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Lu Pacific Development

Transportation Impact Study

Tualatin, Oregon

REGISTERED PROFESSIONAL ENGINEER
88808PE
OREGON
MAR. 12, 2019
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RENEWS: 6/30/2022

Date:
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Executive Summary

1. The proposed Lu Pacific Development, to be located at three vacant properties to the north and east of an existing building addressed at 10005 SW Herman Road in Tualatin, Oregon, and will include the construction of two industrial buildings totaling approximately 131,600 square-feet. Specifically, approximately 40 percent of the total building square-footage will be dedicated as manufacturing space while the remaining 60 percent as warehouse.
2. The proposed development is projected to generate 46 morning peak hour trips, 50 evening peak hour trips, and 344 average weekday trips. Of these, approximately 9 morning peak hour trips, 10 evening peak hour trips, and 69 average weekday trips are projected to be trucks.
3. No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.
4. Adequate sight distance is available at the site access to ensure safe and efficient operation of the intersection.
5. Left-turn lane warrants are currently met for the westbound approach of the site access intersection along SW Herman Road during the morning peak hour. However, warrants are met under existing conditions and the proposed development will not add left-turning traffic on the westbound approach of the intersection. Therefore, a left-turn lane for this intersection approach is not necessary or recommended as part of the proposed development.
6. Under year 2022 buildout conditions, the left-turn lane warrants are projected to be met for the eastbound approach at the site access intersection during the morning peak hour.
7. Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met at the site access intersection under any of the analysis scenarios.
8. Based on a turning movement analysis, no issues were found with regard to site ingress from the west and site egress to the east. For site ingress from the east and site egress to the west, the tractor-trailer style of vehicles may need to encroach onto the opposing travel lane along SW Herman Road in order to conduct the applicable turning movement without traversing over curbs and/or off-road.
9. All study intersections are currently operating acceptably per City of Tualatin standards and are projected to continue operating acceptably through the 2022 buildout year of the site.

Project Description

Introduction

The proposed Lu Pacific Development, to be located at three vacant properties to the north and east of an existing building addressed at 10005 SW Herman Road in Tualatin, Oregon, and will include the construction of two industrial buildings totaling approximately 131,600 square-feet. Specifically, approximately 40 percent of the total building square-footage will be dedicated as manufacturing space while the remaining 60 percent as warehouse. This report includes safety and capacity/level of service analyses at the following intersections:

1. SW Teton Avenue at SW Herman Road;
2. Site access at SW Herman Road; and
3. SW Tualatin Road at SW Herman Road.

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the proposed development and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations is included in the appendix to this report.

Location Description

The subject site is located north of SW Herman Road, south/west of SW Tualatin Road, and east of SW Teton Avenue in Tualatin, Oregon. The site is located within a predominately industrial area of the City, with industrial uses to the north, south, and west, and a trailer park to the east.

The project site includes three tax lots (lots 900, 2900, and 3100) which encompass and approximate total of 8.6 acres. All three lots are currently undeveloped. Future access to the site will be provided via an existing driveway serving a building addressed at 10005 SW Herman Road.

Vicinity Roadways

The proposed development is expected to impact four vicinity roadways near the site. Table 1 provides a description of each vicinity roadway.

Table 1: Vicinity Roadway Descriptions

Roadway	Jurisdiction	Functional Classification	Cross-Section	Speed	On-street Parking	Bicycle Lanes	Curbs	Sidewalks
SW Herman Road	City of Tualatin	Major Arterial/Collector	2 to 3 Lanes	35/45 mph Posted	Not Permitted	Partial Both Sides	Partial Both Sides	Partial Both Sides
SW Teton Avenue	City of Tualatin	Major Collector	2 to 3 Lanes	35 mph Posted	Permitted Both Sides	Partial Both Sides	Both Sides	Partial Both Sides
Powder Court	City of Tualatin	Local Street	2 Lanes	15 mph Statutory	Not Permitted	None	Both Sides	East Side
SW Tualatin Road	City of Tualatin	Major Collector	2 to 3 Lanes	35 mph Posted	Permitted Both Sides	Both Sides	Both Sides	Partial Both Sides

Notes: Functional Classification based on the City of Tualatin Transportation System Plan

Study Intersections

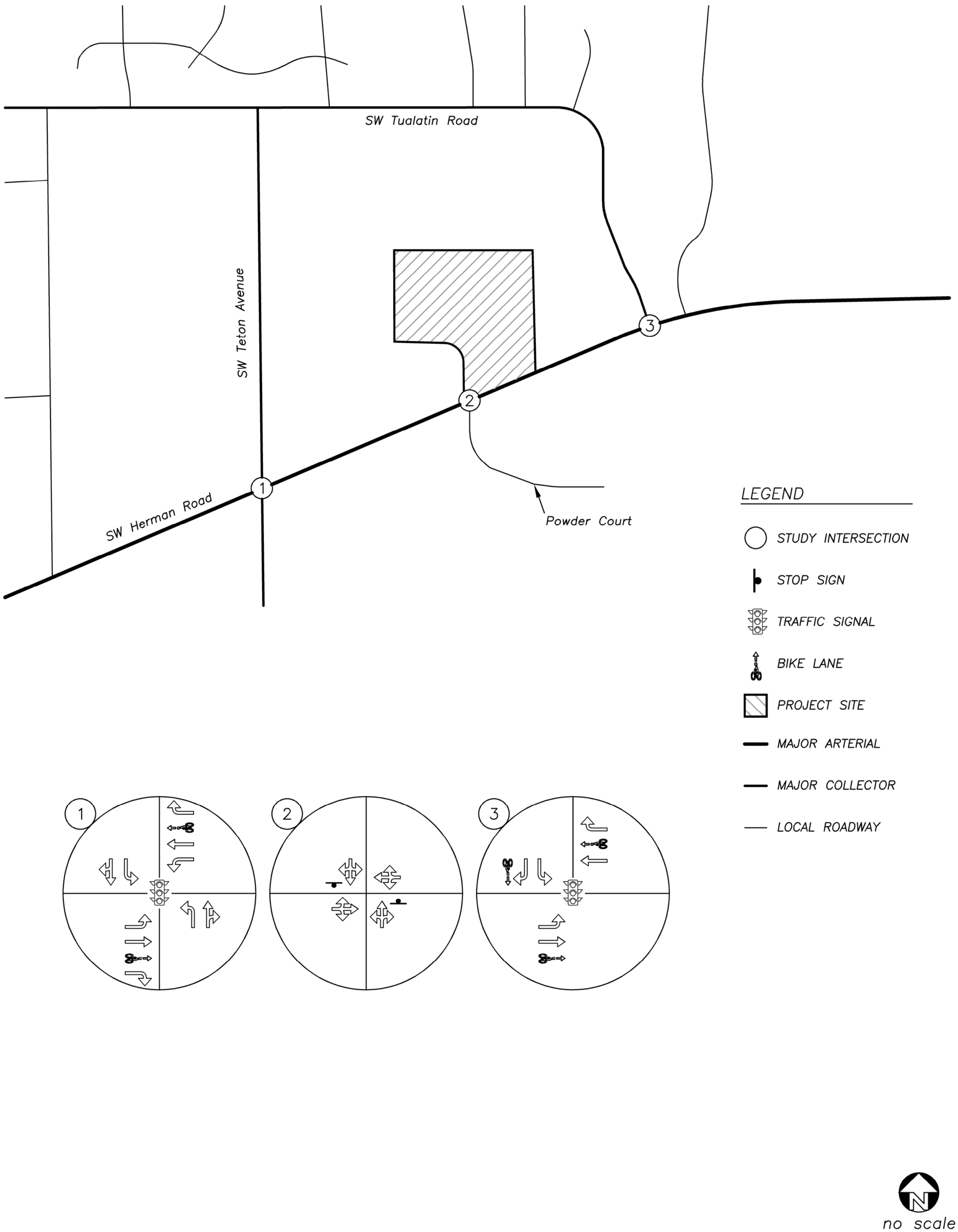
The proposed development is expected to impact three vicinity intersections of significance. Table 2 provides a summarized description of the study intersections.

Table 2: Vicinity Intersection Descriptions

Number	Name	Geometry	Traffic Control	Phasing/Stopped Approaches
1	SW Teton Avenue at SW Herman Road	Four-Legged	Signalized	FYA N/S & E/W Left-turns, Yield-Controlled/Channelized E/W Right-turns
2	Site Access at SW Herman Road	Three-Legged	Stop Controlled	SB Stopped Approach
3	SW Tualatin Road at SW Herman Road	Three-Legged	Signalized	NB/SB Stop Controlled

Note: Flashing-Yellow-Arrow denoted at FYA.

A vicinity map displaying the project site, vicinity streets, and the study intersections with their associated lane configurations and control types is shown in Figure 1 on page 7.



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VICINITY MAP

Figure 1

Lu Pacific Development

7/15/2020

Site Trips

Trip Generation

Total Trips

The proposed Lu Pacific Development will include the construction of two industrial buildings totaling approximately 131,600 square-feet, where approximately 40 percent of the square-footage will be dedicated as manufacturing and approximately 60 percent as warehouse. To estimate the number of trips that will be generated by the proposed development, trip rates from the *Trip Generation Manual*[1] were used. Specifically, data from land use codes 140, *Manufacturing*, and 150, *Warehousing*, were used based on the square-footage of the gross building floor area.

The trip generation calculations show that the proposed development is projected to generate 46 morning peak hour trips, 50 evening peak hour trips, and 344 average weekday trips. The trip generation estimates for the proposed development are summarized in Table 3. Detailed trip generation calculations are included in the technical appendix to this report.

Table 3: Trip Generation Summary (Proposed Development)

	ITE Code	Size/Rate	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Manufacturing	140	52,600 SF	25	8	33	11	24	35	206
Warehouse	150	79,000 SF	10	3	13	4	11	15	138
Total			35	11	46	15	35	50	344

Although the aforementioned land uses reflect what the applicant is proposing for development, City of Tualatin staff have requested that analysis be based using trip generation data from land use code 110, *General Light Industrial*. The reason for using this land use code is to reflect potential, conservative impacts to the transportation system which may occur due to a high traffic generating tenant(s) that could lease space within the proposed development.

Utilizing data from land use code 110, based on the square-footage of the gross building floor area, the proposed development could generate up to 92 morning peak hour trips, 83 evening peak hour trips, and 652 average weekday trips. The trip generation estimates for the proposed development, using data from land use code 110, are summarized in Table 4. Detailed trip generation calculations are included in the technical appendix to this report.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

Table 4: Trip Generation Summary (Based on Land Use Code 110)

	ITE Code	Size/Rate	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
General Light Industrial									
Total Trips	110	131,600 SF	81	11	92	11	72	83	652
Truck Trips	-	20%	16	2	18	2	15	17	130
Standard Vehicle Trips	-	-	65	9	74	9	57	66	522

For the remainder of this study, analyses are performed based on the trip generation presented in Table 4.

Truck Trips

Per the *Trip Generation Handbook*[2], relevant data pertaining to truck trip generation is provided for land use codes 130, *Industrial Park*, 150, *Warehousing*, and 152, *High-Cube Warehouse/Distribution Center*. For land use code 130, truck trips accounted for an average of approximately 13 percent of site trips generated, while for code 150 were approximately 20 percent of site trips were considered truck trips. For land use code 152, the majority of truck trips generated were noted to typically occur during off-peak hours, but on average would account for between 9 to 29 percent of peak hour traffic. No specific data pertaining to manufacturing or general light industrial uses is available.

For the purposes of simplicity, it is assumed that approximately 20 percent of the total site trip generation may consist of truck trips. Accordingly, the proposed development is projected to generate 18 morning peak hour truck trips, 17 evening peak hour truck trips, and 130 average weekday truck trips, based on land use code 110. See Table 4 for details regarding the truck trip generation.

Given the surrounding site vicinity is predominately industrial in character, the nearby transportation system was constructed accordingly to best serve the needs of existing and future industrial development. As such, it is expected that a significant majority of truck trips would utilize SW Herman Road, SW Teton Avenue, and SW Tualatin Road to access the major transportation corridors of SW Tualatin-Sherwood Road and SW 124th Avenue. From SW Tualatin-Sherwood Road and SW 124th Avenue, access to regional transportation facilities, such as SW Pacific Highway, Interstate 5, and Interstate 205, are available.

[2] Institute of Transportation Engineers (ITE), *Trip Generation Handbook*, 3rd Edition, 2014.

Trip Distribution

Based on correspondence and input from City of Tualatin staff, the following trip distribution was estimated and used for analysis:

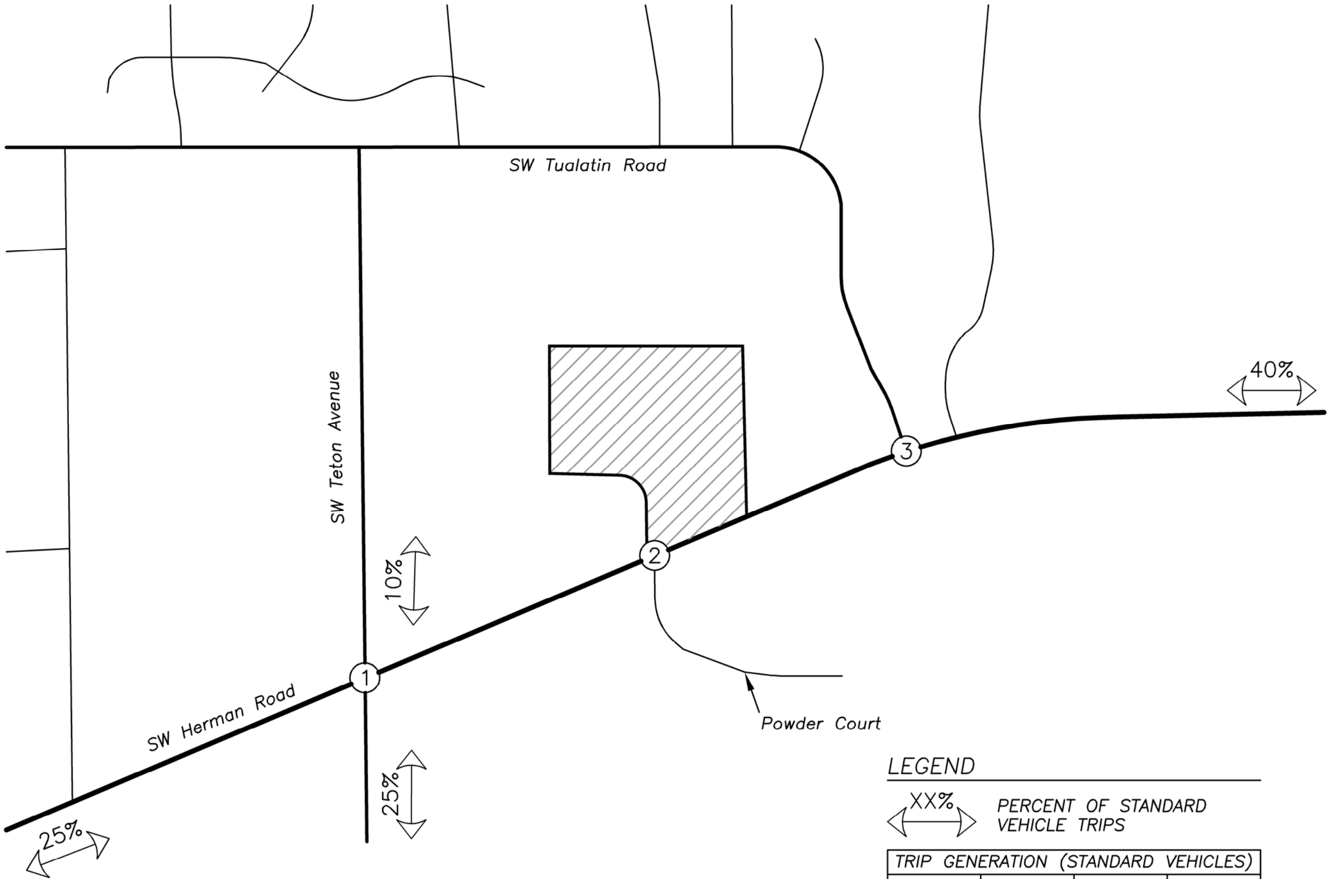
Standards Vehicle Trips

- Approximately 40 percent of site trips will travel to/from the east along SW Herman Road;
- Approximately 25 percent of site trips will travel to/from the west along SW Herman Road;
- Approximately 25 percent of site trips will travel from the south along SW Teton Avenue; and
- Approximately 10 percent of site trips will travel to the north along SW Teton Avenue.

Truck Trips

- Approximately 35 percent of site trips will travel to/from the east along SW Herman Road;
- Approximately 30 percent of site trips will travel to/from the west along SW Herman Road;
- Approximately 30 percent of site trips will travel from the south along SW Teton Avenue; and
- Approximately 5 percent of site trips will travel to the north along SW Teton Avenue.

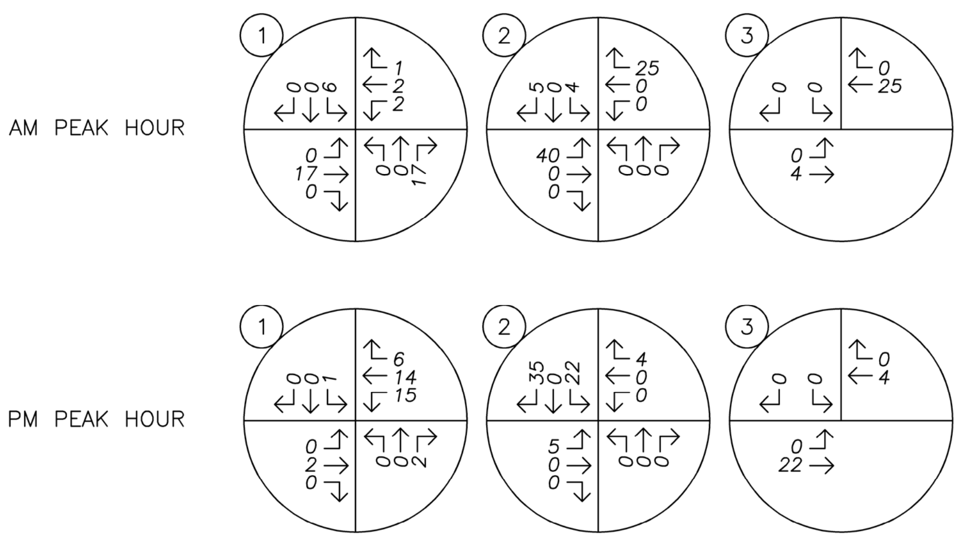
The trip distribution and assignment for the site trips generated by the proposed development during the morning and evening peak hours is shown in Figure 2 through Figure 4. Figure 2 presents site trip assignment for standard vehicles, Figure 3 presents site trip assignment for trucks, and Figure 4 presents site trip assignment for the total trips generated.



