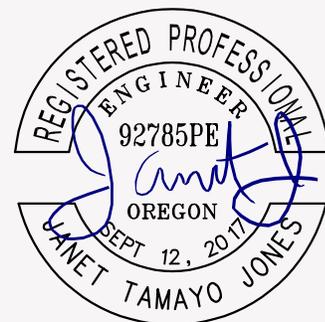


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EXPIRES: 6/30/23

TRANSPORTATION IMPACT ANALYSIS

To
City of Tualatin

For
Lam Research

Dated
August 12, 2022

Project Number
2220087.00



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I. INTRODUCTION

This Transportation Impact Analysis (TIA) has been prepared in support of the proposed new office building (Building G) at the Lam Research campus in Tualatin, Oregon. Figure 1 (in Appendix A) presents a vicinity map indicating the project location.

Project Description

An approximately 120,000-square-foot (SF) office building is proposed just north of SW Leveton Drive between the existing Center and East Accesses. Up to 600 office staff are planned to occupy the proposed building. Fewer than 10% of the new office staff will work remotely. Surface parking for approximately 530 spaces is proposed along SW 108th Avenue. The buildout year for the new office building is assumed to be 2024.

The existing East Access on SW Leveton Drive is proposed to be limited to truck access. To accommodate the additional office trips, two (2) new driveways are proposed on SW 108th Avenue with direct access to the expanded parking area. The North Access is proposed to be aligned opposite the north driveway serving Olympic Controls. The South Access is proposed approximately 445 feet south of the North Access.

Scope of Analysis

This TIA has been prepared in accordance with the *City of Tualatin Traffic Study Requirements* (updated March 16, 2022), Tualatin Development Code (TDC) Section 74.440, and the Oregon Department of Transportation's (ODOT) *Analysis Procedures Manual* (APM) Version 2. This study includes a summary of existing traffic conditions, crash review, proposed trip generation, and an analysis of intersection operations, sight distance, queuing, and signal and turn-lane warrants.

A TIS scoping letter dated June 30, 2022 was submitted to City staff and approved in a July 15, 2022 email. An additional study area intersection was requested in an August 2, 2022 email. The scoping letter and corresponding communications are provided in Appendix B for reference.

Study Area

The City's *Traffic Study Requirements* document requires all intersections within a 1/4-mile radius of the project site be included as part of the study area. Washington County requires analysis for all intersections where project trips will exceed 10% of the existing average daily traffic (ADT). No Washington County intersections were found to meet this threshold. The following intersections are located within the 1/4-mile radius and were included in the study area:

1. Pacific Highway W (OR-99W)/SW 124th Avenue
2. SW Tualatin Road/SW 124th Avenue
3. SW Tualatin Road/SW 108th Avenue
4. SW 108th Avenue/North Access
5. SW 108th Avenue/South Access
6. SW Leveton Drive/SW 124th Avenue
7. SW Leveton Drive/SW 118th Avenue
8. SW Leveton Drive/West Access
9. SW Leveton Drive/Center Access
10. SW Leveton Drive/East Access



11. SW Leveton Drive/SW 108th Avenue
12. SW Herman Road/SW 108th Avenue
13. SW Tualatin Road/SW Teton Avenue

All study area intersections are located within City of Tualatin jurisdiction. The OR 99W/SW 124th Avenue intersection is located on an ODOT facility.

Analysis Scenarios

This TIS addresses AM and PM peak hour conditions for the following analysis scenarios:

- 2022 Seasonally Adjusted
- 2024 Pre-Development without proposed Office
- 2024 Post-Development with proposed Office

II. EXISTING CONDITIONS

The existing conditions analysis is based on a current year 2022 inventory of transportation facilities and traffic data.

Site Conditions

The project site is in Tualatin, Oregon within the Portland metropolitan area. The site is approximately 58.01 acres and consist of tax lots 100 of Washington County tax map 2S1 22AB, and tax lots 500 and 800 of tax map 2S1 22AA. The site is part of the City’s Manufacturing Park (MP) Planning District. The Novellus Industrial Master Plan (IMP) was approved in 2001 as a four-phase development consisting of 1,440,000 SF. The proposed office building is considered to be the last building of the IMP’s Phase 1. The proposed site plan is presented in Figure 2.

Vehicular Transportation Facilities

Figure 3 presents existing lane configurations and traffic control devices for all study area intersections. Table 1 below summarizes roadway characteristics within the study area.

TABLE 1 – ROADWAY CHARACTERISTICS						
Roadway	Functional Classification	Posted Speed	Travel Lanes	Bike Lanes	On-Street Parking	Sidewalks
OR 99W (Pacific Highway W)	Major Arterial/ (Urban Principal Arterial)	45/55 mph	4	Yes	None	Intermittent
SW 124th Avenue	Major Arterial	45 mph	4/5	Yes	None	Yes
SW Tualatin Road	Major Collector	35 mph	3	Yes	None	Yes
SW Leveton Drive	Minor Arterial	35 mph	2	Yes	None	Yes
SW 108th Avenue	Minor Collector (north of SW Leveton Drive)	35 mph	2	Yes	None	Yes
SW Herman Road	Minor Arterial	35 mph	2	Yes	None	Yes
SW Teton Avenue	Minor Arterial	35 mph	2	Yes	None	Yes

Pedestrian and Bicycle Facilities

The study area has nearly complete bicycle and pedestrian networks. Clearly marked bike lanes are provided on all study area roadways. Curb-tight sidewalks are provided on SW 108th Avenue and SW Tualatin Road, as well as some segments of the north side of SW Herman Road. Separated sidewalks are provided on all other study roadways and segments.

Transit Facilities

The study area is served by TriMet Bus Lines 94 and 97 with stops on Pacific Highway W (OR 99W) and SW Tualatin Road. The Tualatin Shuttle also has a stop on SW Leveton Drive just south of the site. Transit maps and bus schedules are provided in Appendix C for reference.

Existing Traffic Counts

Existing turning movement counts were collected on Thursday, June 9, 2022, during the AM and PM peak periods.

Historical traffic counts from Tuesday, May 11, 2021 for the SW Tualatin Road/SW Teton Avenue intersection were utilized as this intersection was requested for analysis by City staff while school was not in session. An adjustment of 1.30 was applied to the AM peak hour counts and an adjustment of 1.05 was applied to the PM peak hour counts at this location to reflect the growth from 2021 to 2022.

Figure 4 presents the existing AM and PM peak hour traffic volumes. Raw traffic count summaries are provided in Appendix D.

Seasonal Adjustment

Pacific Highway W (OR 99W) is a state facility which requires a seasonal adjustment as specified in the APM. There is no seasonal adjustment data available for this location as there is no nearby Automatic Traffic Recorder (ATR). Therefore, a seasonal adjustment of 1.01 derived from data presented in ODOT's 2020 Seasonal Trend Table for the "Commuter" trend was applied to 2022 existing through volumes on OR 99W. The 2020 Seasonal Trend Table relies on pre-COVID 2019 volumes and is therefore the best available data for 2022 traffic. The 2022 seasonally adjusted traffic volumes are presented in Figure 5. The seasonal adjustment calculation is provided in Appendix E for reference.

Adjustment for Telecommuting

Existing traffic counts collected on Thursday, June 9, 2022 reflect a portion of Lam office staff telecommuting. While a review of historical and existing traffic counts on I-5 just north of the Nyberg Street exit shows that existing traffic in the greater Tualatin area may be comparable to pre-COVID traffic, existing counts adjacent to the Lam site are lower due to some staff currently telecommuting.

Lam Research does not currently have a permanent hybrid work plan. Therefore, we propose to growth adjust existing traffic counts to match 100% on-site attendance by applying an adjustment factor of 1.92 in the AM peak hour and 1.28 in the PM peak hour to site trips. These adjustments were based on the actual 2018 and 2022 turning movement volumes at the site driveways. The AM peak adjustment is higher than the PM peak adjustment, likely due to office staff entering the site later in the day, outside the morning peak between 7 AM and 9 AM, while continuing to exit the site during the afternoon peak between 4 PM and 6 PM. These modified site trips were carried through the adjacent roadway network as needed, similar to in-process trips, to estimate traffic volumes without the current remote work scenario.

TABLE 2 – TRAFFIC ADJUSTMENT FOR TELECOMMUTING					
AM Peak Hour Site Trips			PM Peak Hour Site Trips		
2018 Historical	2022 Existing	Adjustment Factor	2018 Historical	2022 Existing	Adjustment Factor
Entering – 422 Exiting – 26 Total – 448	Entering – 221 Exiting – 50 Total – 271	1.92 (Entering Only)	Entering – 168 Exiting – 445 Total – 613	Entering – 149 Exiting – 349 Total – 498	1.28

Figure 6 presents the additional 2022 site trips for remote workers during the AM and PM peak hours.

SW 108th Avenue Driveways

This TIA reviews the impact the proposed driveways on SW 108th Avenue will have on existing, nearby driveways. In order to estimate the possible queues along SW 108th Avenue, the trips generated by the existing Olympus Controls building were estimated using the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual*, 11th Edition data for a “Warehouse” use (LUC 150). The proposed North Access will be aligned opposite the northern access serving Olympus Controls. The proposed South Access will be spaced approximately 130 feet north of the southern access serving Ascentec Engineering. The Olympus Controls building is estimated to generate 33 AM and 35 PM peak hour trips. These trip generation estimates and the existing traffic counts were used to estimate the volumes at the Olympus Controls driveways. Existing peak hour counts for the southern Ascentec Engineering access were collected and are provided in Appendix D.

Crash Analysis

Historical crash data reported for the study area intersections were evaluated to identify patterns that might indicate a safety concern. Crash data for the 5-year period of 2016 through 2020 were obtained from ODOT’s online crash data system and used to review crash patterns and estimate intersection crash rates.

The crash evaluation is summarized in Table 3. The raw crash data are provided in Appendix F.

TABLE 3 – INTERSECTION CRASH RATES								
Intersection (Traffic Control Type)	Year					Total Crashes	ADT	Crash Rate
	2016	2017	2018	2019	2020			
Pacific Highway W/ SW 124th Avenue (Signalized)	7	6	7	7	2	29	49,000	0.32
SW Tualatin Road/ SW 124th Avenue (Signalized)	2	3	1	3	1	10	25,800	0.21
SW Tualatin Road/ SW 108th Avenue (TWSC)	2	0	0	0	1	3	13,100	0.13

TABLE 3 – INTERSECTION CRASH RATES								
Intersection (Traffic Control Type)	Year					Total Crashes	ADT	Crash Rate
	2016	2017	2018	2019	2020			
SW Leveton Drive/ SW 124th Avenue (Signalized)	0	2	1	4	1	8	17,500	0.25
SW Leveton Drive/ SW 118th Avenue (AWSC)	0	0	0	0	0	0	4,900	0.00
SW Leveton Drive/ SW 108th Avenue (TWSC)	1	2	0	0	0	3	3,100	0.53
SW Herman Road/ SW 108th Avenue (Signalized)	1	0	0	0	1	2	11,200	0.10
SW Tualatin Road/ SW Teton Avenue (TWSC)	1	1	1	2	0	5	14,600	0.19

Crash Data Summary

During the five-year study period, there were 29 collisions reported at the intersection of Pacific Highway W (OR 99W) and SW 124th Avenue. 21 of these were rear-end collisions, the majority of these being in the northbound through direction. Five (5) of the other crashes were turning movement collisions. These collisions were reported to be caused by drivers failing to avoid the vehicle ahead or improper turns and other improper driving. The remainder of crashes include two (2) angle collisions and one (1) fixed object collision. All of these collisions were reported to cause property damage (12 collisions) or minor injuries (15 collisions), with two (2) Injury B type crashes in 2016 and 2020.

Ten (10) collisions were reported at the intersection of SW Tualatin Road and SW 124h Avenue. Six (6) of these were turning movement collisions caused by a failure to yield by drivers completing the southbound left-turn movement. This may be the result of drivers running red lights due to a high turn volume and a short green phase. Five (5) of these collisions caused possible injuries (Injury Type C). There was one collision involving a pedestrian; a driver completing a westbound right turn failed to yield to a pedestrian in the crosswalk at the intersection. The other reported crashes were rear-end and fixed-object type collisions, mostly in the westbound direction.

At the intersection of SW Tualatin Road and SW 108th Avenue, all three (3) reported crashes were turning movement collisions caused by drivers failing to yield or drivers disregarding a traffic control device, and mostly by drivers completing the northbound left-turn movement. Again, this may be due to drivers running red lights due to a high turn volume and short green phase.

At the intersection of SW Leveton Drive and SW 124th Avenue, there were eight (8) reported crashes, five (5) of which were rear-end collisions. Four (4) of these crashes caused injuries of Type B or C. Six (6) of these collisions occurred in the southbound direction. Rear-end collisions are typical at signalized locations where drivers may stop abruptly at the onset of a yellow light.

At the intersection of SW Leveton Drive and SW 108th Avenue, there were three (3) reported crashes in the past five (5) years. Two (2) were turning movement collisions and the other one (1) was a rear-end collision. All three crashes occurred in the eastbound and westbound directions, and were caused by inattention or failure to yield.

During the study period, there have been two (2) rear-end collisions at the SW Herman Road/SW 108th Avenue intersection. These occurred in the eastbound and westbound directions, and were caused by inattention.

At the intersection of SW Tualatin Road and SW Teton Avenue, there have been five (5) reported crashes in the last five (5) years. Three (3) of these collisions were turning movement collisions for the northbound left-turn movement, caused by a failure to yield. This is likely due to drivers taking shorter gaps in traffic due to heavy through volumes on SW Tualatin Road. All of the crashes which occurred in the northbound left turn caused “property damage only” and no injury. The other two (2) collisions were one (1) rear-end in the northbound movement and one (1) fixed-object collision.

Overall, there were no fatalities or serious injury crashes reported in the least five (5) years at any study area intersections. There appear to be no safety deficiencies at any study area intersections that contribute to the historical crashes reviewed.

Intersection Crash Rates

Intersection crash rates were calculated as a measure of the number of crashes occurring per one million entering vehicles (MEV) per year. The intersection crash rate is calculated by dividing the average number of crashes per year by the MEV per year. An average daily traffic (ADT) volume was estimated by dividing the PM peak hour volume at each intersection by a peak-to-daily factor, or k-factor, of 0.09 obtained from ODOT’s 2020 traffic flow data on OR 99W just west of SW 124th Avenue.

All intersections have crash rates below 1.0 MEV. Therefore, no further analysis is recommended.

III. PRE-DEVELOPMENT CONDITIONS

The pre-development conditions reflect build-out year conditions without the proposed development. This scenario includes existing year 2022 traffic volumes, a seasonal adjustment to traffic on OR 99W, a growth adjustment factor to account for telecommuting staff, background growth to year 2024, and in-process trips from nearby approved developments. The pre-development traffic without project trips will indicate if traffic issues are present before the addition of the proposed development.

Planned Transportation Improvements

The City of Tualatin Capital Improvement Plan 2021-2025 (CIP) was reviewed for any planned transportation improvements in the area that may affect capacity. The City plans to add a northbound turn lane at the SW Herman Road/SW 118th Avenue intersection. While this improvement is near the development site, it does not impact future capacity or trip routing for any study area intersections in this report.

Background Traffic Growth

Background traffic growth was applied to adjusted year 2022 traffic volumes to forecast future traffic demand. A linear 1% annual growth rate over two (2) years was applied to year 2022 traffic volumes to estimate 2024 background traffic volumes. This growth adjustment was based on ODOT traffic volume projections for OR 99W just south of SW 124th Avenue between years 2019 and 2040. Background growth was applied to all movements at all intersections, except driveways. Figure 7 presents the background growth from 2022 to 2024 for the AM and PM peak hours.

In-Process Traffic

In-process traffic volumes account for developments that have been approved or that are under construction at the time of a traffic study. These traffic volumes account for traffic that will be added to the external roadway network before buildout of the proposed development. Traffic volumes for the following developments were included as in-process:

- Tualatin Logistics Park
- Lu Pacific Development (Herman Road Industrial)
- Hedges Creek Industrial

Four (4) access scenarios were provided in the TIA prepared for the Tualatin Logistics Park project. The in-process trips included in this TIA reflect the volumes provided in Scenario 2, which is consistent with the approved access configuration. Figure 8 presents the in-process trips during the AM and PM peak hours.

Pre-Development Traffic

The 2024 pre-development analysis scenario is a combination of existing year 2022 traffic volumes, a seasonal adjustment factor on OR 99W, a growth adjustment factor to account for telecommuting staff, background growth of 1% over two (2) years, and in-process trips from nearby approved developments. Figure 9 presents the 2024 pre-development traffic volumes during the AM and PM peak hours.

IV. SITE DEVELOPMENT

The trip-making characteristics of the proposed development are described below.

Trip Generation

The proposed 120,000 SF office building will provide space for office staff generally working between 8 AM and 5 PM. Up to 600 employees will be added to the campus with the new office building. Most new office staff are anticipated to work from the office in the future. Trip generation estimates were developed with the use of the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual*, 11th Edition. The City requires the reasonable worst case for trip generation be analyzed. Therefore, trip rates for ITE’s “General Office Building” (LUC 710) using building area were utilized in this study.

Table 4 presents the trip generation estimates for the proposed office building.

TABLE 4 – TRIP GENERATION										
ITE Code	ITE Land Use	Size	Trip Type	AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
710	General Office Building	120.0 KSF	Total	172	24	196	33	160	193	1,360

Trip Distribution and Assignment

Trip distribution for the proposed office building was estimated by reviewing the existing distribution from recent and existing counts at the site driveways in conjunction with review of previous trip distribution assumptions for the Lam Research campus. The following trip distribution was assumed:

- 15% to/from the south on Highway 99W
- 25% to/from the north on Highway 99W
- 5% to/from the east on SW Tualatin Road
- 15% to/from the south on SW 124th Avenue
- 5% to/from the south on SW 118th Avenue
- 35% to/from the east on SW Herman Road

Figure 10 presents the trip distribution and traffic assignment for the AM and PM peak hours.

East Access Reroutes

With the proposed building, other site changes including additional parking along SW 108th Avenue, two (2) new driveways on SW 108th Avenue, and limiting the East Access on SW Leveton Drive to trucks are proposed. With the closure of the East Access to passenger vehicle traffic, existing site trips that currently utilize this driveway are anticipated to reroute to the proposed driveways on SW 108th Avenue to access the expanded parking area. Figure 11 presents the East Access trip reroutes for the AM and PM peak hours.

Post-Development Traffic

Post-Development traffic volumes are the sum of the project trips and the pre-development traffic volumes. Figure 12 presents the 2024 post-development traffic volumes for the AM and PM peak hours.

V. SITE ACCESS AND CIRCULATION

The on-site evaluation of traffic access and circulation and a review of sight distance at the existing site driveways are presented below.

Site Access

The proposed development will have access to two (2) existing, full-movement driveways on SW Leveton Drive and two (2) proposed, full-movement driveways on SW 108th Avenue. The third driveway on SW Leveton Drive will be limited to trucks and will become directional (inbound or outbound only).

Access Standards

The TDC includes several sections related to access standards. Chapter 75 of the TDC presents access standards relative to driveway widths and spacing on the site. Per Table 75-1 of the TDC, minimum driveway approach width for industrial driveways is 36 feet and the maximum is 40 feet for driveways providing access for over 250 parking spaces. The existing driveways for the site meet these standards. The proposed driveways on SW 108th Avenue will meet these standards at a proposed width of 36 feet.

Per TDC 75.120, driveways on Minor Collectors must be spaced a minimum of 100 feet. Driveways must be located at least 150 feet from the intersection of Collector or Arterial streets, as measured from the stop bar, per TDC 75.040(11)(a). Additionally, driveways must provide a minimum distance of 40 feet between on-site driveways per TDC 75.040(10).

TABLE 5 – ACCESS SPACING SUMMARY					
Access	Roadway	Functional Classification	Spacing Standard	Access Spacing Measured Edge-to-Edge	
				To North	To South
North Access	SW 108th Avenue	Minor Collector	150' to Arterial or Collector intersections/ 100' between driveways	635 feet	445 feet
South Access				445 feet	150 feet

The proposed site driveways on SW 108th Avenue will meet the City's access spacing standards as summarized in Table 5.

On-Site Circulation

The site currently provides access to staff via three full-movement driveways on SW Leveton Drive. A fire access is provided on SW Tualatin Road opposite SW 115th Avenue and a construction access is provided on SW 108th Avenue approximately 300 feet south of SW Tualatin Road. Both of these driveways are gated.

With the proposed office building, the East Access on SW Leveton Drive will be limited to truck use. Two (2) new full-movement driveways are proposed on SW 108th Avenue. The North Access will be provided opposite the northern access to Olympus Controls. The South Access will be provided approximately 445 feet south of the North Access. Trucks will navigate to the new office building by entering the East Access on SW Leveton Drive and exiting the proposed South Access on SW 108th Avenue. All new office staff are

anticipated to access the site via the two (2) proposed driveways on SW 108th Avenue where an additional approximately 500 new parking spaces will be provided.

Sight Distance Evaluation

Intersection sight distance was evaluated for the proposed site driveway locations. The American Association of State Highway and Transportation Officials’ (AASHTO) *A Policy on Geometric Design of Highways and Streets*, 7th Edition provides recommendations for intersection sight distance (ISD) based on roadway design speed. At minimum, stopping sight distance (SSD), also based on roadway design speed, must be provided.

A time gap of 7.5 seconds and 11.5 seconds were assumed for passenger vehicles and combination trucks completing a left turn from stop, respectively. SW 108th Avenue is relatively flat. Therefore, no grade adjustments were made for the ISD and SSD calculations. There is no posted speed on SW 108th Avenue north of SW Herman Road. Therefore, the design speed on SW 108th Avenue was assumed to be 5 mph over the posted speed of 35 mph for other Minor Collectors in the area, or 40 mph. The recommendations for ISD have been noted for left turns from stop on a stop-controlled minor approach (driveway). The sight distance evaluation for the site driveways is presented in Table 6.

TABLE 6 – SIGHT DISTANCE EVALUATION						
Access/ Intersection	Design Speed (mph)	Design Vehicle	Recommended Intersection Sight Distance (feet)	Required Stopping Sight Distance (feet)	Available Sight Distance (feet)	
					To North	To South
SW 108th Avenue/ North Access	40	Passenger	445	305	430	>500
SW 108th Avenue/ South Access	40	Passenger	445	305	>700	>700
		Combination Truck	680			

As presented in Table 6, the recommended ISD is available to the south from both proposed driveway locations, as well as to the north from the South Access for both passenger vehicles and combination trucks. From the proposed North Access location, there is a vertical crest to the north on SW 108th Avenue that precludes meeting the recommended ISD by 15 feet. However, both proposed site driveway locations are projected to meet the SSD requirement in both directions along SW 108th Avenue.

VI. OPERATIONAL ANALYSIS

Two aspects of operational analysis were evaluated for the study area intersections: 1) intersection operations analysis, which evaluates how well an intersection processes traffic demand, and 2) queuing analysis, which compares intersection queues with available storage for different travel lanes.

Intersection Operation Analysis

Intersection operations are generally measured by three (3) mobility standards: volume-to-capacity (v/c) ratio, level-of-service (LOS), and delay (measured in seconds). Signalized and all-way, stop-controlled (AWSC) intersections are measured by one (1) overall v/c ratio, LOS, and delay. Two-way, stop-controlled (TWSC) intersections are typically measured by a single v/c ratio, LOS, and delay representative of the worst stopped movement.

Performance Measures

All study area intersections are located within City of Tualatin jurisdiction but OR 99W is under ODOT's jurisdiction.

City of Tualatin

The TDC Section 74.440(3)(e) requires the following mobility standards for intersections within City jurisdiction:

- LOS D or better for signalized intersections
- LOS E or better for unsignalized intersections

ODOT

The *Oregon Highway Plan* (OHP) designates OR 99W as a Principal Arterial Route at SW 124th Avenue. Table 7 of the OHP establishes a v/c target of 0.99 for the OR 99W/SW 124th Avenue intersection.

Methodology

Intersection operations were analyzed with the use of Synchro 11 software, which utilizes the Transportation Research Board's *Highway Capacity Manual* (HCM) 2000, HCM 2010, and HCM 6 methodologies. Signalized study area intersections were reported using HCM 2000 reports for overall v/c ratio and HCM 6 reports for delay and LOS. Two-way, stop-controlled (TWSC) and AWSC intersections were reported using HCM 6 reports. Signal timing plans were obtained from the Washington County traffic plans database, as well as from ODOT staff, and are provided in Appendix H for reference.

Findings

The operations results for the intersection or critical movement at each study area intersection are presented in Table 7. The detailed Synchro capacity results are provided in Appendix I for reference.

TABLE 7 – PEAK HOUR INTERSECTION OPERATIONS				
Intersection (Control)	Peak Hour	Analysis Results (v/c-LOS-Delay in seconds)		
		2022 Existing	2024 Pre-Development	2024 Post-Development
Pacific Highway (OR-99)/SW 124th Avenue (Signalized)	AM	0.76-C-33.9	0.80-D-38.4	0.80-D-40.3
	PM	0.79-D-36.4	0.84-D-39.6	0.86-D-41.3
SW Tualatin Road/ SW 124th Avenue (Signalized)	AM	0.65-B-10.4	0.68-B-10.8	0.69-B-11.1
	PM	0.51-B-12.8	0.56-B-14.6	0.58-B-15.9
SW Tualatin Road/ SW 108th Avenue (TWSC)	AM	0.10-C-22.8 (NB)	0.11-C-24.7 (NB)	0.13-D-25.8 (NB)
	PM	0.24-C-24.6 (NB)	0.31-D-27.2 (NB)	0.37-D-29.1 (NB)
SW 108th Avenue/ North Access (TWSC)	AM	N/A	N/A	0.01-B-13.3 (EBL)
	PM	N/A	N/A	0.17-A-9.4 (EBL)
SW 108th Avenue/ South Access (TWSC)	AM	N/A	N/A	0.00-B-11.6 (EBL)
	PM	N/A	N/A	0.02-B-10.2 (EB)
SW 124th Avenue/ SW Leveton Drive (Signalized)	AM	0.36-B-10.4	0.40-B-10.8	0.42-B-11.6
	PM	0.32-B-14.4	0.37-B-15.4	0.40-B-16.4
SW Leveton Drive/ SW 118th Avenue (AWSC)	AM	0.28-A-8.5 (EB)	0.42-A-9.9 (EB)	0.54-B-11.8 (EB)
	PM	0.32-A-9.1 (WB)	0.40-A-10.0 (WB)	0.52-B-11.8 (WB)
SW Leveton Drive/ West Access (TWSC)	AM	0.03-B-12.0 (SBL)	0.04-C-15.8 (SBL)	0.05-C-18.3 (SBL)
	PM	0.14-B-11.8 (SBL)	0.20-B-13.3 (SBL)	0.23-C-15.2 (SBL)
SW Leveton Drive/ Center Access (TWSC)	AM	0.01-B-10.1 (SBL)	0.02-B-11.4 (SBL)	0.02-B-12.9 (SBL)
	PM	0.05-B-10.5 (SBL)	0.07-B-11.1 (SBL)	0.08-B-12.3 (SBL)
SW Leveton Drive/ East Access (TWSC)	AM	0.01-A-9.8 (SB)	0.01-B-10.8 (SB)	N/A
	PM	0.11-B-10.4 (SB)	0.15-B-11.1 (SB)	N/A
SW Leveton Drive/ SW 108th Avenue (TWSC)	AM	0.08-A-7.6 (NBL)	0.14-A-7.8 (NBL)	0.44-C-17.5 (EB)
	PM	0.18-A-9.5 (EB)	0.24-B-10.0 (EB)	0.27-B-11.8 (EB)
SW Herman Road/ SW 108th Avenue (Signalized)	AM	0.43-A-6.3	0.50-A-6.6	0.55-A-7.3
	PM	0.55-B-11.2	0.60-B-12.6	0.64-B-14.6

TABLE 7 – PEAK HOUR INTERSECTION OPERATIONS				
Intersection (Control)	Peak Hour	Analysis Results (v/c-LOS-Delay in seconds)		
		2022 Existing	2024 Pre-Development	2024 Post-Development
SW Tualatin Road/ SW Teton Avenue	AM	0.32-D-25.8 (NBL)	0.35-D-27.7 (NBL)	0.35-D-28.3 (NBL)
	PM	0.96-F-99.1 (NBL, Synchro) LOS E-26.5 (NBL, SimTraffic)	1.03-F-122.6 (NBL, Synchro) LOS E-29.9 (NBL, SimTraffic)	1.05-F-128.2 (NBL, Synchro) LOS E-38.5 (NBL, SimTraffic)

The East Access on SW Leveton Drive will be restricted to truck use, which will primarily occur outside the typical peak of the street. Therefore, site operations are listed as “N/A” under post-development conditions.

As presented in Table 7, all study area intersections currently meet the City’s mobility standards except the SW Tualatin Road/SW Teton Avenue intersection. The northbound left-turn movement currently operates at an LOS F during the PM peak hour and is projected to continue to fail in the future, per the Synchro analysis results. All other study intersections are projected to continue meeting standards with the proposed office building.

The estimated delay provided by Synchro software at the intersection of SW Tualatin Road/SW Teton Avenue appears to provide a conservative estimate of approximately 99 seconds for the northbound left-turn movement during the PM peak hour; however, a review of PM peak hour traffic at the intersection shows an observed delay of approximately 14 seconds. Additionally, the delay reported by SimTraffic software for this movement was approximately 27 seconds under existing conditions. The delay reported by SimTraffic appears to more accurately reflect actual conditions in the field. This may be because drivers completing the northbound left-turn movement at this intersection are taking shorter gaps due to the high volume on SW Tualatin Road than the gaps assumed in Synchro software. Therefore, we estimate this northbound left-turn movement will operate at an LOS E (corresponding with a 40-second delay) under 2024 post-development conditions, as reported by SimTraffic software.

Intersection Queuing Analysis

An intersection queuing analysis was conducted for the study area intersections for both the AM and PM peak hours to evaluate any potential queue spillbacks.

Methodology

The 95th percentile queues during the AM and PM peak hours were estimated using Synchro and SimTraffic software. Queue demand results were rounded to the nearest 25 feet to represent average vehicle lengths. Because queues are based on an average of five (5) traffic simulations using random arrivals, some fluctuation in results can be anticipated, particularly for movements that are near or over-capacity.

Available queue lengths were estimated using Google Earth Pro software and rounded to the nearest 5 feet. For turn lanes, two (2) available storage values are stated: the first represents the striped storage and the second is the effective storage, or the length physically available regardless of striping, such as a center turn lane upstream of a striped left-turn lane at an intersection. Although travel lanes have no storage defined by striping, two (2) values are reported for through travel lane storage at signalized locations: the first is the distance to an upstream driveway; the second is the distance to an upstream public street intersection.

Findings

The 95th percentile queues obtained from SimTraffic for the AM and PM peak hours are presented in Table 8. The detailed SimTraffic reports are provided in Appendix J for reference.

TABLE 8 – 95TH PERCENTILE QUEUING ANALYSIS					
Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)		
			2022 Existing	2024 Pre-Development	2024 Post-Development
Highway 99W/ SW 124th Avenue (Signalized)	WBL	315/475	100/350	125/450	125/450
	WBL	315/475	125/350	125/475	125/475
	WBR	295/330	150/300	150/400	150/425
	WBR	295/315	150/250	150/325	150/350
	NBT	500	525/400	500/450	600/425
	NBT	500	500/375	475/425	675/400
	NBR	225/250	375/150	400/175	450/175
	SBL	550/770	500/350	700/400	800/400
	SBL	550/690	400/325	700/375	800/350
	SBT	50/>1,000	175/275	175/275	750/275
	SBT	50/>1,000	175/275	150/300	700/300
SW 124th Avenue/ SW Tualatin Road (Signalized)	WBL	310/350	100/50	100/150	100/75
	WBR	285/500	75/250	75/400	75/325
	NBT	995	100/200	100/250	100/250
	NBT	995	150/275	200/375	175/450
	NBR	145/230	50/75	50/150	50/150
	SBL	200/300	300/300	300/325	300/325
	SBT	450	200/75	175/75	200/100
	SBT	450	150/100	175/75	150/100

TABLE 8 – 95TH PERCENTILE QUEUING ANALYSIS					
Intersection (Control)	Approach/ Movement	Striped/ Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)		
			2022 Existing	2024 Pre- Development	2024 Post- Development
SW Tualatin Road/ SW 108th Avenue (TWSC)	WBL	140	50/25	50/25	50/25
	NB	330	50/50	50/75	50/75
SW 108th Avenue/ North Access (TWSC)	EBL	60	N/A	N/A	25/50
	EBR	60	N/A	N/A	50/75
	NB	190/620	N/A	N/A	50/25
	SB	160/630	N/A	N/A	25/25
SW 108th Avenue/ South Access (TWSC)	EBL	60	N/A	N/A	25/25
	EBR	60	N/A	N/A	25/50
	NB	110/200	N/A	N/A	25/25
	SB	100/>1,000	N/A	N/A	25/25
SW 124th Avenue/ SW Leveton Drive (Signalized)	EBL	100/130	25/50	25/50	25/50
	EBT+R	270/580	75/75	75/75	75/75
	WBL	145/185	50/50	50/75	50/100
	WBT+R	490/>1,000	25/100	25/125	50/125
	NBL	155/230	50/50	50/50	50/50
	NBT	>1,000	75/125	75/125	75/125
	NBT+R	>1,000	125/175	175/200	175/225
	SBL	165/245	75/50	100/75	125/75
	SBT	>1,000	125/125	150/150	150/125
	SBT+R	995	150/150	175/175	175/175
SW Leveton Drive/ SW 118th Avenue (AWSC)	EB	240/>1,000	75/50	75/50	100/75
	WB	+1,000	50/75	50/75	50/75
	NB	525/>1,000	50/25	50/50	50/50
	SB	650	25/25	25/50	25/50
SW Leveton Drive/ West Access (TWSC)	EB	>1,000	25/50	50/50	50/50
	SBL	135	50/50	50/50	50/75
	SBR	135	50/75	50/75	50/100

TABLE 8 – 95TH PERCENTILE QUEUING ANALYSIS					
Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)		
			2022 Existing	2024 Pre-Development	2024 Post-Development
SW Leveton Drive/Center Access (TWSC)	EB	890	25/25	25/25	25/25
	SBL	125	25/50	25/50	25/50
	SBR	125	25/50	25/50	25/50
SW Leveton Drive/East Access (TWSC)	EB	400	25/25	25/25	N/A
	WB	550	25/25	25/25	25/25
	NB	25	25/50	25/50	25/50
	SB	105	25/50	25/75	N/A
SW Leveton Drive/SW 108th Avenue (TWSC)	EB	270	50/50	50/50	100/75
	NB	100	25/25	50/25	50/50
SW Herman Road/SW 108th Avenue (Signalized)	EBL	100/390	25/25	25/25	50/25
	EB	>1,000	100/100	100/100	125/125
	WB	350	125/175	125/200	175/225
	SBL	135/165	50/100	50/100	75/125
	SBR	115/790	25/25	25/25	25/25
SW Tualatin Road/SW Teton Avenue (Unsignalized)	WBL	260	50/25	50/25	75/50
	NBL	95/170	75/ 175	75/ 175	75/ 225
	NBR	30/>1,000	75/50	75/50	75/50

As presented in Table 8, queues are projected to be accommodated within existing storage areas at most intersections. The OR 99W/SW124th Avenue, SW 124th Avenue/SW Tualatin Road, and SW Tualatin Road/SW Teton Avenue intersections are projected to have queues that exceed the available queue storage areas under 2024 post-development conditions. This is expected to occur during the peak 15-minute periods of the AM and PM peak hours. For the remainder of the peak hours, queues are mostly projected to be accommodated under existing storage areas, as presented in Table 9.

