C Ratio	0.126	-	-	0.154	-
HCM Control Delay (s)	39.5	-	-	11.5	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	-

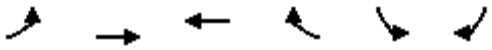
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	65	210	43	28	85
Future Vol, veh/h	15	65	210	43	28	85
Conflicting Peds, #/hr	0	0	1	0	0	1
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	89	89	89	89	89	89
Heavy Vehicles, %	8	8	2	2	4	4
Mvmt Flow	17	73	236	48	31	96

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	600	80	128	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.12	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.218	-	-	-
Pot Cap-1 Maneuver	454	964	1458	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	378	963	1457	-	-	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	584	-	-	-	-	-

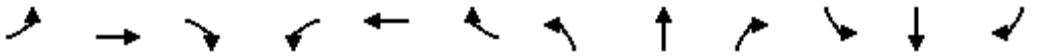
Approach	EB	NB	SB
HCM Control Delay, s	10.5	6.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1457	-	746	-	-
HCM Lane V/C Ratio	0.162	-	0.12	-	-
HCM Control Delay (s)	7.9	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.4	-	-



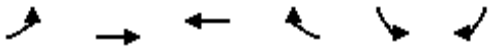
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	588	315	240	75	11
Future Volume (vph)	10	588	315	240	75	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.4		6.5	6.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1702	1792	1567		1597	1429
Flt Permitted	0.36	1.00	1.00		0.95	1.00
Satd. Flow (perm)	637	1792	1567		1597	1429
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	632	339	258	81	12
RTOR Reduction (vph)	0	0	21	0	0	11
Lane Group Flow (vph)	11	632	576	0	81	1
Confl. Peds. (#/hr)	2			2		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	6%	6%	13%	13%	13%	13%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	37.1	37.1	31.0		6.8	6.8
Effective Green, g (s)	37.1	37.1	31.0		6.8	6.8
Actuated g/C Ratio	0.66	0.66	0.56		0.12	0.12
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	436	1191	870		194	174
v/s Ratio Prot	0.00	c0.35	c0.37		c0.05	
v/s Ratio Perm	0.02					0.00
v/c Ratio	0.03	0.53	0.66		0.42	0.01
Uniform Delay, d1	6.0	4.8	8.7		22.7	21.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.5	1.9		1.1	0.0
Delay (s)	6.0	5.3	10.6		23.8	21.6
Level of Service	A	A	B		C	C
Approach Delay (s)		5.3	10.6		23.5	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	17.3
Intersection Capacity Utilization	45.4%	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 (vph)	10	333	331	70	297	25	287	145	35	20	225	10
Future Volume (vph)	10	333	331	70	297	25	287	145	35	20	225	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		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	0.93		1.00	0.99		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1533		1687	1752		1655	1693		1770	1849	
Flt Permitted	0.47	1.00		0.08	1.00		0.29	1.00		0.63	1.00	
Satd. Flow (perm)	798	1533		151	1752		501	1693		1170	1849	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	383	380	80	341	29	330	167	40	23	259	11
RTOR Reduction (vph)	0	90	0	0	2	0	0	6	0	0	2	0
Lane Group Flow (vph)	11	673	0	80	368	0	330	201	0	23	268	0
Confl. Peds. (#/hr)			2	2			2					2
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	13%	13%	13%	7%	7%	7%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.3	43.1		53.1	47.9		44.6	38.4		25.4	23.2	
Effective Green, g (s)	44.3	43.1		53.1	47.9		44.6	38.4		25.4	23.2	
Actuated g/C Ratio	0.41	0.40		0.49	0.44		0.41	0.35		0.23	0.21	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	335	610		159	775		392	600		286	396	
v/s Ratio Prot	0.00	c0.44		c0.03	0.21		c0.14	0.12		0.00	0.15	
v/s Ratio Perm	0.01			0.22			c0.21			0.02		
v/c Ratio	0.03	1.10		0.50	0.48		0.84	0.34		0.08	0.68	
Uniform Delay, d1	19.1	32.5		23.7	21.3		24.7	25.6		32.1	39.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	67.9		0.9	0.5		14.5	0.4		0.0	4.6	
Delay (s)	19.2	100.4		24.6	21.8		39.1	25.9		32.1	43.7	
Level of Service	B	F		C	C		D	C		C	D	
Approach Delay (s)		99.3			22.3			34.0			42.8	
Approach LOS		F			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	318	407	370	685	15
Future Volume (vph)	5	318	407	370	685	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1612	1696	1845	1532	1736	1553
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1612	1696	1845	1532	1736	1553
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	6	370	473	430	797	17
RTOR Reduction (vph)	0	0	0	306	0	8
Lane Group Flow (vph)	6	370	473	124	797	9
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	12%	12%	3%	3%	4%	4%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	1.1	28.4	22.3	22.3	39.0	39.0
Effective Green, g (s)	1.1	28.4	22.3	22.3	39.0	39.0
Actuated g/C Ratio	0.01	0.37	0.29	0.29	0.50	0.50
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	22	622	531	441	874	782
v/s Ratio Prot	0.00	c0.22	c0.26		c0.46	0.01
v/s Ratio Perm				0.08		
v/c Ratio	0.27	0.59	0.89	0.28	0.91	0.01
Uniform Delay, d1	37.8	19.8	26.4	21.3	17.6	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.6	1.5	16.9	0.4	13.6	0.0
Delay (s)	44.4	21.4	43.3	21.7	31.2	9.6
Level of Service	D	C	D	C	C	A
Approach Delay (s)		21.7	33.0		30.8	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	650	545	49	24	10
Future Vol, veh/h	13	650	545	49	24	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	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	707	592	53	26	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	645	0	-	0	1354	619
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	735	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	940	-	-	-	165	489
Stage 1	-	-	-	-	537	-
Stage 2	-	-	-	-	474	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	940	-	-	-	163	489
Mov Cap-2 Maneuver	-	-	-	-	163	-
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	474	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	26.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	940	-	-	-	203
HCM Lane V/C Ratio	0.015	-	-	-	0.182
HCM Control Delay (s)	8.9	-	-	-	26.6
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.6