LEGEND

XX% PERCENT OF STANDARD VEHICLE TRIPS

TRIP GENERATION (STANDARD VEHICLES)			
	IN	OUT	TOTAL
AM	65	9	74
PM	9	57	66



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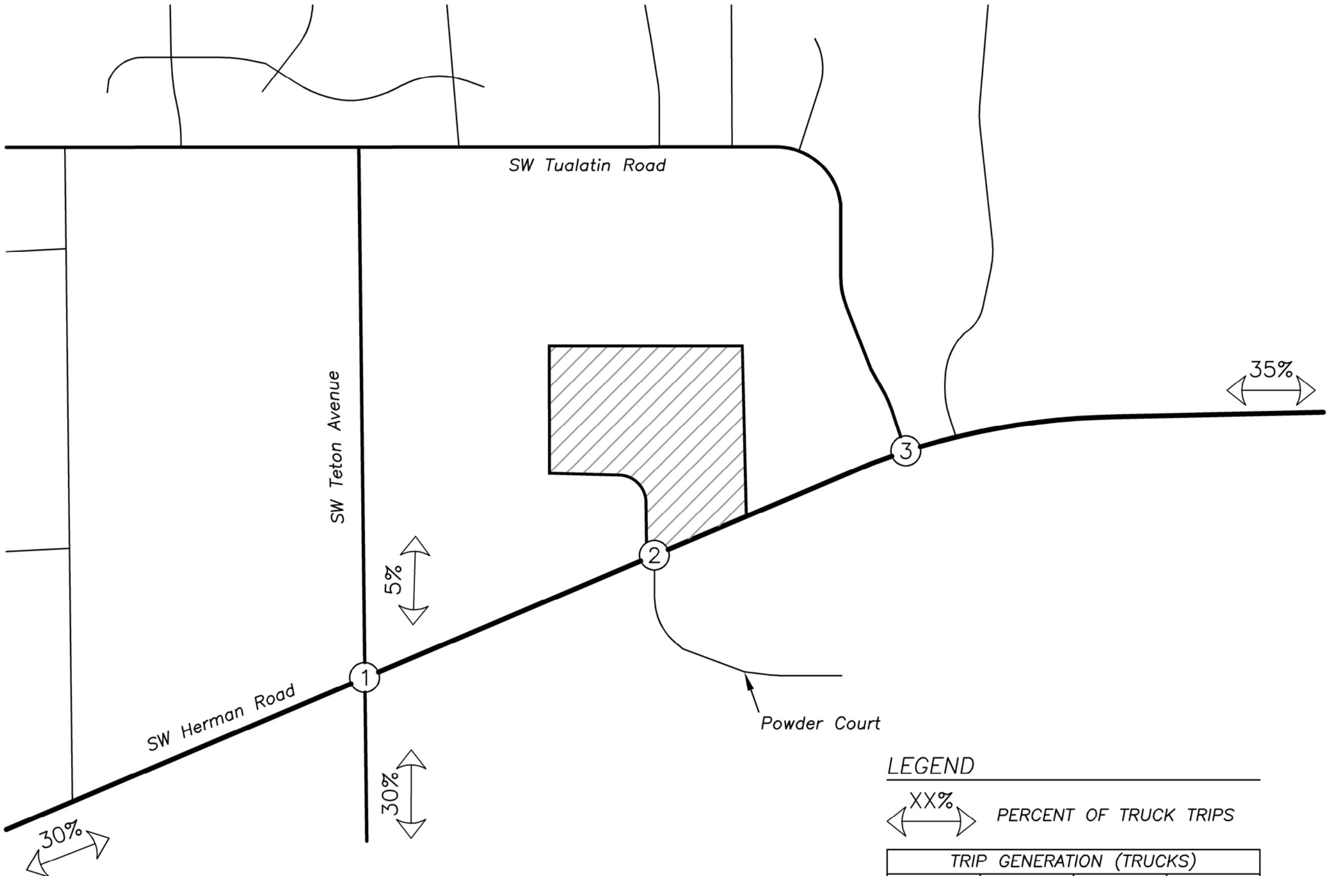
SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan - Standard Vehicle Trips
AM & PM Peak Hours

Figure 2
Lu Pacific Development
7/15/2020



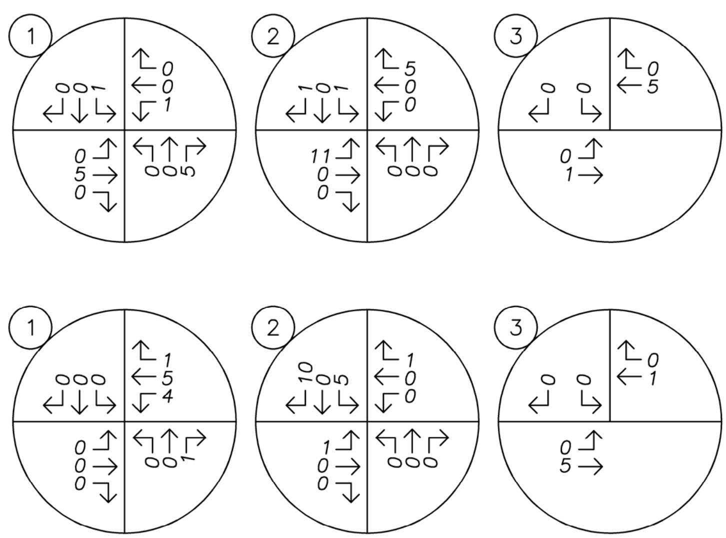
LEGEND

XX% PERCENT OF TRUCK TRIPS

TRIP GENERATION (TRUCKS)			
	IN	OUT	TOTAL
AM	16	2	18
PM	2	15	17

AM PEAK HOUR

PM PEAK HOUR



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SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan - Truck Trips
AM & PM Peak Hours

Figure 3
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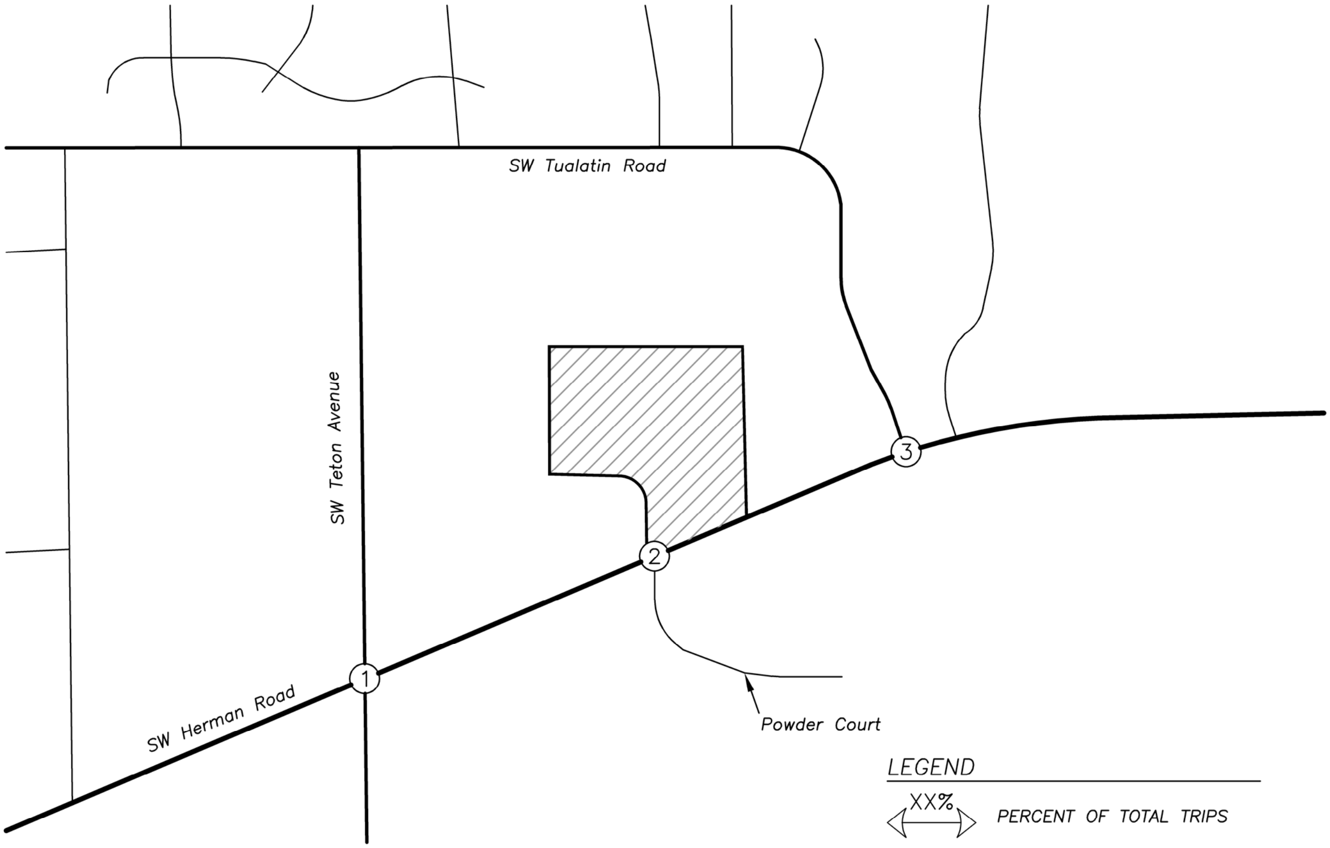
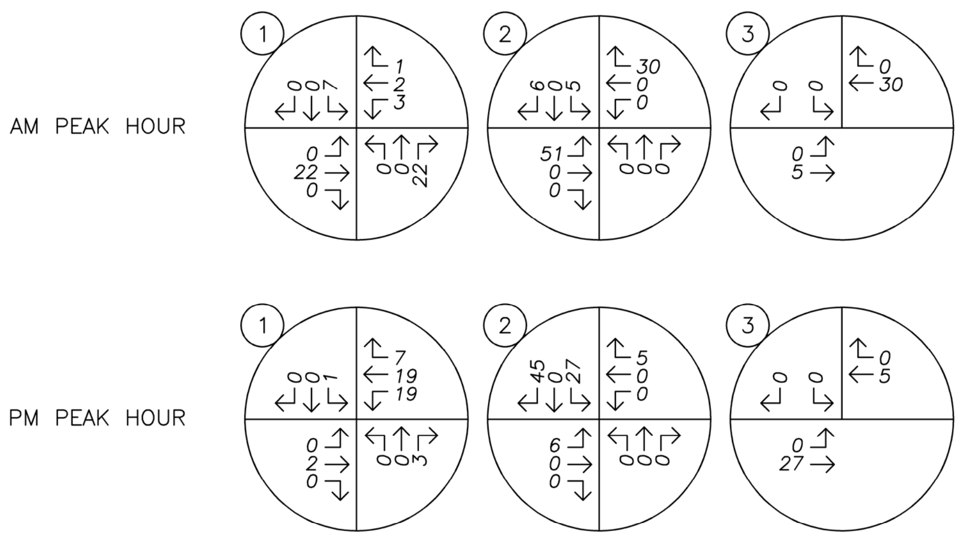


TRIP GENERATION (TOTAL)			
	IN	OUT	TOTAL
AM	81	11	92
PM	11	72	83



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SITE TRIP DISTRIBUTION & ASSIGNMENT

Proposed Development Plan - Total Trips
AM & PM Peak Hours

Traffic Volumes

Existing Conditions

Traffic counts were conducted at the study intersections on the following days:

- Tuesday, September 11th , 2018, from 7:00 AM to 9:00 AM;
- Thursday, August 16th, 2018, from 4:00 PM to 6:00 PM; and
- Thursday, May 7th, 2020, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM.

Data corresponding to each intersection's respective morning and evening peak hour was used for analysis.

For the collected 2018 count data, in order to reflect existing year 2020 conditions, a compounded growth rate of two percent per year over a two-year period was applied to the traffic volumes.

Traffic counts at the site access intersection along SW Herman Road were collected on May 7th, 2020, while the COVID-19 viral pandemic was considered a significant public health concern throughout the State of Oregon. Subsequently, traffic volumes had been significantly depressed statewide as of mid-March and into May. In order to reflect normal travel conditions at the intersection, adjustment factors for the morning and evening peak hours were calculated utilizing the count data collected prior to March 2020. The adjustment factors were calculated utilizing the following methodology:

- Eastbound and westbound volumes along SW Herman Road were balanced with the study intersections of SW Teton Avenue and SW Tualatin Road at SW Herman Road.
- The pre-COVID-19 balanced volumes along SW Herman Road were compared to the collected access intersection volumes. Based on the difference in volumes along SW Herman Road, adjustments factors of 2.3980 and 1.6870 were calculated for the morning and evening peak hours, respectively.
- The adjustment factors were applied to the site access intersection volumes, as a whole.

Figure 5 on page 16 shows the existing traffic volumes at the study intersections during the morning and evening peak hours.

Background Conditions

To provide an analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. In order to calculate the future traffic volumes, a compounded growth rate of two percent per year for an assumed buildout condition of two years was applied to the measured existing traffic volumes to approximate year 2022 background conditions.

In addition to the traffic volume growth described above, trips associated with two in-process developments within the site vicinity, that are currently approved but not yet fully constructed or occupied, were added to the existing volumes in addition to the calculated volume growth. The following projects were assumed to be completed and occupied by year 2022:

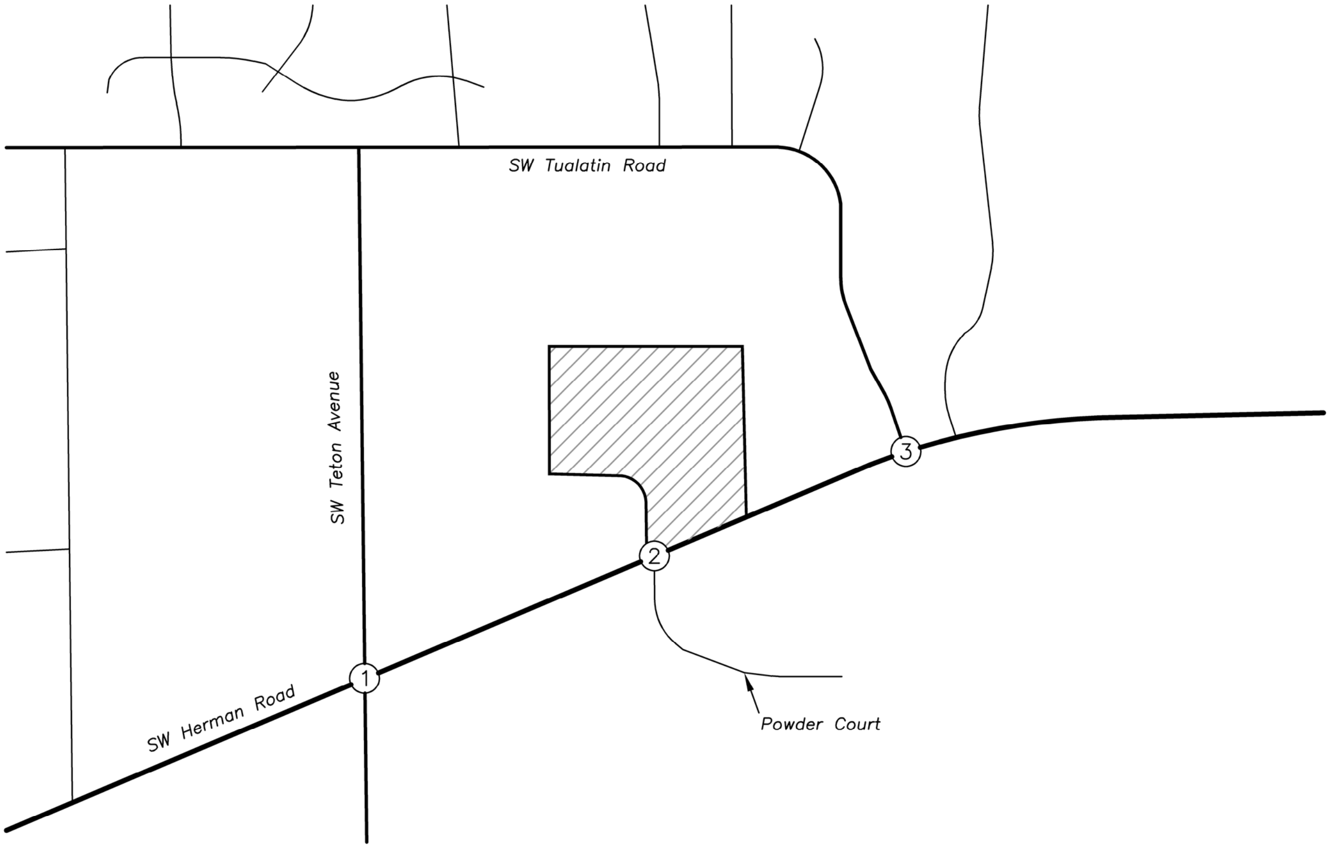
- LMC Teton Building (19200 SW Teton Avenue); and
- Tualatin City Operations Site (10699 SW Herman Road).