TABLE 9 – 95TH PERCENTILE QUEUING ANALYSIS (PEAK HOUR)				
Intersection (Control)	Approach/Movement	Striped/Effective Storage (Feet)	AM/PM Peak Hour Queue (feet)	
			2024 Post-Development (PHF=Varies)	2024 Post-Development (PHF=1.0)
Highway 99W/ SW 124th Avenue (Signalized)	WBL	315/475	125/450	100/425
	WBL	315/475	125/475	125/450
	WBR	295/330	150/ 425	150/ 400
	WBR	295/315	150/ 350	150/ 325
	NBT	500	600 /425	500/425
	NBT	500	675 /400	475/400
	NBR	225/250	450 /175	400 /150
	SBL	550/770	800 /400	750/400
	SBL	550/690	800 /350	325/350
	SBT	50/>1,000	750/275	275/300
	SBT	50/>1,000	700/300	250/300
SW 124th Avenue/ SW Tualatin Road (Signalized)	WBL	310/350	100/75	100/50
	WBR	285/500	75/325	75/325
	NBT	995	100/250	100/250
	NBT	995	175/450	150/425
	NBR	145/230	50/150	50/150
	SBL	200/300	300/ 325	275/ 325
	SBT	450	200/100	150/125
	SBT	450	150/100	150/125
SW Tualatin Road/ SW Teton Avenue (Unsignalized)	WBL	260	75/50	50/25
	NBL	95/170	75/ 225	75/125
	NBR	30/>1,000	75/50	75/50

As presented in Table 9, the queues for the northbound left-turn movement at the SW Tualatin Road/SW Teton Avenue are projected to be accommodated within the existing storage area for the remainder of the PM peak hour. At the SW 124th Avenue/SW Tualatin Road intersection, the queues for the southbound left-turn movement during the PM peak hour are projected to exceed the available storage length for the remainder of the PM peak hour; however, this queue is not worsened by the addition of new Lam office trips. At the OR 99W/SW 124th Avenue intersection the queues for the southbound left-turn lanes are projected to be accommodated within the existing storage area during the remainder of the PM peak hour.

VII. WARRANTS

The 2001 Novellus IMP approval identified that potential improvements may be needed at the SW Leveton Drive/SW 108th Avenue intersection and along SW 108th Avenue (left-turn lanes) with future development of the site. Therefore, traffic signal and turn-lane warrants were reviewed using 2024 post-development volumes for the AM and PM peak hours. The analysis summary for signal, left- and right-turn lane warrants is presented below. The warrant analysis calculations are provided in Appendix K for reference.

Traffic Signal

The *Manual on Uniform Traffic Control Devices* (MUTCD), 2009 Edition, provides guidance and standards on the evaluation of traffic conditions to determine the need for traffic signalization at unsignalized intersections. A screening level comparison of peak traffic volumes with the lowest MUTCD volume threshold (100 vehicles per hour for the minor street approach) was performed to determine if a more detailed signal warrants analysis should be performed for the SW Leveton Drive/SW 108th Avenue intersection.

The MUTCD Warrant 3, Peak Hour volume thresholds are not met at the SW Leveton Drive/SW 108th Avenue intersection with the proposed office building. Therefore, no additional analysis was prepared.

We also reviewed hourly volumes for the SW Tualatin Road/SW Teton Avenue intersection to determine if a signal at this location is appropriate to mitigate the long delay for the northbound left-turn movement. The projected 2024 post-development that volumes at this location do not meet the thresholds for Warrant 1 (8-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume), and Warrant 3 (Peak Hour Vehicular Volume). Additionally, the crash analysis did not show excessive crashes at this intersection, nor any fatalities or pedestrian/bicyclist crashes within the last five (5) years of crash data. Because the SimTraffic analysis showed delays for the northbound left-turn movement are closer to the observed delays in the field, we don't recommend any improvements at this location.

Turn Lanes

Turn-lane criteria were reviewed for the proposed driveways on SW 108th Avenue using the left- and right-turn lane criteria established by the Texas Transportation Institute (TTI) for unsignalized intersections.

SW 108th Avenue is currently a two-lane roadway with no existing turn lanes into the site. While the estimated left-turn volumes at the proposed site accesses are high, the opposing traffic volumes are projected to be well below the threshold for either left- or right-turn lanes. Additionally, the delays for the turn movements at the site driveways are estimated to be relatively low. Therefore, no turn lanes are proposed on SW 108th Avenue or on SW Leveton Drive.

VIII. RECOMMENDATIONS AND MITIGATION

All study area intersections currently operate within City of Tualatin mobility standards except the SW Tualatin Road/SW Teton Avenue intersection. The northbound left-turn movement at this location currently has a delay greater than 90 seconds which exceeds the City's LOS E standard for an unsignalized intersection, as reported by Synchro software; however, video observations of existing conditions show delays for this movement are closer to 14 seconds. Similarly, the delay reported by SimTraffic for existing conditions is approximately 27 seconds. Therefore, we estimate the delay under 2024 post-development conditions will be approximately 40 seconds as reported by SimTraffic software, and corresponding with an LOS E.

All other study area intersections are projected to operate at acceptable levels, as reported by Synchro software. While queues during the peak 15-minute periods of the morning and afternoon show some queuing that exceeds available storage, queues for the remainder of the AM and PM peak hours are expected to be accommodated within existing queue storage areas. Therefore, no other improvements are recommended at this time.

IX. APPENDIX

- Appendix A. Figures
- Appendix B. Scoping Material
- Appendix C. Transit Information
- Appendix D. Traffic Count Summaries
- Appendix E. Seasonal Adjustment Data
- Appendix F. Crash Data
- Appendix G. In-Process Data
- Appendix H. Signal Information
- Appendix I. Operations Calculations
- Appendix J. Queuing Analysis
- Appendix K. Warrants

APPENDIX A.
FIGURES



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VICINITY MAP

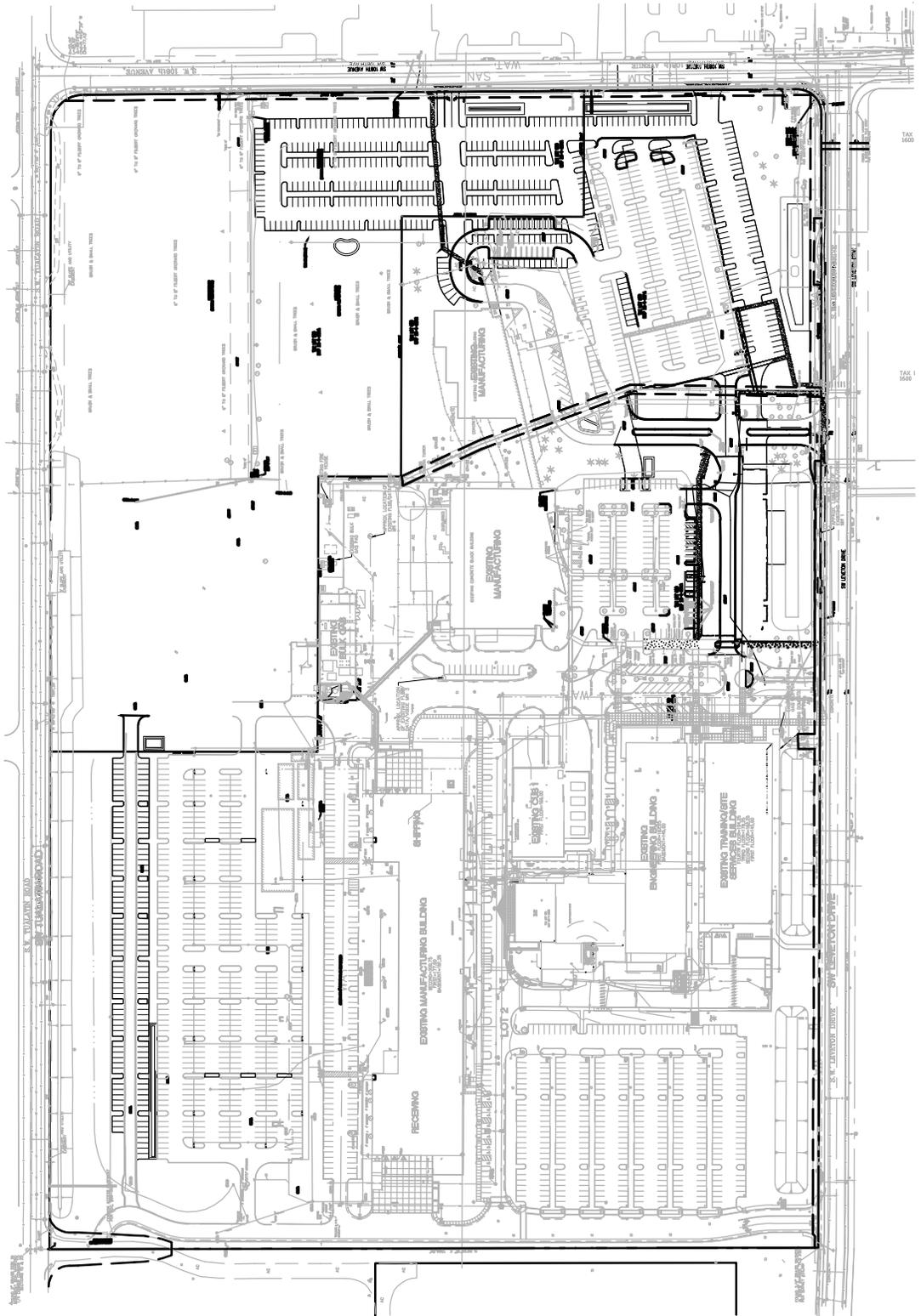
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FIGURE

1



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SITE PLAN

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FIGURE

2

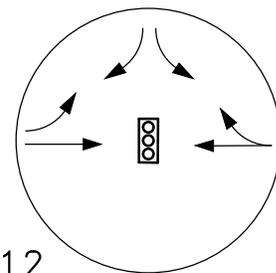
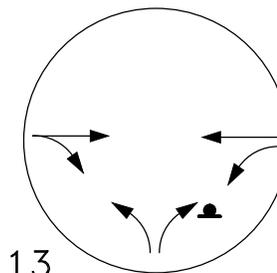
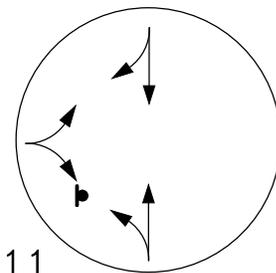
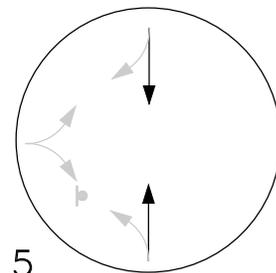
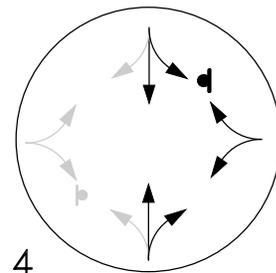
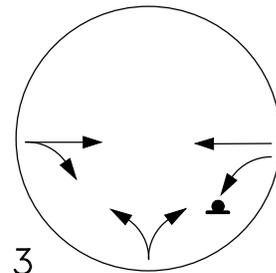
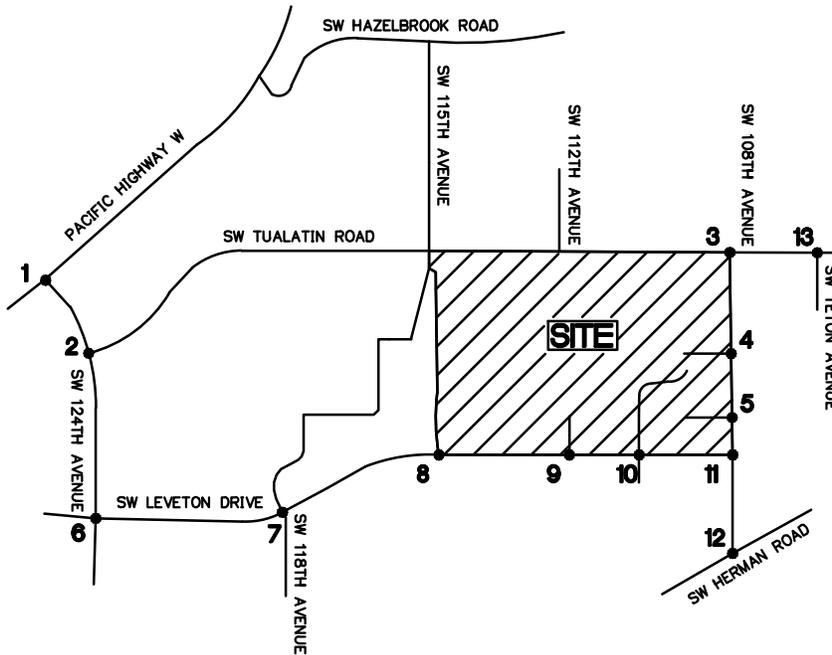
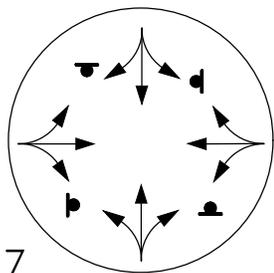
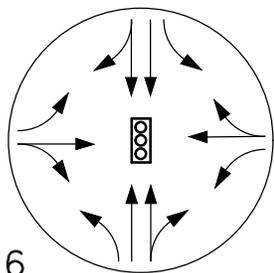
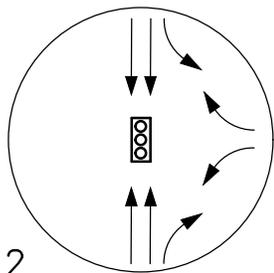
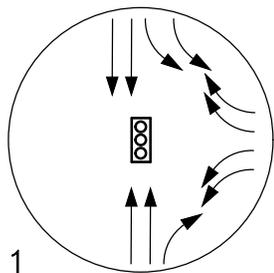
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EXISTING + PLANNED
 TRAFFIC CONTROL DEVICES
 + LANE CONFIGURATIONS

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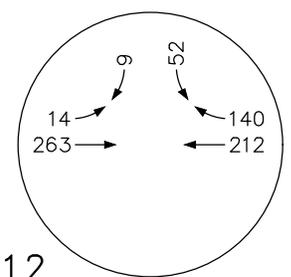
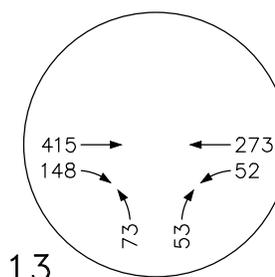
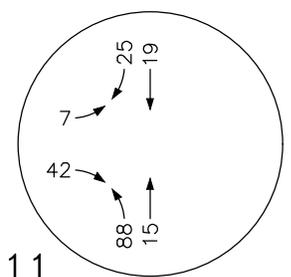
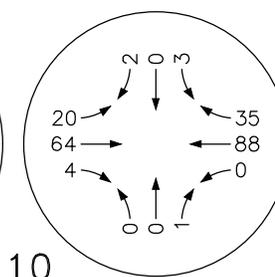
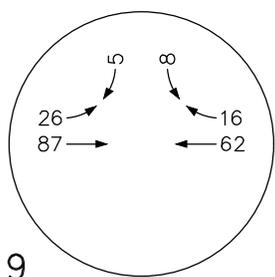
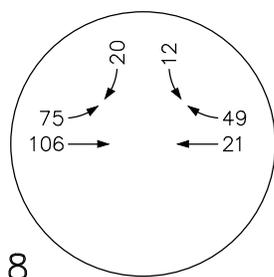
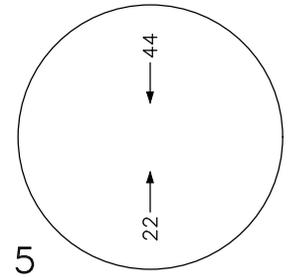
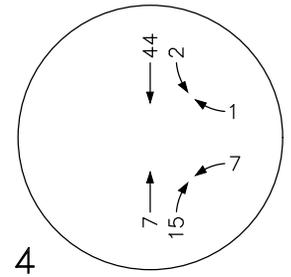
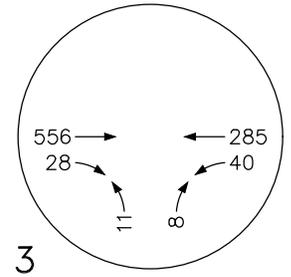
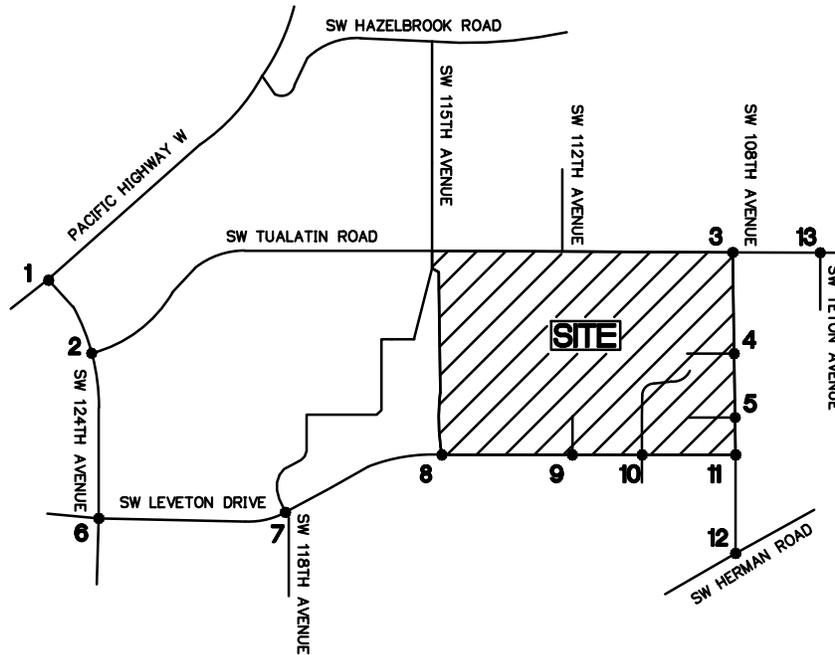
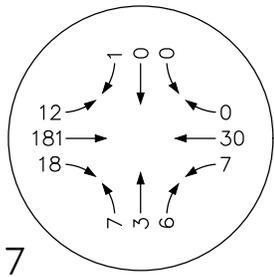
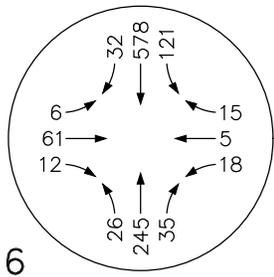
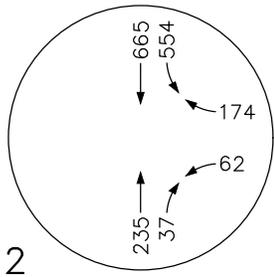
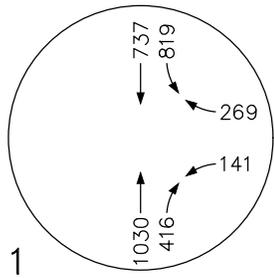
FIGURE

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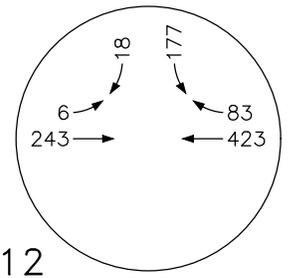
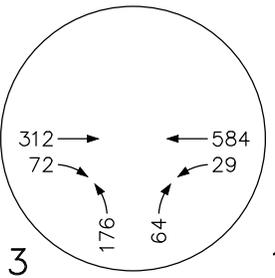
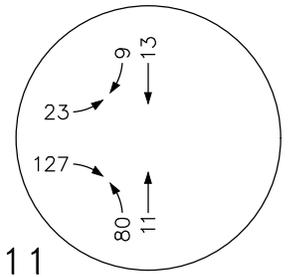
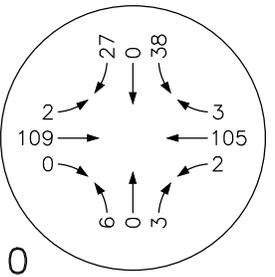
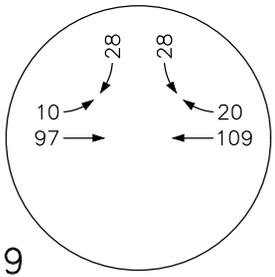
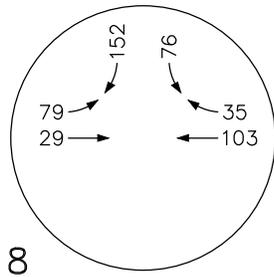
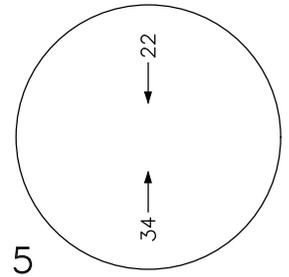
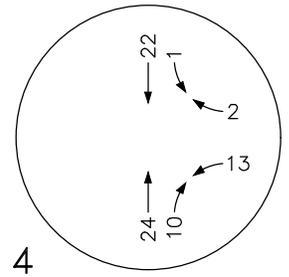
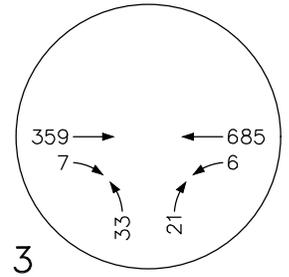
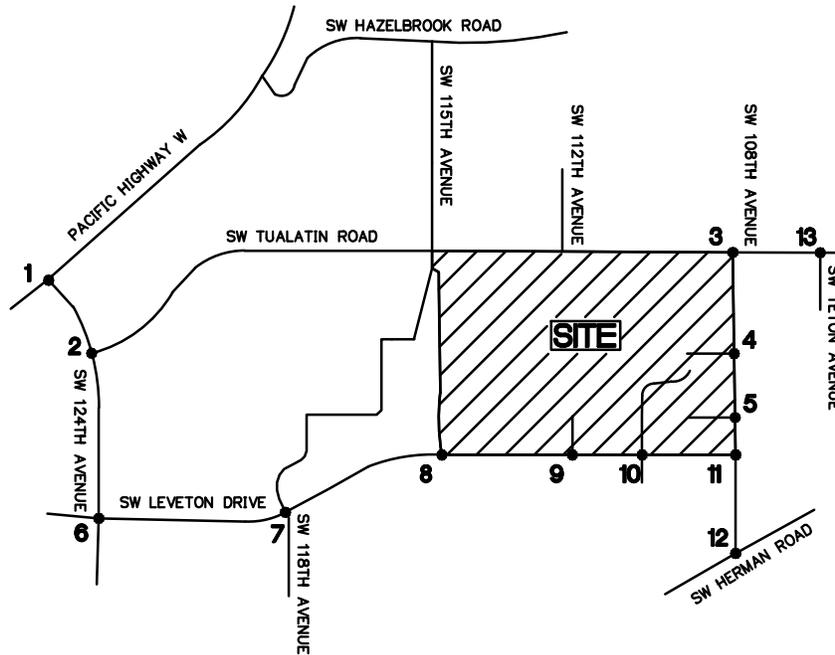
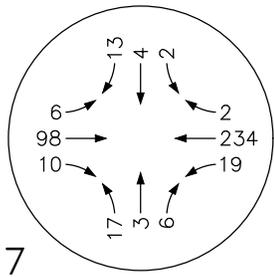
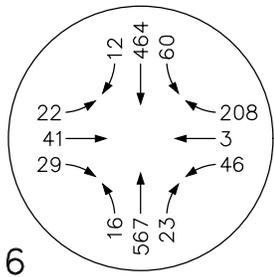
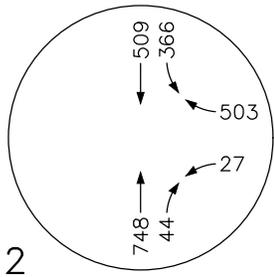
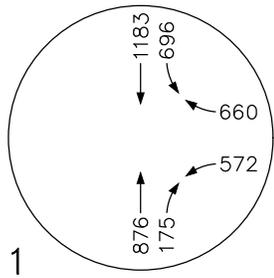


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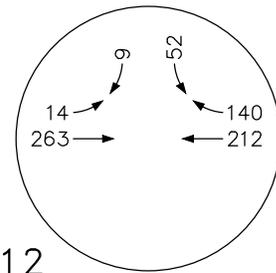
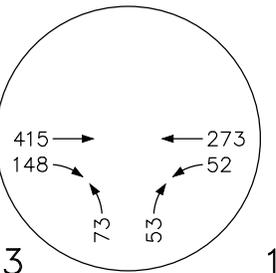
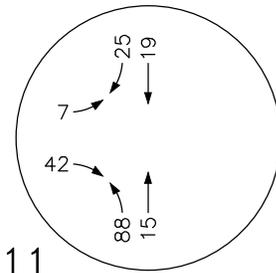
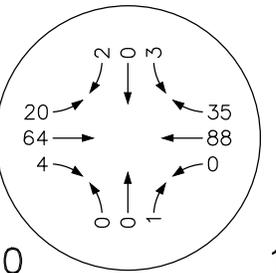
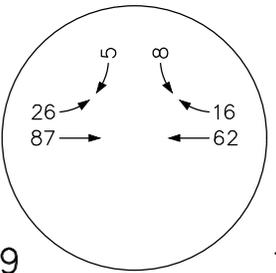
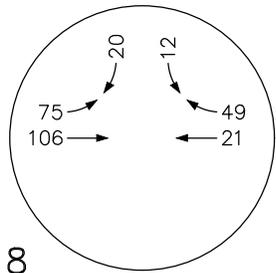
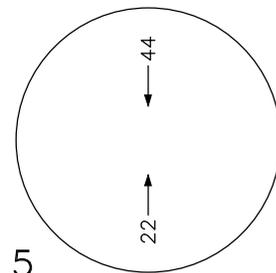
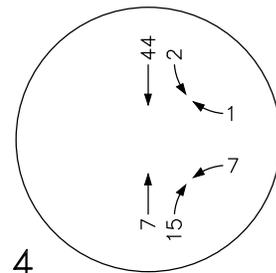
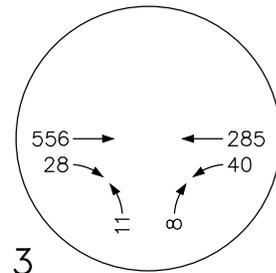
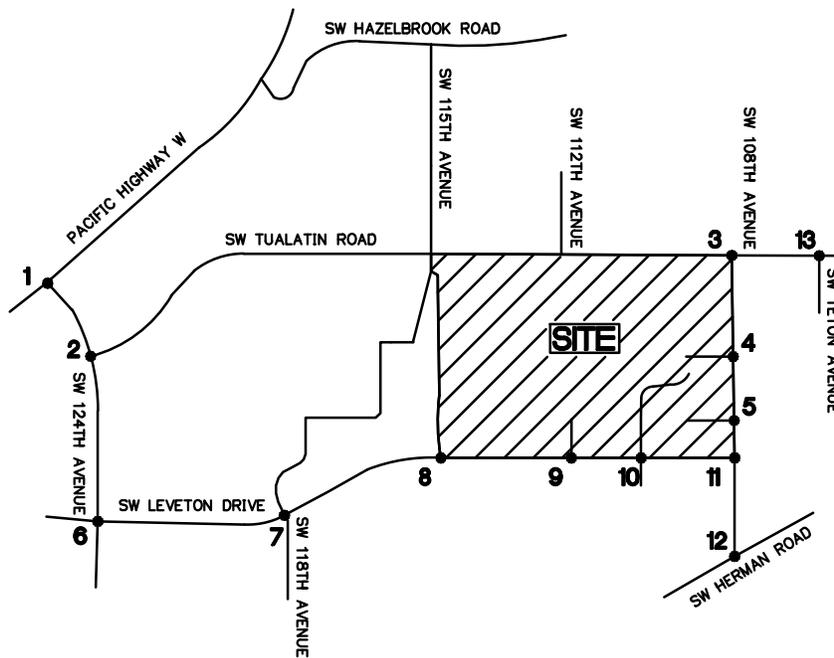
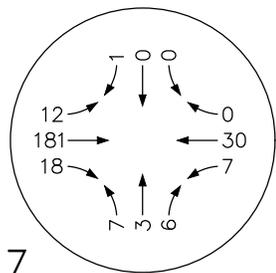
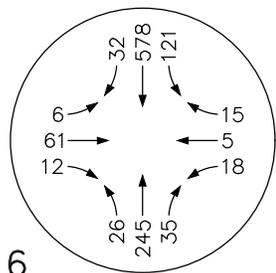
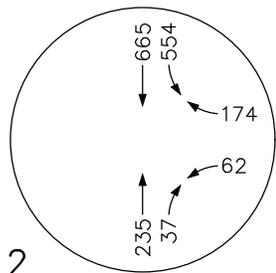
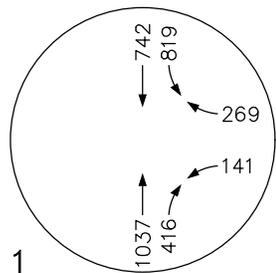
2022 EXISTING TRAFFIC VOLUMES - PM PEAK HOUR
LAM RESEARCH NEW OFFICE BUILDING TUALATIN, OREGON

FIGURE 4B

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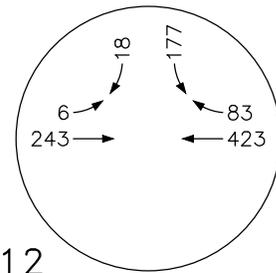
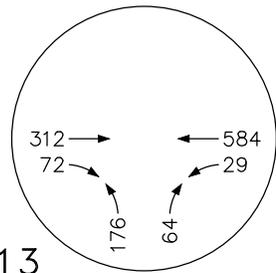
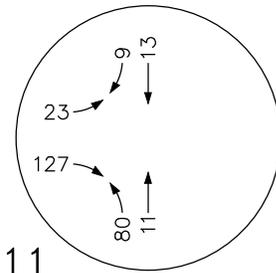
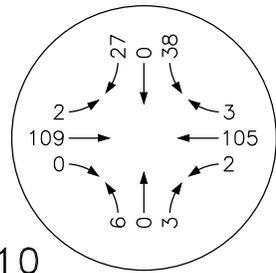
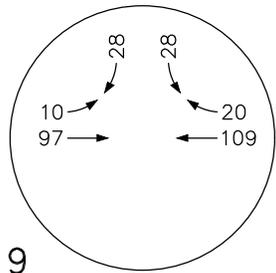
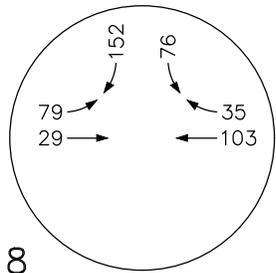
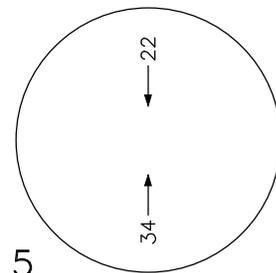
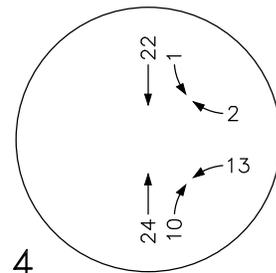
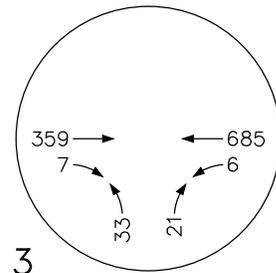
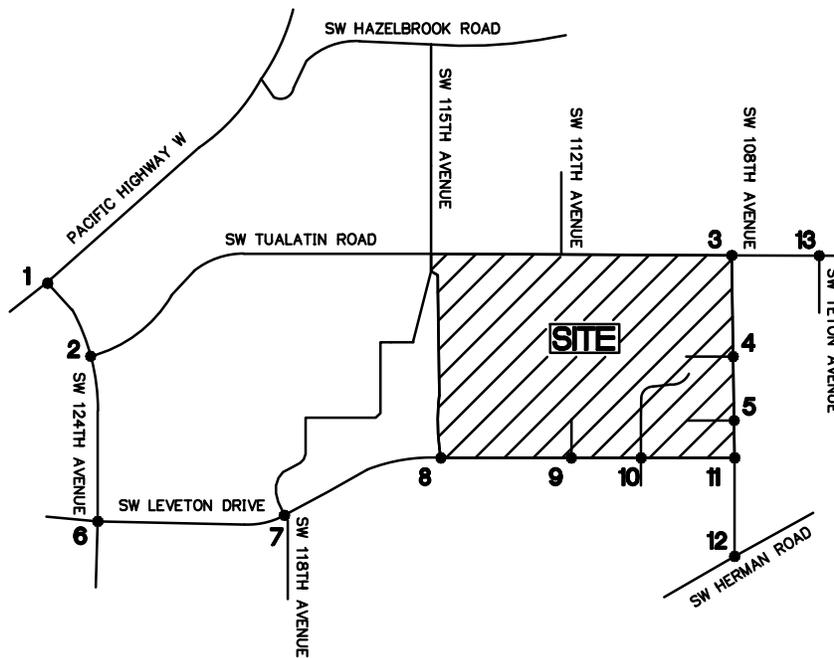
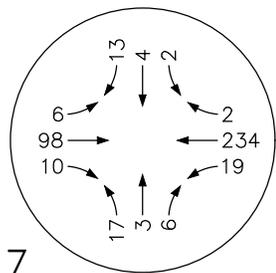
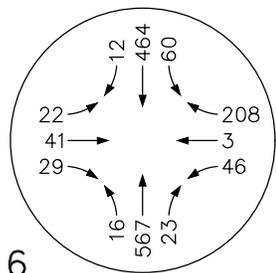
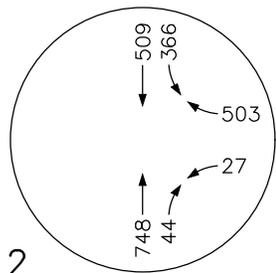
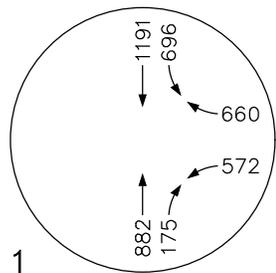
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FIGURE
5A