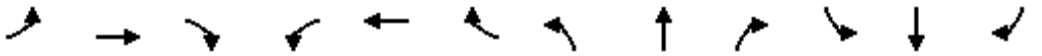
Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	3	250	0	8	85
Future Vol, veh/h	1	3	250	0	8	85
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	3	272	0	9	92

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	382	272	0	0	272	0
Stage 1	272	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	620	767	-	-	1291	-
Stage 1	774	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	616	767	-	-	1291	-
Mov Cap-2 Maneuver	616	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	909	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	723	1291	-
HCM Lane V/C Ratio	-	-	0.006	0.007	-
HCM Control Delay (s)	-	-	10	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	325	325	70	275	25	270	145	35	20	225	10
Future Volume (vph)	10	325	325	70	275	25	270	145	35	20	225	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	0.93		1.00	0.99		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1532		1687	1750		1656	1693		1770	1849	
Flt Permitted	0.51	1.00		0.07	1.00		0.25	1.00		0.63	1.00	
Satd. Flow (perm)	852	1532		123	1750		437	1693		1170	1849	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	11	374	374	80	316	29	310	167	40	23	259	11
RTOR Reduction (vph)	0	56	0	0	2	0	0	5	0	0	1	0
Lane Group Flow (vph)	11	692	0	80	343	0	310	202	0	23	269	0
Confl. Peds. (#/hr)			2	2			2					2
Confl. Bikes (#/hr)			1			2						
Heavy Vehicles (%)	13%	13%	13%	7%	7%	7%	9%	9%	9%	2%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	54.8	53.6		63.8	58.6		47.8	40.4		27.6	24.2	
Effective Green, g (s)	54.8	53.6		63.8	58.6		47.8	40.4		27.6	24.2	
Actuated g/C Ratio	0.45	0.44		0.52	0.48		0.39	0.33		0.23	0.20	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	389	672		143	839		366	560		281	366	
v/s Ratio Prot	0.00	c0.45		c0.03	0.20		c0.14	0.12		0.00	0.15	
v/s Ratio Perm	0.01			0.26			c0.20			0.02		
v/c Ratio	0.03	1.03		0.56	0.41		0.85	0.36		0.08	0.74	
Uniform Delay, d1	18.8	34.2		24.9	20.5		29.4	31.0		37.1	45.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	42.5		2.7	0.3		15.8	0.4		0.0	7.6	
Delay (s)	18.8	76.8		27.6	20.9		45.1	31.5		37.1	53.5	
Level of Service	B	E		C	C		D	C		D	D	
Approach Delay (s)		75.9			22.2			39.7			52.2	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	51.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	122.1	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	440	7	11	915	44	42
Future Vol, veh/h	440	7	11	915	44	42
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	4	1	1	4	4
Mvmt Flow	463	7	12	963	46	44