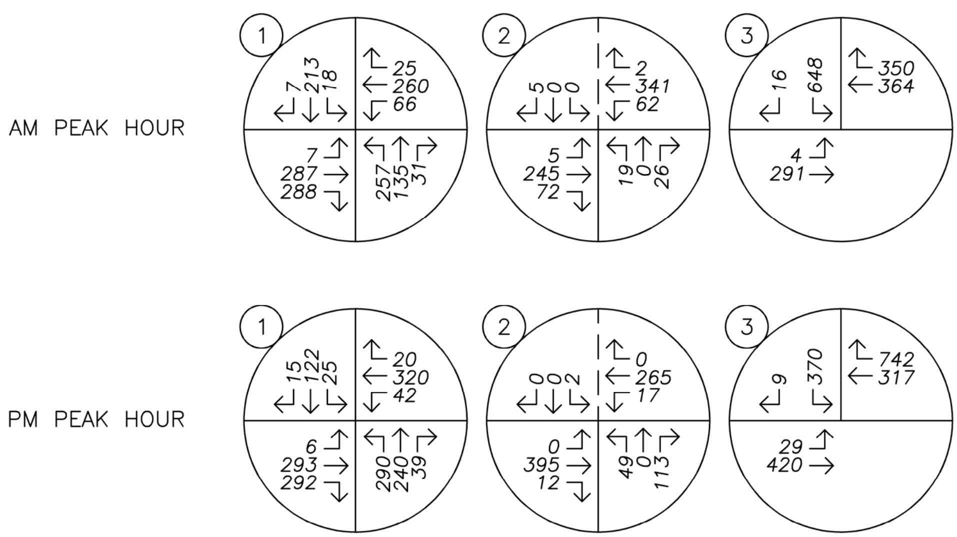
A figure depicting trip assignment associated with the in-process developments is included within the appendix to this report.

Figure 6 on page 17 shows the background traffic volumes at the study intersections during the morning and evening peak hours.

Buildout Conditions

Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2022 background traffic volumes to obtain the expected 2022 buildout volumes. Figure 7 on page 18 shows the buildout traffic volumes at the study intersections during the morning and evening peak hours.





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TRAFFIC VOLUMES

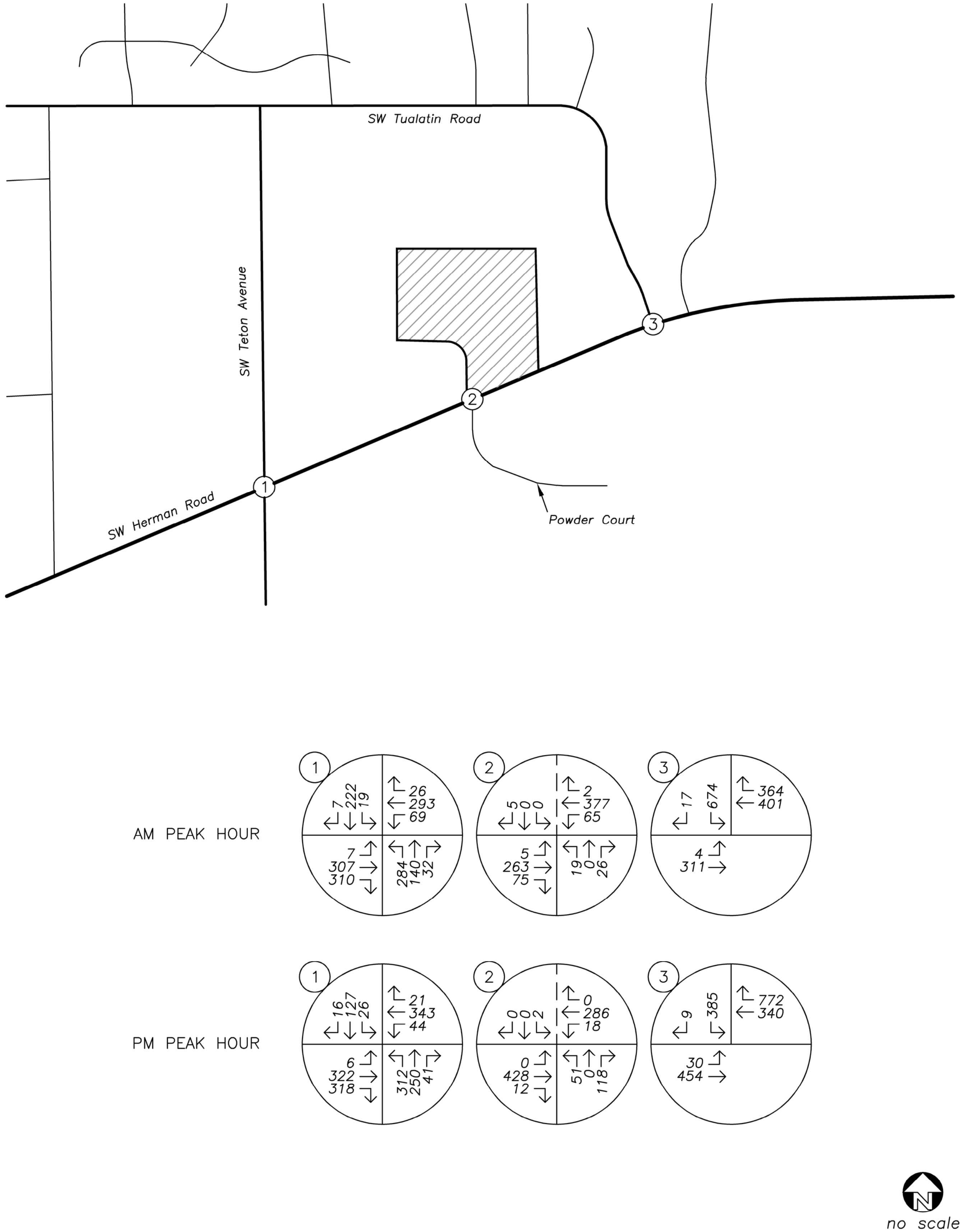
Year 2020 Existing Conditions

AM & PM Peak Hours

Figure 5

Lu Pacific Development

7/15/2020



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TRAFFIC VOLUMES

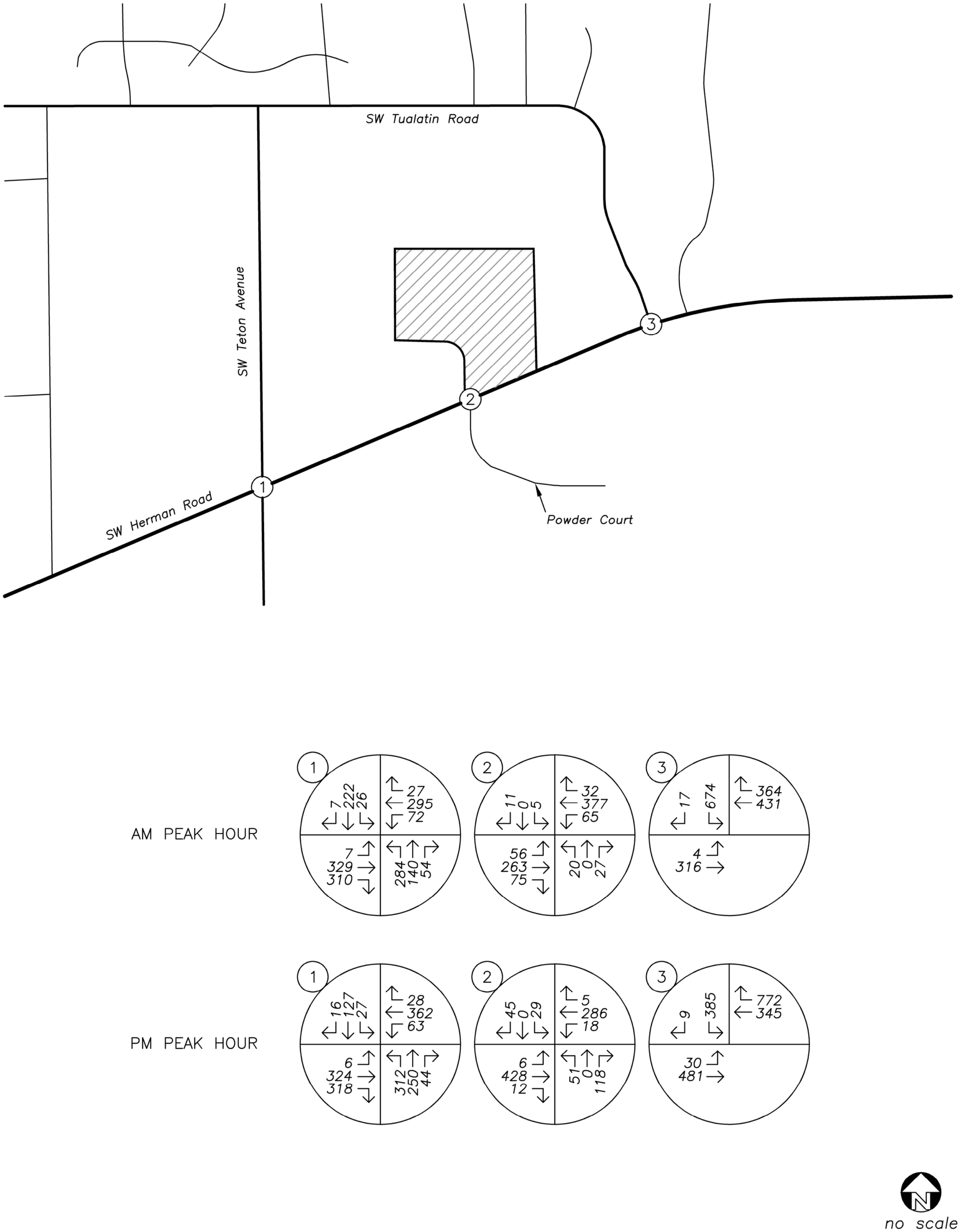
Year 2022 Background Conditions

AM & PM Peak Hours

Figure 6

Lu Pacific Development

7/15/2020



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TRAFFIC VOLUMES
Year 2022 Buildout Conditions
AM & PM Peak Hours

Figure 7
Lu Pacific Development
7/15/2020

Safety Analysis

Crash History Review

Using data obtained from ODOT's Crash Analysis and Reporting Unit, a review was performed of the most recent five years of available crash data at the study intersections (January 2013 through December 2017). The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for each intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated under the common assumption that traffic counted during the evening peak hour represents approximately ten percent of annual average daily traffic (AADT) at each intersection. Crash rates in excess of 1.00 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

With regard to crash severity, ODOT classifies crashes in the following categories:

- Property Damage Only (PDO);
- Possible Injury – Complaint of Pain (Injury C);
- Non-Incapacitating Injury (Injury B);
- Incapacitating Injury – Bleeding, Broken Bones (Injury A); and
- Fatality or Fatal Injury.

Table 5 provides a summary of crash types while Table 6 summarizes crash severities and rates for each of the study intersections. Detailed crash reports are included in the technical appendix to this report.

Table 5: Crash Type Summary

	Intersection	Crash Type									Total Crashes
		Rear End	Turn	Angle	Fixed Object	Side Swipe	Head On	Other	Ped	Bike	
1	SW Teton Avenue at SW Herman Road	4	2	2	1	0	0	0	0	1	10
2	Site Access at SW Herman Road	0	0	0	0	0	0	0	0	0	0
3	SW Tualatin Road at SW Herman Road	3	5	0	0	0	0	0	0	0	8

Table 6: Crash Severity and Rate Summary

	Intersection	Crash Severity					Total Crashes	AADT	Crash Rate
		PDO	C	B	A	Fatal			
1	SW Teton Avenue at SW Herman Road	6	2	2	0	0	10	17,040	0.32
2	Site Access at SW Herman Road	0	0	0	0	0	0	8,530	0.00
3	SW Tualatin Road at SW Herman Road	2	4	2	0	0	8	18,870	0.23

As detailed in Table 5, there was one crash at the intersection of SW Teton Avenue at SW Herman Road that involved a vulnerable roadway user, specifically a bicyclist. The crash occurred when the driver of an eastbound right-turning passenger car collided with a southbound bicyclist who was traveling on the road. Travel conditions were foggy and during the night (with streetlights present) whereby visibility was poor. The bicyclist sustained injuries consistent with Injury C classification.

Based on the review of the crash data, no significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.

Sight Distance Evaluation

Sight distance was measured at the site access intersection along SW Herman Road and evaluated in accordance with the standards established in *A Policy of Geometric Design of Highways and Streets*[3]. According to AASHTO, the driver's eye is assumed to be 15 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The vehicle driver's eye height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement.

Based on the posted speed of 35 mph, the minimum recommended intersection sight distance is 390 feet to the east and west of the access along SW Herman Road. Sight distances were measured to be in excess of 400 feet to the east and west of the access intersection. Therefore, adequate sight distance is available at the site access to ensure safe and efficient operation of the intersection. Accordingly, no sight distance related mitigation is necessary or recommended.

Warrant Analysis

Left-turn lane and preliminary traffic signal warrants were examined for the site access intersection along SW Herman Road.

Left-Turn Lane Warrants

A left-turn refuge lane is primarily a safety consideration for the major-street, removing left-turning vehicles from the through traffic stream. The left-turn lane warrants used were developed from the *National Cooperative Highway Research Project's* (NCHRP) *Report 457*. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles as well as the number of turning vehicles, the travel speed, and the number of through lanes.

Left-turn lane warrants are currently met for the westbound approach of the site access intersection along SW Herman Road during the morning peak hour. However, warrants are met under existing conditions and the proposed development will not add left-turning traffic on the westbound approach of the intersection. Therefore, no new left-turn lane is necessary or recommended on this intersection approach as part of the proposed development.

Under year 2022 buildout conditions, the left-turn lane warrants are projected to be met for the eastbound approach at the site access intersection during the morning peak hour. It should be noted that left-turn lane warrants are only projected to be met assuming the proposed development generates trips at levels similar to that of ITE Code 110, *General Light Industrial*, and will not be met if the proposed use generates trips at levels comparable to the proposed warehouse/manufacturing use.

Preliminary Traffic Signal Warrants

Preliminary traffic signal warrants were examined for the site access intersection to determine whether the installation of a new traffic signal will be warranted at the intersection upon completion of the proposed development. Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met at the site access intersection under any of the analysis scenarios.

[3] American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 6th Edition, 2011.

Detailed warrant analyses for are included in the technical appendix to this report.

Turning Movement Analysis

At the direction of City of Tualatin staff, a turning movement analysis was conducted depicting vehicle ingress and egress from the project site via the proposed access driveway. The turning movement analysis was conducted using AutoTurn software and referencing an AASHTO "WB-67" design vehicle. At a length of approximately 70 feet, the "WB-67" design vehicle is considered one of the largest tractor-trailer vehicle types that may travel to/from the site. Diagrams depicting analysis scenarios are included within the appendix to this report and are listed below:

- Figure B – Eastbound Site Ingress
- Figure C – Westbound Site Ingress
- Figure D – Westbound Site Egress
- Figure E – Eastbound Site Egress

Based on the turning movement analysis (as depicted in the above listed figures), no issues were found with regard to site ingress from the west and site egress. For site ingress from the east, the design vehicle will need to encroach onto the opposing travel lane along SW Herman Road in order to conduct the applicable turning movement without traversing over curbs and/or off-road.

Operational Analysis

A capacity and delay analysis was conducted for each of the study intersections per the unsignalized intersection analysis methodologies in the *Highway Capacity Manual*[4] (HCM). Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Performance Standards

The City of Tualatin requires intersections to operate at a minimum LOS E or better. For both LOS and delay related to the analysis of unsignalized intersections, the reported result applies to the worst minor-street approach lane.

Delay & Capacity Analysis

The v/c, delay, and LOS results of the capacity analysis are shown in Table 7 for the morning and evening peak hours. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

[4] Transportation Research Board, *Highway Capacity Manual, 6th Edition*, 2016.

Table 7: Intersection Capacity Analysis Summary

	Morning Peak Hour			Evening Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1 SW Teton Avenue at SW Herman Road						
2020 Existing Conditions	B	18	-	B	17	-
2022 Background Conditions	C	20	-	B	19	-
2022 Buildout Conditions	C	21	-	B	19	-
2 Site Access/Powder Court at SW Herman Road						
2020 Existing Conditions	C	18	0.16	D	31	0.60
2022 Background Conditions	C	20	0.19	E	36	0.68
2022 Buildout Conditions	C	25	0.24	E	45	0.76
3 SW Tualatin Road at SW Herman Road						
2020 Existing Conditions	C	27	-	B	13	-
2022 Background Conditions	C	33	-	B	13	-
2022 Buildout Conditions	C	37	-	B	13	-

BOLDED results indicate operation above acceptable jurisdictional standards.

Based on the results of the operational analysis, all study intersections are currently operating acceptably per City of Tualatin standards and are projected to continue operating acceptably through the 2022 buildout year of the site. No operational mitigation is necessary or recommended at these intersections.

Conclusions

No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.

Adequate sight distance is available at the site access to ensure safe and efficient operation of the intersection.

Left-turn lane warrants are currently met for the westbound approach of the site access intersection along SW Herman Road during the morning peak hour. However, warrants are met under existing conditions and the proposed development will not add left-turning traffic on the westbound approach of the intersection. Therefore, a left-turn lane for this intersection approach is not necessary or recommended as part of the proposed development.