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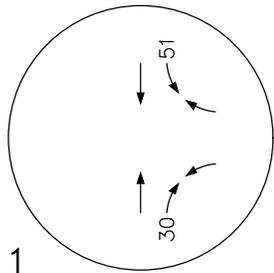
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FIGURE
 5B

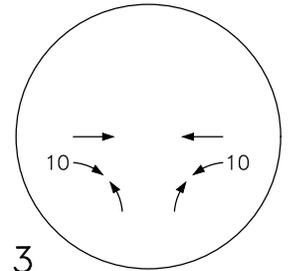
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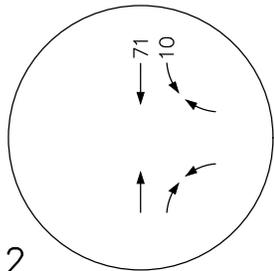
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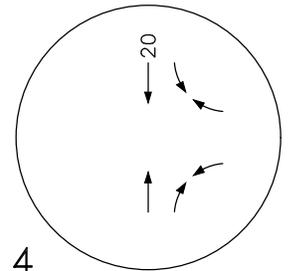
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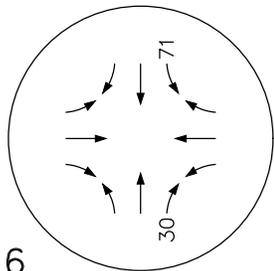
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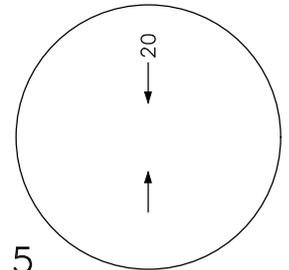
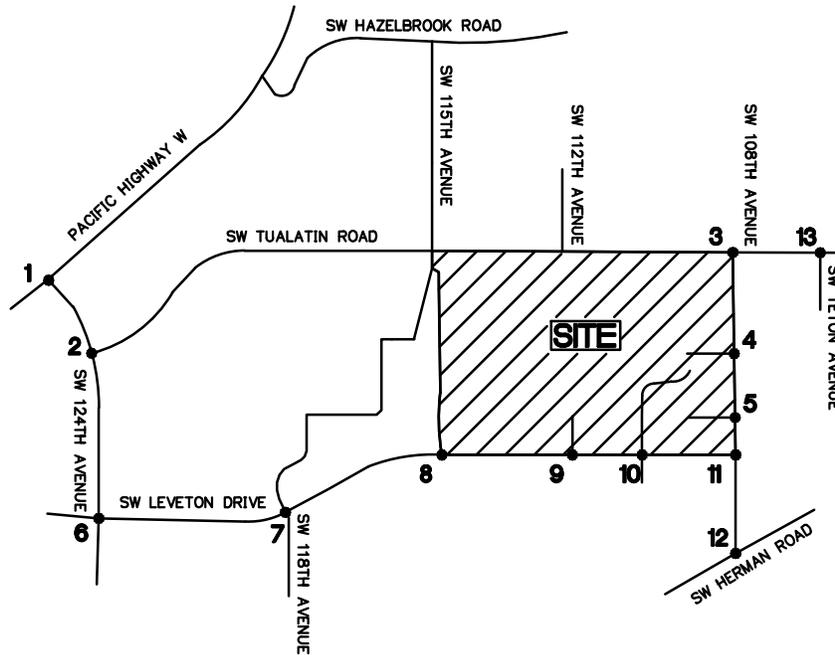
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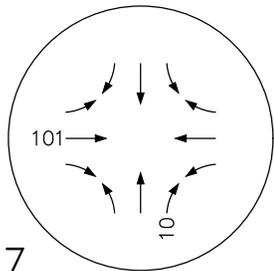
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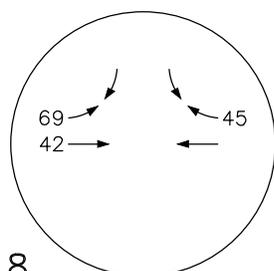
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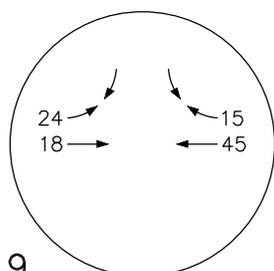
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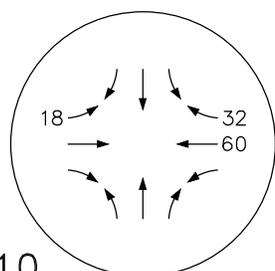
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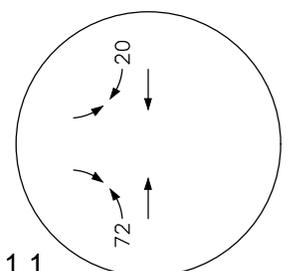
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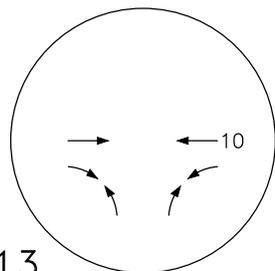
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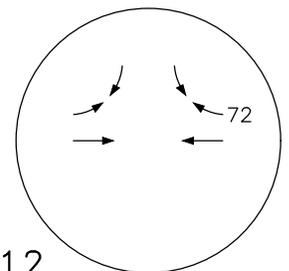
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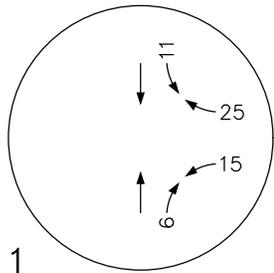
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FIGURE
6A

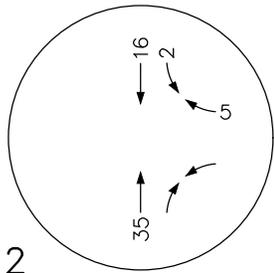
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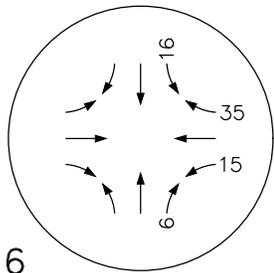
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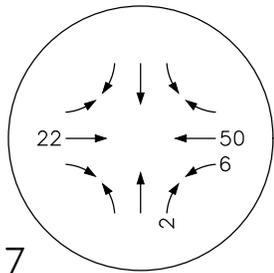
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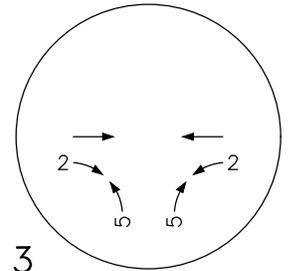
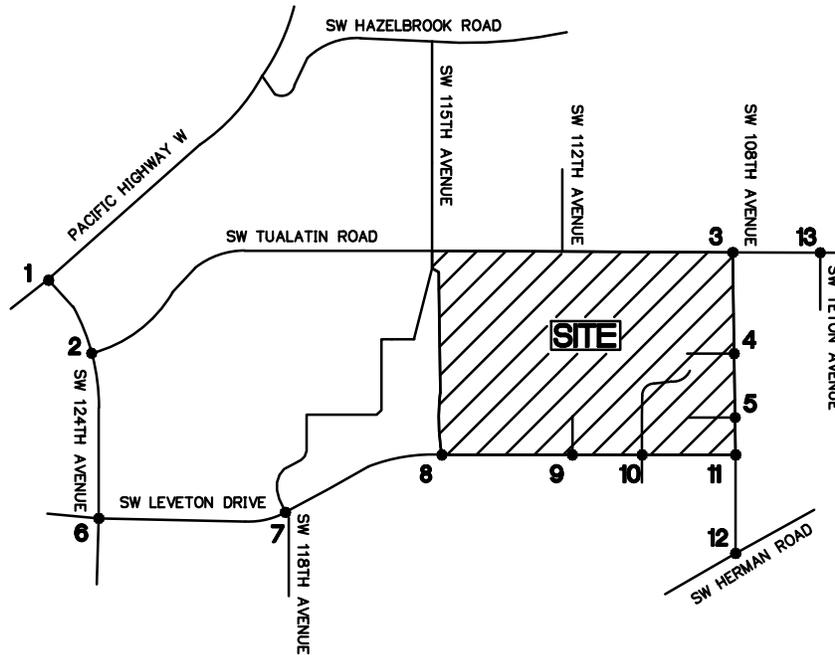
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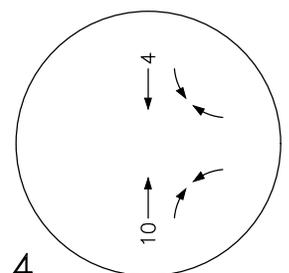
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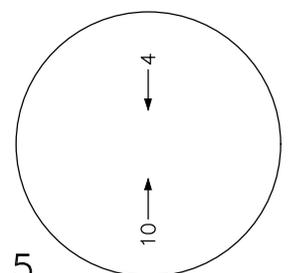
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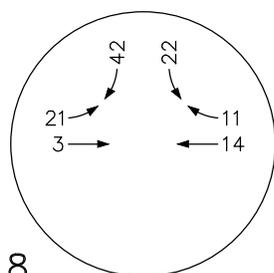
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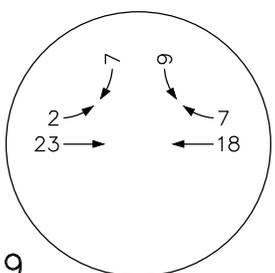
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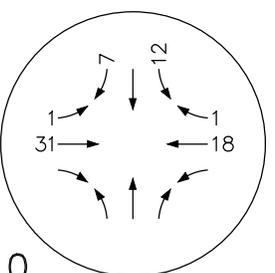
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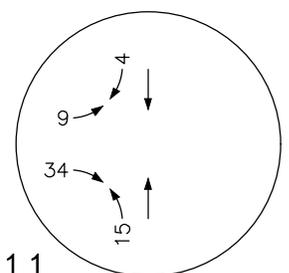
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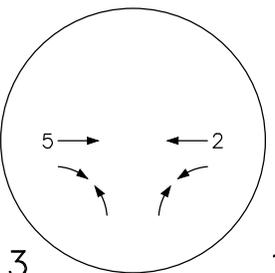
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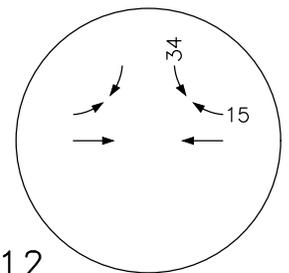
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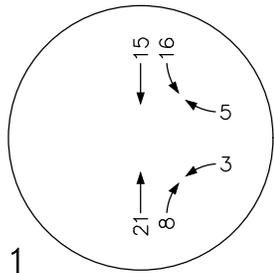
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FIGURE
6B

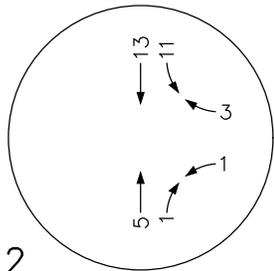
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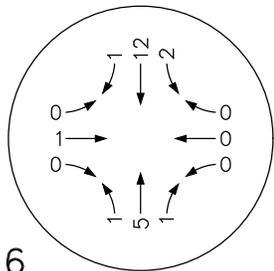
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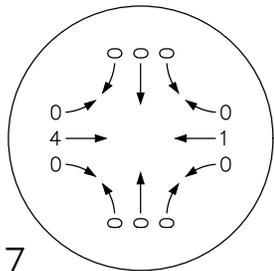
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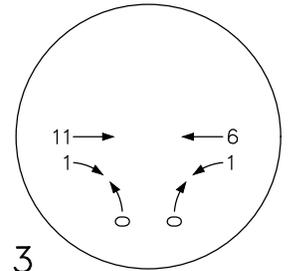
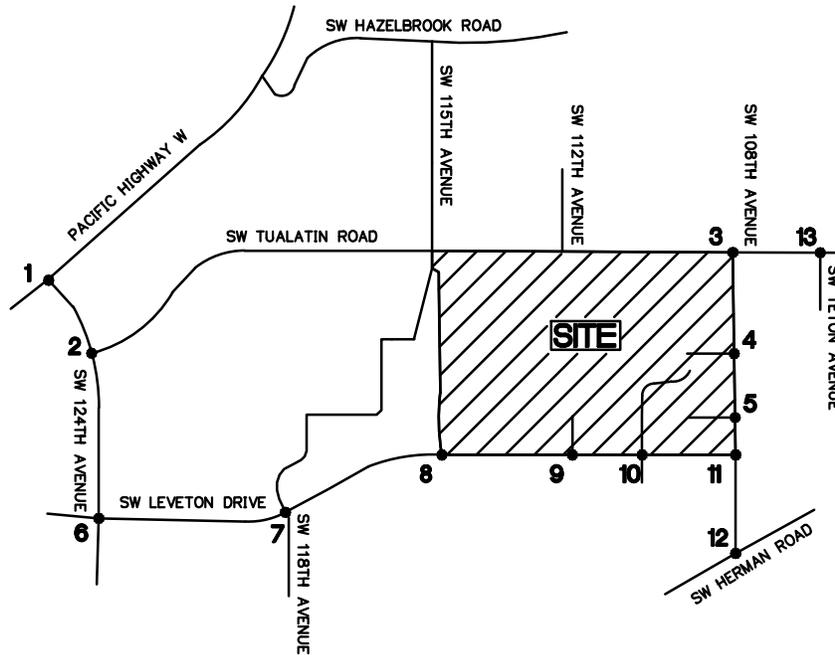
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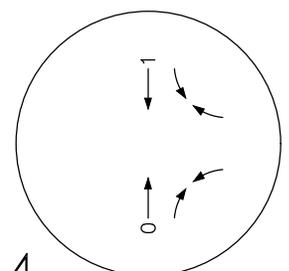
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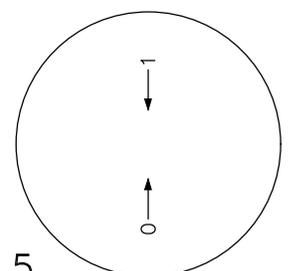
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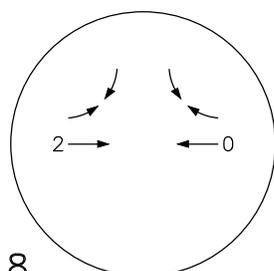
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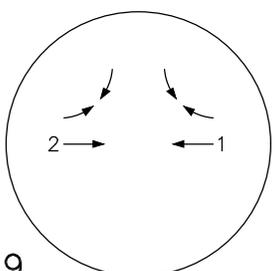
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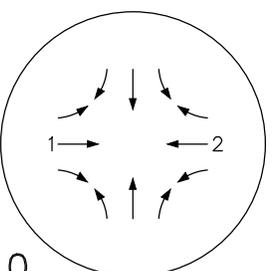
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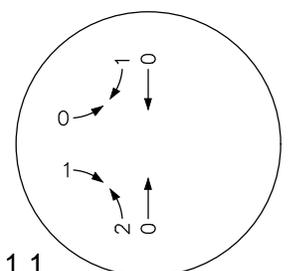
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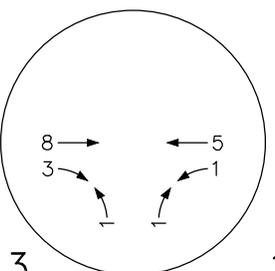
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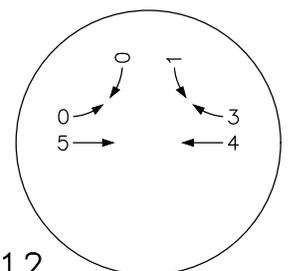
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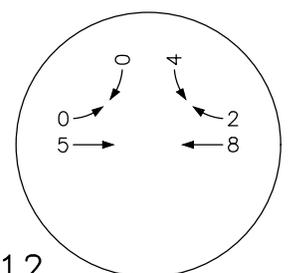
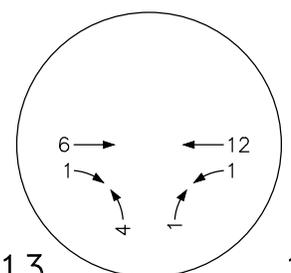
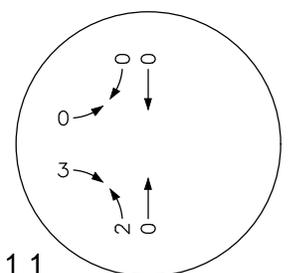
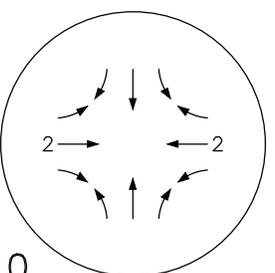
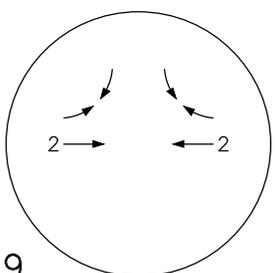
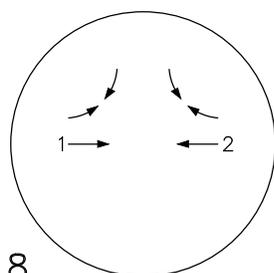
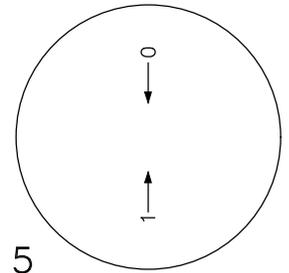
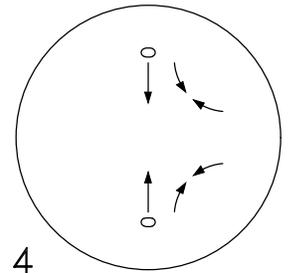
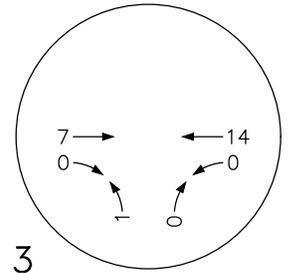
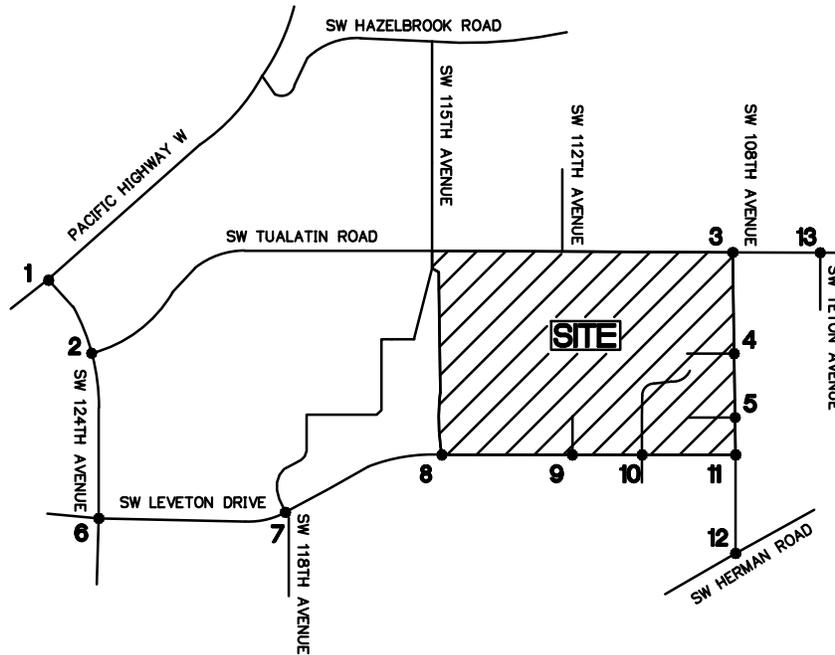
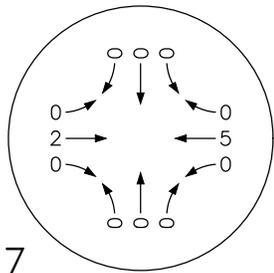
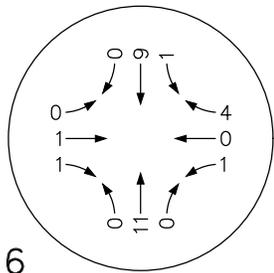
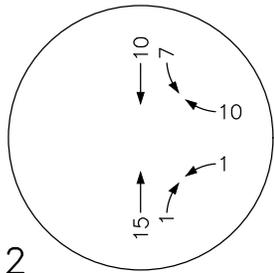
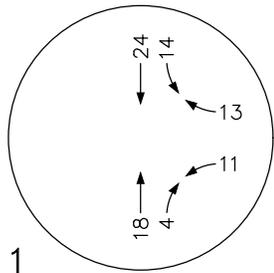
BACKGROUND TRAFFIC GROWTH,
2 YEARS AT 1.0% PER YEAR -
AM PEAK HOUR

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FIGURE
7A



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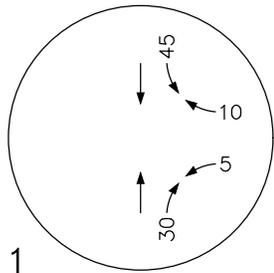
**BACKGROUND TRAFFIC GROWTH,
 2 YEARS AT 1.0% PER YEAR -
 PM PEAK HOUR**
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**FIGURE
 7B**

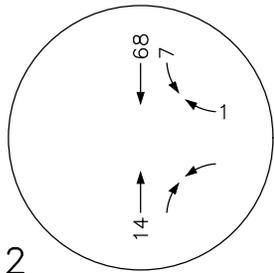
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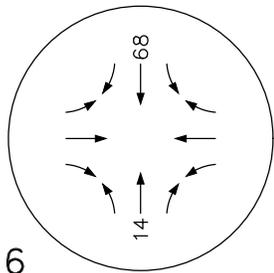
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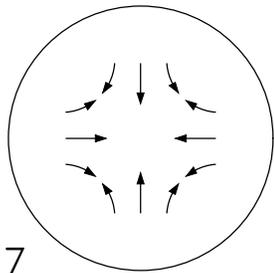
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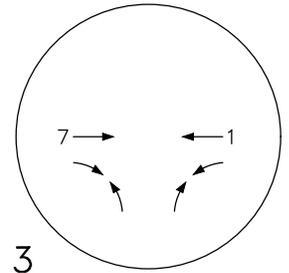
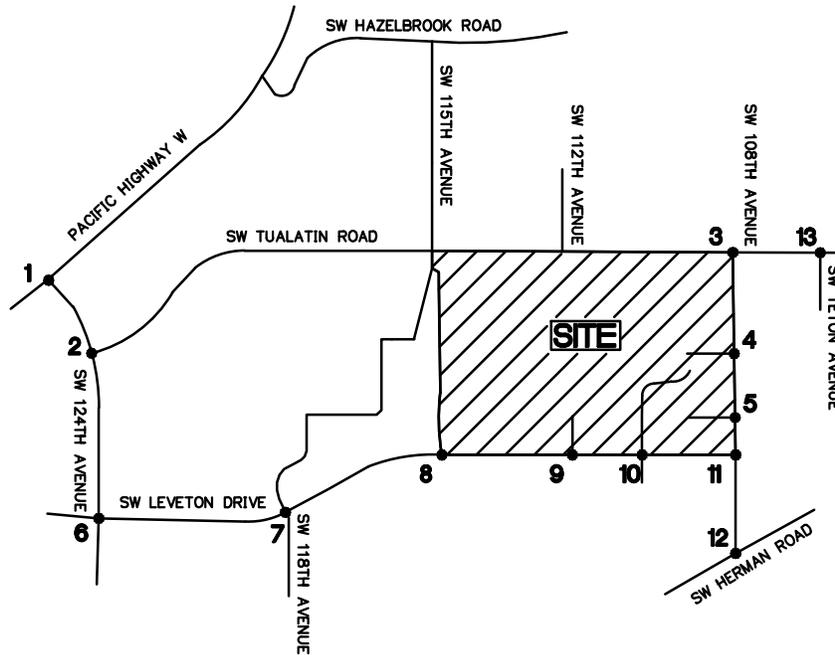
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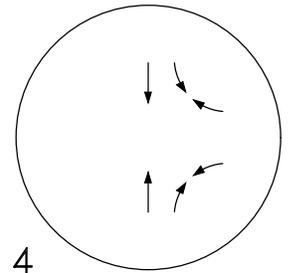
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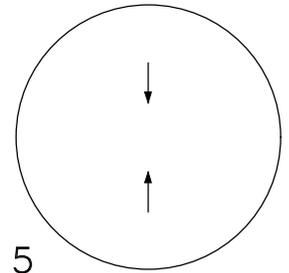
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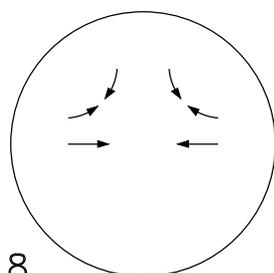
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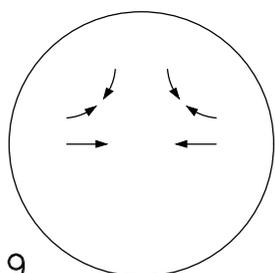
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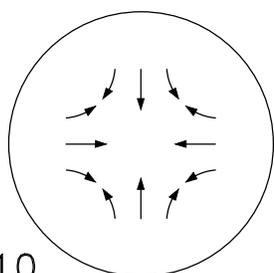
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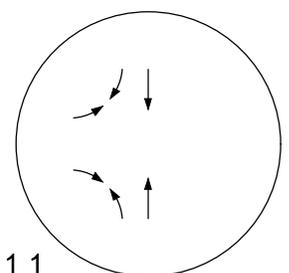
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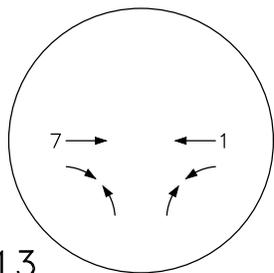
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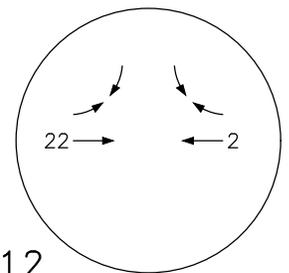
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12