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	470	0	1455	467
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	988	-
Critical Hdwy	-	-	4.11	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.209	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1097	-	142	592
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	357	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1097	-	140	592
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	353	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	31.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	223	-	-	1097	-
HCM Lane V/C Ratio	0.406	-	-	0.011	-
HCM Control Delay (s)	31.8	-	-	8.3	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.8	-	-	0	-

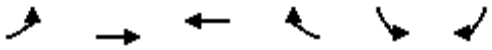
Intersection	
Int Delay, s/veh	8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	225	85	36	38	20
Future Vol, veh/h	55	225	85	36	38	20
Conflicting Peds, #/hr	0	0	0	0	0	1
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	91	91	91	91	91	91
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	60	247	93	40	42	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	280	54	65	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	712	1016	1531	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	666	1015	1530	-	-	-
Mov Cap-2 Maneuver	666	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	5.3	0
HCM LOS	B		

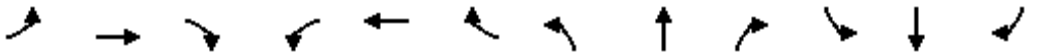
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1530	-	920	-	-
HCM Lane V/C Ratio	0.061	-	0.334	-	-
HCM Control Delay (s)	7.5	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.5	-	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	371	566	110	245	16
Future Volume (vph)	5	371	566	110	245	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.4		6.5	6.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1703	1792	1753		1752	1534
Flt Permitted	0.20	1.00	1.00		0.95	1.00
Satd. Flow (perm)	351	1792	1753		1752	1534
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	6	442	674	131	292	19
RTOR Reduction (vph)	0	0	5	0	0	15
Lane Group Flow (vph)	6	442	800	0	292	4
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	6%	6%	6%	6%	3%	3%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	51.8	51.8	45.6		17.5	17.5
Effective Green, g (s)	51.8	51.8	45.6		17.5	17.5
Actuated g/C Ratio	0.64	0.64	0.56		0.22	0.22
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	237	1143	984		377	330
v/s Ratio Prot	0.00	c0.25	c0.46		c0.17	
v/s Ratio Perm	0.02					0.00
v/c Ratio	0.03	0.39	0.81		0.77	0.01
Uniform Delay, d1	17.3	7.1	14.4		30.0	25.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	5.2		9.3	0.0
Delay (s)	17.3	7.3	19.6		39.3	25.1
Level of Service	B	A	B		D	C
Approach Delay (s)		7.4	19.6		38.4	
Approach LOS		A	B		D	