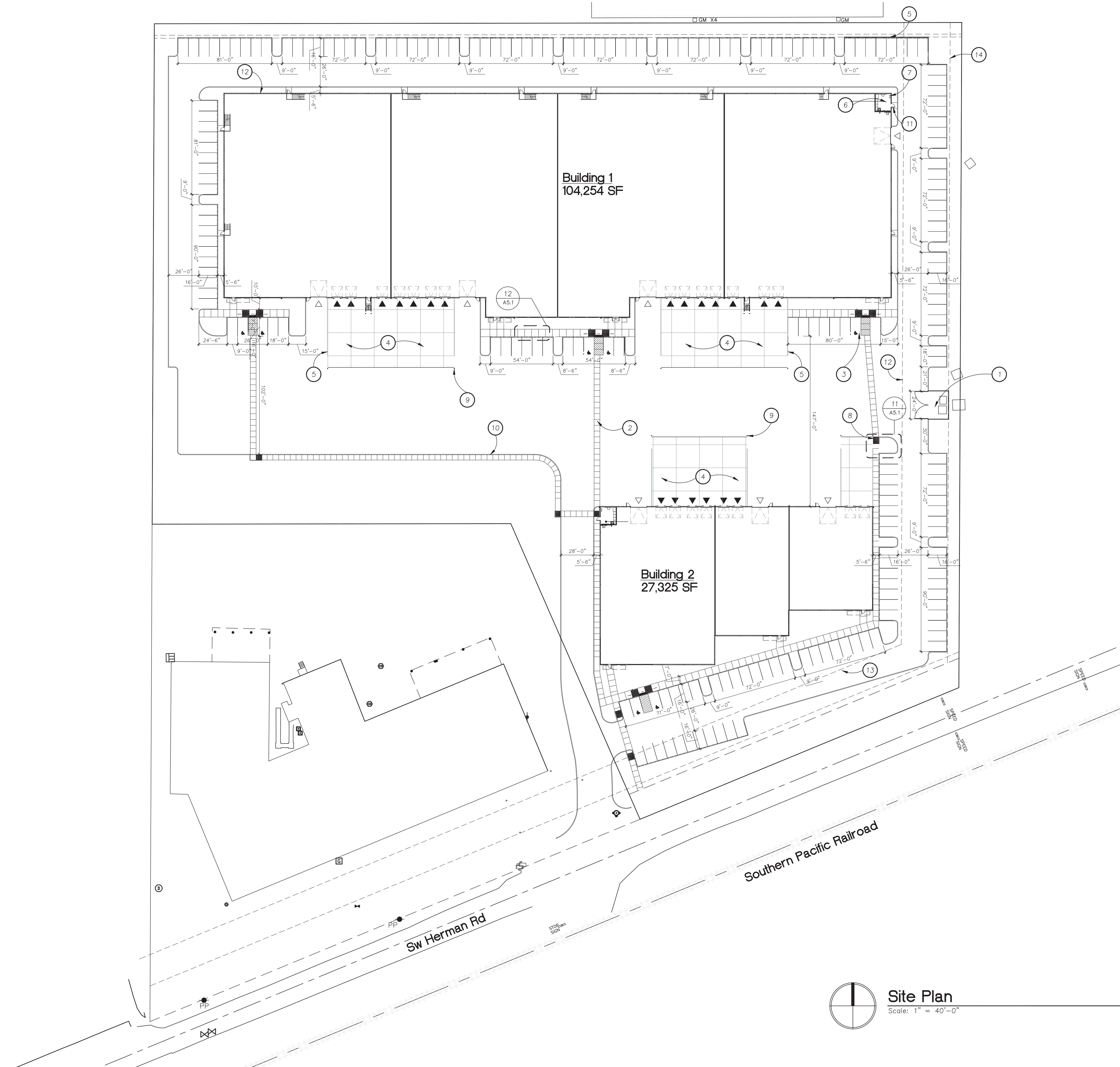
Under year 2022 buildout conditions, the left-turn lane warrants are projected to be met for the eastbound approach at the site access intersection during the morning peak hour.

Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met at the site access intersection under any of the analysis scenarios.

Based on a turning movement analysis, no issues were found with regard to site ingress from the west and site egress to the east. For site ingress from the east and site egress to the west, the tractor-trailer style of vehicles may need to encroach onto the opposing travel lane along SW Herman Road in order to conduct the applicable turning movement without traversing over curbs and/or off-road.

All study intersections are currently operating acceptably per City of Tualatin standards and are projected to continue operating acceptably through the 2022 buildout year of the site.

Appendix



Site Plan

Scale: 1" = 40'-0"

Keynotes

1. CONCRETE TRASH/RECYCLING ENCLOSURE, PAINTED – SEE DETAIL 5/A5.1
2. PEDESTRIAN ACCESS STRIPING
3. ACCESSIBLE PARKING SPACE, RAMP, SIGNAGE AND ACCESSIBLE AISLE – SEE DETAIL 1/A5.1
4. CONCRETE TRUCK APRON
5. CONCRETE RETAINING WALL
6. ELECTRICAL ROOM
7. SPRINKLER RISER
8. ACCESSIBLE RAMP
9. 6"ø CONCRETE GROUT FILLED PROTECTION BOLLARD – SEE DETAIL 10/A5.1
10. CONCRETE CURB
11. KNOX BOX, COORDINATE LOCATION WITH OWNER
12. 50' BUILDING SETBACK TO RESIDENTIAL
13. 30' FRONT YARD SETBACK
14. 10' SETBACK FOR PARKING AND CIRCULATION

Legend

△ DRIVE-IN DOOR

▲ DOCK-HIGH DOOR

MILDREN DESIGN GROUP

ARCHITECTURE | INTERIORS

7650 SW Beveland Street, Suite 120
Tigard, Oregon 97223 – 8692
O | 503.244.0552

Client:

Lu Pacific Development

11325 SW Tualatin-Sherwood Rd
Tualatin, OR 97062

Project:

Lu Pacific Development Building

1005 SW Herman Road
Tualatin, OR 97062

Sheet Title:

Site Plan

Revisions:

Date:	April 2020
Drawn by:	Checked by: TQL
Job Number:	117013

Sheet

A1.1

Architectural Review - April 2020

TRIP GENERATION CALCULATIONS

Land Use: General Light Industrial
Land Use Code: 110
Setting/Location General Urban/Suburban
Variable: 1,000 Square Feet of Gross Floor Area
Variable Quantity: 131.6

AM PEAK HOUR

Trip Rate: 0.70

	Enter	Exit	Total
Directional Distribution	88%	12%	
Trip Ends	**81**	**11**	**92**

PM PEAK HOUR

Trip Rate: 0.63

	Enter	Exit	Total
Directional Distribution	13%	87%	
Trip Ends	**11**	**72**	**83**

WEEKDAY

Trip Rate: 4.96

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**326**	**326**	**652**

SATURDAY

Trip Rate: 1.99

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**131**	**131**	**262**

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: Manufacturing
Land Use Code: 140
Setting/Location: General Urban/Suburban
Variable: 1,000 Square Feet
Variable Quantity: 52.6

AM PEAK HOUR

Trip Rate: 0.62

	Enter	Exit	Total
Directional Distribution	77%	23%	
Trip Ends	**25**	**8**	**33**

PM PEAK HOUR

Trip Rate: 0.67

	Enter	Exit	Total
Directional Distribution	31%	69%	
Trip Ends	**11**	**24**	**35**

WEEKDAY

Trip Rate: 3.93

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**103**	**103**	**206**

SATURDAY

Trip Rate: 6.42

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**169**	**169**	**338**

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: Warehousing
Land Use Code: 150
Variable: 1,000 Square Feet
Variable Quantity: 79

AM PEAK HOUR

Trip Rate: 0.17

	Enter	Exit	Total
Directional Distribution	77%	23%	
Trip Ends	**10**	**3**	**13**

PM PEAK HOUR

Trip Rate: 0.19

	Enter	Exit	Total
Directional Distribution	27%	73%	
Trip Ends	**4**	**11**	**15**

WEEKDAY

Trip Rate: 1.74

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**69**	**69**	**138**

SATURDAY

Trip Rate: 0.15

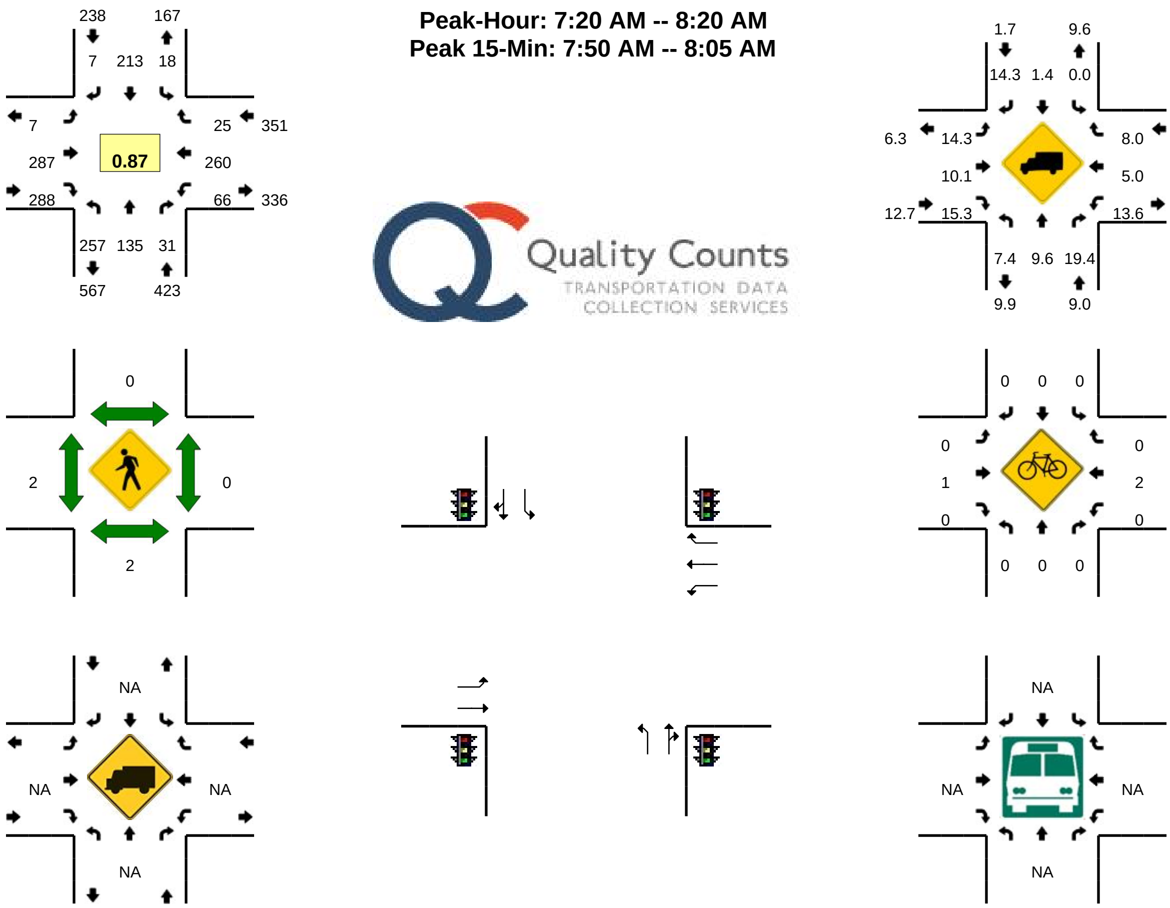
	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**6**	**6**	**12**

Source: TRIP GENERATION, Tenth Edition

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) Left	Thru	Right	U	SW Teton Ave (Southbound) Left	Thru	Right	U	SW Herman Rd (Eastbound) Left	Thru	Right	U	SW Herman Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
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 Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
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																	

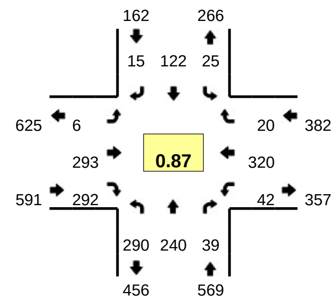
Comments:

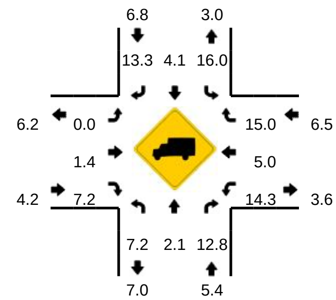
Report generated on 9/17/2018 5:02 PM

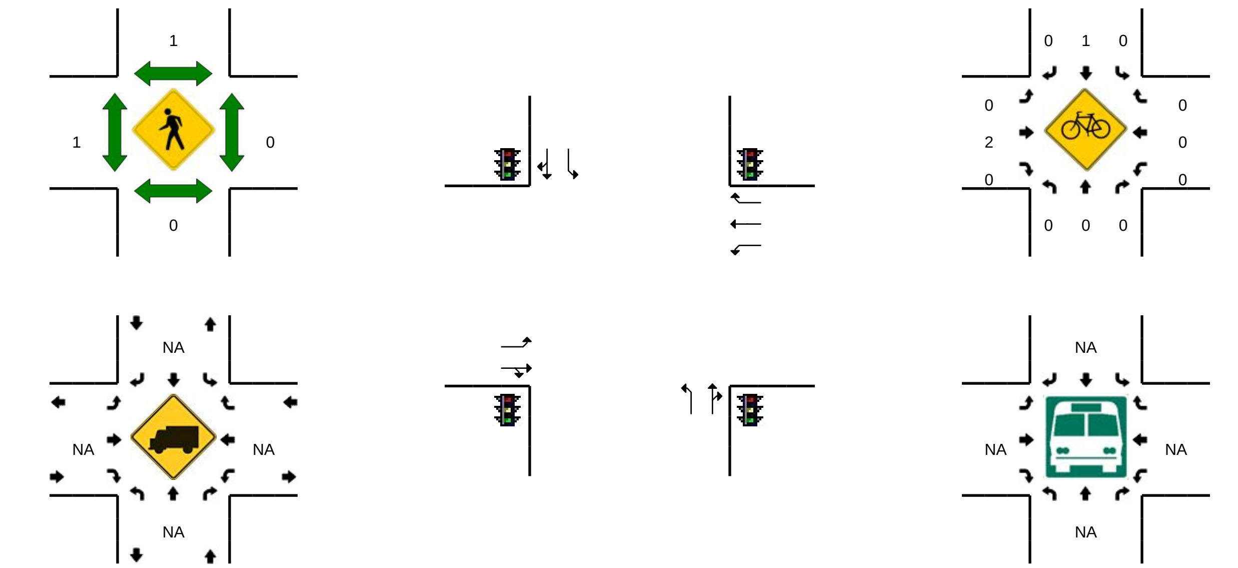
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

LOCATION: SW Teton Ave -- SW Herman Rd | **QC JOB #:** 14768932
CITY/STATE: Tualatin, OR | **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) Left	Thru	Right	U	SW Teton Ave (Southbound) Left	Thru	Right	U	SW Herman Rd (Eastbound) Left	Thru	Right	U	SW Herman Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
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

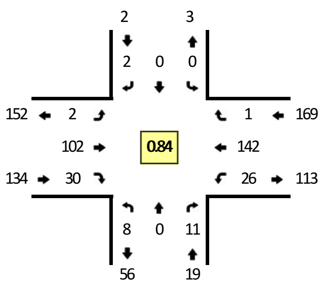
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	312	224	52	0	12	128	20	0	12	380	308	0	64	404	36	0	1952
Heavy Trucks	24	12	12		8	8	4		0	4	8		8	20	4		112
Pedestrians		0				4				4				0			8
Bicycles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

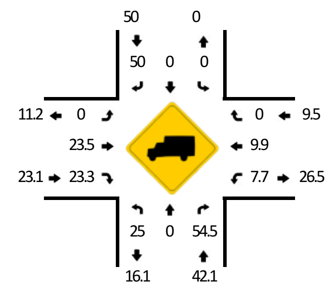
Comments:

LOCATION: Powder Ct / Site Dwy -- SW Herman Rd
CITY/STATE: Tualatin, OR

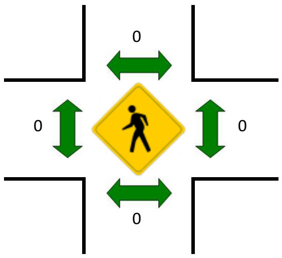
QC JOB #: 15227701
DATE: Thu, May 7 2020

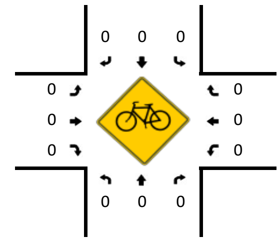
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

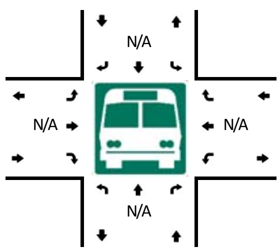


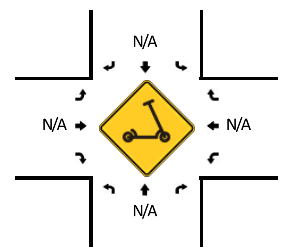


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	Powder Ct / Site Dwy (Northbound)				Powder Ct / Site Dwy (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	1	0	0	0	0	0	1	4	3	0	3	7	2	0	21	
7:05 AM	1	0	0	0	0	0	0	0	0	8	3	0	1	11	1	0	25	
7:10 AM	0	0	0	0	0	0	0	0	0	8	1	0	3	4	0	0	16	
7:15 AM	0	0	0	0	0	0	0	0	1	9	3	0	1	11	0	0	25	
7:20 AM	3	0	0	0	0	0	0	0	0	7	2	0	1	14	0	0	27	
7:25 AM	1	0	1	0	0	0	0	0	0	6	3	0	3	4	0	0	18	
7:30 AM	1	0	0	0	0	0	0	0	0	10	2	0	2	11	0	0	26	
7:35 AM	1	0	0	0	0	0	0	0	0	16	4	0	4	10	0	0	35	
7:40 AM	0	0	1	0	0	0	0	0	0	11	1	0	2	15	0	0	30	
7:45 AM	1	0	3	0	0	0	0	0	0	10	3	0	1	13	0	0	31	
7:50 AM	0	0	0	0	0	0	0	0	0	1	1	0	4	17	0	0	23	
7:55 AM	0	0	3	0	0	0	0	0	0	8	4	0	4	15	1	0	35	312
8:00 AM	1	0	1	0	0	0	0	0	0	11	2	0	3	12	0	0	30	321
8:05 AM	0	0	1	0	0	0	1	0	0	6	3	0	1	9	0	0	21	317
8:10 AM	0	0	1	0	0	0	1	0	1	7	2	0	0	11	0	0	23	324
8:15 AM	1	0	2	0	0	0	0	0	1	12	2	0	3	3	0	0	24	323
8:20 AM	1	0	2	0	0	0	0	0	0	6	3	0	1	7	0	0	20	316
8:25 AM	1	0	1	0	0	0	0	0	0	9	2	0	4	6	0	0	23	321
8:30 AM	3	0	1	0	0	0	0	0	0	5	1	0	4	6	1	0	21	316
8:35 AM	1	0	2	0	0	1	0	0	0	11	0	0	2	5	0	0	22	303
8:40 AM	0	0	1	0	0	0	0	0	0	9	3	0	7	8	0	0	28	301
8:45 AM	1	0	1	0	1	0	1	0	0	12	1	0	1	11	0	0	29	299
8:50 AM	1	0	2	0	0	0	0	0	0	9	0	0	2	12	0	0	26	302
8:55 AM	2	0	1	0	0	0	0	0	2	10	1	0	3	6	0	0	25	292