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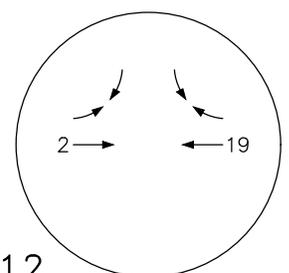
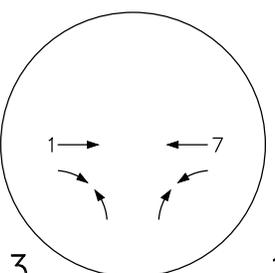
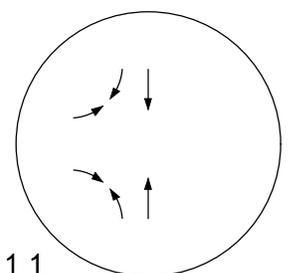
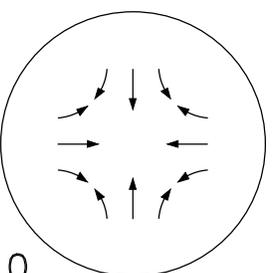
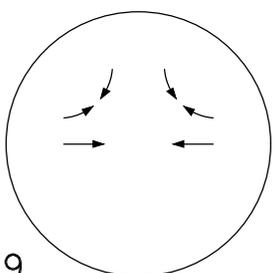
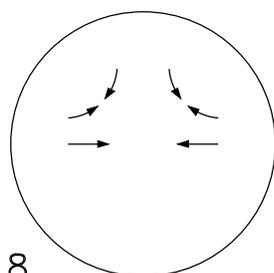
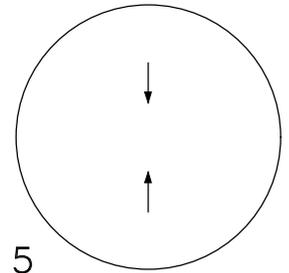
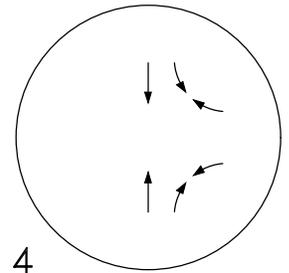
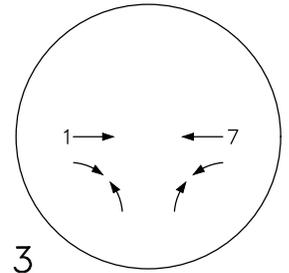
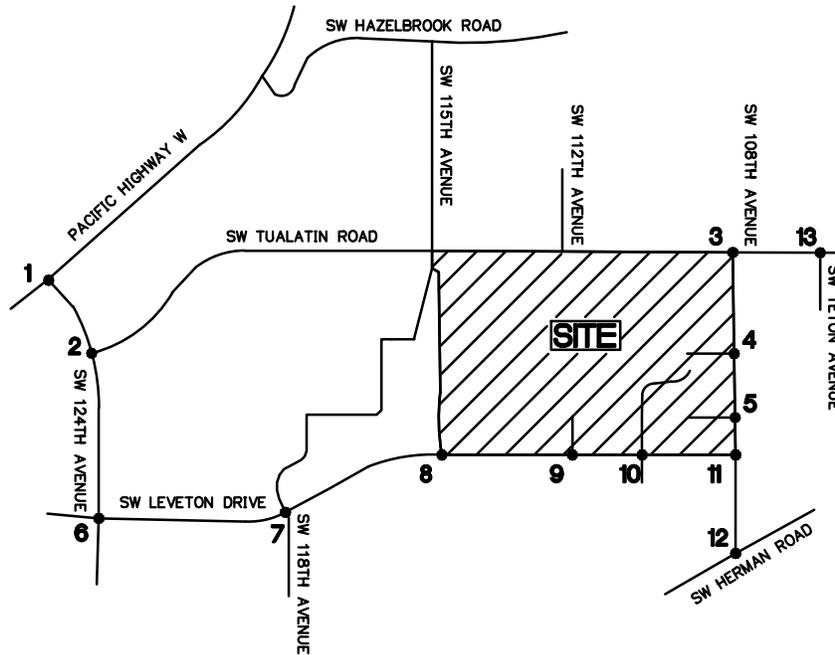
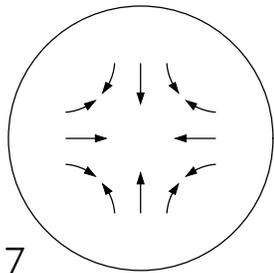
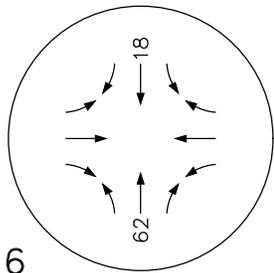
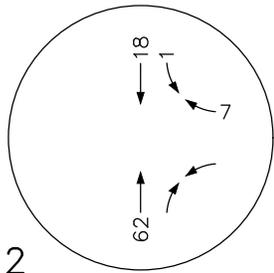
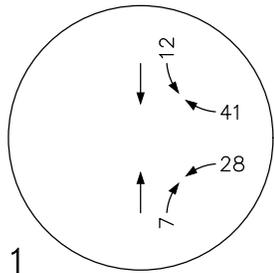
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FIGURE
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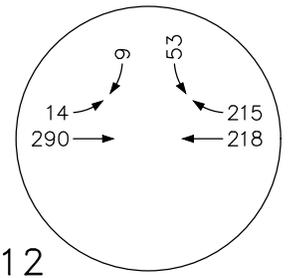
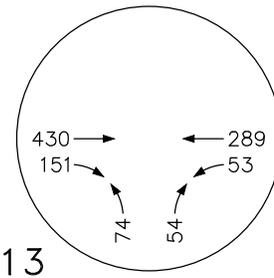
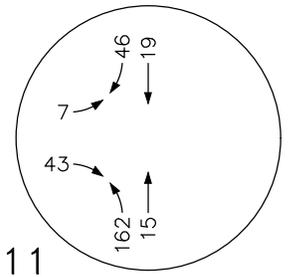
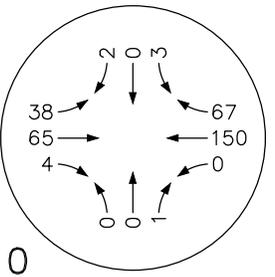
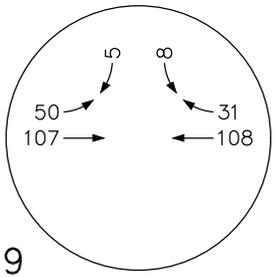
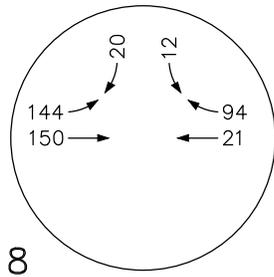
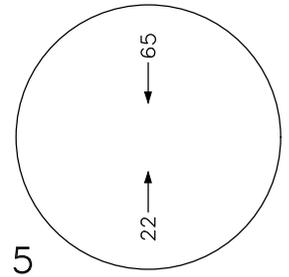
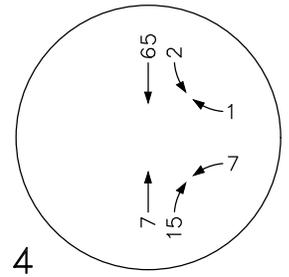
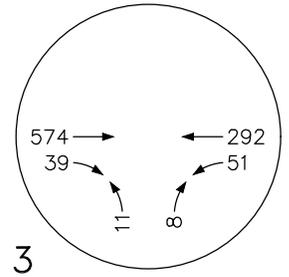
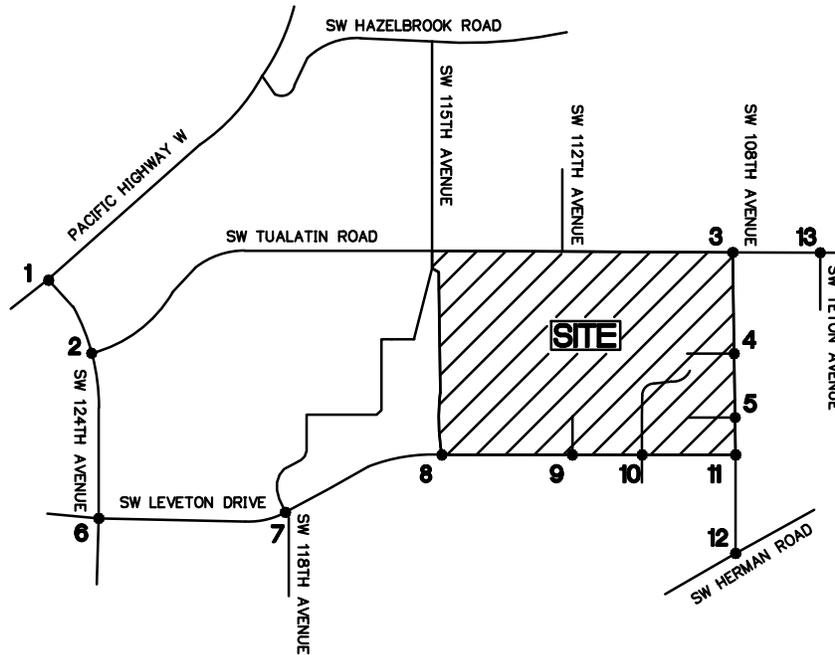
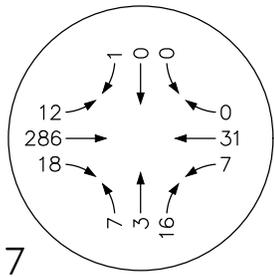
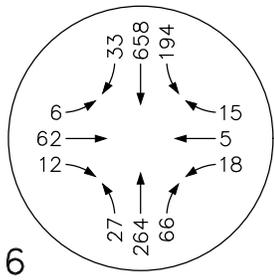
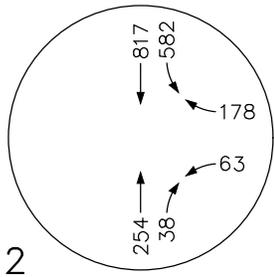
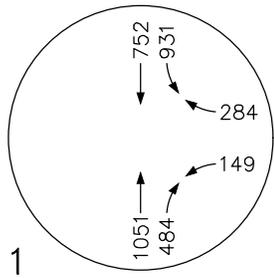
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FIGURE
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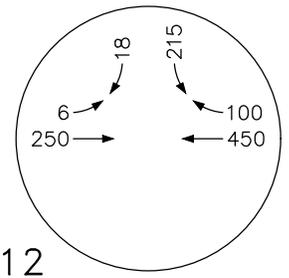
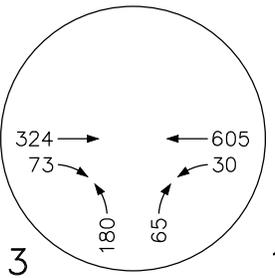
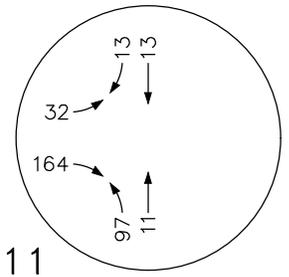
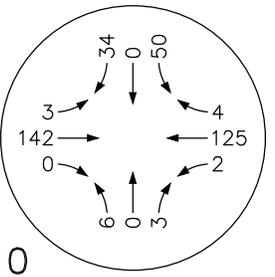
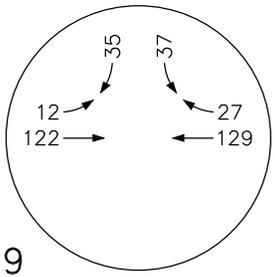
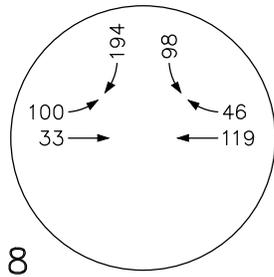
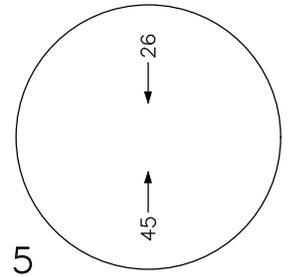
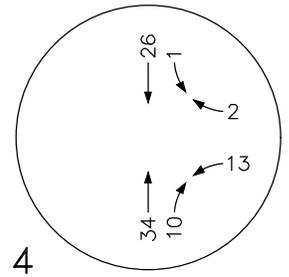
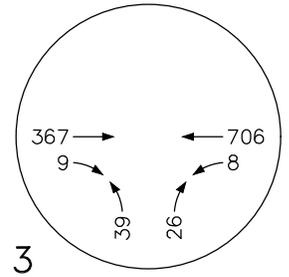
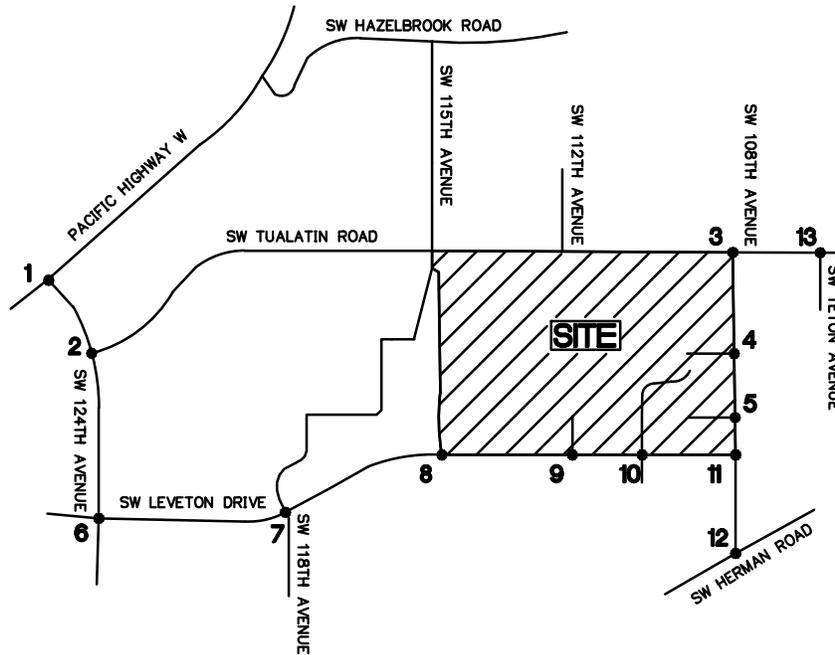
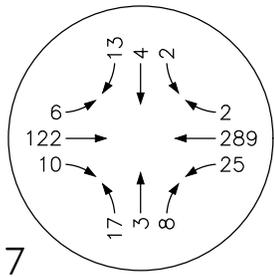
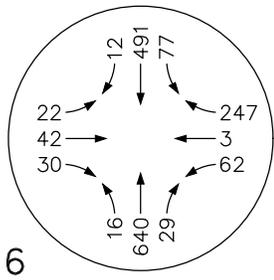
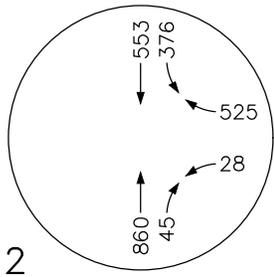
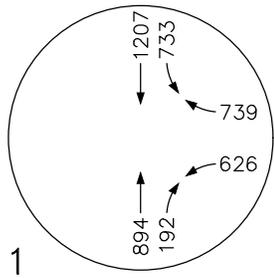
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FIGURE
 9A

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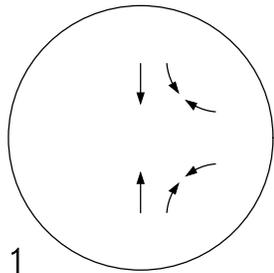
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FIGURE
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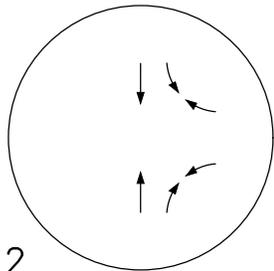
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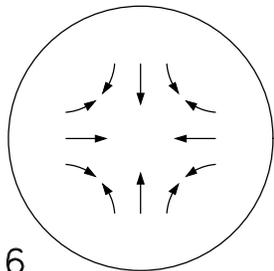
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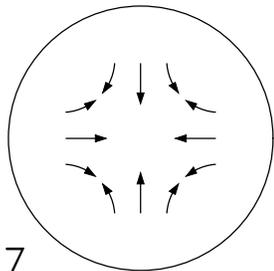
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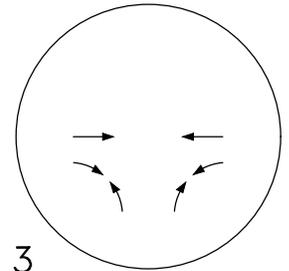
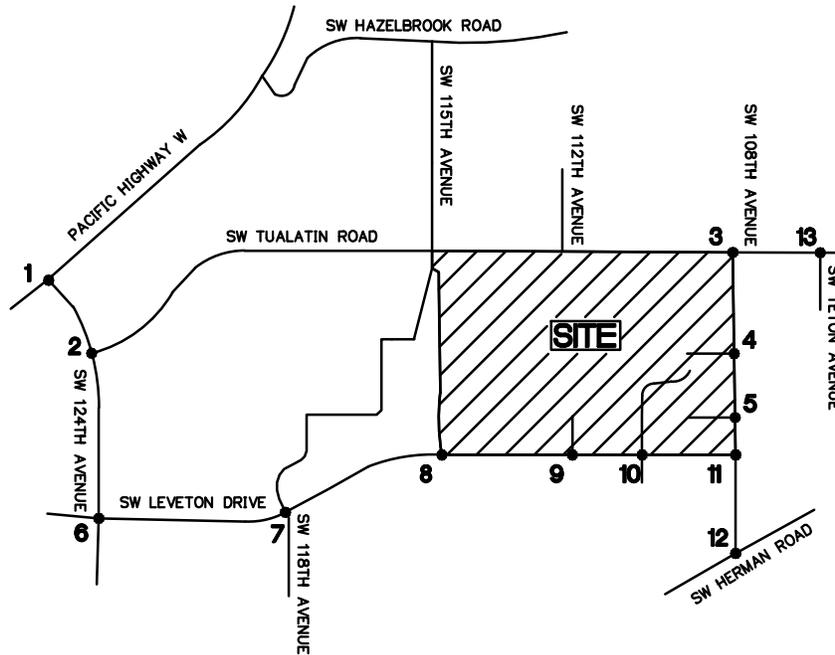
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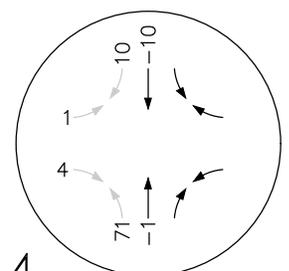
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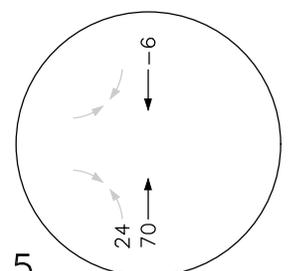
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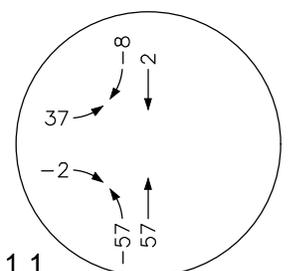
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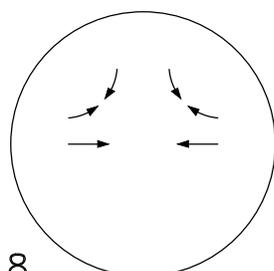
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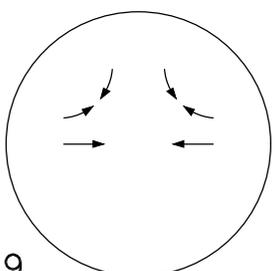
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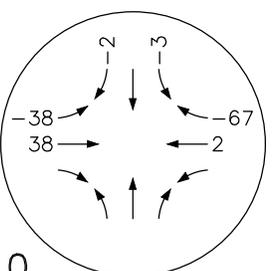
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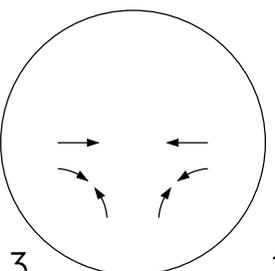
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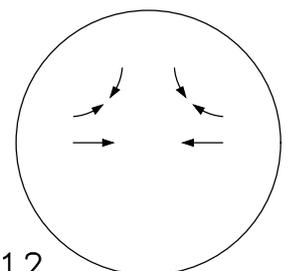
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REROUTED TRIPS -
AM PEAK HOUR

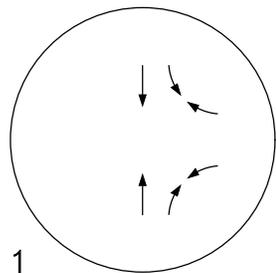
LAM RESEARCH NEW OFFICE BUILDING
TUALATIN, OREGON

FIGURE
10A

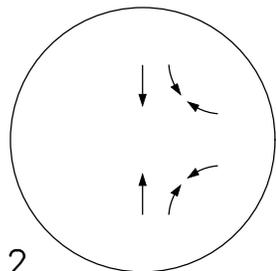
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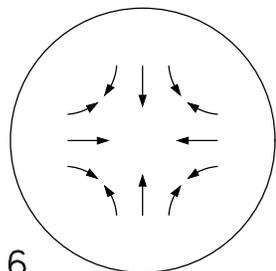
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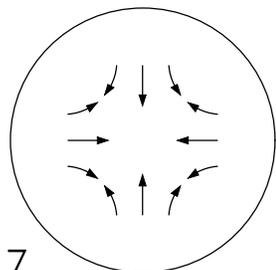
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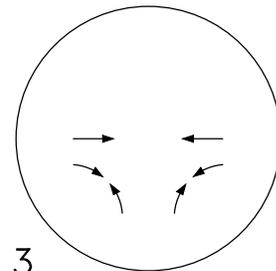
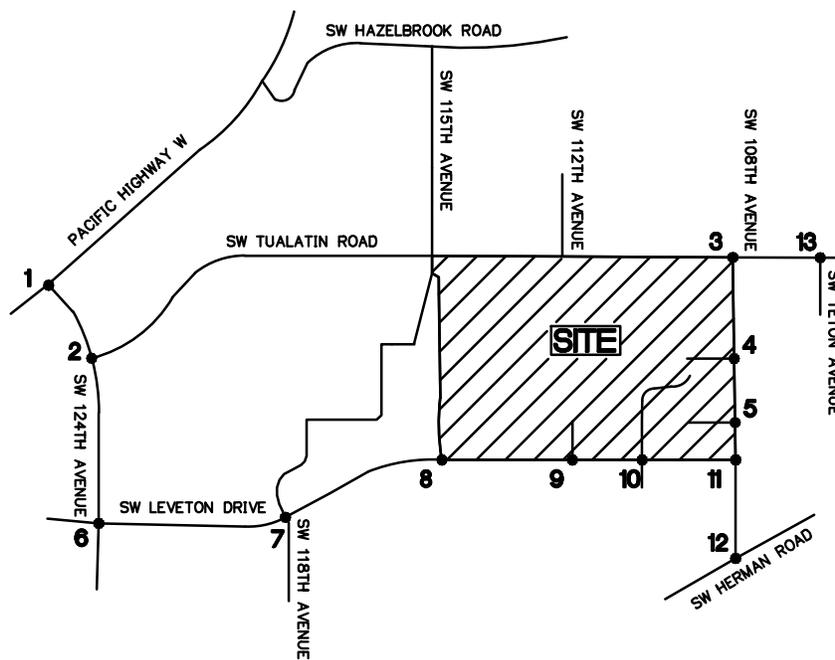
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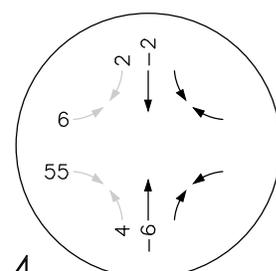
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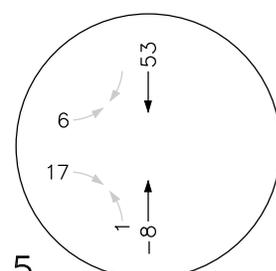
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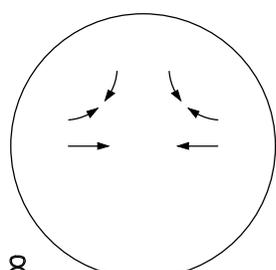
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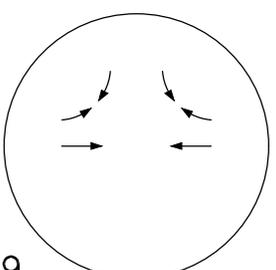
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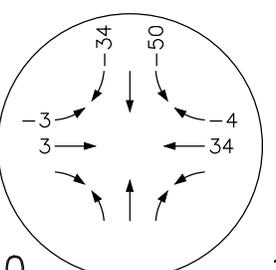
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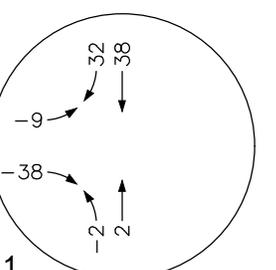
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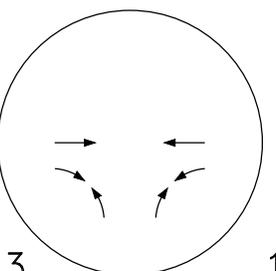
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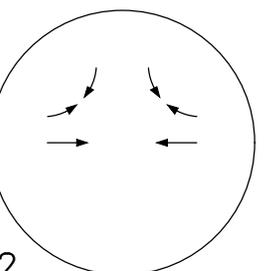
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EAST ACCESS
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PM PEAK HOUR

LAM RESEARCH NEW OFFICE BUILDING
TUALATIN, OREGON

FIGURE
10B

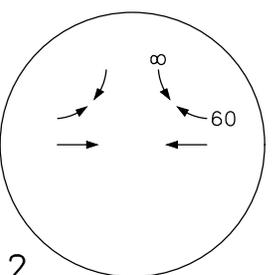
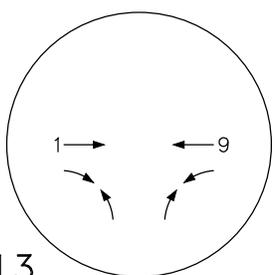
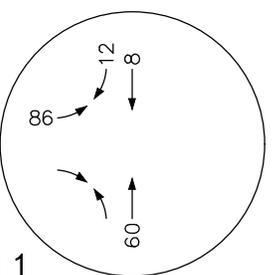
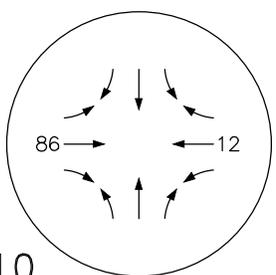
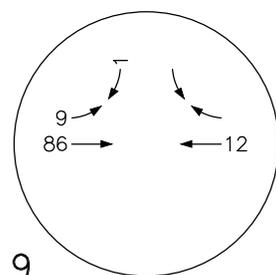
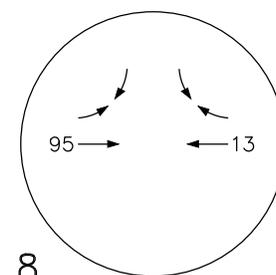
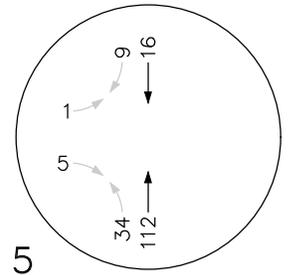
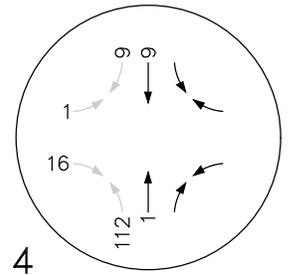
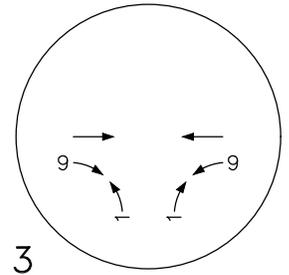
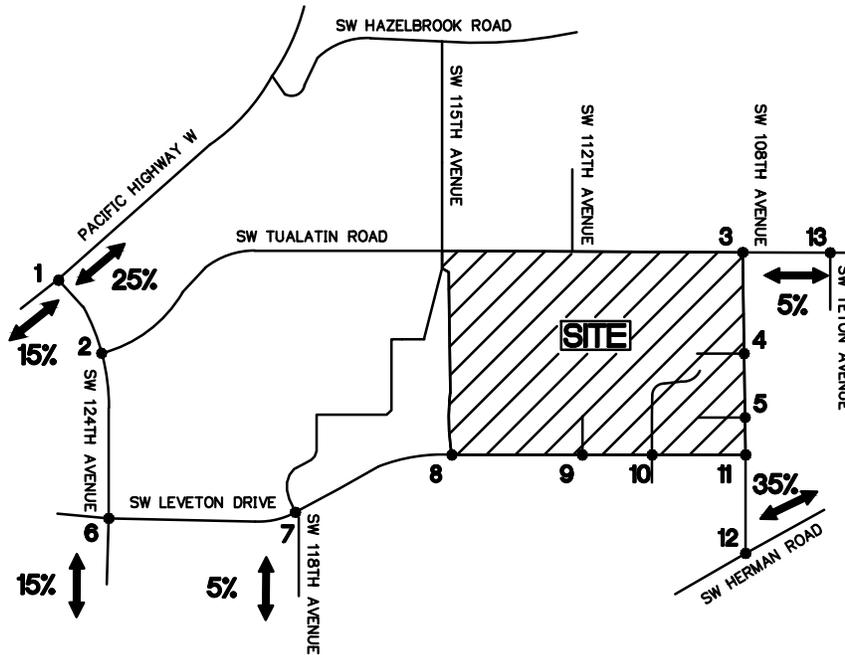
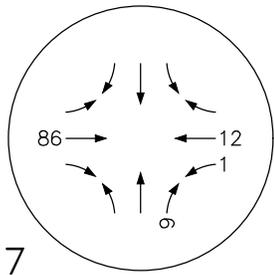
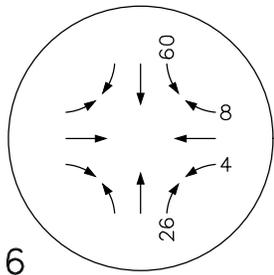
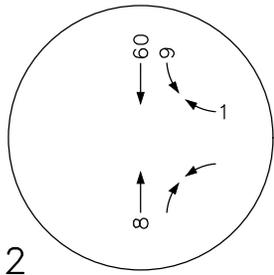
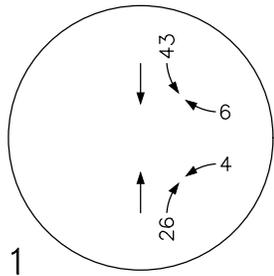
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Enter - 172
Exit - 24
Total - 196



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JOB NO:
222008700

PRIMARY TRIP DISTRIBUTION + TRAFFIC ASSIGNMENT - AM PEAK HOUR
LAM RESEARCH NEW OFFICE BUILDING TUALATIN, OREGON

FIGURE 11A

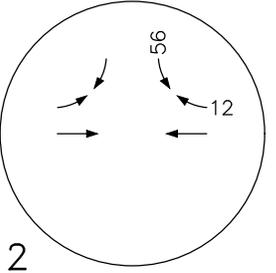
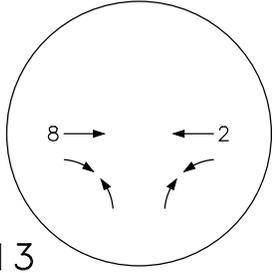
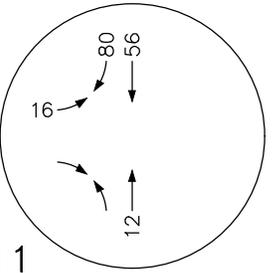
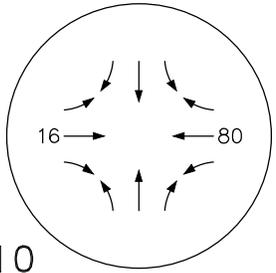
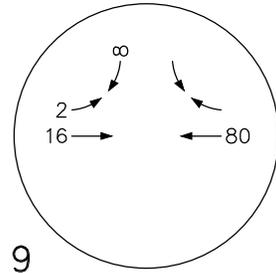
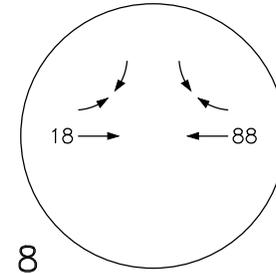
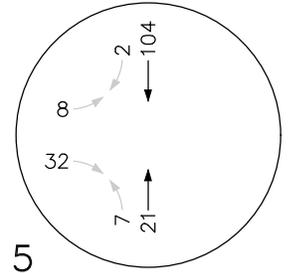
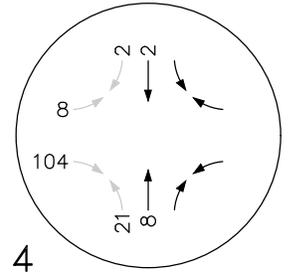
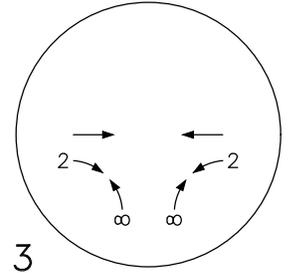
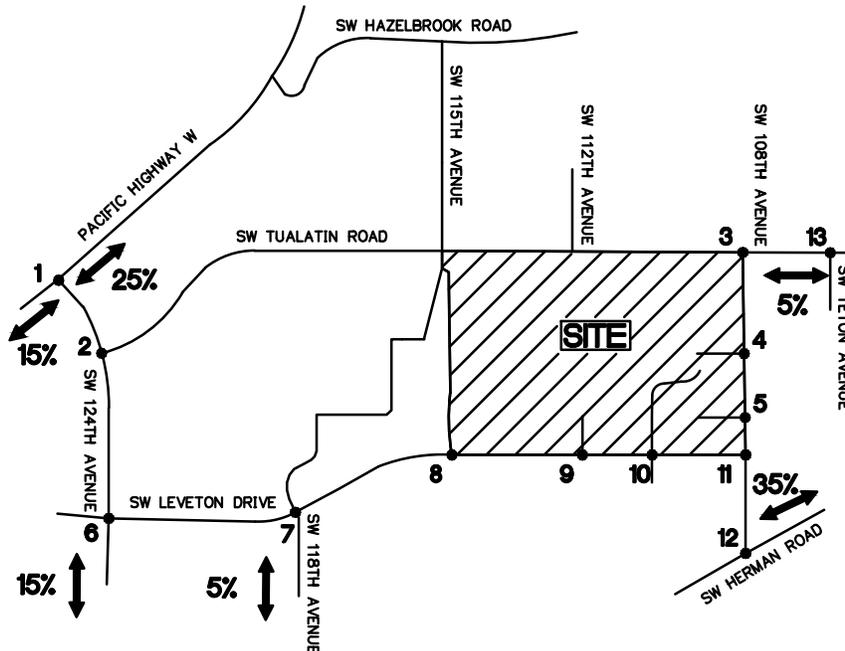
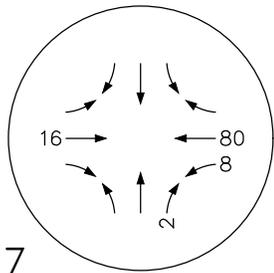
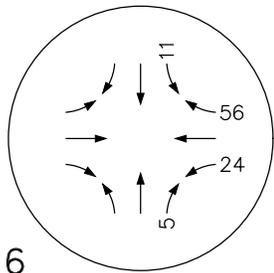
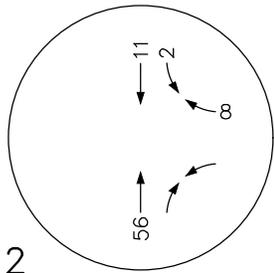
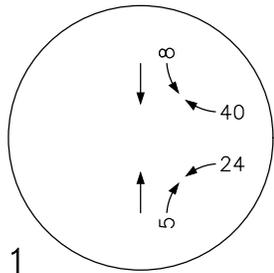
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PM PEAK HOUR

Enter - 33
Exit - 160
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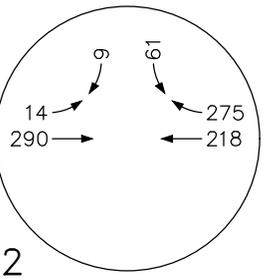
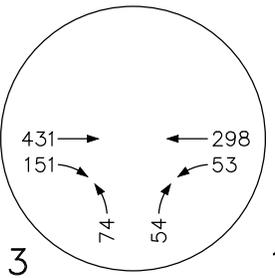
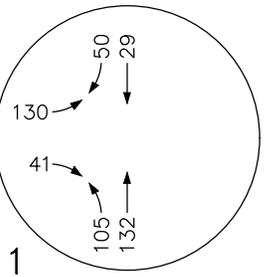
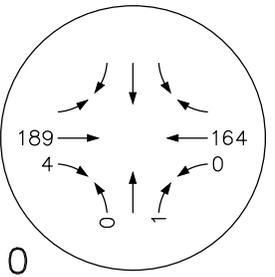
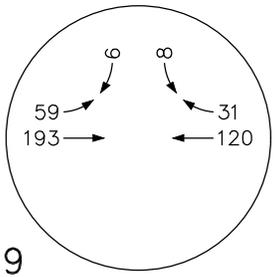
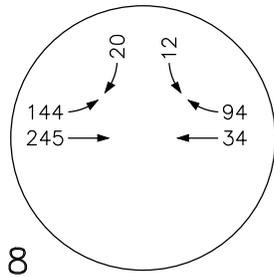
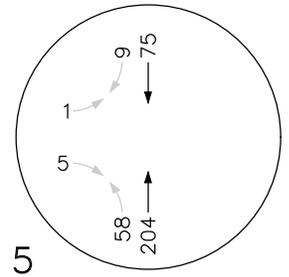
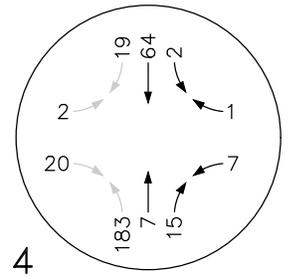
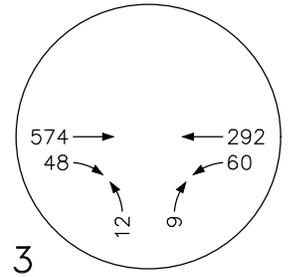
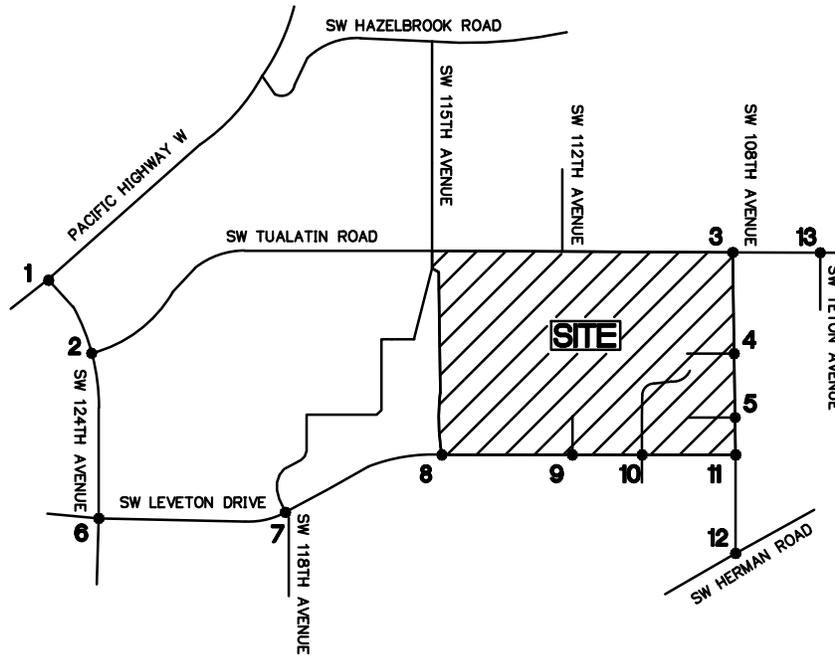
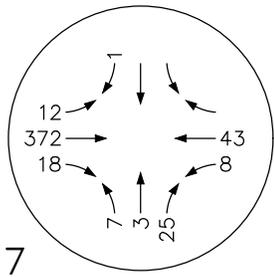
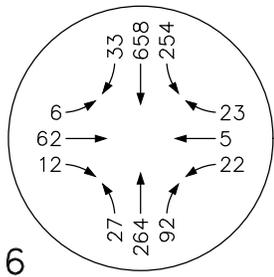
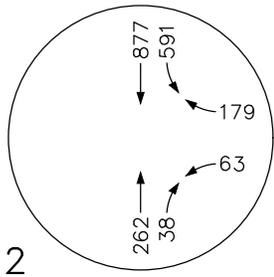
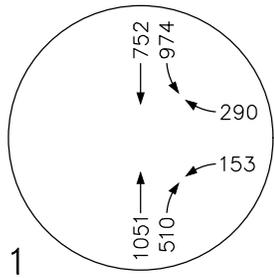
PRIMARY TRIP DISTRIBUTION + TRAFFIC ASSIGNMENT - PM PEAK HOUR
LAM RESEARCH NEW OFFICE BUILDING TUALATIN, OREGON

FIGURE 11B

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DATE: 08.10.22

DRAWN BY: CNL

CHECKED BY: JTJ

JOB NO:
222008700

2024 POST-DEVELOPMENT
TRAFFIC VOLUMES -
AM PEAK HOUR

LAM RESEARCH NEW OFFICE BUILDING
TUALATIN, OREGON

FIGURE
12A

APPENDIX B.
SCOPING MATERIAL

MACKENZIE.