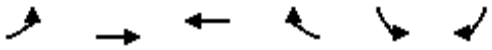
Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	81.2	Sum of lost time (s)	17.3
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	332	328	45	350	20	322	255	40	30	130	15
Future Volume (vph)	5	332	328	45	350	20	322	255	40	30	130	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		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	0.93		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1673		1687	1759		1719	1773		1687	1744	
Flt Permitted	0.43	1.00		0.09	1.00		0.41	1.00		0.56	1.00	
Satd. Flow (perm)	780	1673		152	1759		742	1773		989	1744	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	6	382	377	52	402	23	370	293	46	34	149	17
RTOR Reduction (vph)	0	21	0	0	1	0	0	4	0	0	3	0
Lane Group Flow (vph)	6	738	0	52	424	0	370	335	0	34	163	0
Confl. Peds. (#/hr)						1						1
Confl. Bikes (#/hr)			2									1
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	5%	5%	5%	7%	7%	7%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.9	42.8		51.7	46.7		38.4	30.8		20.0	16.4	
Effective Green, g (s)	43.9	42.8		51.7	46.7		38.4	30.8		20.0	16.4	
Actuated g/C Ratio	0.44	0.43		0.51	0.46		0.38	0.31		0.20	0.16	
Clearance Time (s)	4.0	5.5		4.0	5.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.2		2.0	3.2		2.0	3.2		2.0	3.2	
Lane Grp Cap (vph)	350	711		154	815		457	542		221	284	
v/s Ratio Prot	0.00	c0.44		c0.02	0.24		c0.14	0.19		0.01	0.09	
v/s Ratio Perm	0.01			0.16			c0.16			0.03		
v/c Ratio	0.02	1.04		0.34	0.52		0.81	0.62		0.15	0.57	
Uniform Delay, d1	16.3	29.0		20.9	19.1		25.0	29.9		33.0	38.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	44.1		0.5	0.6		9.6	2.1		0.1	2.9	
Delay (s)	16.4	73.1		21.3	19.7		34.6	32.1		33.1	41.8	
Level of Service	B	E		C	B		C	C		C	D	
Approach Delay (s)		72.6			19.9			33.4			40.3	
Approach LOS		E			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	18.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	30	462	345	785	390	10
Future Volume (vph)	30	462	345	785	390	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1827	1553	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1827	1553	1770	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.92
Adj. Flow (vph)	33	508	379	863	429	11
RTOR Reduction (vph)	0	0	0	558	0	7
Lane Group Flow (vph)	33	508	379	305	429	4
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases				6		
Actuated Green, G (s)	2.5	27.8	20.3	20.3	19.6	19.6
Effective Green, g (s)	2.5	27.8	20.3	20.3	19.6	19.6
Actuated g/C Ratio	0.04	0.48	0.35	0.35	0.34	0.34
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	77	902	646	549	604	540
v/s Ratio Prot	0.02	c0.27	0.21		c0.24	0.00
v/s Ratio Perm				0.20		
v/c Ratio	0.43	0.56	0.59	0.56	0.71	0.01
Uniform Delay, d1	26.8	10.5	15.1	14.9	16.4	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.8	1.4	1.2	3.9	0.0
Delay (s)	30.6	11.3	16.5	16.1	20.4	12.5
Level of Service	C	B	B	B	C	B
Approach Delay (s)		12.5	16.3		20.2	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	610	660	27	55	16
Future Vol, veh/h	6	610	660	27	55	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	663	717	29	60	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	746	0	-	0	1409	732
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	677	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	862	-	-	-	153	421
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	862	-	-	-	152	421
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	505	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	39.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	862	-	-	-	178
HCM Lane V/C Ratio	0.008	-	-	-	0.434
HCM Control Delay (s)	9.2	-	-	-	39.9
HCM Lane LOS	A	-	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	2

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	6	115	0	3	260
Future Vol, veh/h	1	6	115	0	3	260
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	7	125	0	3	283

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	414	125	0	0	125	0
Stage 1	125	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	595	926	-	-	1462	-
Stage 1	901	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	594	926	-	-	1462	-
Mov Cap-2 Maneuver	594	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	758	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	858	1462	-
HCM Lane V/C Ratio	-	-	0.009	0.002	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection: 1: SW 108th Ave & SW Tualatin Rd

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	22	94	72
Average Queue (ft)	1	36	13
95th Queue (ft)	13	74	49
Link Distance (ft)	3156		588
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: SW 108th Ave & SW Leveton Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	86	69	5
Average Queue (ft)	38	21	0
95th Queue (ft)	68	56	4
Link Distance (ft)	1898	746	658
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SW Herman Rd & SW 108th Ave

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	57	277	240	102	28
Average Queue (ft)	9	86	91	33	4
95th Queue (ft)	39	231	191	73	18
Link Distance (ft)		4736	432		746
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			150	
Storage Blk Time (%)		4		0	
Queuing Penalty (veh)		0		0	