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	8	0	16	0	0	0	0	0	0	148	32	0	28	152	0	0	384
Heavy Trucks	0	0	12		0	0	0		0	40	4		4	12	0		72
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

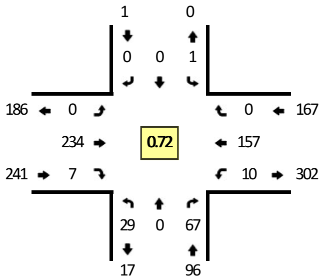
Comments:

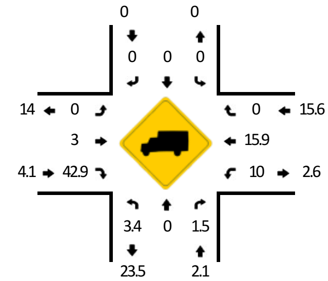
Report generated on 5/13/2020 9:22 AM
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

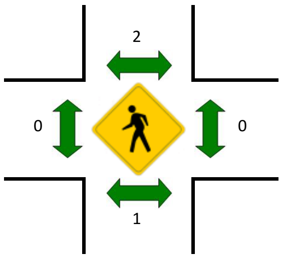
LOCATION: Powder Ct / Site Dwy -- SW Herman Rd
CITY/STATE: Tualatin, OR

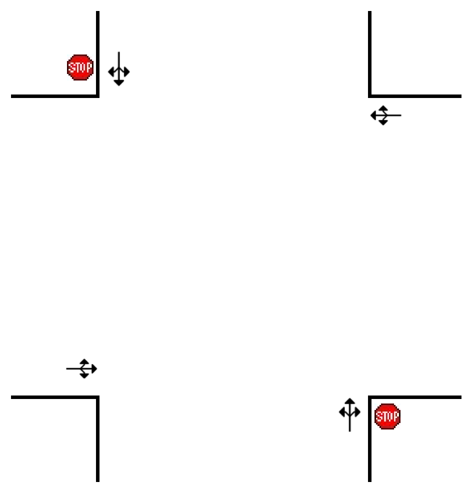
QC JOB #: 15227702
DATE: Thu, May 7 2020

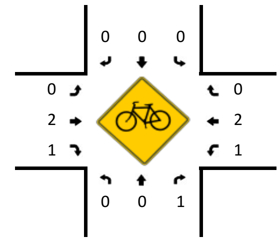
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

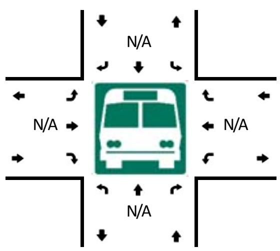


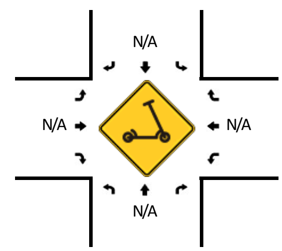












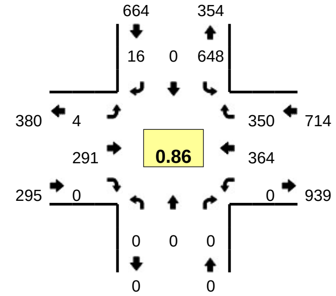
5-Min Count Period Beginning At	Powder Ct / Site Dwy (Northbound)				Powder Ct / Site Dwy (Southbound)				SW Herman Rd (Eastbound)				SW Herman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	6	0	0	0	0	0	0	16	0	0	2	10	0	0	35	
4:05 PM	0	0	4	0	0	0	0	0	0	22	0	0	3	7	0	0	36	
4:10 PM	2	0	3	0	1	0	0	0	0	17	0	0	2	12	0	0	37	
4:15 PM	0	0	3	0	0	0	0	0	0	14	0	0	2	21	0	0	40	
4:20 PM	0	0	4	0	0	0	0	0	0	17	1	0	1	15	0	0	38	
4:25 PM	4	0	9	0	0	0	0	0	0	14	1	0	0	19	0	0	47	
4:30 PM	7	0	14	0	0	0	0	0	0	25	2	0	0	13	0	0	61	
4:35 PM	4	0	10	0	0	0	0	0	0	37	1	0	0	13	0	0	65	
4:40 PM	3	0	6	0	0	0	0	0	0	32	0	0	0	8	0	0	49	
4:45 PM	4	0	2	0	0	0	0	0	0	21	0	0	0	17	0	0	44	
4:50 PM	2	0	2	0	0	0	0	0	0	12	2	0	0	12	0	0	30	
4:55 PM	2	0	4	0	0	0	0	0	0	7	0	0	0	10	0	0	23	505
5:00 PM	4	0	3	0	1	0	0	0	0	17	0	0	0	8	0	0	33	503
5:05 PM	1	0	5	0	0	0	0	0	0	17	0	0	0	11	0	0	34	501
5:10 PM	0	0	3	0	0	0	0	0	0	13	0	0	1	9	0	0	26	490
5:15 PM	0	0	1	0	0	0	0	0	0	6	0	0	1	10	0	0	18	468
5:20 PM	1	0	2	0	0	0	0	0	0	8	0	0	0	6	0	0	17	447
5:25 PM	1	0	4	0	0	0	0	0	0	9	0	0	1	8	0	0	23	423
5:30 PM	0	0	4	0	0	0	0	0	0	10	1	0	0	10	0	0	25	387
5:35 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	6	0	0	17	339
5:40 PM	1	0	1	0	0	0	0	0	0	11	0	0	2	6	0	0	21	311
5:45 PM	0	0	3	0	0	0	0	0	1	7	0	0	0	9	0	0	20	287
5:50 PM	0	0	1	0	0	0	0	0	0	8	0	0	0	13	0	0	22	279
5:55 PM	0	0	2	0	0	0	1	0	0	7	0	0	0	7	0	0	17	273

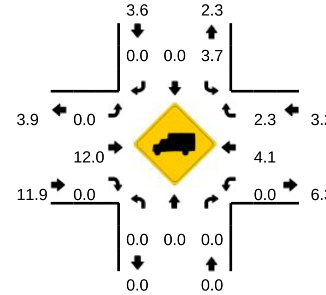
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	0	120	0	0	0	0	0	0	376	12	0	0	136	0	0	700
Heavy Trucks	0	0	0		0	0	0		0	8	8		0	12	0		28
Buses																	
Pedestrians		0				8				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

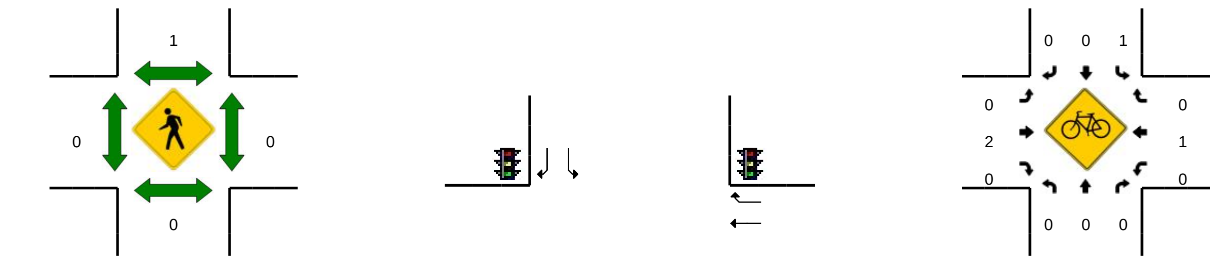
Comments:

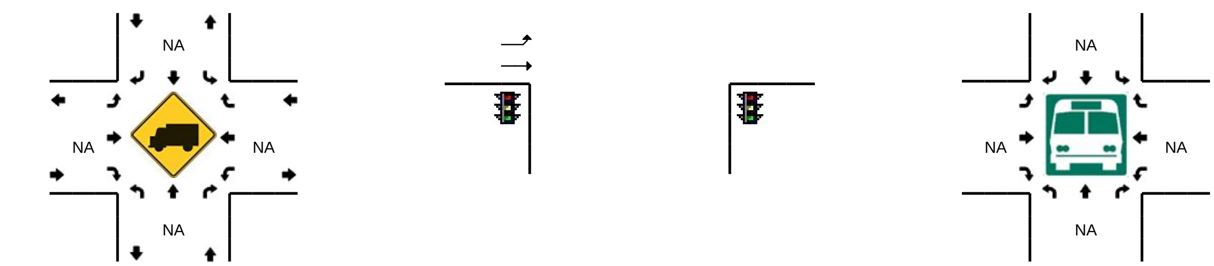
LOCATION: SW Tualatin Rd -- SW Herman Rd | **QC JOB #:** 14768947
CITY/STATE: Washington, OR | **DATE:** Tue, Sep 11 2018

Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:55 AM -- 8:10 AM







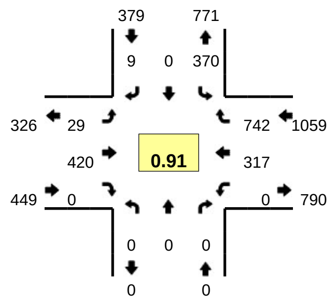


5-Min Count Period Beginning At	SW Tualatin Rd (Northbound) Left	Thru	Right	U	SW Tualatin Rd (Southbound) Left	Thru	Right	U	SW Herman Rd (Eastbound) Left	Thru	Right	U	SW Herman Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
7:00 AM	0	0	0	0	28	0	0	0	0	15	0	0	0	22	18	0	83	
7:05 AM	0	0	0	0	47	0	1	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

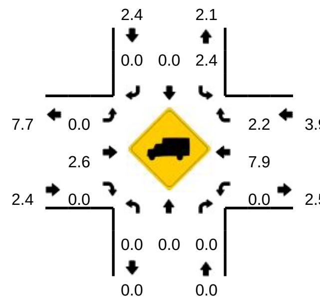
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	0	0	0	680	0	20	0	0	372	0	0	0	424	456	0	1952
Heavy Trucks	0	0	0		24	0	0		0	44	0		0	16	12		96
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0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

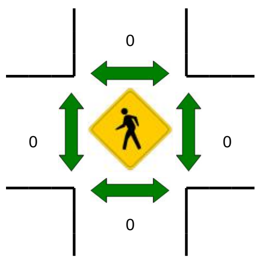
Comments:

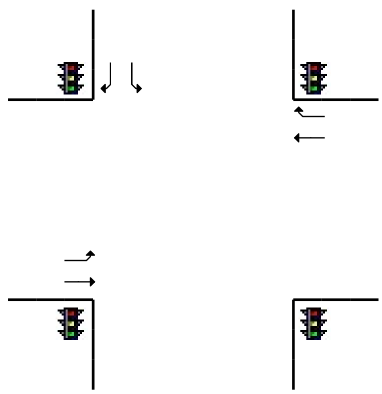
LOCATION: SW Tualatin Rd -- SW Herman Rd | **QC JOB #:** 14768938
CITY/STATE: Tualatin, OR | **DATE:** Thu, Aug 16 2018

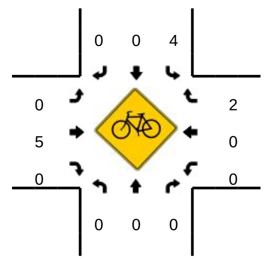


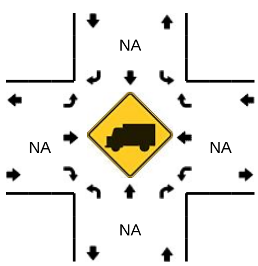
Peak-Hour: 4:20 PM -- 5:20 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

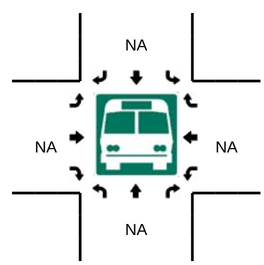








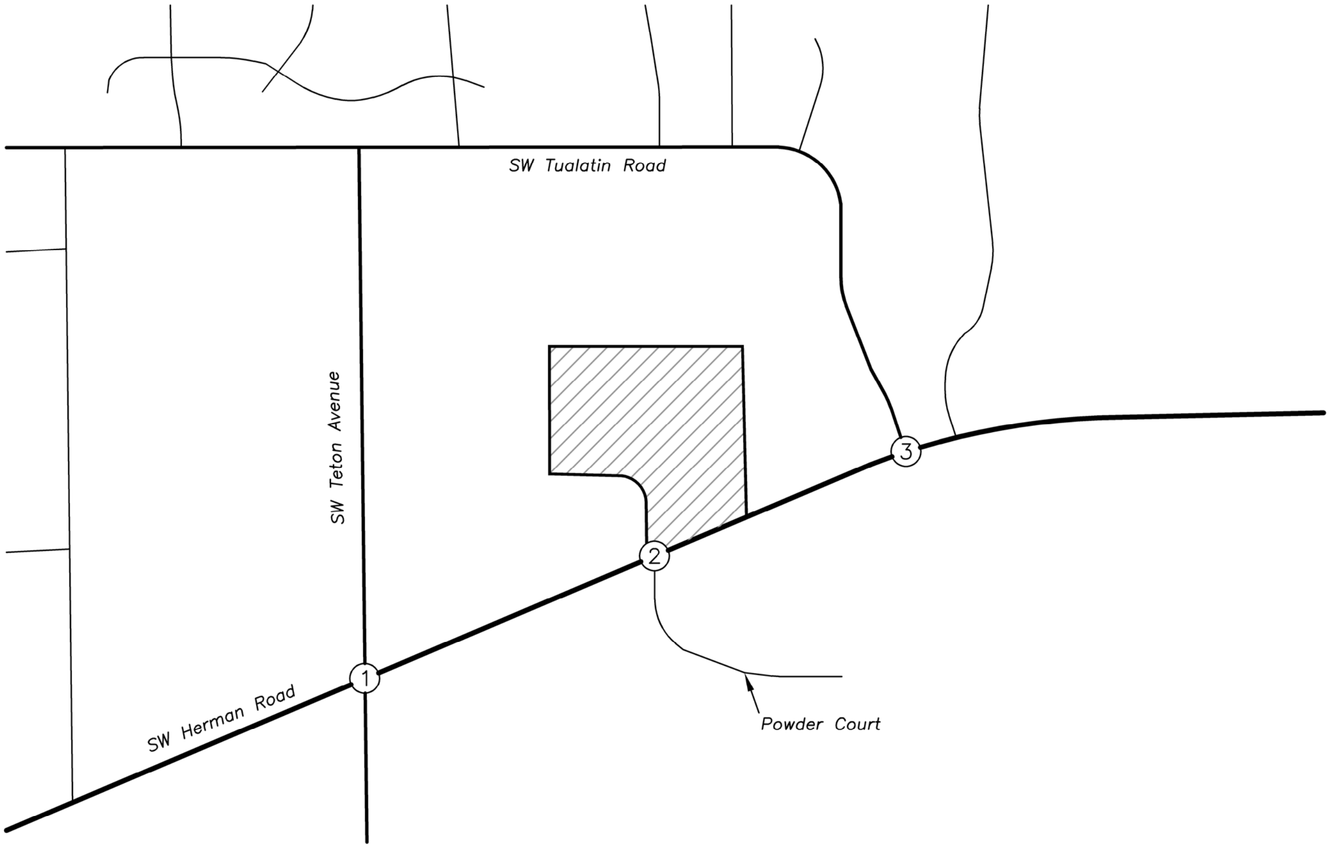


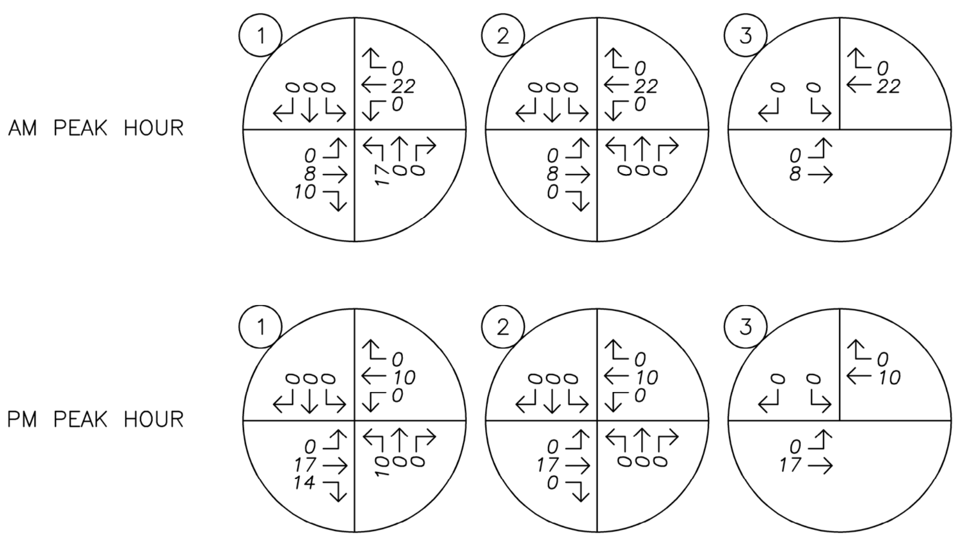


5-Min Count Period Beginning At	SW Tualatin Rd (Northbound) Left	Thru	Right	U	SW Tualatin Rd (Southbound) Left	Thru	Right	U	SW Herman Rd (Eastbound) Left	Thru	Right	U	SW Herman Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	0	0	0	0	26	0	0	0	2	42	0	0	0	22	60	0	152	
4:05 PM	0	0	0	0	44	0	0	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 Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
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:





no scale

lancaster mobley

TRAFFIC VOLUMES
In-Process Development Trips
AM & PM Peak Hours

Figure A
Lu Pacific Development
5/20/2020

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD at TETON AVE, City of Tualatin, Washington County, 01/01/2013 to 12/31/2017