June 30, 2022

City of Tualatin
Attention: Tony Doran
18880 SW Martinazzi Avenue
Tualatin, OR 97062

Re: **Lam Research New Office Building**
Transportation Impact Analysis Scoping
Project Number 2220087.00

Dear Tony:

Mackenzie has prepared this scoping letter in advance of preparing the required Transportation Impact Analysis (TIA) for the proposed new office building for the Lam Research campus in Tualatin, Oregon.

SITE CONDITIONS

Existing

The Lam Research campus is bounded by SW Tualatin Road to the north, SW 108th Avenue to the east, SW Leveton Drive to the south, and JAE Oregon to the west. The site currently has three full-movement driveways on SW Leveton Drive, a gated access on SW 108th Avenue, and a gated fire access from Quackenbush Lane, opposite SW 115th Avenue. The existing building area is currently 553,140 square feet (SF). There are currently approximately 1,270 seated/office staff and approximately 975 manufacturing staff working 5 AM to 5 PM and 5 PM to 5 AM.

Proposed

An approximately 120,000 SF office building is proposed just north of SW Leveton Drive between the existing Center and East Access. Up to 600 office staff are planned to occupy the proposed building, with fewer than 10% working remotely. Additional surface parking for up to 500 spaces is proposed south of the existing surface parking and north along SW 108th Avenue. The buildout year for the new office building is assumed to be 2024.

The existing East Access is proposed to be narrowed and limited to trucks serving the new building. With loss of this access for employees, two (2) new driveways are proposed on SW 108th Avenue with direct access to the expanded parking area. The North Access is proposed to be aligned opposite the north driveway serving Olympic Controls. The South Access is proposed approximately 445 feet south of the North Access, between driveways for Ascentec Engineering.

TRIP GENERATION

Trip generation estimates were developed with the use of the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition. The City requires the reasonable worst case for trip generation be analyzed. Therefore, data for ITE's "General Office Building" (LUC 710) was utilized to estimate trips for the proposed office.



TABLE 1 – PROPOSED TRIP GENERATION

ITE Code	Land Use	Size	Trip Type	AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
710	General Office Building	600 Employees	Total	262	36	298	47	230	277	2,002

TRIP DISTRIBUTION

Site trip distribution has been modified slightly from the original master plan based on driveway counts from 2018 and 2022. The following trip distribution is proposed:

- 40% to/from the north on SW 124th Avenue (to access Highway 99W)
 - 25% to/from the north on Highway 99W
 - 15% to/from the south on Highway 99W
- 5% to/from the east on SW Tualatin Road
- 5% to/from the south on SW 118th Avenue
- 15% to/from the south on SW 124th Avenue
- 35% to/from the south on SW 108th Avenue via SW Herman Road

STUDY AREA

The City’s *Traffic Study Requirements* document requires that all intersections within a 1/4-mile radius of the project site be included as part of the study area. The following intersections, including site driveways, are located within a 1/4-mile radius:

- SW Leveton Drive/SW 118th Avenue
- SW Leveton Drive/SW 108th Avenue
- SW Tualatin Road/SW 108th Avenue
- SW Leveton Drive/West Access
- SW Leveton Drive/Center Access
- SW Leveton Drive/East Access
- SW 108th Avenue/North Access
- SW 108th Avenue/South Access

We will include a review of left turns to and from the existing driveway near the proposed South Access on SW 108th Avenue. No Washington County intersections are proposed because projected trips are not expected to meet the threshold of 10% impact of the roadway’s average daily traffic (ADT).

TRANSPORTATION IMPACT ANALYSIS

Based on the City’s traffic study requirements, as well as the required scope for the new Lam Research office building, the TIA will review AM and PM peak hour conditions at the study area intersections for the following scenarios:



- 2022 Existing
- 2024 Pre-Development without New Office Building
- 2024 Post-Development with New Office Building

Existing traffic counts collected on Thursday, June 9, 2022 reflect a portion of Lam office staff telecommuting. While a review of historical and existing traffic counts on I-5 just north of the Nyberg Street exit shows that existing traffic in the greater Tualatin area may be comparable to pre-COVID traffic, existing counts adjacent to the Lam site are lower due to some staff currently telecommuting.

Lam Research does not currently have a permanent hybrid work plan. Therefore, we propose to growth adjust existing traffic counts to match 100% on-site attendance by applying an adjustment factor of 1.92 in the AM peak hour and 1.28 in the PM peak hour to site trips. These adjustments were based on the actual 2018 and 2022 turning movement volumes at the site driveways. The AM peak adjustment is higher than the PM peak adjustment, likely due to office staff entering the site later in the day, outside the morning peak between 7 AM and 9 AM, while continuing to exit the site during the afternoon peak between 4 PM and 6 PM. These modified site trips will be carried through the adjacent roadway network as needed, similar to in-process trips, to estimate traffic volumes without the current remove work scenario.

The TIA will also include the following analysis components:

- 1% annual background growth per ODOT's 2040 Future Volumes table for OR 99W south of 124th Avenue.
- Intersection capacity analyses will be conducted at the study area intersections using the *Highway Capacity Manual* (HCM) 6 methodology.
- Crash data will be compiled and evaluated for safety concerns.
- Intersection sight distance evaluations will be based on AASHTO methodology for the proposed site access points.
- Intersection queuing, turn-lane warrants, and signal warrants will also be evaluated where appropriate.

Please confirm the proposed trip generation, trip distribution, study area, and TIA analysis components are acceptable for the required TIA.

Please contact me at jjones@mcknze.com or 971-346-3741 if you have any questions or comments regarding the information presented in this scoping letter.

Sincerely,



Janet Jones, PE
Associate | Traffic Engineer

Enclosure(s): Attachment A – Site Plan
Attachment B – 2018 Turning Movement Counts
Attachment C – 2022 Turning Movement Counts

c: Mike McCarthy – City of Tualatin
Mike Rueter, Suzannah Stanley, Brent Nielsen, Brent Ahrend – Mackenzie



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TUALATIN**

NEW OFFICE BUILDING

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REVISION SCHEDULE		
Delta	Issued As	Issue Date

SHEET TITLE:
**OVERALL
SITE PLAN**

DRAWN BY: BDN

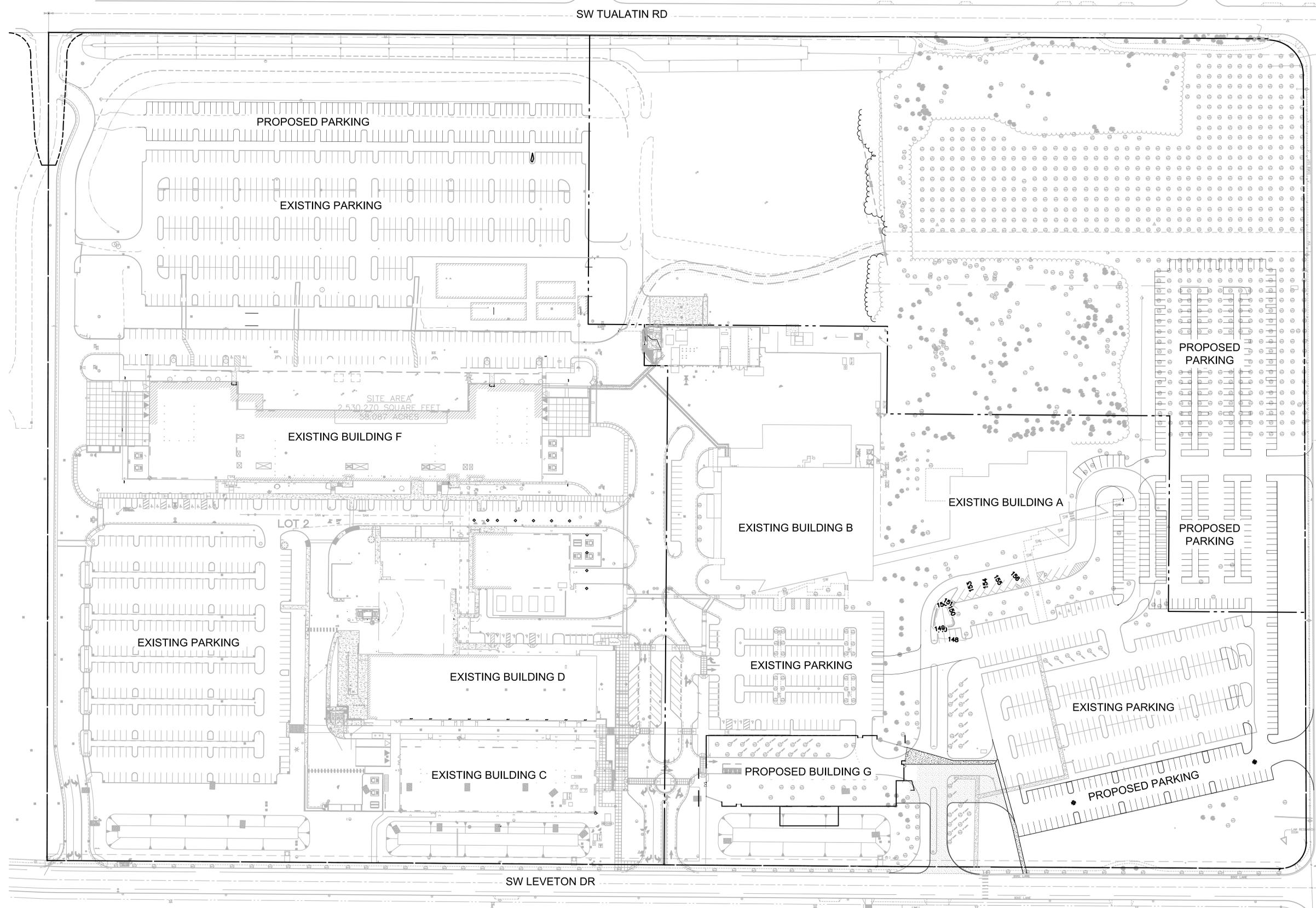
CHECKED BY: BDN

SHEET

EX 1

JOB NO. **2220087.00**

PRELIMINARY ONLY
222008700\DRAWINGS\CIVIL\087-OVERALL SITE PLAN.DWG:4230 BDN 05/31/22 15:59 1/8"



SW TUALATIN RD

SW 108TH AVE

SW LEVETON DR



1
EX 1

OVERALL SITE PLAN



(IN FEET)

1 inch = 60 ft.

Clara Layton

From: Mike McCarthy <mmccarthy@tualatin.gov>
Sent: Tuesday, August 2, 2022 8:52 AM
To: Clara Layton; Tony Doran
Cc: Mike Rueter; Brent Nielsen; Suzannah Stanley; Brent Ahrend; Kim McMillan; Janet T. Jones; 'Jennifer Danziger'; Steve Koper; Erin Engman
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Hi Clara,

In the Traffic Study area, please also include the intersection of Tualatin Road with Teton Avenue, which is just a bit to the east of the project. We have received concerns from the public about the effect of development traffic on the Tualatin/Teton intersection.

Thanks,

Mike McCarthy, P.E.
Interim City Engineer
City of Tualatin
Office: 503-691-3674
Mobile: 971-666-0000

From: Clara Layton <CLayton@mcknze.com>
Sent: Thursday, July 28, 2022 1:50 PM
To: Mike McCarthy <mmccarthy@tualatin.gov>; Tony Doran <TDORAN@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>; Janet T. Jones <JTJ@mcknze.com>; 'Jennifer Danziger' <jennifer@lancastermoble.com>; Steve Koper <skoper@tualatin.gov>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Mike,

Thanks so much for all of your scoping comments and in-process project information. We were able to obtain all relevant traffic studies from Jennifer Danzinger.

Clara Layton | she/her/hers
D 971.254.9496 E clayton@mcknze.com

Mackenzie Email [Disclaimer](#)

From: Mike McCarthy <mmccarthy@tualatin.gov>
Sent: Wednesday, July 27, 2022 8:34 AM
To: Mike McCarthy <mmccarthy@tualatin.gov>; Clara Layton <CLayton@mcknze.com>; Tony Doran <TDORAN@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>; Janet T. Jones <JTJ@mcknze.com>; 'Jennifer Danziger' <jennifer@lancastermoble.com>; Steve Koper <skoper@tualatin.gov>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Hi Clara,

Please also ask Jennifer about a project on Myslony St called Hedges Creek.

The River Ridge project need not be considered – they would need additional land use approvals before they could build something that would generate enough traffic to need to be studied.

Thanks,

Mike McCarthy, P.E.
Interim City Engineer
City of Tualatin
Office: 503-691-3674
Mobile: 971-666-0000

From: Mike McCarthy
Sent: Tuesday, July 26, 2022 6:08 PM
To: 'Clara Layton' <CLayton@mcknze.com>; Tony Doran <TDORAN@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>; Janet T. Jones <JTJ@mcknze.com>; 'Jennifer Danziger' <jennifer@lancastermobley.com>; Steve Koper <skoper@tualatin.gov>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Hi Clara,

The numbers and intersections below seem reasonable.

The Herman Road project is under construction. The River Ridge project has not been built yet. The Columbia Roofing project is old enough it need not be considered.

Another in-process development is the Tualatin Logistics Park on the site of the Island Greens driving range/mini golf site. Please contact Jennifer Danziger at Lancaster-Mobley to get the latest numbers for it.

Tony – please chime in if there are other in-process developments that would affect this study area.

Thanks,

Mike McCarthy, P.E.
Interim City Engineer
City of Tualatin
Office: 503-691-3674
Mobile: 971-666-0000

From: Clara Layton <CLayton@mcknze.com>
Sent: Tuesday, July 26, 2022 4:16 PM
To: Mike McCarthy <mmccarthy@tualatin.gov>; Tony Doran <TDORAN@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>; Janet T. Jones <JTJ@mcknze.com>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Good afternoon!

We did some digging and found three projects that have been approved in the vicinity of our site. Can you confirm that the projects below have not been constructed, and include any additional projects relevant to our study area intersections?

AR-20-0002 Herman Road Industrial: <https://www.tualatinoregon.gov/planning/ar-20-0002-herman-road-industrial>

AR-18-0005 Columbia Roofing Building Addition: <https://www.tualatinoregon.gov/planning/ar18-0005-columbia-roofing-building-addition>

AR-19-0004 River Ridge Addition: <https://www.tualatinoregon.gov/planning/ar-19-0004-river-ridge-addition>

Thanks!

Clara Layton | she/her/hers

D 971.254.9496 E clayton@mcknze.com

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From: Clara Layton

Sent: Friday, July 22, 2022 9:17 AM

To: Mike McCarthy <mmccarthy@tualatin.gov>; Janet T. Jones <JTJ@mcknze.com>; Tony Doran <TDORAN@tualatin.gov>

Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley

<SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>

Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Good morning, Mike!

I'm just following up to see if you've had a chance to review the trip generation information and proposed study area we provided.

With your comments, can you please include any relevant in-process projects, if any?

Thanks.

Clara Layton | she/her/hers

D 971.254.9496 E clayton@mcknze.com

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From: Clara Layton

Sent: Tuesday, July 19, 2022 2:07 PM

To: Mike McCarthy <mmccarthy@tualatin.gov>; Janet T. Jones <JTJ@mcknze.com>; Tony Doran <TDORAN@tualatin.gov>

Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley

<SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>

Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Mike,

Good morning! My name's Clara Layton, I'm helping Janet with the TIA for the new Lam Research office building.

Thank you for providing comments on the TIA scoping materials. Attached are figures presenting our current trip distribution and traffic assignment assumptions, showing all new trips added to each study intersection. These trips are based on ITE Trip Generation data for a General Office Building land use based on the 120-KSF building area, as summarized below:

LUC	Land Use	Size	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
710	General Office Building	120 KSF	172	24	196	33	160	193	1,360

Based on the TIA requirements document you provided, we will be including all of the following intersections in our study area, as all (with the exception of Tualatin/108th, which is a key frontage intersection) will have at least 60 trips added in one hour:

1. Pacific Highway W (OR-99W)/SW 124th Avenue
2. SW Tualatin Road/SW 124th Avenue
3. SW Tualatin Road/SW 108th Avenue
4. SW 108th Avenue/North Access
5. SW 108th Avenue/South Access
6. SW Leveton Drive/SW 124th Avenue
7. SW Leveton Drive/SW 118th Avenue
8. SW Leveton Drive/West Access
9. SW Leveton Drive/Center Access
10. SW Leveton Drive/East Access
11. SW Leveton Drive/SW 108th Avenue
12. SW Herman Road/SW 108th Avenue

To your question, there is no current plan for site traffic to access off of NW Tualatin Road, so we do not plan to analyze the driveway opposite NW 115th Avenue.

While we continue to prepare our TIA report, are there any current in-process projects that the City anticipates will add trips to our study intersections?

Thanks.

Clara Layton | she/her/hers
 D 971.254.9496 E clayton@mcknze.com

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From: Mike McCarthy <mmccarthy@tualatin.gov>
Sent: Friday, July 15, 2022 3:14 PM
To: Janet T. Jones <JTJ@mcknze.com>; Tony Doran <TDORAN@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>; Kim McMillan <kmcmillan@tualatin.gov>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Hi Janet,

Thank you for sending in the TIA scoping letter for the new Lam Research office building.

The scoping letter for the LAM project generally looks good. A few notes/comments:

In case you haven't seen it already, our traffic study requirements have been recently posted on our website at:

[Tualatin Traffic Study Requirements | The City of Tualatin Oregon Official Website](#)

We typically use the ITE Trip Generation rates by the size of building, instead of the number of employees.

Our criteria for determining the study area is:

1. All proposed site access points to the public street system.
2. All roads and intersections along the frontage of the subject property.
3. Any road or intersection where the proposed development would be anticipated to generate more than 500 additional vehicle trips per day or more than 60 vehicle trips in a single hour. If a two-way-stop-controlled intersection functions acceptably and the proposed development would add less than 50 trips per day on the minor leg, it need not be included by this criterion.
4. The route(s) trucks would use from the site to the arterial system must be identified for all developments and analyzed for truck travel if used for more than 10 truck trips per day.
5. Walking and cycling routes to transit stops within ¼ mile, parks and retail areas within ½ mile and, for residential developments, schools within 1 mile.
6. Any other areas where, in staff judgement, traffic study is needed to protect the public interest.

Off-site intersections are typically identified for study based on the number of new trips that would be using them based on category 3 above – or as a truck route or walking/cycling route for category 4 or 5. Please send us your estimation of the new trips on the transportation network and let us know which intersections meet the 500/day or 60/hour new trip threshold. It appears this may include 124th/Tualatin Rd, 124th/Leveton, Herman/108th, and perhaps others such as 124th/Hwy 99W.

Is the plan for site traffic to use the driveway off of Tualatin Road opposite 115th Ave? If so, that location needs to be studied.

The methodology to adjust for full onsite attendance and for future growth appear to be acceptable.

Of course, please feel free to call or e-mail me with any questions.

Thanks,

Mike McCarthy, P.E.

Principal Transportation Engineer

City of Tualatin

Office: 503-691-3674

Mobile: 971-666-0000

From: Janet T. Jones <JTJ@mcknze.com>

Sent: Monday, July 11, 2022 9:04 AM

To: Tony Doran <TDORAN@tualatin.gov>; Mike McCarthy <mmccarthy@tualatin.gov>

Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley

<SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>

Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Hi Tony,

Has City staff had a chance to review our proposed scope for the TIA? I am happy to hop on a call to discuss this.

Thank you,

Janet Jones, PE | she/her/hers
Associate | Transportation Engineering
D 971.346.3741 E jjones@mcknze.com

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From: Janet T. Jones

Sent: Friday, July 1, 2022 8:37 AM

To: Tony Doran <TDORAN@tualatin.gov>; Mike McCarthy <mmccarthy@tualatin.gov>

Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>

Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Thanks, Tony. We appreciate the confirmation and update.

Hope you have a great holiday weekend!

Janet Jones, PE | she/her/hers
Associate | Transportation Engineering
D 971.346.3741 E jjones@mcknze.com

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From: Tony Doran <TDORAN@tualatin.gov>

Sent: Friday, July 1, 2022 8:26 AM

To: Janet T. Jones <JTJ@mcknze.com>; Mike McCarthy <mmccarthy@tualatin.gov>

Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>

Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Janet,

Thank you. The link was received. Staff will likely attend to review of your requests after their 4th of July vacations.

Tony Doran
Engineering Associate
(503) 691-3035
Tualatin City Services

10699 SW Herman Road
City of Tualatin

From: Janet T. Jones <JTJ@mcknze.com>
Sent: Friday, July 1, 2022 8:22 AM
To: Tony Doran <TDORAN@tualatin.gov>; Mike McCarthy <mmccarthy@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Hi Tony,

Thank you for the quick reply. I just resent that email with the link. Let me know if you don't receive it and I'll just email you the PDF as an attachment.

Thank you,

Janet Jones, PE | she/her/hers
Associate | Transportation Engineering
D 971.346.3741 E jjones@mcknze.com

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From: Tony Doran <TDORAN@tualatin.gov>
Sent: Friday, July 1, 2022 7:19 AM
To: Janet T. Jones <JTJ@mcknze.com>; Mike McCarthy <mmccarthy@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley <SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>
Subject: RE: Lam Research New Office (PRE2-0017) - TIA Scoping

Janet,

Would you reply and attach the email with the link you stated you sent?

I've not received any additional email with a link and Mike is out today so confirmation he's received one or not is unavailable. If you provide your previous email as an attachment, our Information Services team could look into if communication is being blocked with our systems.

Tony Doran
Engineering Associate
(503) 691-3035
Tualatin City Services
10699 SW Herman Road
City of Tualatin

From: Janet T. Jones <JTJ@mcknze.com>
Sent: Thursday, June 30, 2022 8:31 PM
To: Mike McCarthy <mmccarthy@tualatin.gov>; Tony Doran <TDORAN@tualatin.gov>
Cc: Mike Rueter <MRueter@mcknze.com>; Brent Nielsen <BNielsen@mcknze.com>; Suzannah Stanley

<SStanley@mcknze.com>; Brent Ahrend <BAhrend@mcknze.com>; Clara Layton <CLayton@mcknze.com>

Subject: Lam Research New Office (PRE2-0017) - TIA Scoping

Tony and Mike,

I just provided you with a link to download the TIA scoping letter for Lam's proposed new office building via a separate email. Please let me know if you did not receive the email or were unable to download the document.

We also wanted to confirm the frontage improvements that will be required for SW 108th Avenue. At the pre-app meeting you noted that a reverse planter strip design may be an option. I have copied our Civil Engineer, Brent Nielsen, who can provide more information once we receive additional survey data next week.

We appreciate your collaboration on this. I will be out of the office next week but Brent Ahrend and Clara Layton (both copied) will be available to answer questions as needed.

Thank you,

Janet Jones, PE | she/her/hers
Associate | Transportation Engineering
D 971.346.3741 E jjones@mcknze.com

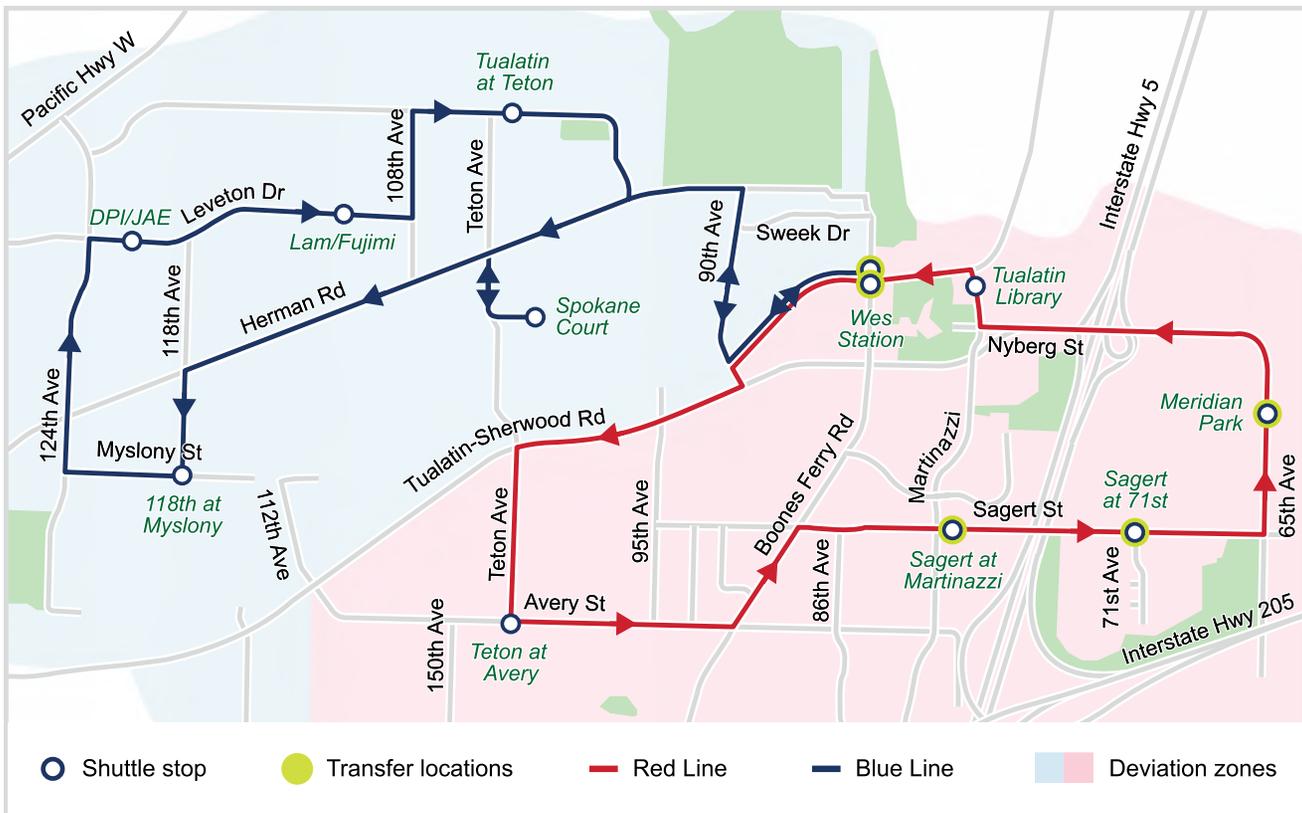
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APPENDIX C.
**TRANSIT
INFORMATION**



CAR SEAT REQUIREMENT

Rear-facing car seats are required for passengers under two years old.



HOLIDAY CLOSURES

Service will not be available on: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day. Limited service on Christmas and New Year's Eve. If a holiday falls on Saturday, there is no service on Friday; if a holiday falls on Sunday, there is no service on Monday. Information about closures available at rideconnection.org



SEVERE WEATHER

Information about closures available at rideconnection.org



COVID-19 SAFETY

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CONTACT US

503-226-0700 | TTY: 711
info@rideconnection.org

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 Connecting the Tualatin
 community



Blue Line Schedule

Southbound WES Arrival Time	Depart WES Station	Spokane Court	118th at Myslony	DP/JAE	LAM/Fujimi	Tualatin at Teton	Arrive WES Station	Northbound WES Departs
---	---							
6:25	5:41	5:48	5:51	5:54	5:55	5:57	6:17	6:56
7:10	7:11	7:18	7:21	7:24	7:25	7:27	7:47	
7:55	7:56	8:03	8:06	8:09	8:10	8:12	8:32	
8:40	8:41	8:48	8:51	8:54	8:55	8:57	9:17	
9:25	9:26	9:33	9:36	9:39	9:40	9:42	10:02	
	3:03	3:10	3:13	3:16	3:17	3:19	3:24	3:38
	3:33	3:40	3:43	3:46	3:47	3:49	4:09	4:23
	4:18	4:25	4:28	4:31	4:32	4:34	4:54	5:08
	5:03	5:10	5:13	5:16	5:17	5:19	5:39	5:53
	5:48	5:55	5:58	6:01	6:02	6:04	6:24	6:38
6:07	6:33	6:40	6:43	6:46	6:47	6:49	7:09	

Red Line Schedule

Southbound WES Arrival Time	Depart WES Station	Teton at Avery	Sagert at Martinazzi	Sagert St. at 71st Ave.	Meridian Park	Tualatin Library	Arrive WES Station	Northbound WES Departs
---	---							
6:25	5:02	5:08	5:11	5:13	5:16	5:20	5:38	6:11
7:10	5:47	5:53	5:56	5:58	6:01	6:05	6:17	6:56
7:55	6:26	6:32	6:35	6:37	6:40	6:44	7:02	
8:40	7:11	7:17	7:20	7:22	7:25	7:29	7:47	
	7:56	8:02	8:05	8:07	8:10	8:14	8:32	
	8:41	8:47	8:50	8:52	8:55	8:59	9:17	
	3:03	3:09	3:12	3:14	3:17	3:21	3:24	3:38
	3:33	3:39	3:42	3:44	3:47	3:51	4:09	4:23
	4:18	4:24	4:27	4:29	4:32	4:36	4:54	5:08
	5:03	5:09	5:12	5:14	5:17	5:21	5:39	5:53
	5:48	5:54	5:57	5:59	6:02	6:06	6:24	6:38
6:07	6:33	6:39	6:42	6:44	6:47	6:51	7:09	

PM times in bold

Transfers  TriMet

Tualatin Shuttle

FLAG TUALATIN SHUTTLE DOWN



If you are on a residential street along the route, and not near a designated stop, you can “flag” or simply wave using your full arm to signal the Tualatin Shuttle bus driver to stop. Be sure to stand on the correct side of the road.

SOCIAL DISTANCING

To allow for social distancing, Ride Connection is allowing only four passengers on the bus at one time. Sorry for the inconvenience.

DEVIATIONS

We will deviate off the route to pick you up or drop you off for one leg of your trip. Deviation requests must be called in one day in advance. To call in for a deviation, please call 503-226-0700 between 7:30am and 5pm Monday-Friday. TTY: 711.

Deviations are not reservations. If the shuttle reaches capacity, we will make every effort to accommodate you.

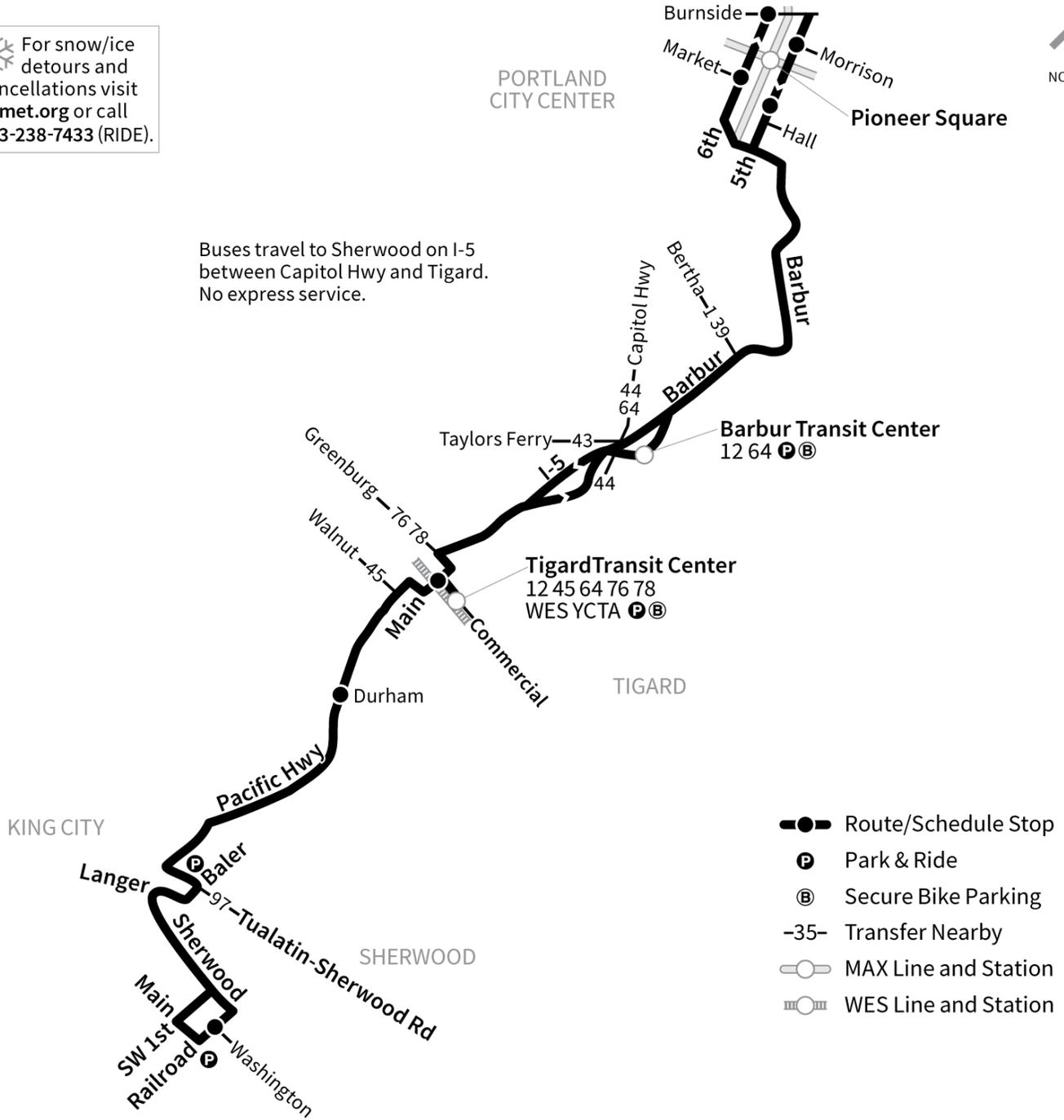
The service operates **Monday through Friday** and it's **free**.