Intersection: 4: SW Teton Ave & SW Herman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	131	531	211	357	268	308	51	257
Average Queue (ft)	10	393	51	154	144	84	13	128
95th Queue (ft)	82	619	137	294	246	221	38	226
Link Distance (ft)		517		996		1985		846
Upstream Blk Time (%)	0	8						
Queuing Penalty (veh)	0	50						
Storage Bay Dist (ft)	450		125		180		170	
Storage Blk Time (%)		18	0	13	7	0		4
Queuing Penalty (veh)		2	1	9	11	0		1

Intersection: 5: SW Herman Rd & SW Tualatin Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	104	327	526	314	427	52
Average Queue (ft)	7	156	195	30	223	9
95th Queue (ft)	44	274	382	191	379	35
Link Distance (ft)		896	1377			1084
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100			250	800	
Storage Blk Time (%)		19	5			
Queuing Penalty (veh)		1	21			

Intersection: 6: SW Herman Rd/SW 108th Ave & Site Driveway

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	60	363	54
Average Queue (ft)	4	72	16
95th Queue (ft)	36	272	47
Link Distance (ft)		432	180
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		4	
Storage Bay Dist (ft)	200		
Storage Blk Time (%)		4	
Queuing Penalty (veh)		0	

Zone Summary

Zone wide Queuing Penalty: 101

Intersection: 1: SW 108th Ave & SW Tualatin Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	6	35	12	99
Average Queue (ft)	0	4	1	39
95th Queue (ft)	5	23	8	73
Link Distance (ft)	3152		1572	584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		300		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW 108th Ave & SW Leveton Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	105	56	2
Average Queue (ft)	59	6	0
95th Queue (ft)	89	31	2
Link Distance (ft)	1894	737	654
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SW Herman Rd & SW 108th Ave

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	38	200	344	166	140
Average Queue (ft)	4	80	160	91	12
95th Queue (ft)	22	159	292	156	89
Link Distance (ft)		4732	424		737
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			1		
Storage Bay Dist (ft)	100			150	
Storage Blk Time (%)		3		2	0
Queuing Penalty (veh)		0		0	0

Intersection: 4: SW Teton Ave & SW Herman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	77	518	152	424	268	356	91	186
Average Queue (ft)	7	330	32	166	143	135	22	83
95th Queue (ft)	78	571	99	320	244	265	60	159
Link Distance (ft)		508		991		1981		842
Upstream Blk Time (%)	0	5						
Queuing Penalty (veh)	0	30						
Storage Bay Dist (ft)	450		125		180		170	
Storage Blk Time (%)		11		14	5	2	0	1
Queuing Penalty (veh)		1		6	15	8	0	0

Intersection: 5: SW Herman Rd & SW Tualatin Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	134	288	281	180	252	34
Average Queue (ft)	31	143	125	12	130	6
95th Queue (ft)	89	249	223	96	211	27
Link Distance (ft)		892	1373			1080
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100			250	800	
Storage Blk Time (%)	0	12	1	0		
Queuing Penalty (veh)	0	4	5	0		

Intersection: 6: SW Herman Rd/SW 108th Ave & Site Driveway

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	50	289	25	145
Average Queue (ft)	4	45	1	45
95th Queue (ft)	37	227	19	122
Link Distance (ft)		424	508	216
Upstream Blk Time (%)		1		2
Queuing Penalty (veh)		4		0
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	4		
Queuing Penalty (veh)	0	0		

Zone Summary

Zone wide Queuing Penalty: 74

Intersection: 1: SW 108th Ave & SW Tualatin Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	31	90	16	77
Average Queue (ft)	1	36	1	12
95th Queue (ft)	15	73	9	48
Link Distance (ft)	3156		1576	592
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		300		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW 108th Ave & SW Leveton Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	80	72	3
Average Queue (ft)	39	23	0
95th Queue (ft)	65	60	4
Link Distance (ft)	1898	746	662
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SW Herman Rd & SW 108th Ave

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	96	589	288	98	28
Average Queue (ft)	11	189	101	40	4
95th Queue (ft)	57	570	223	81	16
Link Distance (ft)		4736	430		746
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			150	
Storage Blk Time (%)	0	16			
Queuing Penalty (veh)	0	2			