1 - 5 of 10 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / R A L C / D R U G S / M J I N V / S C H L / W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
00703	N N N N N	02/06/2014	17	SW HERMAN RD	INTER	CROSS	N	N	SNOW	S-1STOP	01	NONE 0	STRGHT										124,013	29
CITY		TH	0	SW TETON AVE	S		TRF SIGNAL	N	SNO	REAR		PRVTE	S -N									000	124	00
N		3P			06	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	43	M	OR-Y		026	000		29
N		45 23	-122 47																OR<25					
		5.3510279	1.5012959																					
											02	NONE 0	STOP											
												PRVTE	S -N									011	013	00
												PSNGR CAR		01	DRVR	NONE	43	M	OR-Y		000	000		00
																			OR<25					
											03	NONE 0	STOP											
												PRVTE	S -N									011		00
												PSNGR CAR		01	DRVR	NONE	52	F	OR-Y		000	000		00
																			OR<25					
00449	N N N N N	01/26/2015	17	SW HERMAN RD	INTER	CROSS	N	N	FOG	BIKE	01	NONE 0	TURN-R											40,19
CITY		MO	0	SW TETON AVE	S		YIELD	N	DRY	TURN		PRVTE	SW-S									000		00
N		4A			05	2		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		000	000		40
N		45 23 5.35	-122 47																OR<25					
			1.5																					
													-											
													STRGHT	01	BIKE	INJC	47	M		ROAD	000	046		19
													N S											
02736	N Y N	05/26/2013	17	SW HERMAN RD	INTER	CROSS	N	Y	CLD	FIX OBJ	01	NONE 0	TURN-R										043	08
CITY		SU	0	SW TETON AVE	SW		TRF SIGNAL	N	DRY	FIX		PRVTE	SW-S									000	043	00
N		11P			09	2		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	28	M	SUSP		001,081	000		08
N		45 23	-122 47																OR>25					
		5.3510279	1.50126																					
02544	N N N	05/16/2013	17	SW HERMAN RD	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										082	07
NONE		TH	0	SW TETON AVE	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE									000		00
N		2P			06	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y		026	000	082	07
N		45 23	-122 47																OR<25					
		5.3510279	1.50126																					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	NONE	71	M	OR-Y		000	000		00
																			OR<25					
04752	N N N	08/03/2017	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-STRGHT	01	NONE 9	STRGHT											29
NONE		TH	0	SW TETON AVE	SW		TRF SIGNAL	N	DRY	REAR		N/A	SW-NE									000		00
N		2P			06	2		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 23 5.35	-122 47																UNK					
			1.5																					
											02	NONE 9	STRGHT											
												N/A	SW-NE									000		00
												PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																			UNK					

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD at TETON AVE, City of Tualatin, Washington County, 01/01/2013 to 12/31/2017

6 - 9 of 10 Crash records shown.

SER# INVEST RD DPT UNLOC?	S D M P R J S W E A U I C O E L G N H R D C S V L K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	SPCL USE TRLR QTY OWNER V# TYPE	MOVE FROM TO	PRTC P# TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
02049	N N N N N	04/24/2013	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1 L-TURN	01 NONE 0	STRGHT									04
CITY		WE	0	SW TETON AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	SW-NE								000	00
N		2P			03	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	27	M	OR-Y		000	000	00
N		45 23 5.3510279	-122 47 1.50126														OR<25				
											02 NONE 0	TURN-L									
											PRVTE	NE-S								000	00
											PSNGR CAR		01 DRVR	NONE	31	F	OR-Y		020,004	000	04
																	OR<25				
05038	N N N N N	09/10/2013	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1 L-TURN	01 NONE 1	TURN-L									02
CITY		TU	0	SW TETON AVE	CN		FLASHBCN-A	N	DRY	TURN	PRVTE	SW-N								000	00
N		4P			02	2		N	DAY	INJ	SEMI TOW		01 DRVR	NONE	39	M	OR-Y		028	000	02
N		45 23 5.3510279	-122 47 1.50126														OR<25				
											02 NONE 0	STRGHT									
											PRVTE	NE-SW								000	00
											PSNGR CAR		01 DRVR	INJB	26	M	OR-Y		000	000	00
																	OR<25				
07935	N N N N N	12/22/2015	17	SW HERMAN RD	INTER	CROSS	N	N	RAIN	ANGL-OTH	01 NONE 0	STRGHT									32,04
CITY		TU	0	SW TETON AVE	CN		TRF SIGNAL	N	WET	ANGL	PRVTE	NE-SW								000	00
N		6P			02	2		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJB	61	F	OR-Y		000	000	00
N		45 23 5.35	-122 47 1.5														OR<25				
											02 NONE 0	STRGHT									
											PRVTE	S -N								000	00
											PSNGR CAR		01 DRVR	INJC	41	F	OR-Y		052,020	000	32,04
																	OR<25				
											02 NONE 0	STRGHT									
											PRVTE	S -N								000	00
											PSNGR CAR		02 PSNG	INJC	42	F			000	000	00
05149	N N N	08/02/2016	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-STRGHT	01 NONE 9	STRGHT									29
NONE		TU	0	SW TETON AVE	CN		WW W/ GATE	N	DRY	REAR	N/A	N -S								000	00
N		11A			03	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
N		45 23 5.35	-122 47 1.5														UNK				
											02 NONE 9	STRGHT									
											N/A	N -S								006	00
											PSNGR CAR		01 DRVR	NONE	00	Unk	UNK		000	000	00
																	UNK				
04284	N N N	07/14/2017	17	SW HERMAN RD	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 0	STRGHT									04
CITY		FR	0	SW TETON AVE	CN		TRF SIGNAL	N	DRY	ANGL	PRVTE	S -N								000	00
N		8A			04	2		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	48	M	OTH-Y		000	000	00
N		45 23 5.35	-122 47 1.5														N-RES				

SER# INVEST RD DPT UNLOC?	S D M P R J S W DATE E A U I C O DAY E L G N H R TIME D C S V L K LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	SPCL USE TRLR QTY OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
										02	NONE 0	STRGHT											
											PRVTE	SW-NE									000		00
											PSNGR CAR		01	DRVR	NONE	59	F	OR-Y		020	000		04
																		OR<25					

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

HERMAN RD at TUALATIN RD, City of Tualatin, Washington County, 01/01/2013 to 12/31/2017

1 - 5 of 8 Crash records shown.

SER# INVEST RD DPT UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE DAY TIME LAT	CLASS DIST FROM LONG	CITY STREET FIRST STREET SECOND STREET LRS	RD CHAR DIRECT LOCTN	INT-TYPE (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	SPCL USE TRLR QTY OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
81481	N	N	N				04/19/2017	17	SW HERMAN RD	INTER	3-LEG	N	N	RAIN	ANGL-STP	01	NONE 9	TURN-L										08
NO RPT							WE	0	SW TUALATIN RD	N		TRF SIGNAL	N	WET	TURN		N/A	SW-N									000	00
N							8A			06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
N							45 23 12.96	-122 46 35.53																UNK				
																02	NONE 9	STOP										
																	N/A	N -S									012	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
00228	N	N	N		N	N	01/14/2013	17	SW HERMAN RD	INTER	3-LEG	N	N	CLD	S-1STOP	01	NONE 0	STRGHT										07
CITY							MO	0	SW TUALATIN RD	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000	00
N							2P			06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		043,026	000	07
N							45 23 12.9602399	-122 46 35.524992																OR<25				
																02	NONE 0	STOP										
																	PRVTE	SW-NE									011	00
																	PSNGR CAR		01	DRVR	INJC	38	M	OR-Y		000	000	00
																								OR<25				
00491	N	N	N		N	N	01/28/2014	17	SW HERMAN RD	INTER	3-LEG	N	N	RAIN	S-STRGHT	01	NONE 0	STRGHT										27,07
CITY							TU	0	SW TUALATIN RD	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE									000	00
N							4P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	17	M	OR-Y		016,042	038	27,07
N							45 23 12.9602759	-122 46 35.524992																OR<25				
																02	NONE 0	STRGHT										
																	PRVTE	SW-NE									006	00
																	PSNGR CAR		01	DRVR	INJC	30	F	OR-Y		000	000	00
																								OR<25				
06891	N	N	N				11/16/2015	17	SW HERMAN RD	INTER	3-LEG	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										29
NONE							MO	0	SW TUALATIN RD	SW		TRF SIGNAL	N	WET	REAR		PRVTE	SW-NE									000	00
N							4P			06	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	51	F	OR-Y		026	000	29
N							45 23 12.96	-122 46 35.53																OR<25				
																02	NONE 0	STOP										
																	PRVTE	SW-NE									011	00
																	PSNGR CAR		01	DRVR	INJC	23	M	OR-Y		000	000	00
																								OR<25				
05963	N	N	N		N	N	10/11/2014	17	SW HERMAN RD	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										04
CITY							SA	0	SW TUALATIN RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	E -W									000	00
N							3P			02	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	59	M	OR-Y		020	000	04
N							45 23 12.96	-122 46 35.53																OR<25				
																02	NONE 0	TURN-L										
																	PRVTE	N -E									000	00
																	PSNGR CAR		01	DRVR	INJC	44	F	OR-Y		000	000	00
																								OR<25				

HERMAN RD at TUALATIN RD, City of Tualatin, Washington County, 01/01/2013 to 12/31/2017

6 - 8 of 8 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
07294	N	N	N				10/25/2016	17	SW HERMAN RD	INTER	3-LEG	N	N	CLR	O-1 L-TURN	01	NONE 9	TURN-L										02
NONE							TU	0	SW TUALATIN RD	CN		TRF SIGNAL	N	DRY	TURN		N/A	SW-N									000	00
N							4A			02	0		N	DARK	PDO		UNKNOWN		01	DRVR	NONE	00	Unk	UNK		000	000	00
N							45 23 12.96	-122 46 35.53																UNK				
																02	NONE 9	STRGHT										
																	N/A	NE-SW									000	00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00
																								UNK				
05275	N	N	N		N	N	08/28/2017	17	SW HERMAN RD	INTER	3-LEG	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT										27,04
CITY							MO	0	SW TUALATIN RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	NE-SW									000	00
N							5P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	18	F	OR-Y		016,020	038	27,04
N							45 23 12.96	-122 46 35.53																OR<25				
																02	NONE 0	TURN-L										
																	PRVTE	SW-N									000	00
																	PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		000	000	00
																								OR<25				
05701	N	N	N				09/15/2017	17	SW HERMAN RD	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										04
NO RPT							FR	0	SW TUALATIN RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N -S									000	00
N							10A			02	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	38	M	OR-Y		020	000	04
N							45 23 12.96	-122 46 35.53																OR<25				
																02	NONE 0	TURN-L										
																	PRVTE	SW-N									000	00
																	PSNGR CAR		01	DRVR	INJC	53	M	OR-Y		000	000	00
																								OR<25				

Left-Turn Lane Warrant Analysis

Project: Lu Pacific Development
Intersection: Site Access at SW Herman Road
Date: 7/17/2020
Scenario: 2022 Buildout Conditions - AM Peak Hour (EB)

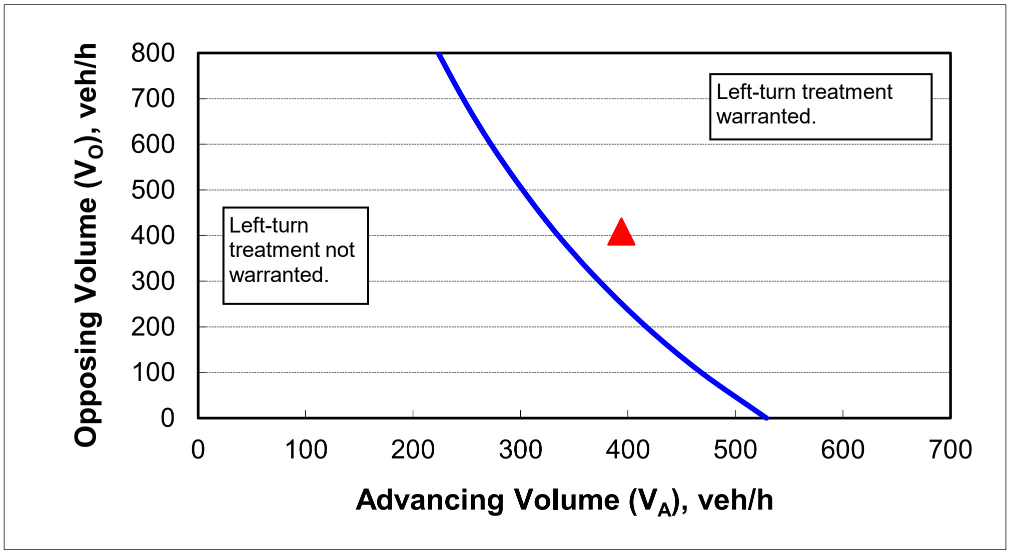
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	14%
Advancing volume (V_A), veh/h:	394
Opposing volume (V_O), veh/h:	409

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	332
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project:	Lu Pacific Development
Intersection:	Site Access at SW Herman Road
Date:	7/17/2020
Scenario:	2022 Existing Conditions - AM Peak Hour (WB)

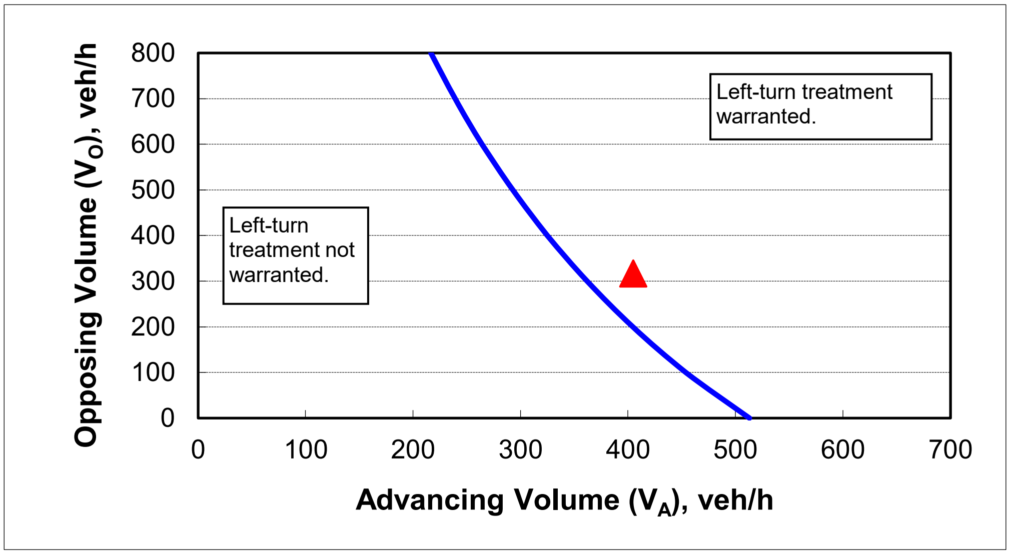
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	15%
Advancing volume (V_A), veh/h:	405
Opposing volume (V_O), veh/h:	317

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	355
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project: Lu Pacific Development
Intersection: Site Access at SW Herman Road
Date: 7/17/2020
Scenario: 2022 Buildout Conditions - PM Peak Hour (EB)

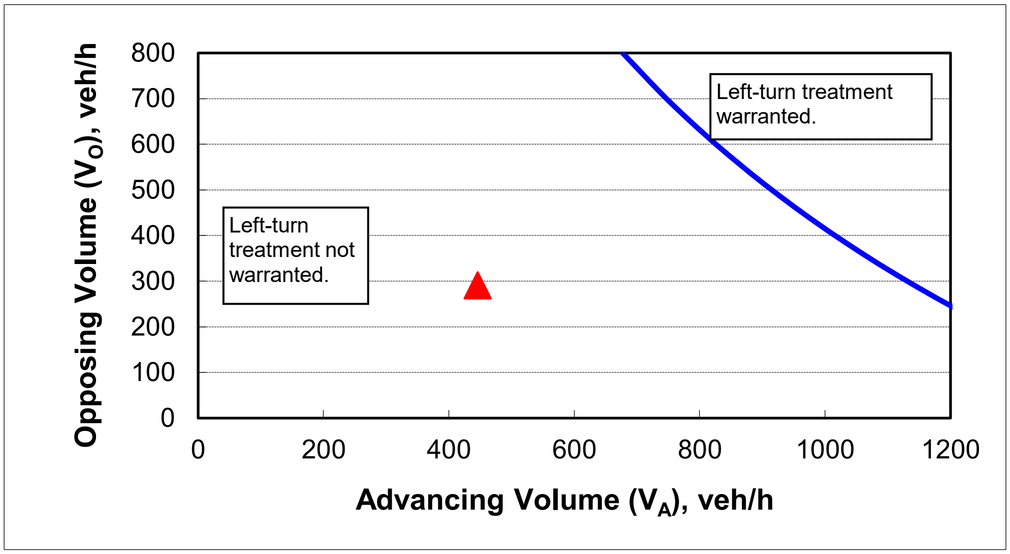
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	446
Opposing volume (V_O), veh/h:	291