94-Pacific Hwy/Sherwood

For snow/ice detours and cancellations visit trimet.org or call 503-238-7433 (RIDE).

Buses travel to Sherwood on I-5 between Capitol Hwy and Tigard. No express service.





94-Pacific Hwy/Sherwood

Weekday		To Sherwood		
SW 5th & Morrison Stop ID 7625	Barbur Transit Center Stop ID 8213	SW Main & Commercial Stop ID 3656	SW Pacific Hwy & Durham Stop ID 8644	SW Pine & 2nd Stop ID 4452
—	—	6:03	6:11	6:26
6:26	6:40	6:51	7:00	7:17
6:56	7:11	7:22	7:31	7:49
7:25	7:40	7:52	8:01	8:19
7:52	8:07	8:19	8:28	8:46
8:22	8:37	8:47	8:56	9:14
8:52	9:07	9:17	9:26	9:44
9:22	9:37	9:47	9:56	10:14
9:52	10:07	10:17	10:27	10:45
10:22	10:37	10:47	10:57	11:15
10:52	11:07	11:17	11:27	11:45
11:22	11:37	11:47	11:57	12:15
11:52	12:07	12:17	12:28	12:46
12:22	12:37	12:47	12:58	1:16
12:52	1:07	1:17	1:28	1:46
1:22	1:37	1:47	1:58	2:16
1:52	2:07	2:17	2:29	2:47
2:22	2:37	2:48	3:00	3:18
2:52	3:08	3:19	3:31	3:49
3:22	3:38	3:49	4:01	4:19
3:37	3:53	4:04	4:16	4:34
3:52	4:08	4:19	4:31	4:49
4:08	4:25	4:36	4:48	5:06
4:23	4:40	4:52	5:04	5:23
4:38	4:55	5:07	5:19	5:38
4:53	5:10	5:22	5:34	5:52
5:08	5:25	5:37	5:49	6:07
5:23	5:40	5:52	6:04	6:21
5:53	6:09	6:20	6:31	6:48
6:32	6:47	6:57	7:07	7:24
7:22	7:37	7:47	7:57	8:14
8:22	8:37	8:47	8:57	9:13
9:21	9:36	9:46	9:56	10:11
10:16	10:31	10:41	10:51	11:07
11:12	11:27	11:37	11:47	12:02
—	—	12:17	12:24	—
—	—	1:03	1:10	—

Note: Line 94 buses to Sherwood serve: stops on SW 5th at Pine, Morrison, Madison, Market, Hall, and Broadway then travel express to Barbur & Bertha; then stop at: Barbur Blvd Transit Center; Pacific Hwy at 74th, SW Main in Tigard, then all stops to Sherwood.

Times in darker print are p.m.

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94-Pacific Hwy/Sherwood

Weekday **To Portland City Center**

SW Pine & 2nd Stop ID 4452	16200 Block SW Langer Stop ID 12849	SW Pacific Hwy & Durham Stop ID 8792	SW Main & Commercial Stop ID 13636	Barbur Transit Center Stop ID 212	SW 6th & Yamhill Stop ID 7807	SW 6th & W Burnside Stop ID 7751
4:31	4:34	4:45	—	—	—	—
5:11	5:14	5:25	—	—	—	—
5:39	5:42	5:53	6:02	6:13	6:28	6:31
6:01	6:05	6:16	6:26	6:37	6:52	6:55
6:22	6:26	6:37	6:47	7:00	7:16	7:19
6:32	6:36	6:48	7:00	7:14	7:31	7:35
6:26	6:50	7:02	7:15	7:29	7:46	7:49
6:59	7:03	7:15	7:28	7:42	8:01	8:05
7:13	7:17	7:29	7:42	7:56	8:16	8:19
7:30	7:34	7:46	7:58	8:11	8:31	8:35
7:45	7:49	8:01	8:13	8:26	8:46	8:49
8:17	8:21	8:33	8:45	8:58	9:16	9:19
8:50	8:54	9:06	9:17	9:30	9:46	9:49
9:20	9:24	9:36	9:47	10:00	10:16	10:19
9:50	9:54	10:06	10:17	10:30	10:46	10:49
9:44	10:24	10:36	10:47	11:00	11:16	11:19
10:14	10:54	11:06	11:17	11:30	11:46	11:49
10:45	11:23	11:36	11:47	12:00	12:16	12:19
11:15	11:52	12:05	12:17	12:30	12:46	12:49
11:45	12:22	12:35	12:47	1:00	1:16	1:19
12:15	12:52	1:05	1:17	1:30	1:46	1:49
12:46	1:22	1:35	1:47	2:00	2:16	2:19
1:16	1:52	2:05	2:17	2:30	2:46	2:49
1:46	2:21	2:34	2:46	3:00	3:16	3:19
2:16	2:50	3:03	3:15	3:29	3:46	3:49
2:47	3:18	3:31	3:43	3:57	4:15	4:18
3:18	3:47	4:00	4:12	4:26	4:45	4:48
3:49	4:16	4:29	4:41	4:55	5:15	5:18
4:19	4:58	5:11	5:23	5:37	5:55	5:58
5:23	5:53	6:06	6:17	6:31	6:46	6:49
6:21	6:55	7:07	7:18	7:31	7:46	7:49
7:54	7:58	8:10	8:19	8:31	8:46	8:49
8:55	8:59	9:10	9:19	9:31	9:46	9:49
9:57	10:01	10:11	10:20	10:31	10:46	10:49
11:07	11:10	11:20	—	—	—	—

Note: Buses to Portland City Center serve: all stops from Sherwood to Main & Commercial in Tigard, then Main & Scoffins, 99W & Main, 99W & 74th, Barbur Blvd & Capitol Hwy, Barbur Blvd Transit Center, Barbur & Bertha, then travel express with no stops to SW Broadway & 5th, SW 6th at Market, Jefferson, Yamhill, Oak, and Burnside.

Times in darker print are p.m.

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94-Pacific Hwy/Sherwood

	Saturday	To Sherwood
Tigard Transit Center Stop ID 8211	SW Pacific Hwy & Durham Stop ID 8644	SW Pine & 2nd Stop ID 4452
	6:03	6:11
	6:46	6:54
	7:28	7:36
	8:10	8:19
	8:53	9:02
	9:49	9:59
	10:19	10:30
	10:49	11:00
	11:19	11:30
	11:49	12:00
	12:19	12:30
	12:49	1:00
	1:19	1:30
	1:49	2:00
	2:19	2:30
	2:48	2:59
	3:19	3:30
	3:49	4:00
	4:19	4:30
	4:49	5:00
	5:19	5:30
	5:49	6:00
	6:19	6:30
	6:49	7:00
	7:19	7:30
	7:52	8:03
	8:34	8:44
	9:21	9:30
	10:07	10:15
	10:53	11:01
	11:38	11:45
	12:17	12:24
	1:03	1:10

Times in darker print are p.m.

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94-Pacific Hwy/Sherwood

Saturday		To Tigard Transit Center	
SW Pine & 2nd Stop ID 4452	SW Pacific Hwy & Durham Stop ID 8792	Tigard Transit Center Stop ID 8211	
4:31	4:45	4:52	
5:11	5:25	5:32	
5:51	6:05	6:12	
6:23	6:39	6:46	
7:05	7:21	7:28	
7:46	8:02	8:10	
8:29	8:45	8:53	
9:02	9:19	9:27	
9:32	9:49	9:57	
10:01	10:18	10:27	
10:31	10:48	10:57	
11:01	11:18	11:27	
11:31	11:48	11:57	
12:00	12:17	12:27	
12:30	12:47	12:57	
1:00	1:17	1:27	
1:30	1:47	1:57	
1:59	2:16	2:27	
2:29	2:46	2:57	
2:59	3:16	3:27	
3:29	3:46	3:57	
3:59	4:16	4:27	
4:29	4:46	4:57	
4:59	5:16	5:27	
5:29	5:46	5:57	
6:00	6:17	6:27	
6:47	7:03	7:12	
7:32	7:48	7:57	
8:18	8:34	8:42	
9:09	9:24	9:32	
9:58	10:12	10:20	
10:47	11:00	11:07	
11:27	11:40	11:47	

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94-Pacific Hwy/Sherwood

Sunday	To Sherwood	
Tigard Transit Center Stop ID 8211	SW Pacific Hwy & Durham Stop ID 8644	SW Pine & 2nd Stop ID 4452
6:03	6:11	6:26
6:46	6:54	7:10
7:28	7:36	7:52
8:10	8:19	8:35
8:53	9:02	9:19
9:49	9:59	10:16
10:19	10:30	10:47
10:49	11:00	11:17
11:19	11:30	11:47
11:49	12:00	12:17
12:19	12:30	12:47
12:49	1:00	1:17
1:19	1:30	1:47
1:49	2:00	2:17
2:19	2:30	2:47
2:48	2:59	3:16
3:19	3:30	3:47
3:49	4:00	4:17
4:19	4:30	4:47
4:49	5:00	5:17
5:19	5:30	5:47
5:49	6:00	6:17
6:19	6:30	6:47
6:49	7:00	7:17
7:19	7:30	7:47
7:52	8:03	8:18
8:34	8:44	8:59
9:21	9:30	9:43
10:07	10:15	10:28
10:53	11:01	11:14
11:38	11:45	11:58
12:17	12:24	—
1:03	1:10	—

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94-Pacific Hwy/Sherwood

Sunday		To Tigard Transit Center	
SW Pine & 2nd Stop ID 4452	SW Pacific Hwy & Durham Stop ID 8792	Tigard Transit Center Stop ID 8211	
4:31	4:45	4:52	
5:11	5:25	5:32	
5:51	6:05	6:12	
6:23	6:39	6:46	
7:05	7:21	7:28	
7:46	8:02	8:10	
8:29	8:45	8:53	
9:02	9:19	9:27	
9:32	9:49	9:57	
10:01	10:18	10:27	
10:31	10:48	10:57	
11:01	11:18	11:27	
11:31	11:48	11:57	
12:00	12:17	12:27	
12:30	12:47	12:57	
1:00	1:17	1:27	
1:30	1:47	1:57	
1:59	2:16	2:27	
2:29	2:46	2:57	
2:59	3:16	3:27	
3:29	3:46	3:57	
3:59	4:16	4:27	
4:29	4:46	4:57	
4:59	5:16	5:27	
5:29	5:46	5:57	
6:00	6:17	6:27	
6:47	7:03	7:12	
7:32	7:48	7:57	
8:18	8:34	8:42	
9:09	9:24	9:32	
9:58	10:12	10:20	
10:47	11:00	11:07	
11:27	11:40	11:47	

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Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE (7433) for real-time arrival information from TransitTracker™. All buses, MAX trains and streetcars are accessible to people with disabilities.

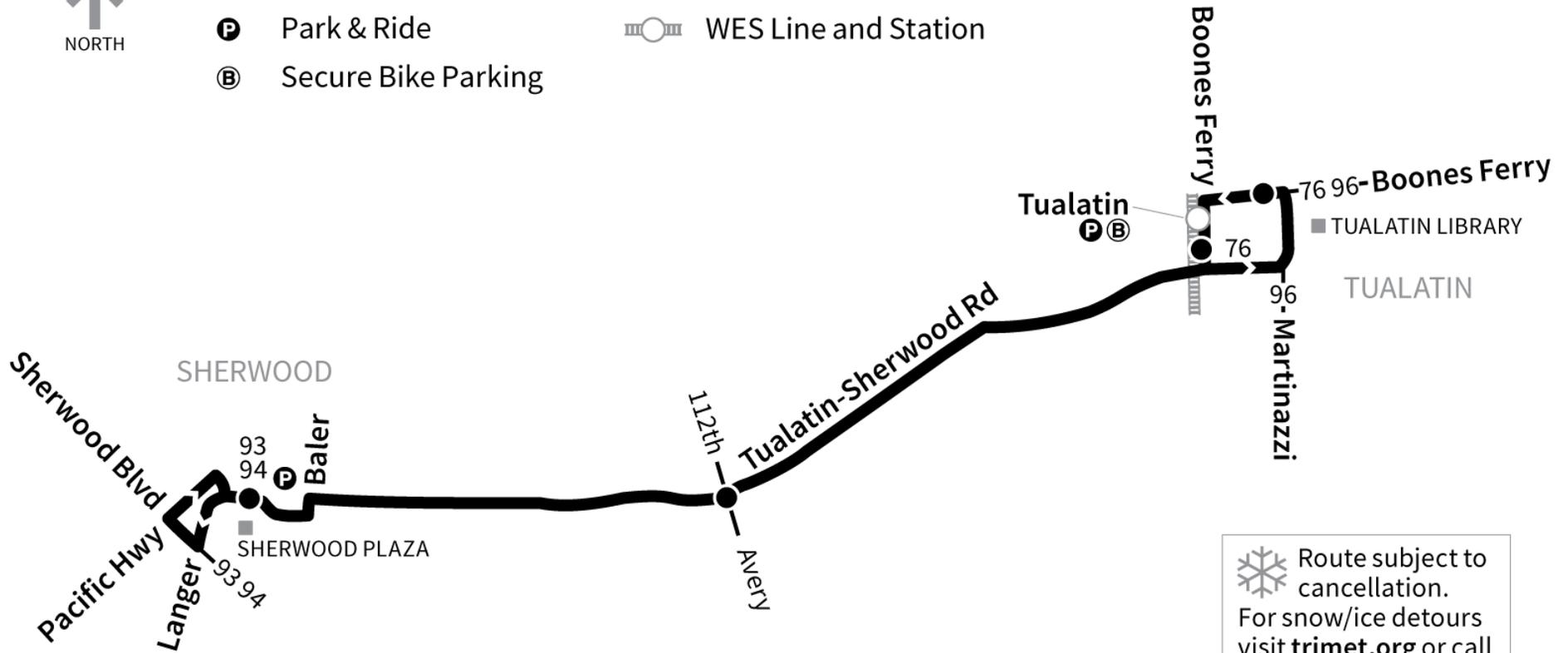
97-Tualatin-Sherwood Rd



NORTH

- Route/Schedule Stop
- Park & Ride
- Secure Bike Parking

- 35- Transfer Nearby
- WES Line and Station



Route subject to cancellation. For snow/ice detours visit trimet.org or call 503-238-RIDE (7433).



97-Tualatin-Sherwood Rd

Weekday To SW Langer Dr/Sherwood Plaza

SW Boones Ferry Rd & Nyberg Stop ID 13079	SW Tualatin-Sherwood Rd & 112th Stop ID 13830	SW Langer & Sherwood Plaza Stop ID 9188
6:18	6:23	6:32
7:18	7:23	7:32
8:18	8:23	8:32
9:18	9:23	9:32
3:33	3:39	3:50
4:43	4:49	5:00
5:53	5:59	6:10

Times in darker print are p.m.

Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE (7433) for real-time arrival information from TransitTracker™. All buses, MAX trains and streetcars are accessible to people with disabilities.



97-Tualatin-Sherwood Rd

Weekday		To Tualatin WES Station	
16100 Block SW Langer Stop ID 9190	SW Tualatin- Sherwood Rd & Avery Stop ID 13843	SW Boones Ferry Rd & Martinazzi Stop ID 13078	SW Boones Ferry Rd & Nyberg Stop ID 13079
6:58	7:06	7:16	7:18
8:00	8:08	8:16	8:18
9:00	9:08	9:16	9:18
3:12	3:20	3:31	3:33
4:21	4:29	4:41	4:43
5:30	5:38	5:51	5:53
6:42	6:50	7:01	7:03

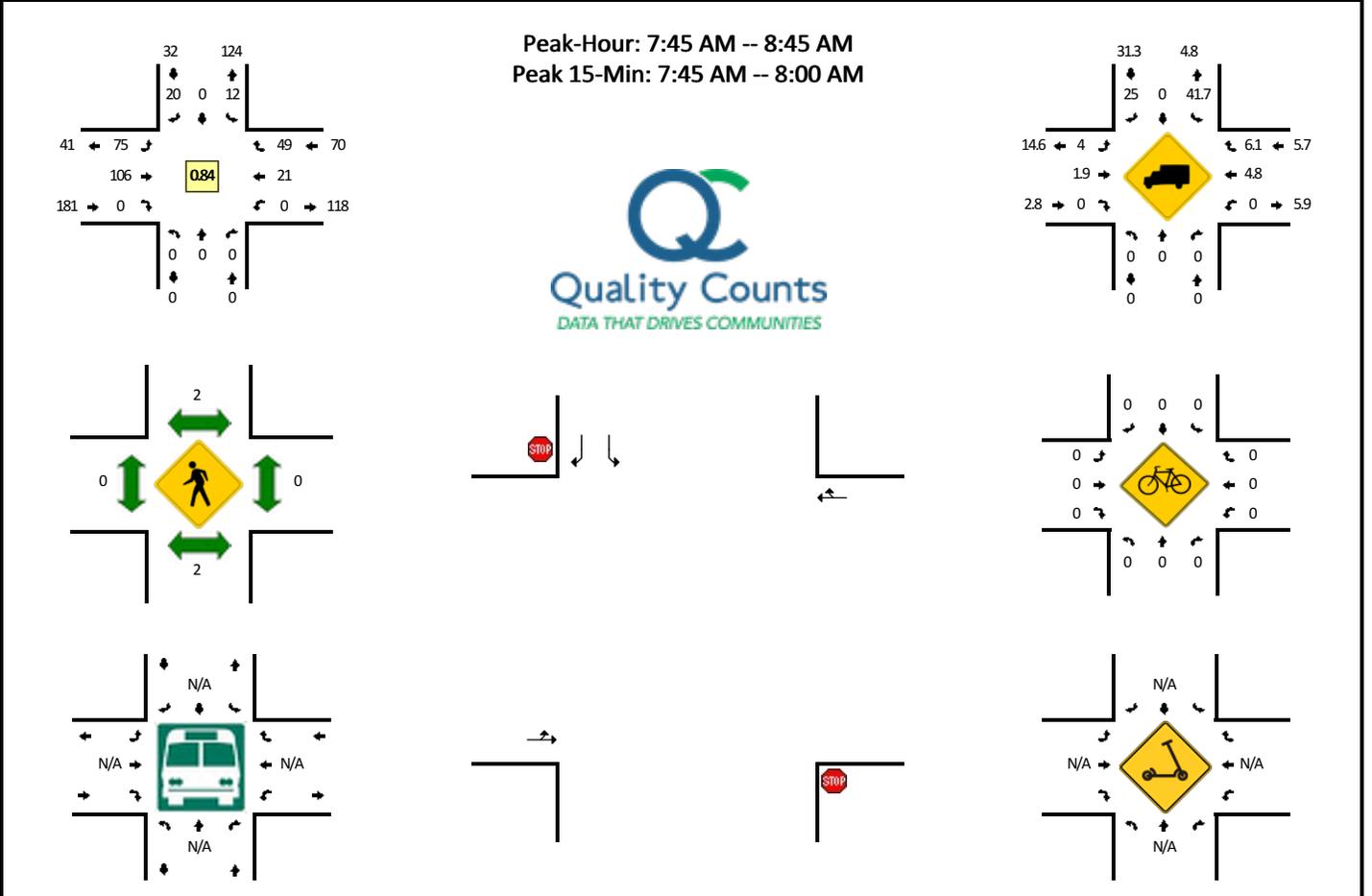
Times in darker print are p.m.

Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE (7433) for real-time arrival information from TransitTracker™. All buses, MAX trains and streetcars are accessible to people with disabilities.

APPENDIX D.
**TRAFFIC COUNT
SUMMARIES**

LOCATION: Western Lam Research Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 15855809
DATE: Thu, Jun 9 2022

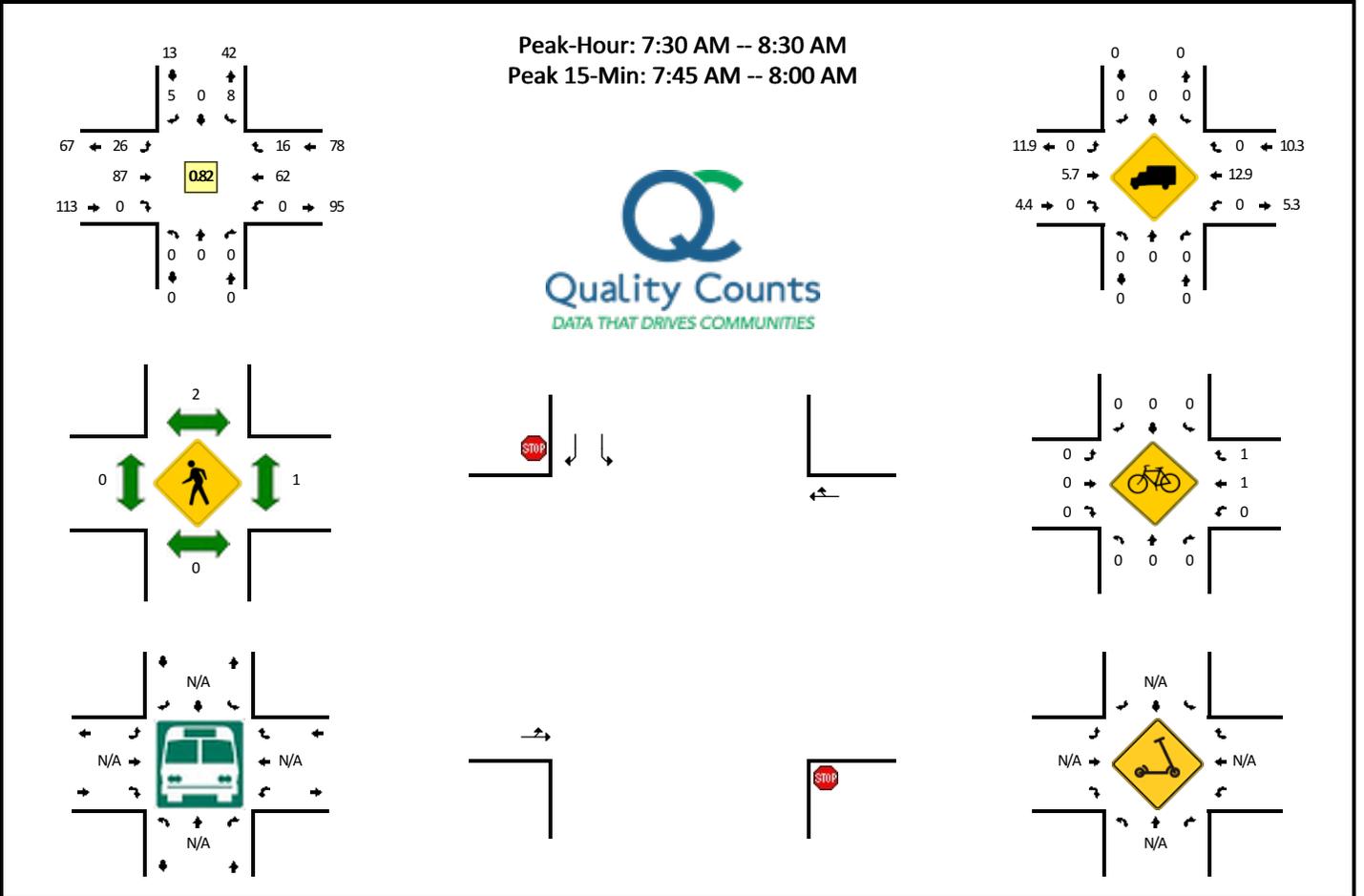


15-Min Count Period Beginning At	Western Lam Research Access (Northbound)				Western Lam Research Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	1	0	6	0	10	19	0	0	0	15	4	0	55	
7:15 AM	0	0	0	0	2	0	2	0	17	17	0	0	0	5	2	0	45	
7:30 AM	0	0	0	0	3	0	4	0	15	19	0	0	0	3	7	0	51	
7:45 AM	0	0	0	0	5	0	4	0	19	32	0	0	0	6	18	0	84	235
8:00 AM	0	0	0	0	0	0	9	0	22	34	0	0	0	3	11	0	79	259
8:15 AM	0	0	0	0	1	0	2	0	23	23	0	0	0	6	8	0	63	277
8:30 AM	0	0	0	0	6	0	5	0	11	17	0	0	0	6	12	0	57	283
8:45 AM	0	0	0	0	4	0	2	0	21	19	0	0	0	4	5	0	55	254
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	20	0	16	0	76	128	0	0	0	24	72	0	336	
Heavy Trucks	0	0	0	0	8	0	0	0	8	0	0	0	0	0	8	0	24	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Central Lam Research Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 15855811
DATE: Thu, Jun 9 2022

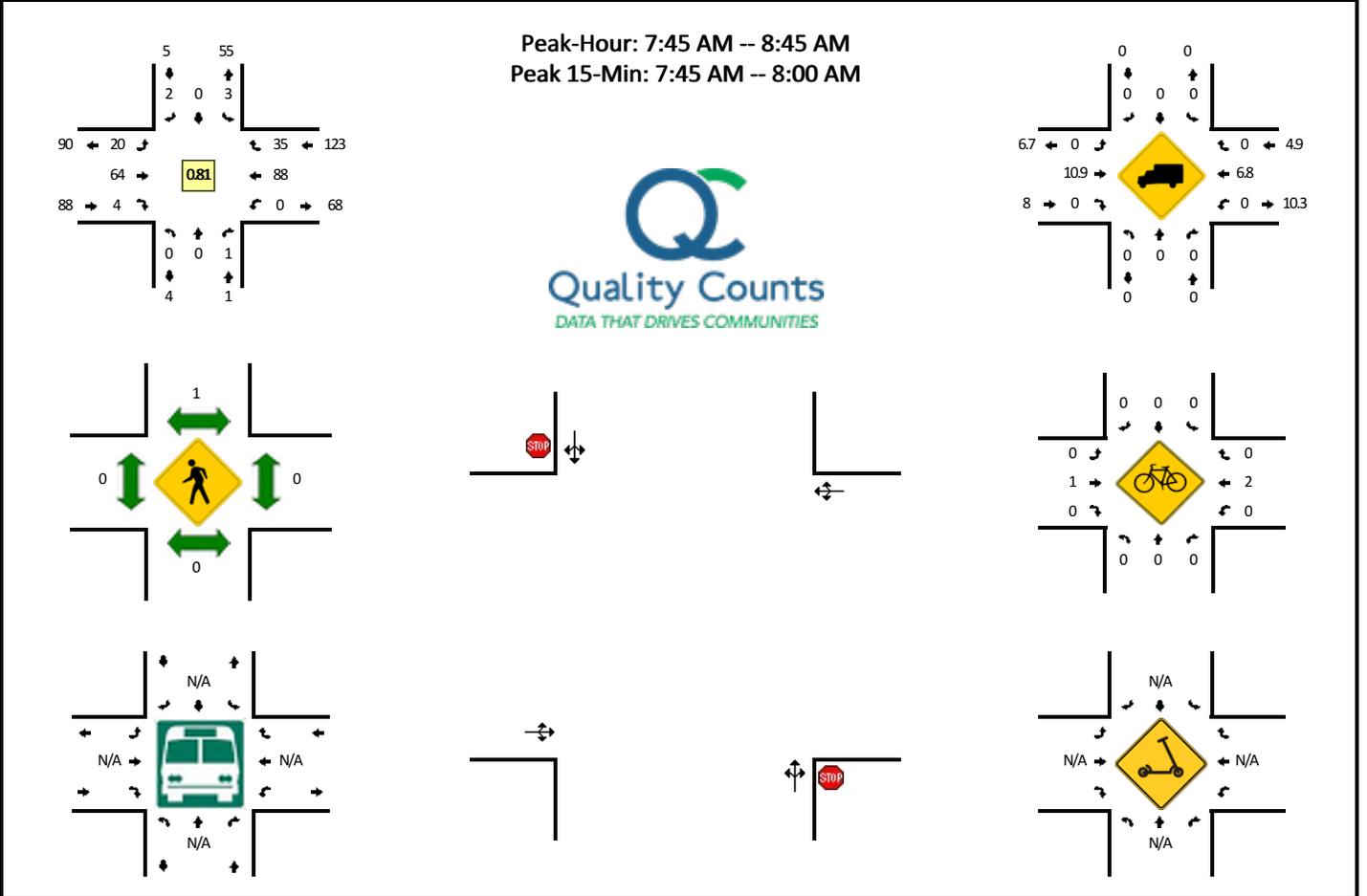


15-Min Count Period Beginning At	Central Lam Research Access (Northbound)				Central Lam Research Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	7	0	3	14	0	0	0	11	1	0	36	
7:15 AM	0	0	0	0	5	0	0	0	5	15	0	0	0	6	7	0	38	
7:30 AM	0	0	0	0	1	0	0	0	4	18	0	0	0	13	4	0	40	
7:45 AM	0	0	0	0	3	0	1	0	8	26	0	0	0	21	3	0	62	176
8:00 AM	0	0	0	0	2	0	2	0	9	24	0	0	0	14	4	0	55	195
8:15 AM	0	0	0	0	2	0	2	0	5	19	0	0	0	14	5	0	47	204
8:30 AM	0	0	0	0	0	0	5	0	4	17	0	0	0	10	4	0	40	204
8:45 AM	0	0	0	0	1	0	1	0	6	18	0	0	0	9	3	0	38	180
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	12	0	4	0	32	104	0	0	0	84	12	0	248	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	0	12	
Buses																		
Pedestrians		0				4				0				4			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4	
Scoters																		

Comments:

LOCATION: Eastern Lam Research Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 15855813
DATE: Thu, Jun 9 2022

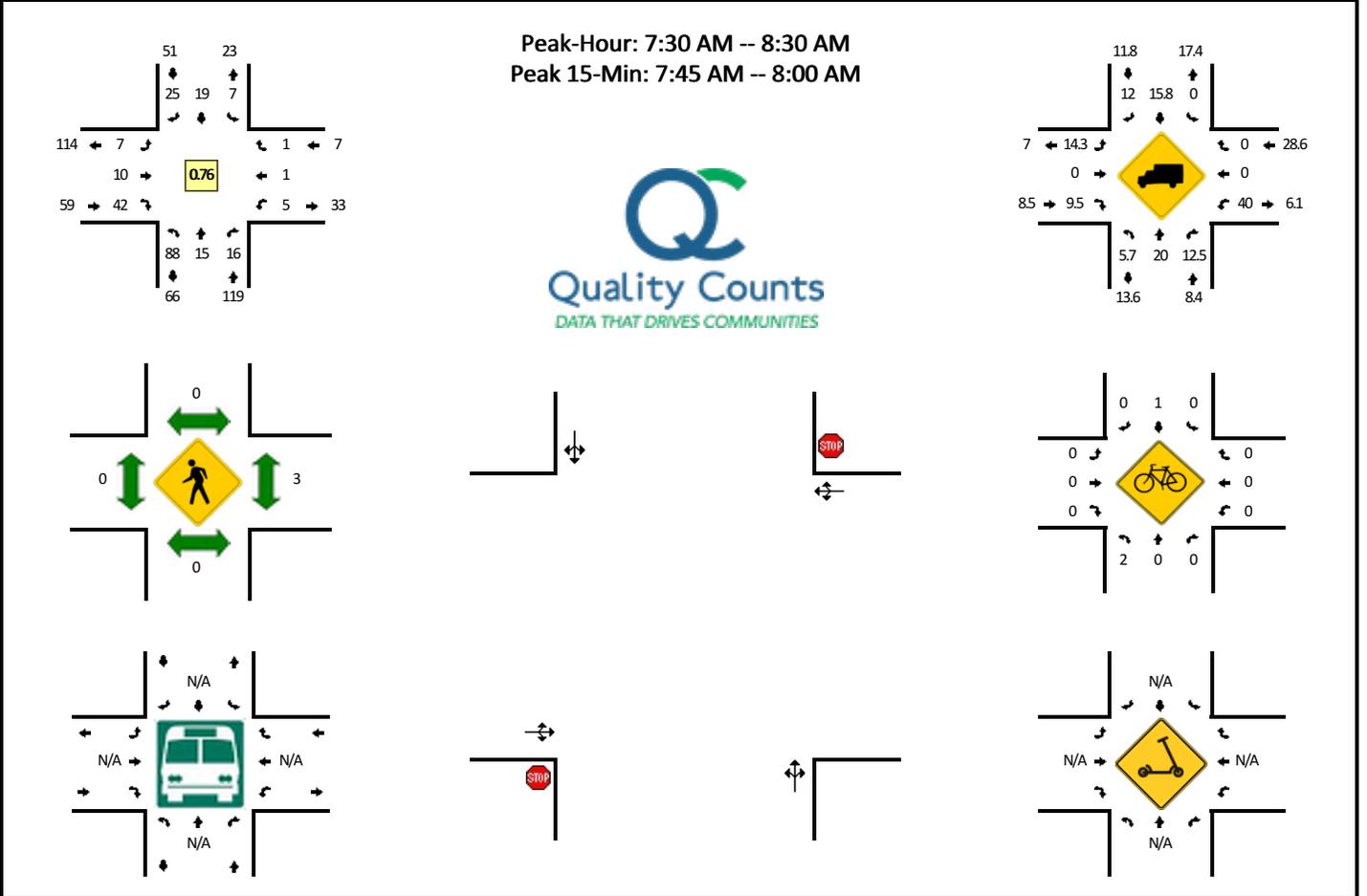


15-Min Count Period Beginning At	Eastern Lam Research Access (Northbound)				Eastern Lam Research Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	3	0	1	0	2	10	1	0	1	12	3	0	33	
7:15 AM	0	0	0	0	0	0	1	0	0	20	0	0	0	13	4	0	38	
7:30 AM	0	0	0	0	0	0	0	0	2	18	1	0	0	19	4	0	44	
7:45 AM	0	0	0	0	1	0	0	0	1	25	2	0	0	31	7	0	67	182
8:00 AM	0	0	0	0	1	0	0	0	7	15	1	0	0	21	8	0	53	202
8:15 AM	0	0	0	0	1	0	1	0	5	15	0	0	0	19	8	0	49	213
8:30 AM	0	0	1	0	0	0	1	0	7	9	1	0	0	17	12	0	48	217
8:45 AM	0	0	0	0	0	0	0	0	5	11	0	0	1	13	10	0	40	190
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	4	0	0	0	4	100	8	0	0	124	28	0	268	
Heavy Trucks	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	0	12	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4	
Scoters																		