Intersection: 4: SW Teton Ave & SW Herman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	87	535	186	375	272	335	48	296
Average Queue (ft)	9	509	53	149	154	109	14	149
95th Queue (ft)	62	575	136	290	253	255	40	251
Link Distance (ft)		519		1000		1986		846
Upstream Blk Time (%)		20						
Queuing Penalty (veh)		136						
Storage Bay Dist (ft)	450		125		180		170	
Storage Blk Time (%)		39	1	15	8	1		7
Queuing Penalty (veh)		4	2	11	15	2		1

Intersection: 5: SW Herman Rd & SW Tualatin Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	95	368	514	279	472	47
Average Queue (ft)	10	169	202	31	234	8
95th Queue (ft)	60	300	397	196	389	34
Link Distance (ft)		900	1377			1084
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100			250	800	
Storage Blk Time (%)	0	19	6			
Queuing Penalty (veh)	0	1	23			

Intersection: 6: SW Herman Rd/SW 108th Ave & Site Driveway

Movement	EB	EB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	193	444	128
Average Queue (ft)	12	216	47
95th Queue (ft)	94	502	147
Link Distance (ft)		430	236
Upstream Blk Time (%)		5	4
Queuing Penalty (veh)		36	0
Storage Bay Dist (ft)	200		
Storage Blk Time (%)		20	
Queuing Penalty (veh)		2	

Zone Summary

Zone wide Queuing Penalty: 237

Intersection: 1: SW 108th Ave & SW Tualatin Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	12	31	16	140
Average Queue (ft)	0	3	1	49
95th Queue (ft)	8	20	9	101
Link Distance (ft)	3152		1572	584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		300		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW 108th Ave & SW Leveton Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	114	54	5
Average Queue (ft)	64	7	0
95th Queue (ft)	96	34	3
Link Distance (ft)	1894	737	654
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SW Herman Rd & SW 108th Ave

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	61	406	430	174	345
Average Queue (ft)	5	127	229	108	52
95th Queue (ft)	30	347	427	179	250
Link Distance (ft)		4732	424		737
Upstream Blk Time (%)			2		
Queuing Penalty (veh)			16		
Storage Bay Dist (ft)	100			150	
Storage Blk Time (%)	0	12		11	0
Queuing Penalty (veh)	0	1		2	0

Intersection: 4: SW Teton Ave & SW Herman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	78	523	167	472	269	476	82	215
Average Queue (ft)	6	464	34	172	175	173	22	97
95th Queue (ft)	56	640	106	341	281	365	59	174
Link Distance (ft)		508		991		1981		842
Upstream Blk Time (%)		19						
Queuing Penalty (veh)		123						
Storage Bay Dist (ft)	450		125		180		170	
Storage Blk Time (%)		38	0	15	12	4		1
Queuing Penalty (veh)		2	0	7	37	12		0

Intersection: 5: SW Herman Rd & SW Tualatin Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	116	367	296	160	265	44
Average Queue (ft)	30	159	138	9	142	7
95th Queue (ft)	79	287	240	89	230	30
Link Distance (ft)		892	1373			1080
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100			250	800	
Storage Blk Time (%)	0	14	1	0		
Queuing Penalty (veh)	0	4	7	0		

Intersection: 6: SW Herman Rd/SW 108th Ave & Site Driveway

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	112	432	225	240
Average Queue (ft)	6	191	24	127
95th Queue (ft)	55	474	145	285
Link Distance (ft)		424	508	237
Upstream Blk Time (%)		4	0	26
Queuing Penalty (veh)		28	0	0
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		20		
Queuing Penalty (veh)		1		

Zone Summary

Zone wide Queuing Penalty: 242

Intersection: 1: SW 108th Ave & SW Tualatin Rd

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	32	122	12	74
Average Queue (ft)	2	41	0	15
95th Queue (ft)	17	90	9	50
Link Distance (ft)	3152		1572	584
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		300		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW 108th Ave & SW Leveton Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	86	66	26
Average Queue (ft)	39	25	1
95th Queue (ft)	69	61	11
Link Distance (ft)	1896	327	654
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SW Herman Rd/SW 108th Ave