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1142
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis

Project:	Lu Pacific Development
Intersection:	Site Access at SW Herman Road
Date:	7/17/2020
Scenario:	2022 Buildout Conditions - PM Peak Hour (WB)

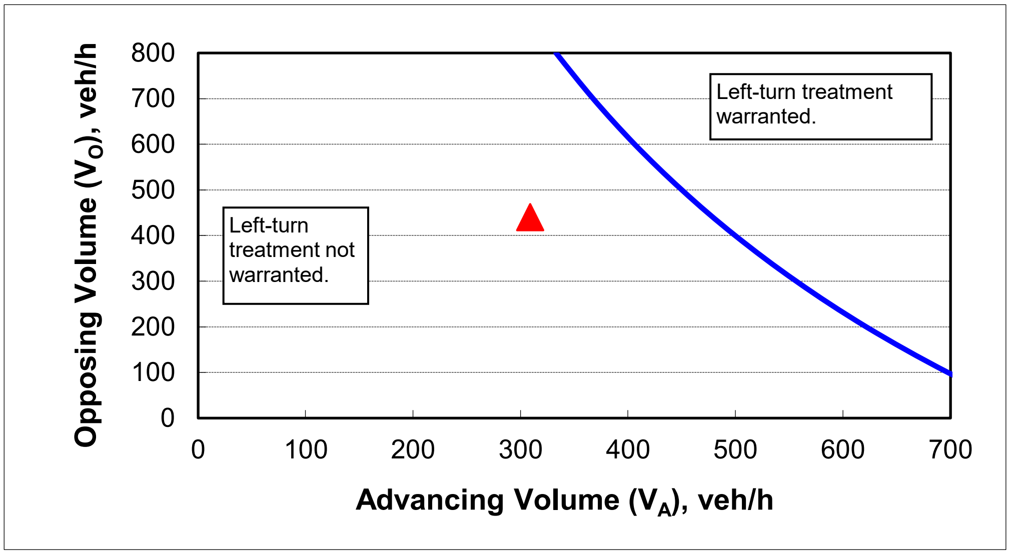
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	6%
Advancing volume (V_A), veh/h:	309
Opposing volume (V_O), veh/h:	440

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	479
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Traffic Signal Warrant Analysis

Project:	Lu Pacific Development
Date:	7/17/2020
Scenario:	2022 Buildout Conditions

Major Street:	SW Herman Road	Minor Street:	Access Driveway
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	755	PM Peak Hour Volumes:	140

Warrant Used:

X 100 percent of standard warrants used

___ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100% Warrants	70% Warrants	100% Warrants	70% Warrants
Major St.	Minor St.				
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	7,550	8,850	
Minor Street*	1,400	2,650	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	7,550	13,300	
Minor Street*	1,400	1,350	**No**
Combination Warrant			
Major Street	7,550	10,640	
Minor Street*	1,400	2,120	**No**

Note: Minor street right-turning traffic volumes reduced by 25%.

Figure B
Lu Pacific Development
7/20/2020

AUTOTURN ANALYSIS
Eastbound Site Ingress
WB-67 Design Vehicle

lancaster mobley

AUTOTURN ANALYSIS
Westbound Site Ingress
WB-67 Design Vehicle

Figure C
Lu Pacific Development
7/20/2020

lancaster mobley

AUTOTURN ANALYSIS

Westbound Site Egress

WB-67 Design Vehicle

Figure D

Lu Pacific Development

8/31/2020

lancaster mobley

Figure E
Lu Pacific Development
7/20/2020

AUTOTURN ANALYSIS
Eastbound Site Egress
WB-67 Design Vehicle

lancaster **mobley**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	287	288	66	260	25	257	135	31	18	213	7
Future Volume (veh/h)	7	287	288	66	260	25	257	135	31	18	213	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1796	1796	1796	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	8	330	0	76	299	0	295	155	36	21	245	8
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	13	13	7	7	7	9	9	9	2	2	2
Cap, veh/h	329	422		332	544		416	393	91	426	349	11
Arrive On Green	0.01	0.25	0.00	0.07	0.30	0.00	0.12	0.28	0.28	0.03	0.19	0.19
Sat Flow, veh/h	1626	1707	1447	1711	1796	1522	1682	1386	322	1781	1801	59
Grp Volume(v), veh/h	8	330	0	76	299	0	295	0	191	21	0	253
Grp Sat Flow(s),veh/h/ln	1626	1707	1447	1711	1796	1522	1682	0	1707	1781	0	1859
Q Serve(g_s), s	0.2	8.6	0.0	1.5	6.6	0.0	5.5	0.0	4.3	0.4	0.0	6.1
Cycle Q Clear(g_c), s	0.2	8.6	0.0	1.5	6.6	0.0	5.5	0.0	4.3	0.4	0.0	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		0.03
Lane Grp Cap(c), veh/h	329	422		332	544		416	0	484	426	0	360
V/C Ratio(X)	0.02	0.78		0.23	0.55		0.71	0.00	0.39	0.05	0.00	0.70
Avail Cap(c_a), veh/h	482	644		397	678		416	0	680	567	0	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.4	16.8	0.0	12.5	13.9	0.0	14.4	0.0	13.8	14.7	0.0	17.9
Incr Delay (d2), s/veh	0.0	3.5	0.0	0.3	0.9	0.0	5.5	0.0	0.5	0.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.0	0.0	0.5	2.3	0.0	2.6	0.0	1.4	0.2	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	20.3	0.0	12.9	14.8	0.0	19.9	0.0	14.3	14.8	0.0	20.4
LnGrp LOS	B	C		B	B		B	A	B	B	A	C
Approach Vol, veh/h		338	A		375	A		486			274	
Approach Delay, s/veh		20.1			14.4			17.7			20.0	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	18.0	7.7	16.3	10.0	13.7	5.0	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.4	6.3	3.5	10.6	7.5	8.1	2.2	8.6
Green Ext Time (p_c), s	0.0	0.8	0.0	1.0	0.0	1.0	0.0	1.1

Intersection Summary			
HCM 6th Ctrl Delay			17.8
HCM 6th LOS			B

Notes

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

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	245	72	62	341	2	19	0	26	0	0	5
Future Vol, veh/h	5	245	72	62	341	2	19	0	26	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	23	23	23	10	10	10	42	42	42	50	50	50
Mvmt Flow	6	292	86	74	406	2	23	0	31	0	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	408	0	0	378	0	0	905	903	335	918	945	407
Stage 1	-	-	-	-	-	-	347	347	-	555	555	-
Stage 2	-	-	-	-	-	-	558	556	-	363	390	-
Critical Hdwy	4.33	-	-	4.2	-	-	7.52	6.92	6.62	7.6	7	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.92	-	6.6	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.92	-	6.6	6	-
Follow-up Hdwy	2.407	-	-	2.29	-	-	3.878	4.378	3.678	3.95	4.45	3.75
Pot Cap-1 Maneuver	1046	-	-	1138	-	-	219	239	624	208	218	552
Stage 1	-	-	-	-	-	-	593	570	-	440	443	-
Stage 2	-	-	-	-	-	-	450	453	-	568	532	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1046	-	-	1138	-	-	202	217	624	184	198	552
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	217	-	184	198	-
Stage 1	-	-	-	-	-	-	589	566	-	437	406	-
Stage 2	-	-	-	-	-	-	408	415	-	536	528	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.3	17.9	11.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	332	1046	-	-	1138	-	-	552
HCM Lane V/C Ratio	0.161	0.006	-	-	0.065	-	-	0.011
HCM Control Delay (s)	17.9	8.5	0	-	8.4	0	-	11.6
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.2	-	-	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	291	364	350	648	16
Future Volume (veh/h)	4	291	364	350	648	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1722	1722	1856	1856	1841	1841
Adj Flow Rate, veh/h	5	338	423	0	753	19
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	12	12	3	3	4	4
Cap, veh/h	121	693	487		816	840
Arrive On Green	0.07	0.40	0.26	0.00	0.47	0.47
Sat Flow, veh/h	1640	1722	1856	1572	1753	1560
Grp Volume(v), veh/h	5	338	423	0	753	19
Grp Sat Flow(s),veh/h/ln	1640	1722	1856	1572	1753	1560
Q Serve(g_s), s	0.2	9.9	14.8	0.0	27.4	0.4
Cycle Q Clear(g_c), s	0.2	9.9	14.8	0.0	27.4	0.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	121	693	487		816	840
V/C Ratio(X)	0.04	0.49	0.87		0.92	0.02
Avail Cap(c_a), veh/h	121	785	587		1032	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	15.1	23.9	0.0	17.0	7.3
Incr Delay (d2), s/veh	0.1	0.5	11.5	0.0	11.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.5	7.5	0.0	11.8	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.4	15.6	35.4	0.0	28.5	7.3
LnGrp LOS	C	B	D		C	A
Approach Vol, veh/h		343	423	A	772	
Approach Delay, s/veh		15.8	35.4		28.0	
Approach LOS		B	D		C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s				31.9		36.1	9.5	22.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				31.0		40.0	5.0	21.5
Max Q Clear Time (g_c+I1), s				11.9		29.4	2.2	16.8
Green Ext Time (p_c), s				1.8		2.3	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↱		↰	↱	
Traffic Volume (veh/h)	6	293	292	42	320	20	290	240	39	25	122	15
Future Volume (veh/h)	6	293	292	42	320	20	290	240	39	25	122	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1796	1796	1796	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	7	337	0	48	368	0	333	276	45	29	140	17
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	7	7	7	5	5	5	7	7	7
Cap, veh/h	289	452		333	516		475	376	61	309	235	28
Arrive On Green	0.01	0.25	0.00	0.05	0.29	0.00	0.13	0.25	0.25	0.03	0.15	0.15
Sat Flow, veh/h	1753	1841	1560	1711	1796	1522	1739	1531	250	1711	1566	190
Grp Volume(v), veh/h	7	337	0	48	368	0	333	0	321	29	0	157
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1711	1796	1522	1739	0	1780	1711	0	1756
Q Serve(g_s), s	0.1	7.2	0.0	0.9	7.8	0.0	5.5	0.0	7.0	0.6	0.0	3.5
Cycle Q Clear(g_c), s	0.1	7.2	0.0	0.9	7.8	0.0	5.5	0.0	7.0	0.6	0.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.11
Lane Grp Cap(c), veh/h	289	452		333	516		475	0	437	309	0	263
V/C Ratio(X)	0.02	0.75		0.14	0.71		0.70	0.00	0.73	0.09	0.00	0.60
Avail Cap(c_a), veh/h	479	781		448	762		475	0	797	452	0	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.3	14.8	0.0	11.4	13.6	0.0	13.7	0.0	14.7	14.5	0.0	16.8
Incr Delay (d2), s/veh	0.0	2.5	0.0	0.2	1.9	0.0	4.6	0.0	2.4	0.1	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	0.0	0.3	2.7	0.0	2.6	0.0	2.6	0.2	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	17.3	0.0	11.6	15.4	0.0	18.3	0.0	17.2	14.6	0.0	19.0
LnGrp LOS	B	B		B	B		B	A	B	B	A	B
Approach Vol, veh/h		344	A		416	A		654			186	
Approach Delay, s/veh		17.2			15.0			17.7			18.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	14.9	6.7	14.9	10.0	10.9	4.9	16.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	9.0	2.9	9.2	7.5	5.5	2.1	9.8
Green Ext Time (p_c), s	0.0	1.3	0.0	1.1	0.0	0.6	0.0	1.3

Intersection Summary			
HCM 6th Ctrl Delay			17.0
HCM 6th LOS			B

Notes

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

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	395	12	17	265	0	49	0	113	2	0	0
Future Vol, veh/h	0	395	12	17	265	0	49	0	113	2	0	0
Conflicting Peds, #/hr	2	0	1	1	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	4	4	4	16	16	16	2	2	2	0	0	0
Mvmt Flow	0	549	17	24	368	0	68	0	157	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	567	0	0	975	977	559	1054	985	370
Stage 1	-	-	-	-	-	-	559	559	-	418	418	-
Stage 2	-	-	-	-	-	-	416	418	-	636	567	-
Critical Hdwy	4.14	-	-	4.26	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.236	-	-	2.344	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1178	-	-	939	-	-	231	251	529	206	250	680
Stage 1	-	-	-	-	-	-	513	511	-	616	594	-
Stage 2	-	-	-	-	-	-	614	591	-	469	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1176	-	-	938	-	-	225	242	528	141	241	679
Mov Cap-2 Maneuver	-	-	-	-	-	-	225	242	-	141	241	-
Stage 1	-	-	-	-	-	-	512	510	-	615	574	-
Stage 2	-	-	-	-	-	-	594	571	-	330	509	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	28	31
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	375	1176	-	-	938	-	-	141
HCM Lane V/C Ratio	0.6	-	-	-	0.025	-	-	0.02
HCM Control Delay (s)	28	0	-	-	8.9	0	-	31
HCM Lane LOS	D	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	3.8	0	-	-	0.1	-	-	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	420	317	742	370	9
Future Volume (veh/h)	29	420	317	742	370	9
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	32	462	348	0	407	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	219	924	479		506	646
Arrive On Green	0.12	0.49	0.26	0.00	0.28	0.28
Sat Flow, veh/h	1781	1870	1841	1560	1781	1585
Grp Volume(v), veh/h	32	462	348	0	407	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1841	1560	1781	1585
Q Serve(g_s), s	0.7	6.7	7.0	0.0	8.6	0.2
Cycle Q Clear(g_c), s	0.7	6.7	7.0	0.0	8.6	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	219	924	479		506	646
V/C Ratio(X)	0.15	0.50	0.73		0.80	0.02
Avail Cap(c_a), veh/h	219	1427	974		877	975
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	6.9	13.7	0.0	13.5	7.2
Incr Delay (d2), s/veh	0.3	0.4	2.1	0.0	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	2.5	0.0	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.2	7.3	15.8	0.0	16.5	7.2
LnGrp LOS	B	A	B		B	A
Approach Vol, veh/h		494	348	A	417	
Approach Delay, s/veh		7.9	15.8		16.3	
Approach LOS		A	B		B	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.6		16.1	9.5	15.1
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				31.0		20.0	5.0	21.5
Max Q Clear Time (g_c+I1), s				8.7		10.6	2.7	9.0
Green Ext Time (p_c), s				2.8		0.9	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	307	310	69	293	26	284	140	32	19	222	7
Future Volume (veh/h)	7	307	310	69	293	26	284	140	32	19	222	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1796	1796	1796	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	8	353	0	79	337	0	326	161	37	22	255	8
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	13	13	7	7	7	9	9	9	2	2	2
Cap, veh/h	312	440		324	564		403	393	90	416	356	11
Arrive On Green	0.01	0.26	0.00	0.07	0.31	0.00	0.11	0.28	0.28	0.03	0.20	0.20
Sat Flow, veh/h	1626	1707	1447	1711	1796	1522	1682	1389	319	1781	1803	57
Grp Volume(v), veh/h	8	353	0	79	337	0	326	0	198	22	0	263
Grp Sat Flow(s),veh/h/ln	1626	1707	1447	1711	1796	1522	1682	0	1708	1781	0	1860
Q Serve(g_s), s	0.2	9.5	0.0	1.6	7.8	0.0	5.5	0.0	4.6	0.5	0.0	6.5
Cycle Q Clear(g_c), s	0.2	9.5	0.0	1.6	7.8	0.0	5.5	0.0	4.6	0.5	0.0	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		0.03
Lane Grp Cap(c), veh/h	312	440		324	564		403	0	483	416	0	367
V/C Ratio(X)	0.03	0.80		0.24	0.60		0.81	0.00	0.41	0.05	0.00	0.72
Avail Cap(c_a), veh/h	460	625		384	658		403	0	660	550	0	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	17.1	0.0	12.6	14.2	0.0	16.1	0.0	14.3	15.0	0.0	18.4
Incr Delay (d2), s/veh	0.0	5.0	0.0	0.4	1.1	0.0	11.6	0.0	0.6	0.1	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.6	0.0	0.5	2.8	0.0	3.6	0.0	1.6	0.2	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	22.1	0.0	13.0	15.3	0.0	27.7	0.0	14.9	15.1	0.0	21.1
LnGrp LOS	B	C		B	B		C	A	B	B	A	C
Approach Vol, veh/h		361	A		416	A		524			285	
Approach Delay, s/veh		21.9			14.9			22.8			20.6	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	18.4	7.8	17.2	10.0	14.2	5.0	19.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	6.6	3.6	11.5	7.5	8.5	2.2	9.8
Green Ext Time (p_c), s	0.0	0.8	0.0	1.0	0.0	1.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