Comments:

LOCATION: SW 108th Ave -- SW Leveton Dr/Southern Ascentec Engineering Access
CITY/STATE: Tualatin, OR

QC JOB #: 15855819
DATE: Thu, Jun 9 2022

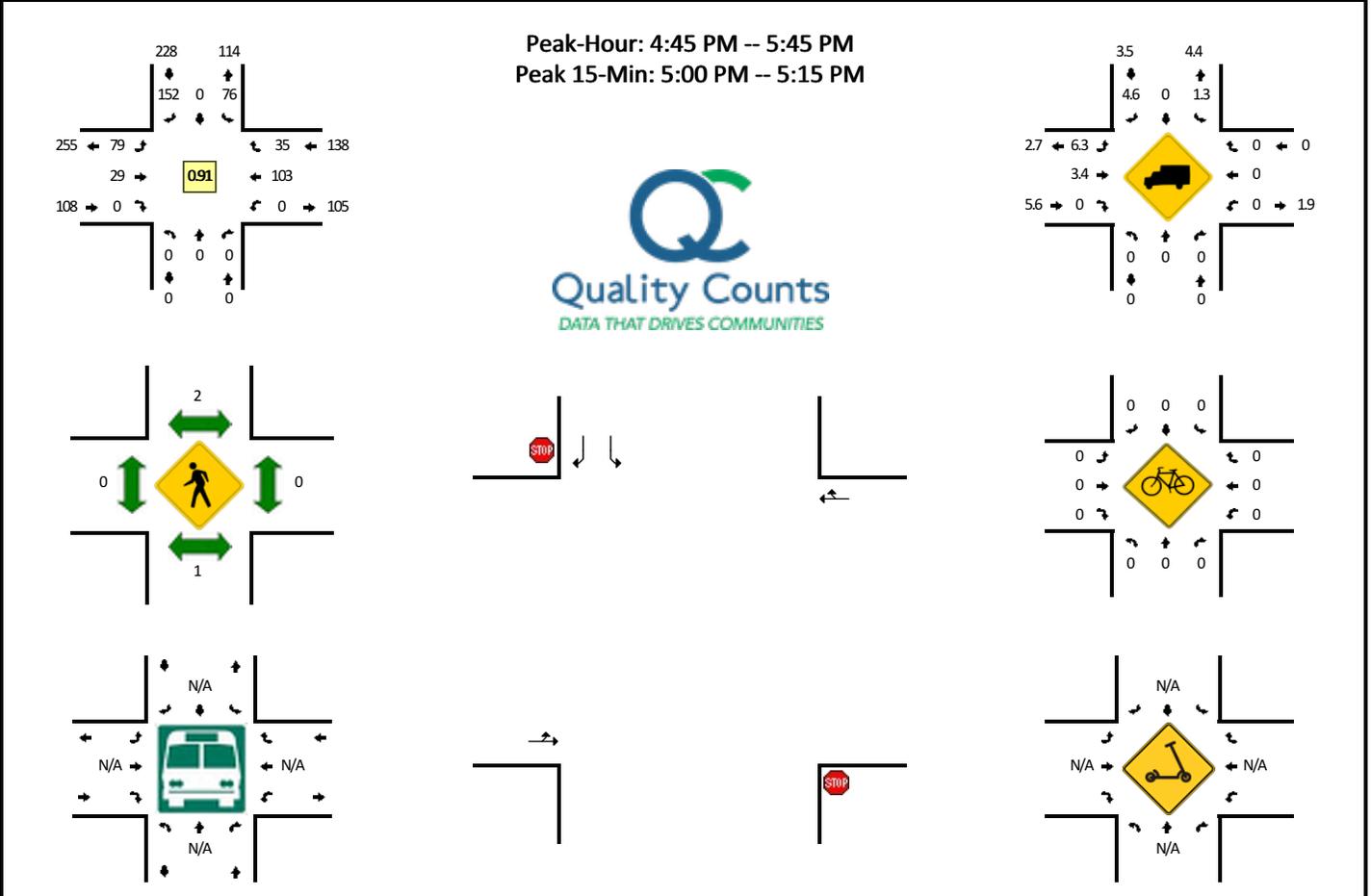


15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Leveton Dr/Southern Ascentec Engineering Access (Eastbound)				SW Leveton Dr/Southern Ascentec Engineering Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	16	6	3	0	1	6	0	0	0	3	9	0	0	0	0	0	44	
7:15 AM	17	2	4	0	2	4	1	0	3	2	17	0	0	0	1	0	53	
7:30 AM	16	3	4	0	2	8	5	0	0	2	12	0	2	0	0	0	54	
7:45 AM	27	2	7	0	5	4	12	0	2	5	14	0	0	0	0	0	78	229
8:00 AM	23	6	5	0	0	0	4	0	1	2	7	0	1	0	1	0	50	235
8:15 AM	22	4	0	0	0	7	4	0	4	1	9	0	2	1	0	0	54	236
8:30 AM	22	1	2	0	0	7	8	0	2	1	7	0	0	0	0	0	50	232
8:45 AM	19	4	0	0	2	3	6	0	3	3	5	0	1	0	0	0	46	200
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	108	8	28	0	20	16	48	0	8	20	56	0	0	0	0	0	312	
Heavy Trucks	8	4	0		0	0	0		0	0	8		0	0	0		20	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	4	0	0		0	4	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: Western Lam Research Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 15855810
DATE: Thu, Jun 9 2022

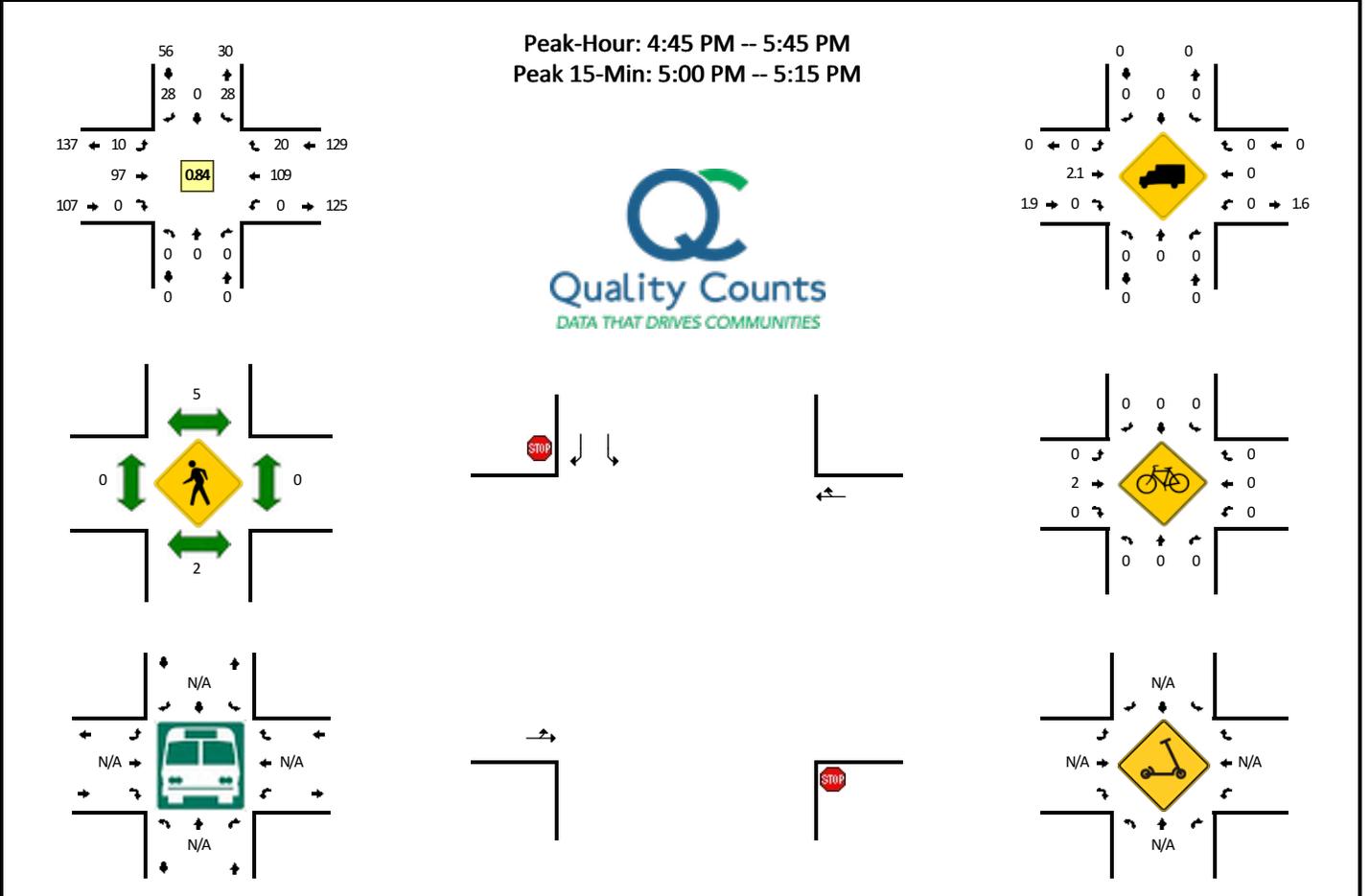


15-Min Count Period Beginning At	Western Lam Research Access (Northbound)				Western Lam Research Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	7	0	15	0	7	12	0	0	0	19	0	0	60	
4:15 PM	0	0	0	0	4	0	19	0	2	7	0	0	0	18	3	0	53	
4:30 PM	0	0	0	0	13	0	13	0	18	2	0	0	0	27	6	0	79	
4:45 PM	0	0	0	0	6	0	17	0	38	10	0	0	0	26	13	0	110	302
5:00 PM	0	0	0	0	18	0	31	0	22	7	0	0	0	40	12	0	130	372
5:15 PM	0	0	0	0	23	0	50	0	14	8	0	0	0	22	9	0	126	445
5:30 PM	0	0	0	0	29	0	54	0	5	4	0	0	0	15	1	0	108	474
5:45 PM	0	0	0	0	14	0	26	0	3	6	0	0	0	13	1	0	63	427
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	72	0	124	0	88	28	0	0	0	160	48	0	520	
Heavy Trucks	0	0	0	0	0	0	8	0	4	0	0	0	0	0	0	0	12	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

LOCATION: Central Lam Research Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 15855812
DATE: Thu, Jun 9 2022

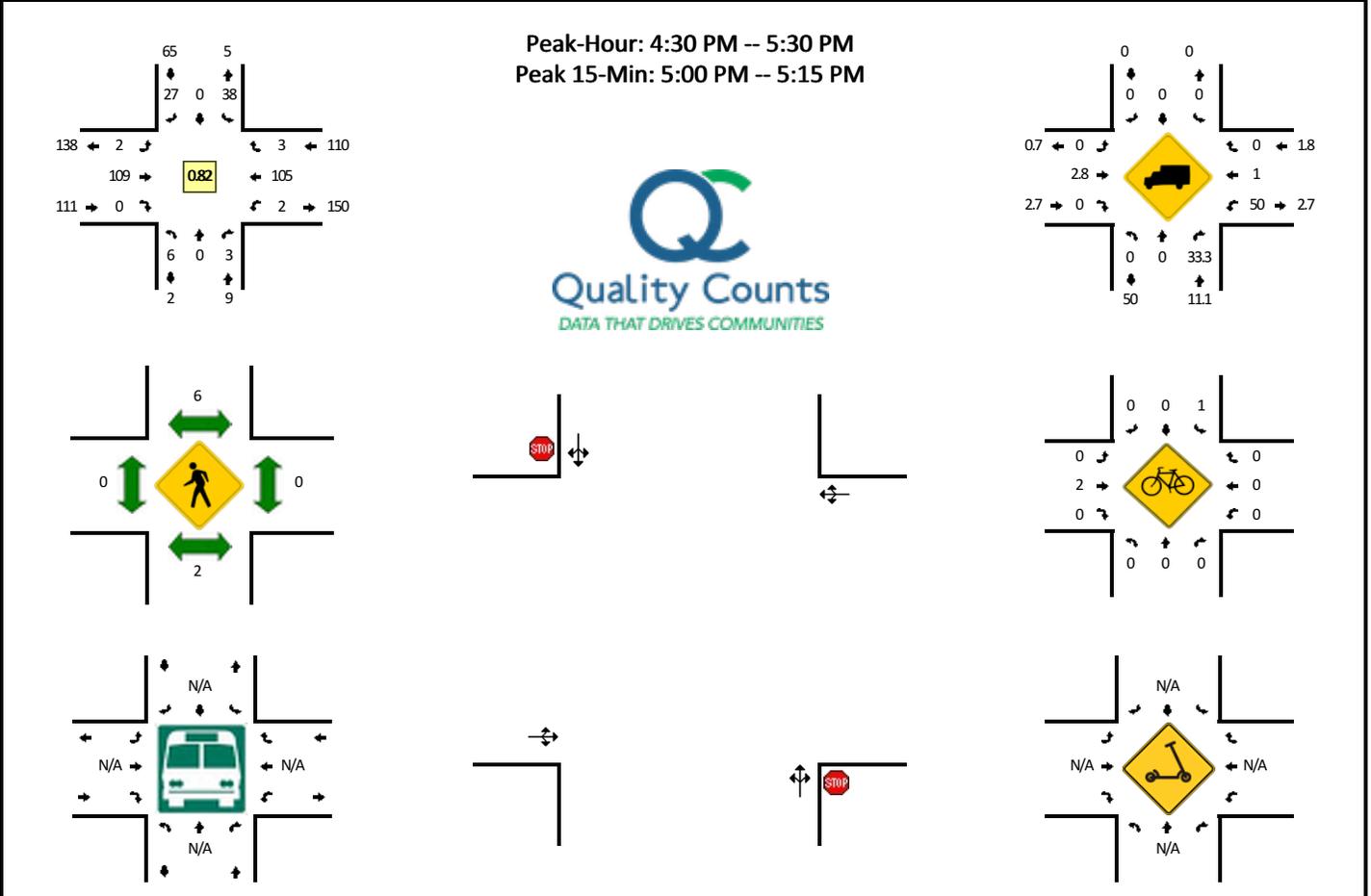


15-Min Count Period Beginning At	Central Lam Research Access (Northbound)				Central Lam Research Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	5	0	6	0	2	18	0	0	0	10	3	0	44	
4:15 PM	0	0	0	0	7	0	7	0	2	9	0	0	0	14	2	0	41	
4:30 PM	0	0	0	0	2	0	5	0	0	15	0	0	0	28	6	0	56	
4:45 PM	0	0	0	0	3	0	10	0	3	13	0	0	0	33	7	0	69	210
5:00 PM	0	0	0	0	8	0	11	0	3	22	0	0	0	37	6	0	87	253
5:15 PM	0	0	0	0	11	0	4	0	2	31	0	0	0	25	2	0	75	287
5:30 PM	0	0	0	0	6	0	3	0	2	31	0	0	0	14	5	0	61	292
5:45 PM	0	0	0	0	12	0	3	0	4	17	0	0	0	11	5	0	52	275
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	32	0	44	0	12	88	0	0	0	148	24	0	348	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				12				0				0			12	
Bicycles	0	0	0		0	0	0		0	8	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: Eastern Lam Research Access -- SW Leveton Dr
CITY/STATE: Tualatin, OR

QC JOB #: 15855814
DATE: Thu, Jun 9 2022

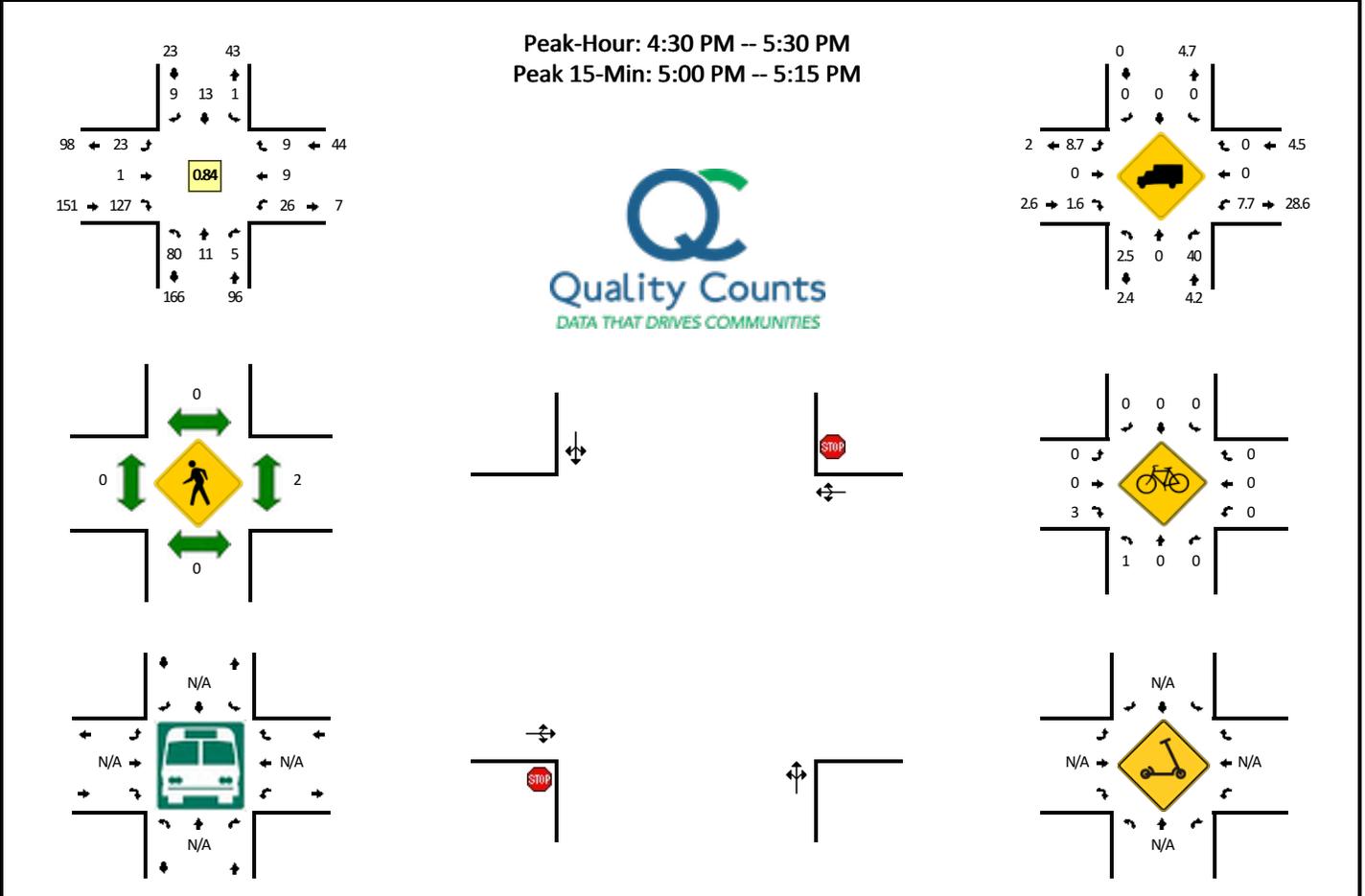


15-Min Count Period Beginning At	Eastern Lam Research Access (Northbound)				Eastern Lam Research Access (Southbound)				SW Leveton Dr (Eastbound)				SW Leveton Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	2	0	0	0	4	0	0	29	0	0	0	8	2	0	46	
4:15 PM	1	0	0	0	4	0	2	0	0	16	0	0	1	10	2	0	36	
4:30 PM	1	0	0	0	10	0	6	0	0	18	0	0	1	28	1	0	65	
4:45 PM	2	0	0	0	8	0	7	0	2	14	0	0	0	29	1	0	63	210
5:00 PM	2	0	0	0	15	0	9	0	0	32	0	0	1	30	1	0	90	254
5:15 PM	1	0	3	0	5	0	5	0	0	45	0	0	0	18	0	0	77	295
5:30 PM	0	0	0	0	3	0	6	0	0	38	0	0	0	13	0	0	60	290
5:45 PM	0	0	0	0	4	0	3	0	0	31	0	0	0	11	0	0	49	276
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	0	0	60	0	36	0	0	128	0	0	4	120	4	0	360	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	
Buses																		
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	8	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: SW 108th Ave -- SW Leveton Dr/Southern Ascentec Engineering Access
CITY/STATE: Tualatin, OR

QC JOB #: 15855820
DATE: Thu, Jun 9 2022



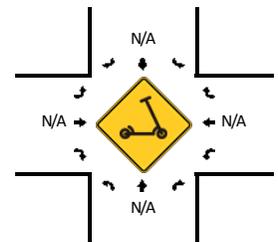
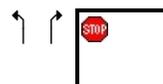
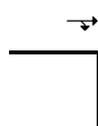
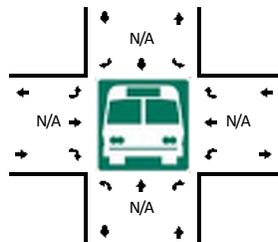
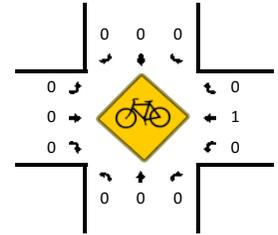
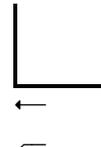
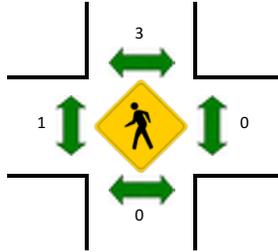
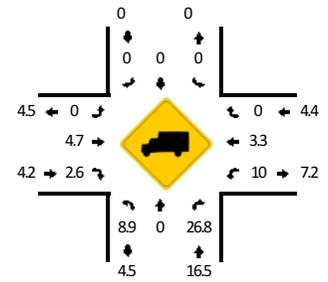
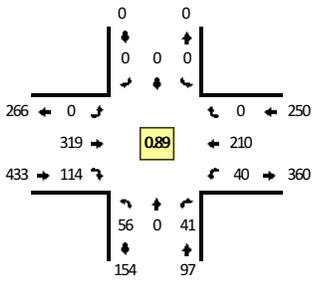
15-Min Count Period Beginning At	SW 108th Ave (Northbound)				SW 108th Ave (Southbound)				SW Leveton Dr/Southern Ascentec Engineering Access (Eastbound)				SW Leveton Dr/Southern Ascentec Engineering Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	4	3	0	0	1	0	0	4	1	24	0	8	0	1	0	53	
4:15 PM	9	0	1	0	1	6	0	0	4	1	17	0	2	4	1	0	46	
4:30 PM	20	6	0	0	1	5	0	0	6	0	22	0	8	4	3	0	75	
4:45 PM	24	1	2	0	0	4	2	0	2	1	20	0	4	2	2	0	64	238
5:00 PM	25	2	1	0	0	3	4	0	9	0	37	0	8	1	3	0	93	278
5:15 PM	11	2	2	0	0	1	3	0	6	0	48	0	6	2	1	0	82	314
5:30 PM	6	2	2	0	0	2	0	0	8	1	33	0	1	3	0	0	58	297
5:45 PM	7	4	2	0	0	4	1	0	4	0	29	0	3	0	0	0	54	287
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	100	8	4	0	0	12	16	0	36	0	148	0	32	4	12	0	372	
Heavy Trucks	4	0	0		0	0	0		0	0	0		4	0	0		8	
Buses																		
Pedestrians		0				0				0				0				0
Bicycles	0	0	0		0	0	0		0	0	8		0	0	0			8
Scoters																		

Comments:

LOCATION: SW Teton Ave -- SW Tualatin Rd
CITY/STATE: Tualatin, OR

QC JOB #: 15442101
DATE: Tue, May 11 2021

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



5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	1	0	0	0	0	0	0	0	0	9	5	0	1	6	0	0	22	
6:05 AM	1	0	0	0	0	0	0	0	0	14	3	0	0	10	0	0	28	
6:10 AM	3	0	1	0	0	0	0	0	0	8	5	0	1	7	0	0	25	
6:15 AM	0	0	0	0	0	0	0	0	0	8	4	0	0	10	0	0	22	
6:20 AM	1	0	3	0	0	0	0	0	0	9	2	0	1	17	0	0	33	
6:25 AM	5	0	1	0	0	0	0	0	0	15	4	0	0	15	0	0	40	
6:30 AM	4	0	1	0	0	0	0	0	0	19	5	0	0	11	0	0	40	
6:35 AM	1	0	0	0	0	0	0	0	0	20	3	0	3	12	0	0	39	
6:40 AM	3	0	0	0	0	0	0	0	0	23	7	0	0	15	0	0	48	
6:45 AM	3	0	1	0	0	0	0	0	0	25	10	0	1	17	0	0	57	
6:50 AM	0	0	0	0	0	0	0	0	0	20	8	0	0	12	0	0	40	
6:55 AM	1	0	1	0	0	0	0	0	0	25	10	0	2	9	0	0	48	442
7:00 AM	3	0	0	0	0	0	0	0	0	20	4	0	3	20	0	0	50	470
7:05 AM	1	0	0	0	0	0	0	0	0	17	3	0	0	9	0	0	30	472
7:10 AM	5	0	1	0	0	0	0	0	0	16	6	0	1	12	0	0	41	488
7:15 AM	2	0	2	0	0	0	0	0	0	23	5	0	5	10	0	0	47	513
7:20 AM	1	0	3	0	0	0	0	0	0	29	8	0	2	7	0	0	50	530
7:25 AM	3	0	1	0	0	0	0	0	0	24	7	0	4	14	0	0	53	543
7:30 AM	1	0	2	0	0	0	0	0	0	28	9	0	1	12	0	0	53	556
7:35 AM	1	0	2	0	0	0	0	0	0	38	10	0	5	13	0	0	69	586
7:40 AM	1	0	1	0	0	0	0	0	0	34	12	0	2	20	0	0	70	608
7:45 AM	4	0	0	0	0	0	0	0	0	30	11	0	2	13	0	0	60	611
7:50 AM	6	0	5	0	0	0	0	0	0	31	21	0	1	26	0	0	90	661
7:55 AM	2	0	5	0	0	0	0	0	0	29	11	0	4	21	0	0	72	685
8:00 AM	3	0	1	0	0	0	0	0	0	23	11	0	4	15	0	0	57	692
8:05 AM	2	0	1	0	0	0	0	0	0	23	6	0	2	13	0	0	47	709
8:10 AM	3	0	4	0	0	0	0	0	0	29	12	0	2	19	0	0	69	737
8:15 AM	5	0	3	0	0	0	0	0	0	35	11	0	2	11	0	0	67	757
8:20 AM	4	0	1	0	0	0	0	0	0	18	7	0	2	14	0	0	46	753
8:25 AM	4	0	1	0	0	0	0	0	0	26	7	0	5	13	0	0	56	756
8:30 AM	4	0	3	0	0	0	0	0	0	29	4	0	3	21	0	0	64	767
8:35 AM	6	0	3	0	0	0	0	0	0	23	5	0	6	21	0	0	64	762
8:40 AM	8	0	9	0	0	0	0	0	0	28	8	0	2	16	0	0	71	763
8:45 AM	9	0	5	0	0	0	0	0	0	25	11	0	7	20	0	0	77	780
8:50 AM	6	0	5	0	0	0	0	0	0	22	4	0	3	15	0	0	55	745
8:55 AM	3	0	3	0	0	0	0	0	0	30	1	0	5	19	0	0	61	734
9:00 AM	7	0	1	0	0	0	0	0	0	18	6	0	5	14	0	0	51	728
9:05 AM	6	0	2	0	0	0	0	0	0	16	1	0	0	17	0	0	42	723

5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:10 AM	6	0	0	0	0	0	0	0	0	25	3	0	1	13	0	0	48	702
9:15 AM	8	0	1	0	0	0	0	0	0	11	2	0	0	19	0	0	41	676
9:20 AM	9	0	1	0	0	0	0	0	0	9	1	0	0	7	0	0	27	657
9:25 AM	3	0	1	0	0	0	0	0	0	16	1	0	1	16	0	0	38	639
9:30 AM	6	0	0	0	0	0	0	0	0	20	3	0	0	13	0	0	42	617
9:35 AM	7	0	0	0	0	0	0	0	0	30	3	0	0	14	0	0	54	607
9:40 AM	2	0	2	0	0	0	0	0	0	20	5	0	2	17	0	0	48	584
9:45 AM	6	0	0	0	0	0	0	0	0	16	2	0	3	18	0	0	45	552
9:50 AM	3	0	0	0	0	0	0	0	0	19	2	0	1	12	0	0	37	534
9:55 AM	5	0	3	0	0	0	0	0	0	14	4	0	2	21	0	0	49	522
10:00 AM	4	0	0	0	0	0	0	0	0	15	1	0	2	19	0	0	41	512
10:05 AM	5	0	1	0	0	0	0	0	0	16	0	0	1	11	0	0	34	504
10:10 AM	5	0	0	0	0	0	0	0	0	16	2	0	1	16	0	0	40	496
10:15 AM	6	0	0	0	0	0	0	0	0	22	4	0	1	27	0	0	60	515
10:20 AM	1	0	1	0	0	0	0	0	0	19	2	0	3	16	0	0	42	530
10:25 AM	6	0	2	0	0	0	0	0	0	19	2	0	1	7	0	0	37	529
10:30 AM	3	0	0	0	0	0	0	0	0	10	2	0	1	17	0	0	33	520
10:35 AM	4	0	3	0	0	0	0	0	0	9	4	0	4	17	0	0	41	507
10:40 AM	4	0	2	0	0	0	0	0	0	25	1	0	3	18	0	0	53	512
10:45 AM	9	0	3	0	0	0	0	0	0	15	5	0	3	21	0	0	56	523
10:50 AM	1	0	2	0	0	0	0	0	0	22	5	0	1	14	0	0	45	531
10:55 AM	5	0	1	0	0	0	0	0	0	13	0	0	2	18	0	0	39	521
11:00 AM	11	0	3	0	0	0	0	0	0	13	0	0	1	18	0	0	46	526
11:05 AM	4	0	2	0	0	0	0	0	0	18	3	0	0	17	0	0	44	536
11:10 AM	6	0	5	0	0	0	0	0	0	20	4	0	3	19	0	0	57	553
11:15 AM	7	0	3	0	0	0	0	0	0	16	5	0	2	18	0	0	51	544
11:20 AM	2	0	0	0	0	0	0	0	0	21	5	0	3	20	0	0	51	553
11:25 AM	3	0	2	0	0	0	0	0	0	19	2	0	2	20	0	0	48	564
11:30 AM	6	0	1	0	0	0	0	0	0	25	3	0	0	15	0	0	50	581
11:35 AM	5	0	2	0	0	0	0	0	0	30	4	0	0	21	0	0	62	602
11:40 AM	2	0	3	0	0	0	0	0	0	21	4	0	2	12	0	0	44	593
11:45 AM	5	0	1	0	0	0	0	0	0	23	2	0	1	21	0	0	53	590
11:50 AM	7	0	1	0	0	0	0	0	0	22	7	0	3	26	0	0	66	611
11:55 AM	4	0	2	0	0	0	0	0	0	20	5	0	1	19	0	0	51	623
12:00 PM	5	0	2	0	0	0	0	0	0	20	6	0	2	19	0	0	54	631
12:05 PM	9	0	3	0	0	0	0	0	0	25	3	0	2	19	0	0	61	648
12:10 PM	5	0	2	0	0	0	0	0	0	20	5	0	1	24	0	0	57	648
12:15 PM	6	0	4	0	0	0	0	0	0	19	5	0	0	23	0	0	57	654
12:20 PM	4	0	2	0	0	0	0	0	0	18	4	0	1	22	0	0	51	654
12:25 PM	7	0	1	0	0	0	0	0	0	21	1	0	3	27	0	0	60	666
12:30 PM	4	0	2	0	0	0	0	0	0	22	6	0	4	22	0	0	60	676
12:35 PM	10	0	1	0	0	0	0	0	0	13	6	0	0	17	0	0	47	661
12:40 PM	6	0	3	0	0	0	0	0	0	22	4	0	1	38	0	0	74	691
12:45 PM	1	0	2	0	0	0	0	0	0	23	2	0	4	29	0	0	61	699
12:50 PM	6	0	2	0	0	0	0	0	0	31	1	0	6	19	0	0	65	698
12:55 PM	2	0	1	0	0	0	0	0	0	22	6	0	1	19	0	0	51	698
1:00 PM	5	0	0	0	0	0	0	0	0	29	5	0	1	18	0	0	58	702
1:05 PM	4	0	2	0	0	0	0	0	0	25	6	0	1	22	0	0	60	701
1:10 PM	3	0	2	0	0	0	0	0	0	17	3	0	1	27	0	0	53	697
1:15 PM	2	0	3	0	0	0	0	0	0	17	3	0	3	18	0	0	46	686
1:20 PM	2	0	3	0	0	0	0	0	0	19	6	0	1	22	0	0	53	688
1:25 PM	2	0	2	0	0	0	0	0	0	18	2	0	1	23	0	0	48	676
1:30 PM	7	0	1	0	0	0	0	0	0	10	1	0	1	27	0	0	47	663
1:35 PM	4	0	1	0	0	0	0	0	0	24	8	0	0	24	0	0	61	677
1:40 PM	4	0	1	0	0	0	0	0	0	22	4	0	2	20	0	0	53	656
1:45 PM	5	0	1	0	0	0	0	0	0	25	3	0	0	36	0	0	70	665
1:50 PM	2	0	0	0	0	0	0	0	0	17	3	0	1	25	0	0	48	648
1:55 PM	5	0	2	0	0	0	0	0	0	23	5	0	0	15	0	0	50	647
2:00 PM	6	0	3	0	0	0	0	0	0	19	0	0	0	27	0	0	55	644
2:05 PM	9	0	0	0	0	0	0	0	0	11	6	0	0	31	0	0	57	641
2:10 PM	12	0	1	0	0	0	0	0	0	20	3	0	0	24	0	0	60	648
2:15 PM	6	0	2	0	0	0	0	0	0	17	3	0	2	33	0	0	63	665
2:20 PM	11	0	0	0	0	0	0	0	0	21	5	0	12	21	0	0	70	682
2:25 PM	6	0	0	0	0	0	0	0	0	24	7	0	4	28	0	0	69	703
2:30 PM	10	0	0	0	0	0	0	0	0	22	5	0	7	31	0	0	75	731
2:35 PM	18	0	4	0	0	0	0	0	0	29	7	0	3	30	0	0	91	761
2:40 PM	9	0	4	0	0	0	0	0	0	21	7	0	1	32	0	0	74	782
2:45 PM	8	0	3	0	0	0	0	0	0	24	4	0	4	26	0	0	69	781
2:50 PM	15	0	1	0	0	0	0	0	0	20	2	0	1	31	0	0	70	803
2:55 PM	9	0	1	0	0	0	0	0	0	21	4	0	2	34	0	0	71	824
3:00 PM	10	0	2	0	0	0	0	0	0	21	8	0	1	27	0	0	69	838
3:05 PM	15	0	2	0	0	0	0	0	0	23	3	0	2	41	0	0	86	867
3:10 PM	14	0	3	0	0	0	0	0	0	27	4	0	1	29	0	0	78	885
3:15 PM	12	0	3	0	0	0	0	0	0	21	1	0	2	32	0	0	71	893
3:20 PM	14	0	5	0	0	0	0	0	0	29	3	0	1	31	0	0	83	906
3:25 PM	8	0	1	0	0	0	0	0	0	32	20	0	1	34	0	0	96	933
3:30 PM	17	0	1	0	0	0	0	0	0	27	11	0	1	39	0	0	96	954
3:35 PM	13	0	2	0	0	0	0	0	0	34	4	0	0	45	0	0	98	961
3:40 PM	14	0	1	0	0	0	0	0	0	27	6	0	1	56	0	0	105	992
3:45 PM	4	0	2	0	0	0	0	0	0	24	7	0	2	29	0	0	68	991
3:50 PM	8	0	0	0	0	0	0	0	0	17	3	0	1	36	0	0	65	986
3:55 PM	11	0	3	0	0	0	0	0	0	23	6	0	2	38	0	0	83	998
4:00 PM	11	0	3	0	0	0	0	0	0	33	4	0	3	35	0	0	89	1018
4:05 PM	17	0	1	0	0	0	0	0	0	24	7	0	4	55	0	0	108	1040
4:10 PM	11	0	0	0	0	0	0	0	0	22	4	0	2	48	0	0	87	1049
4:15 PM	13	0	2	0	0	0	0	0	0	28	7	0	5	48	0	0	103	1081
4:20 PM	16	0	0	0	0	0	0	0	0	25	3	0	2	32	0	0	78	1076
4:25 PM	12	0	2	0	0	0	0	0	0	20	11	0	1	42	0	0	88	1068
4:30 PM	16	0	2	0	0	0	0	0	0	25	4	0	1	43	0	0	91	1063