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	115	1347	346	145	83
Average Queue (ft)	15	595	139	54	7
95th Queue (ft)	71	1339	297	117	50
Link Distance (ft)		4732	421		352
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)	100			150	
Storage Blk Time (%)	0	48		1	
Queuing Penalty (veh)	0	5		0	

Intersection: 4: SW Teton Ave & SW Herman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	222	526	174	370	268	359	114	316
Average Queue (ft)	23	516	56	168	168	122	15	156
95th Queue (ft)	174	531	139	317	269	274	65	274
Link Distance (ft)		511		991		1982		842
Upstream Blk Time (%)	0	37						
Queuing Penalty (veh)	0	250						
Storage Bay Dist (ft)	450		125		180		170	
Storage Blk Time (%)		61	0	16	11	1		7
Queuing Penalty (veh)		6	1	12	20	4		2

Intersection: 5: SW Herman Rd & SW Tualatin Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	79	304	662	336	504	46
Average Queue (ft)	6	160	249	38	249	7
95th Queue (ft)	43	274	576	235	418	30
Link Distance (ft)		892	1373			1080
Upstream Blk Time (%)			1			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)	100			250	800	
Storage Blk Time (%)		19	11			
Queuing Penalty (veh)		1	46			

Intersection: 6: SW Herman Rd & Site Driveway

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	224	437	20	176
Average Queue (ft)	28	380	1	138
95th Queue (ft)	140	555	18	213
Link Distance (ft)		421	511	156
Upstream Blk Time (%)		21		72
Queuing Penalty (veh)		137		0
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	55		
Queuing Penalty (veh)	0	7		

Intersection: 7: Site Driveway & SW 108th Ave

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	31	31
Average Queue (ft)	4	2
95th Queue (ft)	21	17
Link Distance (ft)	241	327
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 490

Intersection: 1: SW 108th Ave & SW Tualatin Rd

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (ft)	7	37	108
Average Queue (ft)	0	4	47
95th Queue (ft)	5	24	86
Link Distance (ft)	3152		584
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: SW 108th Ave & SW Leveton Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	114	48	3
Average Queue (ft)	64	7	0
95th Queue (ft)	97	32	3
Link Distance (ft)	1897	327	654
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SW Herman Rd/SW 108th Ave

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	84	569	425	171	303
Average Queue (ft)	9	187	235	117	75
95th Queue (ft)	50	474	425	193	286
Link Distance (ft)		4732	421		352
Upstream Blk Time (%)			2		2
Queuing Penalty (veh)			11		6
Storage Bay Dist (ft)	100			150	
Storage Blk Time (%)	0	25		17	0
Queuing Penalty (veh)	0	1		3	1

Intersection: 4: SW Teton Ave & SW Herman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	123	526	174	423	269	468	93	221
Average Queue (ft)	6	506	34	183	177	181	20	94
95th Queue (ft)	77	575	100	349	282	386	61	180
Link Distance (ft)		511		991		1982		842
Upstream Blk Time (%)	0	26						
Queuing Penalty (veh)	0	176						
Storage Bay Dist (ft)	450		125		180		170	
Storage Blk Time (%)		49		17	12	4		1
Queuing Penalty (veh)		3		8	36	14		0

Intersection: 5: SW Herman Rd & SW Tualatin Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (ft)	134	344	296	217	292	36
Average Queue (ft)	31	155	137	14	138	5
95th Queue (ft)	86	281	232	111	233	25
Link Distance (ft)		892	1373			1080
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100			250	800	
Storage Blk Time (%)	0	13	1	0		
Queuing Penalty (veh)	0	4	6	1		

Intersection: 6: SW Herman Rd & Site Driveway

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	186	437	190	194
Average Queue (ft)	12	271	18	160
95th Queue (ft)	87	546	116	207
Link Distance (ft)		421	511	156
Upstream Blk Time (%)		10		91
Queuing Penalty (veh)		61		0
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	34		
Queuing Penalty (veh)	0	2		

Intersection: 7: Site Driveway & SW 108th Ave

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	35	64
Average Queue (ft)	8	6
95th Queue (ft)	31	49
Link Distance (ft)	241	327
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 333