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

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	263	75	65	377	2	20	0	27	0	0	5
Future Vol, veh/h	5	263	75	65	377	2	20	0	27	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	23	23	23	10	10	10	42	42	42	50	50	50
Mvmt Flow	6	313	89	77	449	2	24	0	32	0	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	451	0	0	402	0	0	977	975	358	990	1018	450
Stage 1	-	-	-	-	-	-	370	370	-	604	604	-
Stage 2	-	-	-	-	-	-	607	605	-	386	414	-
Critical Hdwy	4.33	-	-	4.2	-	-	7.52	6.92	6.62	7.6	7	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.92	-	6.6	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.92	-	6.6	6	-
Follow-up Hdwy	2.407	-	-	2.29	-	-	3.878	4.378	3.678	3.95	4.45	3.75
Pot Cap-1 Maneuver	1007	-	-	1115	-	-	195	215	605	185	196	520
Stage 1	-	-	-	-	-	-	576	556	-	412	420	-
Stage 2	-	-	-	-	-	-	421	430	-	551	518	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1007	-	-	1115	-	-	178	194	605	162	177	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	194	-	162	177	-
Stage 1	-	-	-	-	-	-	571	552	-	409	381	-
Stage 2	-	-	-	-	-	-	378	390	-	518	514	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.2	19.8	12
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	299	1007	-	-	1115	-	-	520
HCM Lane V/C Ratio	0.187	0.006	-	-	0.069	-	-	0.011
HCM Control Delay (s)	19.8	8.6	0	-	8.5	0	-	12
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.2	-	-	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	311	401	364	674	17
Future Volume (veh/h)	4	311	401	364	674	17
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1722	1722	1856	1856	1841	1841
Adj Flow Rate, veh/h	5	362	466	0	784	20
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	12	12	3	3	4	4
Cap, veh/h	110	695	511		834	847
Arrive On Green	0.07	0.40	0.28	0.00	0.48	0.48
Sat Flow, veh/h	1640	1722	1856	1572	1753	1560
Grp Volume(v), veh/h	5	362	466	0	784	20
Grp Sat Flow(s),veh/h/ln	1640	1722	1856	1572	1753	1560
Q Serve(g_s), s	0.2	11.8	18.1	0.0	31.5	0.4
Cycle Q Clear(g_c), s	0.2	11.8	18.1	0.0	31.5	0.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	110	695	511		834	847
V/C Ratio(X)	0.05	0.52	0.91		0.94	0.02
Avail Cap(c_a), veh/h	110	718	537		943	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	16.7	26.0	0.0	18.5	7.9
Incr Delay (d2), s/veh	0.2	0.6	19.3	0.0	15.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.3	10.1	0.0	14.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.6	17.4	45.4	0.0	34.3	7.9
LnGrp LOS	C	B	D		C	A
Approach Vol, veh/h		367	466	A	804	
Approach Delay, s/veh		17.6	45.4		33.6	
Approach LOS		B	D		C	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				34.5		39.8	9.5	25.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				31.0		40.0	5.0	21.5
Max Q Clear Time (g_c+I1), s				13.8		33.5	2.2	20.1
Green Ext Time (p_c), s				1.9		1.8	0.0	0.4

Intersection Summary			
HCM 6th Ctrl Delay			33.4
HCM 6th LOS			C

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	322	318	44	343	21	312	250	41	26	127	16
Future Volume (veh/h)	6	322	318	44	343	21	312	250	41	26	127	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1796	1796	1796	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	7	370	0	51	394	0	359	287	47	30	146	18
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	7	7	7	5	5	5	7	7	7
Cap, veh/h	282	478		323	544		464	381	62	297	251	31
Arrive On Green	0.01	0.26	0.00	0.05	0.30	0.00	0.12	0.25	0.25	0.03	0.16	0.16
Sat Flow, veh/h	1753	1841	1560	1711	1796	1522	1739	1530	251	1711	1563	193
Grp Volume(v), veh/h	7	370	0	51	394	0	359	0	334	30	0	164
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1711	1796	1522	1739	0	1780	1711	0	1756
Q Serve(g_s), s	0.1	8.3	0.0	0.9	8.7	0.0	5.5	0.0	7.7	0.6	0.0	3.9
Cycle Q Clear(g_c), s	0.1	8.3	0.0	0.9	8.7	0.0	5.5	0.0	7.7	0.6	0.0	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.11
Lane Grp Cap(c), veh/h	282	478		323	544		464	0	443	297	0	282
V/C Ratio(X)	0.02	0.77		0.16	0.72		0.77	0.00	0.75	0.10	0.00	0.58
Avail Cap(c_a), veh/h	462	744		425	726		464	0	759	430	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	15.3	0.0	11.7	13.9	0.0	15.1	0.0	15.5	14.8	0.0	17.3
Incr Delay (d2), s/veh	0.0	2.7	0.0	0.2	2.4	0.0	7.9	0.0	2.6	0.1	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.0	0.3	3.1	0.0	3.4	0.0	2.9	0.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	18.0	0.0	11.9	16.3	0.0	23.0	0.0	18.1	15.0	0.0	19.2
LnGrp LOS	B	B		B	B		C	A	B	B	A	B
Approach Vol, veh/h		377	A		445	A		693			194	
Approach Delay, s/veh		17.9			15.8			20.6			18.6	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	15.6	6.8	16.1	10.0	11.6	4.9	18.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	9.7	2.9	10.3	7.5	5.9	2.1	10.7
Green Ext Time (p_c), s	0.0	1.3	0.0	1.2	0.0	0.6	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

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

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	428	12	18	286	0	51	0	118	2	0	0
Future Vol, veh/h	0	428	12	18	286	0	51	0	118	2	0	0
Conflicting Peds, #/hr	2	0	1	1	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	4	4	4	16	16	16	2	2	2	0	0	0
Mvmt Flow	0	594	17	25	397	0	71	0	164	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	399	0	0	612	0	0	1051	1053	604	1134	1061	399
Stage 1	-	-	-	-	-	-	604	604	-	449	449	-
Stage 2	-	-	-	-	-	-	447	449	-	685	612	-
Critical Hdwy	4.14	-	-	4.26	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.236	-	-	2.344	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1149	-	-	903	-	-	205	226	498	181	226	655
Stage 1	-	-	-	-	-	-	485	488	-	593	576	-
Stage 2	-	-	-	-	-	-	591	572	-	441	487	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1147	-	-	902	-	-	199	217	498	118	217	654
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	217	-	118	217	-
Stage 1	-	-	-	-	-	-	485	488	-	592	554	-
Stage 2	-	-	-	-	-	-	570	550	-	296	487	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	35.4	36.2
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	343	1147	-	-	902	-	-	118
HCM Lane V/C Ratio	0.684	-	-	-	0.028	-	-	0.024
HCM Control Delay (s)	35.4	0	-	-	9.1	0	-	36.2
HCM Lane LOS	E	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)	4.8	0	-	-	0.1	-	-	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	454	340	772	385	9
Future Volume (veh/h)	30	454	340	772	385	9
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	33	499	374	0	423	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	211	929	501		518	648
Arrive On Green	0.12	0.50	0.27	0.00	0.29	0.29
Sat Flow, veh/h	1781	1870	1841	1560	1781	1585
Grp Volume(v), veh/h	33	499	374	0	423	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1841	1560	1781	1585
Q Serve(g_s), s	0.7	7.7	7.9	0.0	9.3	0.2
Cycle Q Clear(g_c), s	0.7	7.7	7.9	0.0	9.3	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	211	929	501		518	648
V/C Ratio(X)	0.16	0.54	0.75		0.82	0.02
Avail Cap(c_a), veh/h	211	1371	935		842	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	7.3	14.1	0.0	14.0	7.4
Incr Delay (d2), s/veh	0.3	0.5	2.2	0.0	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.0	2.9	0.0	3.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.1	7.8	16.3	0.0	17.2	7.5
LnGrp LOS	B	A	B		B	A
Approach Vol, veh/h		532	374	A	433	
Approach Delay, s/veh		8.4	16.3		17.0	
Approach LOS		A	B		B	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				25.5		16.8	9.5	16.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				31.0		20.0	5.0	21.5
Max Q Clear Time (g_c+I1), s				9.7		11.3	2.7	9.9
Green Ext Time (p_c), s				3.1		0.9	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	329	310	72	295	27	284	140	54	26	222	7
Future Volume (veh/h)	7	329	310	72	295	27	284	140	54	26	222	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1796	1796	1796	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	8	378	0	83	339	0	326	161	62	30	255	8
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	13	13	7	7	7	9	9	9	2	2	2
Cap, veh/h	319	458		316	585		401	336	129	393	351	11
Arrive On Green	0.01	0.27	0.00	0.07	0.33	0.00	0.12	0.28	0.28	0.03	0.19	0.19
Sat Flow, veh/h	1626	1707	1447	1711	1796	1522	1682	1213	467	1781	1803	57
Grp Volume(v), veh/h	8	378	0	83	339	0	326	0	223	30	0	263
Grp Sat Flow(s),veh/h/ln	1626	1707	1447	1711	1796	1522	1682	0	1681	1781	0	1860
Q Serve(g_s), s	0.2	10.6	0.0	1.7	8.0	0.0	5.9	0.0	5.6	0.7	0.0	6.8
Cycle Q Clear(g_c), s	0.2	10.6	0.0	1.7	8.0	0.0	5.9	0.0	5.6	0.7	0.0	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		0.03
Lane Grp Cap(c), veh/h	319	458		316	585		401	0	465	393	0	362
V/C Ratio(X)	0.03	0.82		0.26	0.58		0.81	0.00	0.48	0.08	0.00	0.73
Avail Cap(c_a), veh/h	461	603		367	634		401	0	626	507	0	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	17.5	0.0	12.8	14.3	0.0	16.5	0.0	15.4	15.4	0.0	19.2
Incr Delay (d2), s/veh	0.0	7.0	0.0	0.4	1.1	0.0	12.0	0.0	0.8	0.1	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.2	0.0	0.6	2.9	0.0	3.8	0.0	1.9	0.2	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	24.6	0.0	13.3	15.4	0.0	28.4	0.0	16.1	15.5	0.0	22.0
LnGrp LOS	B	C		B	B		C	A	B	B	A	C
Approach Vol, veh/h		386	A		422	A		549			293	
Approach Delay, s/veh		24.3			15.0			23.4			21.4	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	18.6	8.0	18.2	10.4	14.4	5.0	21.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.9	18.1	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.7	7.6	3.7	12.6	7.9	8.8	2.2	10.0
Green Ext Time (p_c), s	0.0	0.9	0.0	1.0	0.0	0.9	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

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

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	263	75	65	377	32	20	0	27	5	0	11
Future Vol, veh/h	56	263	75	65	377	32	20	0	27	5	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	23	23	23	10	10	10	42	42	42	50	50	50
Mvmt Flow	67	313	89	77	449	38	24	0	32	6	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	487	0	0	402	0	0	1121	1133	358	1130	1158	468
Stage 1	-	-	-	-	-	-	492	492	-	622	622	-
Stage 2	-	-	-	-	-	-	629	641	-	508	536	-
Critical Hdwy	4.33	-	-	4.2	-	-	7.52	6.92	6.62	7.6	7	6.7
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.92	-	6.6	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.92	-	6.6	6	-
Follow-up Hdwy	2.407	-	-	2.29	-	-	3.878	4.378	3.678	3.95	4.45	3.75
Pot Cap-1 Maneuver	975	-	-	1115	-	-	154	172	605	146	160	508
Stage 1	-	-	-	-	-	-	491	487	-	402	411	-
Stage 2	-	-	-	-	-	-	409	413	-	468	453	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	975	-	-	1115	-	-	130	142	605	119	132	508
Mov Cap-2 Maneuver	-	-	-	-	-	-	130	142	-	119	132	-
Stage 1	-	-	-	-	-	-	447	443	-	366	372	-
Stage 2	-	-	-	-	-	-	361	374	-	403	412	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	1.2	24.8	20.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	237	975	-	-	1115	-	-	251
HCM Lane V/C Ratio	0.236	0.068	-	-	0.069	-	-	0.076
HCM Control Delay (s)	24.8	9	0	-	8.5	0	-	20.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0.2	-	-	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	316	431	364	674	17
Future Volume (veh/h)	4	316	431	364	674	17
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1722	1722	1856	1856	1841	1841
Adj Flow Rate, veh/h	5	367	501	0	784	20
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	12	12	3	3	4	4
Cap, veh/h	106	712	539		824	834
Arrive On Green	0.06	0.41	0.29	0.00	0.47	0.47
Sat Flow, veh/h	1640	1722	1856	1572	1753	1560
Grp Volume(v), veh/h	5	367	501	0	784	20
Grp Sat Flow(s),veh/h/ln	1640	1722	1856	1572	1753	1560
Q Serve(g_s), s	0.2	12.3	20.3	0.0	33.1	0.5
Cycle Q Clear(g_c), s	0.2	12.3	20.3	0.0	33.1	0.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	106	712	539		824	834
V/C Ratio(X)	0.05	0.52	0.93		0.95	0.02
Avail Cap(c_a), veh/h	106	718	545		881	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	16.9	26.6	0.0	19.6	8.5
Incr Delay (d2), s/veh	0.2	0.6	22.6	0.0	18.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.5	11.7	0.0	16.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.1	17.5	49.2	0.0	38.5	8.5
LnGrp LOS	C	B	D		D	A
Approach Vol, veh/h		372	501	A	804	
Approach Delay, s/veh		17.7	49.2		37.8	
Approach LOS		B	D		D	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	36.4	40.8	9.5	26.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.2	38.8	5.0	22.7
Max Q Clear Time (g_c+I1), s	14.3	35.1	2.2	22.3
Green Ext Time (p_c), s	2.0	1.2	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	324	318	63	362	28	312	250	44	27	127	16
Future Volume (veh/h)	6	324	318	63	362	28	312	250	44	27	127	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1796	1796	1796	1826	1826	1826	1796	1796	1796
Adj Flow Rate, veh/h	7	372	0	72	416	0	359	287	51	31	146	18
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	4	7	7	7	5	5	5	7	7	7
Cap, veh/h	276	475		337	565		459	376	67	290	258	32
Arrive On Green	0.01	0.26	0.00	0.07	0.31	0.00	0.12	0.25	0.25	0.04	0.17	0.17
Sat Flow, veh/h	1753	1841	1560	1711	1796	1522	1739	1509	268	1711	1563	193
Grp Volume(v), veh/h	7	372	0	72	416	0	359	0	338	31	0	164
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1711	1796	1522	1739	0	1777	1711	0	1756
Q Serve(g_s), s	0.1	8.6	0.0	1.4	9.5	0.0	5.5	0.0	8.1	0.7	0.0	4.0
Cycle Q Clear(g_c), s	0.1	8.6	0.0	1.4	9.5	0.0	5.5	0.0	8.1	0.7	0.0	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.11
Lane Grp Cap(c), veh/h	276	475		337	565		459	0	443	290	0	290
V/C Ratio(X)	0.03	0.78		0.21	0.74		0.78	0.00	0.76	0.11	0.00	0.57
Avail Cap(c_a), veh/h	450	721		411	703		459	0	734	416	0	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	15.9	0.0	11.8	14.1	0.0	15.7	0.0	16.0	15.2	0.0	17.7
Incr Delay (d2), s/veh	0.0	3.2	0.0	0.3	3.1	0.0	8.5	0.0	2.8	0.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.2	0.0	0.4	3.6	0.0	3.6	0.0	3.0	0.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	19.0	0.0	12.1	17.2	0.0	24.3	0.0	18.8	15.3	0.0	19.4
LnGrp LOS	B	B		B	B		C	A	B	B	A	B
Approach Vol, veh/h		379	A		488	A		697			195	
Approach Delay, s/veh		18.9			16.4			21.6			18.7	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	16.0	7.5	16.4	10.0	12.1	4.9	19.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.7	10.1	3.4	10.6	7.5	6.0	2.1	11.5
Green Ext Time (p_c), s	0.0	1.3	0.0	1.2	0.0	0.6	0.0	1.3

Intersection Summary			
HCM 6th Ctrl Delay			19.3
HCM 6th LOS			B

Notes

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

Intersection	
Int Delay, s/veh	10.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	428	12	18	286	5	51	0	118	29	0	45
Future Vol, veh/h	6	428	12	18	286	5	51	0	118	29	0	45
Conflicting Peds, #/hr	2	0	1	1	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72
Heavy Vehicles, %	4	4	4	16	16	16	2	2	2	0	0	0
Mvmt Flow	8	594	17	25	397	7	71	0	164	40	0	63

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	406	0	0	612	0	0	1102	1076	604	1154	1081	403
Stage 1	-	-	-	-	-	-	620	620	-	453	453	-
Stage 2	-	-	-	-	-	-	482	456	-	701	628	-
Critical Hdwy	4.14	-	-	4.26	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.236	-	-	2.344	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1142	-	-	903	-	-	189	219	498	176	220	652
Stage 1	-	-	-	-	-	-	476	480	-	590	573	-
Stage 2	-	-	-	-	-	-	565	568	-	433	479	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1140	-	-	902	-	-	165	208	498	114	209	651
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	208	-	114	209	-
Stage 1	-	-	-	-	-	-	470	474	-	582	551	-
Stage 2	-	-	-	-	-	-	492	546	-	287	473	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	45.3	32.9
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	1140	-	-	902	-	-	229
HCM Lane V/C Ratio	0.757	0.007	-	-	0.028	-	-	0.449
HCM Control Delay (s)	45.3	8.2	0	-	9.1	0	-	32.9
HCM Lane LOS	E	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	5.8	0	-	-	0.1	-	-	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	481	345	772	385	9
Future Volume (veh/h)	30	481	345	772	385	9
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1870	1870
Adj Flow Rate, veh/h	33	529	379	0	423	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	4	4	2	2
Cap, veh/h	209	931	505		517	647
Arrive On Green	0.12	0.50	0.27	0.00	0.29	0.29
Sat Flow, veh/h	1781	1870	1841	1560	1781	1585
Grp Volume(v), veh/h	33	529	379	0	423	10
Grp Sat Flow(s),veh/h/ln	1781	1870	1841	1560	1781	1585
Q Serve(g_s), s	0.7	8.4	8.0	0.0	9.4	0.2
Cycle Q Clear(g_c), s	0.7	8.4	8.0	0.0	9.4	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	209	931	505		517	647
V/C Ratio(X)	0.16	0.57	0.75		0.82	0.02
Avail Cap(c_a), veh/h	209	1364	931		838	932
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	7.5	14.1	0.0	14.0	7.5
Incr Delay (d2), s/veh	0.3	0.5	2.3	0.0	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.2	2.9	0.0	3.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.2	8.0	16.3	0.0	17.4	7.5
LnGrp LOS	B	A	B		B	A
Approach Vol, veh/h		562	379	A	433	
Approach Delay, s/veh		8.6	16.3		17.2	
Approach LOS		A	B		B	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				25.7		16.8	9.5	16.2
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				31.0		20.0	5.0	21.5
Max Q Clear Time (g_c+I1), s				10.4		11.4	2.7	10.0
Green Ext Time (p_c), s				3.3		0.9	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

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