5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:35 PM	16	0	11	0	0	0	0	0	0	25	8	0	3	47	0	0	110	1075
4:40 PM	22	0	13	0	0	0	0	0	0	24	3	0	2	52	0	0	116	1086
4:45 PM	17	0	9	0	0	0	0	0	0	25	8	0	2	53	0	0	114	1132
4:50 PM	12	0	3	0	0	0	0	0	0	25	8	0	2	31	0	0	81	1148
4:55 PM	10	0	4	0	0	0	0	0	0	22	3	0	1	42	0	0	82	1147
5:00 PM	10	0	3	0	0	0	0	0	0	17	7	0	2	55	0	0	94	1152
5:05 PM	16	0	6	0	0	0	0	0	0	33	2	0	3	58	0	0	118	1162
5:10 PM	8	0	6	0	0	0	0	0	0	28	5	0	4	53	0	0	104	1179
5:15 PM	14	0	3	0	0	0	0	0	0	22	6	0	3	44	0	0	92	1168
5:20 PM	9	0	7	0	0	0	0	0	0	17	5	0	1	36	0	0	75	1165
5:25 PM	6	0	7	0	0	0	0	0	0	23	2	0	1	42	0	0	81	1158
5:30 PM	8	0	3	0	0	0	0	0	0	20	8	0	1	42	0	0	82	1149
5:35 PM	9	0	2	0	0	0	0	0	0	28	5	0	2	39	0	0	85	1124
5:40 PM	12	0	2	0	0	0	0	0	0	20	3	0	1	35	0	0	73	1081
5:45 PM	15	0	1	0	0	0	0	0	0	21	5	0	4	34	0	0	80	1047
5:50 PM	4	0	0	0	0	0	0	0	0	20	1	0	0	33	0	0	58	1024
5:55 PM	6	0	1	0	0	0	0	0	0	25	4	0	3	32	0	0	71	1013
6:00 PM	7	0	2	0	0	0	0	0	0	14	4	0	4	24	0	0	55	974
6:05 PM	10	0	1	0	0	0	0	0	0	17	4	0	0	35	0	0	67	923
6:10 PM	9	0	0	0	0	0	0	0	0	17	2	0	0	30	0	0	58	877
6:15 PM	9	0	5	0	0	0	0	0	0	13	1	0	0	27	0	0	55	840
6:20 PM	3	0	3	0	0	0	0	0	0	16	3	0	1	19	0	0	45	810
6:25 PM	4	0	3	0	0	0	0	0	0	9	4	0	2	20	0	0	42	771
6:30 PM	3	0	3	0	0	0	0	0	0	18	2	0	0	18	0	0	44	733
6:35 PM	9	0	2	0	0	0	0	0	0	12	1	0	4	18	0	0	46	694
6:40 PM	8	0	0	0	0	0	0	0	0	16	3	0	1	22	0	0	50	671
6:45 PM	6	0	1	0	0	0	0	0	0	15	0	0	3	19	0	0	44	635
6:50 PM	4	0	0	0	0	0	0	0	0	15	2	0	0	15	0	0	36	613
6:55 PM	6	0	2	0	0	0	0	0	0	12	3	0	1	14	0	0	38	580
7:00 PM	4	0	0	0	0	0	0	0	0	6	2	0	0	18	0	0	30	555
7:05 PM	3	0	1	0	0	0	0	0	0	10	6	0	1	22	0	0	43	531
7:10 PM	8	0	2	0	0	0	0	0	0	10	0	0	2	18	0	0	40	513
7:15 PM	4	0	0	0	0	0	0	0	0	12	3	0	2	19	0	0	40	498
7:20 PM	4	0	2	0	0	0	0	0	0	8	1	0	0	16	0	0	31	484
7:25 PM	2	0	2	0	0	0	0	0	0	7	2	0	0	22	0	0	35	477
7:30 PM	8	0	1	0	0	0	0	0	0	15	2	0	2	15	0	0	43	476
7:35 PM	7	0	0	0	0	0	0	0	0	11	2	0	0	13	0	0	33	463
7:40 PM	2	0	0	0	0	0	0	0	0	11	0	0	1	17	0	0	31	444
7:45 PM	5	0	2	0	0	0	0	0	0	9	2	0	1	10	0	0	29	429
7:50 PM	6	0	2	0	0	0	0	0	0	10	1	0	2	17	0	0	38	431
7:55 PM	6	0	2	0	0	0	0	0	0	9	0	0	0	16	0	0	33	426
8:00 PM	1	0	2	0	0	0	0	0	0	5	1	0	0	10	0	0	19	415
8:05 PM	3	0	0	0	0	0	0	0	0	7	0	0	1	16	0	0	27	399
8:10 PM	3	0	0	0	0	0	0	0	0	5	2	0	1	17	0	0	28	387
8:15 PM	0	0	2	0	0	0	0	0	0	3	0	0	1	17	0	0	23	370
8:20 PM	2	0	1	0	0	0	0	0	0	2	4	0	0	17	0	0	26	365
8:25 PM	0	0	0	0	0	0	0	0	0	7	1	0	1	16	0	0	25	355
8:30 PM	1	0	0	0	0	0	0	0	0	3	1	0	1	11	0	0	17	329
8:35 PM	2	0	1	0	0	0	0	0	0	2	1	0	0	7	0	0	13	309
8:40 PM	2	0	0	0	0	0	0	0	0	6	1	0	0	14	0	0	23	301
8:45 PM	5	0	0	0	0	0	0	0	0	10	1	0	0	14	0	0	30	302
8:50 PM	1	0	1	0	0	0	0	0	0	7	1	0	0	4	0	0	14	278
8:55 PM	3	0	0	0	0	0	0	0	0	6	1	0	0	9	0	0	19	264
9:00 PM	0	0	1	0	0	0	0	0	0	5	1	0	0	5	0	0	12	257
9:05 PM	0	0	1	0	0	0	0	0	0	6	1	0	1	10	0	0	19	249
9:10 PM	3	0	1	0	0	0	0	0	0	12	2	0	0	9	0	0	27	248
9:15 PM	8	0	1	0	0	0	0	0	0	2	0	0	1	5	0	0	17	242
9:20 PM	3	0	0	0	0	0	0	0	0	3	2	0	1	12	0	0	21	237
9:25 PM	2	0	0	0	0	0	0	0	0	9	1	0	0	6	0	0	18	230
9:30 PM	2	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0	12	225
9:35 PM	6	0	1	0	0	0	0	0	0	3	1	0	0	9	0	0	20	232
9:40 PM	2	0	0	0	0	0	0	0	0	5	0	0	1	6	0	0	14	223
9:45 PM	1	0	0	0	0	0	0	0	0	4	1	0	0	6	0	0	12	205
9:50 PM	2	0	0	0	0	0	0	0	0	3	1	0	0	5	0	0	11	202
9:55 PM	1	0	0	0	0	0	0	0	0	6	1	0	0	9	0	0	17	200
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	44	0	44	0	0	0	0	0	0	332	172	0	36	248	0	0	876	
Heavy Trucks	4	0	4	0	0	0	0	0	0	16	8	0	8	8	0	0	48	
Buses		0				0				0				0			0	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles																		
Scoters																		
<i>Comments:</i>																		

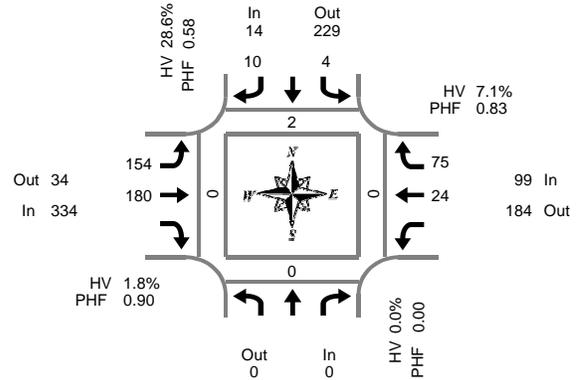
5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:15 AM	8	0	1	0	0	0	0	0	0	11	2	0	0	19	0	0	41	676
9:20 AM	9	0	1	0	0	0	0	0	0	9	1	0	0	7	0	0	27	657
9:25 AM	3	0	1	0	0	0	0	0	0	16	1	0	1	16	0	0	38	639
9:30 AM	6	0	0	0	0	0	0	0	0	20	3	0	0	13	0	0	42	617
9:35 AM	7	0	0	0	0	0	0	0	0	30	3	0	0	14	0	0	54	607
9:40 AM	2	0	2	0	0	0	0	0	0	20	5	0	2	17	0	0	48	584
9:45 AM	6	0	0	0	0	0	0	0	0	16	2	0	3	18	0	0	45	552
9:50 AM	3	0	0	0	0	0	0	0	0	19	2	0	1	12	0	0	37	534
9:55 AM	5	0	3	0	0	0	0	0	0	14	4	0	2	21	0	0	49	522
10:00 AM	4	0	0	0	0	0	0	0	0	15	1	0	2	19	0	0	41	512
10:05 AM	5	0	1	0	0	0	0	0	0	16	0	0	1	11	0	0	34	504
10:10 AM	5	0	0	0	0	0	0	0	0	16	2	0	1	16	0	0	40	496
10:15 AM	6	0	0	0	0	0	0	0	0	22	4	0	1	27	0	0	60	515
10:20 AM	1	0	1	0	0	0	0	0	0	19	2	0	3	16	0	0	42	530
10:25 AM	6	0	2	0	0	0	0	0	0	19	2	0	1	7	0	0	37	529
10:30 AM	3	0	0	0	0	0	0	0	0	10	2	0	1	17	0	0	33	520
10:35 AM	4	0	3	0	0	0	0	0	0	9	4	0	4	17	0	0	41	507
10:40 AM	4	0	2	0	0	0	0	0	0	25	1	0	3	18	0	0	53	512
10:45 AM	9	0	3	0	0	0	0	0	0	15	5	0	3	21	0	0	56	523
10:50 AM	1	0	2	0	0	0	0	0	0	22	5	0	1	14	0	0	45	531
10:55 AM	5	0	1	0	0	0	0	0	0	13	0	0	2	18	0	0	39	521
11:00 AM	11	0	3	0	0	0	0	0	0	13	0	0	1	18	0	0	46	526
11:05 AM	4	0	2	0	0	0	0	0	0	18	3	0	0	17	0	0	44	536
11:10 AM	6	0	5	0	0	0	0	0	0	20	4	0	3	19	0	0	57	553
11:15 AM	7	0	3	0	0	0	0	0	0	16	5	0	2	18	0	0	51	544
11:20 AM	2	0	0	0	0	0	0	0	0	21	5	0	3	20	0	0	51	553
11:25 AM	3	0	2	0	0	0	0	0	0	19	2	0	2	20	0	0	48	564
11:30 AM	6	0	1	0	0	0	0	0	0	25	3	0	0	15	0	0	50	581
11:35 AM	5	0	2	0	0	0	0	0	0	30	4	0	0	21	0	0	62	602
11:40 AM	2	0	3	0	0	0	0	0	0	21	4	0	2	12	0	0	44	593
11:45 AM	5	0	1	0	0	0	0	0	0	23	2	0	1	21	0	0	53	590
11:50 AM	7	0	1	0	0	0	0	0	0	22	7	0	3	26	0	0	66	611
11:55 AM	4	0	2	0	0	0	0	0	0	20	5	0	1	19	0	0	51	623
12:00 PM	5	0	2	0	0	0	0	0	0	20	6	0	2	19	0	0	54	631
12:05 PM	9	0	3	0	0	0	0	0	0	25	3	0	2	19	0	0	61	648
12:10 PM	5	0	2	0	0	0	0	0	0	20	5	0	1	24	0	0	57	648
12:15 PM	6	0	4	0	0	0	0	0	0	19	5	0	0	23	0	0	57	654
12:20 PM	4	0	2	0	0	0	0	0	0	18	4	0	1	22	0	0	51	654
12:25 PM	7	0	1	0	0	0	0	0	0	21	1	0	3	27	0	0	60	666
12:30 PM	4	0	2	0	0	0	0	0	0	22	6	0	4	22	0	0	60	676
12:35 PM	10	0	1	0	0	0	0	0	0	13	6	0	0	17	0	0	47	661
12:40 PM	6	0	3	0	0	0	0	0	0	22	4	0	1	38	0	0	74	691
12:45 PM	1	0	2	0	0	0	0	0	0	23	2	0	4	29	0	0	61	699
12:50 PM	6	0	2	0	0	0	0	0	0	31	1	0	6	19	0	0	65	698
12:55 PM	2	0	1	0	0	0	0	0	0	22	6	0	1	19	0	0	51	698
1:00 PM	5	0	0	0	0	0	0	0	0	29	5	0	1	18	0	0	58	702
1:05 PM	4	0	2	0	0	0	0	0	0	25	6	0	1	22	0	0	60	701
1:10 PM	3	0	2	0	0	0	0	0	0	17	3	0	1	27	0	0	53	697
1:15 PM	2	0	3	0	0	0	0	0	0	17	3	0	3	18	0	0	46	686
1:20 PM	2	0	3	0	0	0	0	0	0	19	6	0	1	22	0	0	53	688
1:25 PM	2	0	2	0	0	0	0	0	0	18	2	0	1	23	0	0	48	676
1:30 PM	7	0	1	0	0	0	0	0	0	10	1	0	1	27	0	0	47	663
1:35 PM	4	0	1	0	0	0	0	0	0	24	8	0	0	24	0	0	61	677
1:40 PM	4	0	1	0	0	0	0	0	0	22	4	0	2	20	0	0	53	656
1:45 PM	5	0	1	0	0	0	0	0	0	25	3	0	0	36	0	0	70	665
1:50 PM	2	0	0	0	0	0	0	0	0	17	3	0	1	25	0	0	48	648
1:55 PM	5	0	2	0	0	0	0	0	0	23	5	0	0	15	0	0	50	647
2:00 PM	6	0	3	0	0	0	0	0	0	19	0	0	0	27	0	0	55	644
2:05 PM	9	0	0	0	0	0	0	0	0	11	6	0	0	31	0	0	57	641
2:10 PM	12	0	1	0	0	0	0	0	0	20	3	0	0	24	0	0	60	648
2:15 PM	6	0	2	0	0	0	0	0	0	17	3	0	2	33	0	0	63	665
2:20 PM	11	0	0	0	0	0	0	0	0	21	5	0	12	21	0	0	70	682
2:25 PM	6	0	0	0	0	0	0	0	0	24	7	0	4	28	0	0	69	703
2:30 PM	10	0	0	0	0	0	0	0	0	22	5	0	7	31	0	0	75	731
2:35 PM	18	0	4	0	0	0	0	0	0	29	7	0	3	30	0	0	91	761
2:40 PM	9	0	4	0	0	0	0	0	0	21	7	0	1	32	0	0	74	782
2:45 PM	8	0	3	0	0	0	0	0	0	24	4	0	4	26	0	0	69	781
2:50 PM	15	0	1	0	0	0	0	0	0	20	2	0	1	31	0	0	70	803
2:55 PM	9	0	1	0	0	0	0	0	0	21	4	0	2	34	0	0	71	824
3:00 PM	10	0	2	0	0	0	0	0	0	21	8	0	1	27	0	0	69	838
3:05 PM	15	0	2	0	0	0	0	0	0	23	3	0	2	41	0	0	86	867
3:10 PM	14	0	3	0	0	0	0	0	0	27	4	0	1	29	0	0	78	885
3:15 PM	12	0	3	0	0	0	0	0	0	21	1	0	2	32	0	0	71	893
3:20 PM	14	0	5	0	0	0	0	0	0	29	3	0	1	31	0	0	83	906
3:25 PM	8	0	1	0	0	0	0	0	0	32	20	0	1	34	0	0	96	933
3:30 PM	17	0	1	0	0	0	0	0	0	27	11	0	1	39	0	0	96	954
3:35 PM	13	0	2	0	0	0	0	0	0	34	4	0	0	45	0	0	98	961
3:40 PM	14	0	1	0	0	0	0	0	0	27	6	0	1	56	0	0	105	992
3:45 PM	4	0	2	0	0	0	0	0	0	24	7	0	2	29	0	0	68	991
3:50 PM	8	0	0	0	0	0	0	0	0	17	3	0	1	36	0	0	65	986
3:55 PM	11	0	3	0	0	0	0	0	0	23	6	0	2	38	0	0	83	998
4:00 PM	11	0	3	0	0	0	0	0	0	33	4	0	3	35	0	0	89	1018
4:05 PM	17	0	1	0	0	0	0	0	0	24	7	0	4	55	0	0	108	1040
4:10 PM	11	0	0	0	0	0	0	0	0	22	4	0	2	48	0	0	87	1049
4:15 PM	13	0	2	0	0	0	0	0	0	28	7	0	5	48	0	0	103	1081
4:20 PM	16	0	0	0	0	0	0	0	0	25	3	0	2	32	0	0	78	1076
4:25 PM	12	0	2	0	0	0	0	0	0	20	11	0	1	42	0	0	88	1068

5-Min Count Period Beginning At	SW Teton Ave (Northbound)				SW Teton Ave (Southbound)				SW Tualatin Rd (Eastbound)				SW Tualatin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	16	0	2	0	0	0	0	0	0	25	4	0	1	43	0	0	91	1063
4:35 PM	16	0	11	0	0	0	0	0	0	25	8	0	3	47	0	0	110	1075
4:40 PM	22	0	13	0	0	0	0	0	0	24	3	0	2	52	0	0	116	1086
4:45 PM	17	0	9	0	0	0	0	0	0	25	8	0	2	53	0	0	114	1132
4:50 PM	12	0	3	0	0	0	0	0	0	25	8	0	2	31	0	0	81	1148
4:55 PM	10	0	4	0	0	0	0	0	0	22	3	0	1	42	0	0	82	1147
5:00 PM	10	0	3	0	0	0	0	0	0	17	7	0	2	55	0	0	94	1152
5:05 PM	16	0	6	0	0	0	0	0	0	33	2	0	3	58	0	0	118	1162
5:10 PM	8	0	6	0	0	0	0	0	0	28	5	0	4	53	0	0	104	1179
5:15 PM	14	0	3	0	0	0	0	0	0	22	6	0	3	44	0	0	92	1168
5:20 PM	9	0	7	0	0	0	0	0	0	17	5	0	1	36	0	0	75	1165
5:25 PM	6	0	7	0	0	0	0	0	0	23	2	0	1	42	0	0	81	1158
5:30 PM	8	0	3	0	0	0	0	0	0	20	8	0	1	42	0	0	82	1149
5:35 PM	9	0	2	0	0	0	0	0	0	28	5	0	2	39	0	0	85	1124
5:40 PM	12	0	2	0	0	0	0	0	0	20	3	0	1	35	0	0	73	1081
5:45 PM	15	0	1	0	0	0	0	0	0	21	5	0	4	34	0	0	80	1047
5:50 PM	4	0	0	0	0	0	0	0	0	20	1	0	0	33	0	0	58	1024
5:55 PM	6	0	1	0	0	0	0	0	0	25	4	0	3	32	0	0	71	1013
6:00 PM	7	0	2	0	0	0	0	0	0	14	4	0	4	24	0	0	55	974
6:05 PM	10	0	1	0	0	0	0	0	0	17	4	0	0	35	0	0	67	923
6:10 PM	9	0	0	0	0	0	0	0	0	17	2	0	0	30	0	0	58	877
6:15 PM	9	0	5	0	0	0	0	0	0	13	1	0	0	27	0	0	55	840
6:20 PM	3	0	3	0	0	0	0	0	0	16	3	0	1	19	0	0	45	810
6:25 PM	4	0	3	0	0	0	0	0	0	9	4	0	2	20	0	0	42	771
6:30 PM	3	0	3	0	0	0	0	0	0	18	2	0	0	18	0	0	44	733
6:35 PM	9	0	2	0	0	0	0	0	0	12	1	0	4	18	0	0	46	694
6:40 PM	8	0	0	0	0	0	0	0	0	16	3	0	1	22	0	0	50	671
6:45 PM	6	0	1	0	0	0	0	0	0	15	0	0	3	19	0	0	44	635
6:50 PM	4	0	0	0	0	0	0	0	0	15	2	0	0	15	0	0	36	613
6:55 PM	6	0	2	0	0	0	0	0	0	12	3	0	1	14	0	0	38	580
7:00 PM	4	0	0	0	0	0	0	0	0	6	2	0	0	18	0	0	30	555
7:05 PM	3	0	1	0	0	0	0	0	0	10	6	0	1	22	0	0	43	531
7:10 PM	8	0	2	0	0	0	0	0	0	10	0	0	2	18	0	0	40	513
7:15 PM	4	0	0	0	0	0	0	0	0	12	3	0	2	19	0	0	40	498
7:20 PM	4	0	2	0	0	0	0	0	0	8	1	0	0	16	0	0	31	484
7:25 PM	2	0	2	0	0	0	0	0	0	7	2	0	0	22	0	0	35	477
7:30 PM	8	0	1	0	0	0	0	0	0	15	2	0	2	15	0	0	43	476
7:35 PM	7	0	0	0	0	0	0	0	0	11	2	0	0	13	0	0	33	463
7:40 PM	2	0	0	0	0	0	0	0	0	11	0	0	1	17	0	0	31	444
7:45 PM	5	0	2	0	0	0	0	0	0	9	2	0	1	10	0	0	29	429
7:50 PM	6	0	2	0	0	0	0	0	0	10	1	0	2	17	0	0	38	431
7:55 PM	6	0	2	0	0	0	0	0	0	9	0	0	0	16	0	0	33	426
8:00 PM	1	0	2	0	0	0	0	0	0	5	1	0	0	10	0	0	19	415
8:05 PM	3	0	0	0	0	0	0	0	0	7	0	0	1	16	0	0	27	399
8:10 PM	3	0	0	0	0	0	0	0	0	5	2	0	1	17	0	0	28	387
8:15 PM	0	0	2	0	0	0	0	0	0	3	0	0	1	17	0	0	23	370
8:20 PM	2	0	1	0	0	0	0	0	0	2	4	0	0	17	0	0	26	365
8:25 PM	0	0	0	0	0	0	0	0	0	7	1	0	1	16	0	0	25	355
8:30 PM	1	0	0	0	0	0	0	0	0	3	1	0	1	11	0	0	17	329
8:35 PM	2	0	1	0	0	0	0	0	0	2	1	0	0	7	0	0	13	309
8:40 PM	2	0	0	0	0	0	0	0	0	6	1	0	0	14	0	0	23	301
8:45 PM	5	0	0	0	0	0	0	0	0	10	1	0	0	14	0	0	30	302
8:50 PM	1	0	1	0	0	0	0	0	0	7	1	0	0	4	0	0	14	278
8:55 PM	3	0	0	0	0	0	0	0	0	6	1	0	0	9	0	0	19	264
9:00 PM	0	0	1	0	0	0	0	0	0	5	1	0	0	5	0	0	12	257
9:05 PM	0	0	1	0	0	0	0	0	0	6	1	0	1	10	0	0	19	249
9:10 PM	3	0	1	0	0	0	0	0	0	12	2	0	0	9	0	0	27	248
9:15 PM	8	0	1	0	0	0	0	0	0	2	0	0	1	5	0	0	17	242
9:20 PM	3	0	0	0	0	0	0	0	0	3	2	0	1	12	0	0	21	237
9:25 PM	2	0	0	0	0	0	0	0	0	9	1	0	0	6	0	0	18	230
9:30 PM	2	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0	12	225
9:35 PM	6	0	1	0	0	0	0	0	0	3	1	0	0	9	0	0	20	232
9:40 PM	2	0	0	0	0	0	0	0	0	5	0	0	1	6	0	0	14	223
9:45 PM	1	0	0	0	0	0	0	0	0	4	1	0	0	6	0	0	12	205
9:50 PM	2	0	0	0	0	0	0	0	0	3	1	0	0	5	0	0	11	202
9:55 PM	1	0	0	0	0	0	0	0	0	6	1	0	0	9	0	0	17	200
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	220	0	132	0	0	0	0	0	0	296	76	0	28	608	0	0	1360	
Heavy Trucks	12	0	4	0	0	0	0	0	0	8	8	0	0	4	0	0	36	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	8	0		0	0	0		8	
Scoters																		
<i>Comments:</i>																		

Total Vehicle Summary



Clay Carney
(503) 833-2740



Peak Hour Summary
7:45 AM to 8:45 AM

West Driveway & SW Leveton Dr

Wednesday, June 06, 2018
7:00 AM to 9:00 AM

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound West Driveway				Southbound West Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	T	R	Bikes	T	R	Bikes	North	South	East		West			
7:00 AM	0	4	4	0	15	22	0	0	4	4	1	53	0	0	0	0					
7:15 AM	0	2	3	0	20	31	0	0	14	19	1	89	0	0	0	0					
7:30 AM	0	2	1	0	22	31	0	0	8	15	0	79	0	0	0	0					
7:45 AM	0	0	2	0	34	58	0	0	7	18	0	119	0	0	0	0					
8:00 AM	0	1	0	0	39	54	0	0	7	22	0	123	1	0	0	0					
8:15 AM	0	1	4	0	41	38	0	0	5	25	0	114	1	0	0	0					
8:30 AM	0	2	4	0	40	30	0	0	5	10	0	91	0	0	0	0					
8:45 AM	0	1	0	0	23	18	0	0	5	16	0	63	0	0	0	0					
Total Survey	0	13	18	0	234	282	0	0	55	129	2	731	2	0	0	0					

Peak Hour Summary

7:45 AM to 8:45 AM

By Approach	Northbound West Driveway				Southbound West Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	14	229	243	0	334	34	368	0	99	184	283	0	2	0	0	0	
%HV	0.0%				28.6%				1.8%				7.1%				3.8%				
PHF	0.00				0.58				0.90				0.83				0.91				

By Movement	Northbound West Driveway				Southbound West Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	Total	L	R	Bikes	Total	L	T	Bikes	Total	L	T	Bikes	Total	T	R	Bikes	
Volume	0	4	10	14	154	180	NA	334	24	75	99	447	NA	25.0%	1.3%	7.1%	
%HV	NA	50.0%	20.0%	28.6%	0.0%	3.3%	NA	1.8%	NA	25.0%	1.3%	7.1%	3.8%	0.86	0.75	0.83	
PHF	0.00	0.50	0.63	0.58	0.94	0.78	0.90	0.90	0.86	0.75	0.83	0.91					

Rolling Hour Summary

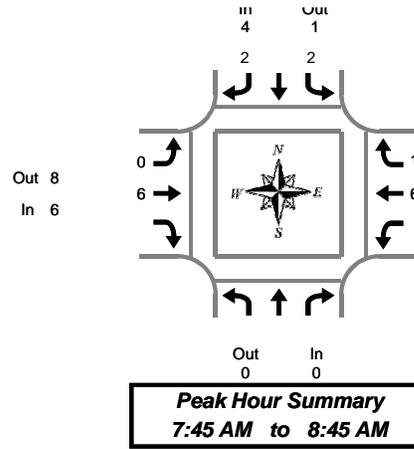
7:00 AM to 9:00 AM

Interval Start Time	Northbound West Driveway				Southbound West Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	T	R	Bikes	T	R	Bikes	North	South	East		West			
7:00 AM	0	8	10	0	91	142	0	0	33	56	2	340	0	0	0	0					
7:15 AM	0	5	6	0	115	174	0	0	36	74	1	410	1	0	0	0					
7:30 AM	0	4	7	0	136	181	0	0	27	80	0	435	2	0	0	0					
7:45 AM	0	4	10	0	154	180	0	0	24	75	0	447	2	0	0	0					
8:00 AM	0	5	8	0	143	140	0	0	22	73	0	391	2	0	0	0					

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



West Driveway & SW Leveton Dr

Wednesday, June 06, 2018
7:00 AM to 9:00 AM

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	
	Total	L	R	Total	L	T	Total	L	T	Total	T	R		Total
7:00 AM	0	1	0	1	0	2	0	0	2	2	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	2	0	2	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	1
7:45 AM	0	0	1	1	0	1	0	1	1	1	3	1	4	6
8:00 AM	0	0	0	0	0	2	0	2	2	2	1	0	1	3
8:15 AM	0	1	0	1	0	0	0	0	0	0	1	0	1	2
8:30 AM	0	1	1	2	0	3	0	3	3	3	1	0	1	6
8:45 AM	0	0	0	0	2	1	0	3	3	3	1	0	1	4
Total Survey	0	3	2	5	2	11	2	11	13	13	7	2	9	27

Heavy Vehicle Peak Hour Summary 7:45 AM to 8:45 AM

By Approach	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	4	1	5	6	8	14	7	8	15	17
PHF	0.00			0.33			0.25			0.29			0.35

By Movement	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total	
	Total	L	R	Total	L	T	Total	L	T	Total	T	R		Total
Volume	0	2	0	2	4	0	6	6	6	6	6	1	7	17
PHF	0.00	0.25		0.50	0.33	0.00	0.30	0.25	0.25	0.30	0.13	0.29	0.35	

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	
	Total	L	R	Total	L	T	Total	L	T	Total	T	R		Total
7:00 AM	0	1	1	2	0	5	5	3	2	5	3	2	5	12
7:15 AM	0	0	1	1	0	5	5	4	2	6	4	2	6	12
7:30 AM	0	1	1	2	0	3	3	5	2	7	5	2	7	12
7:45 AM	0	2	2	4	0	6	6	6	1	7	6	1	7	17
8:00 AM	0	2	1	3	2	6	8	4	0	4	4	0	4	15

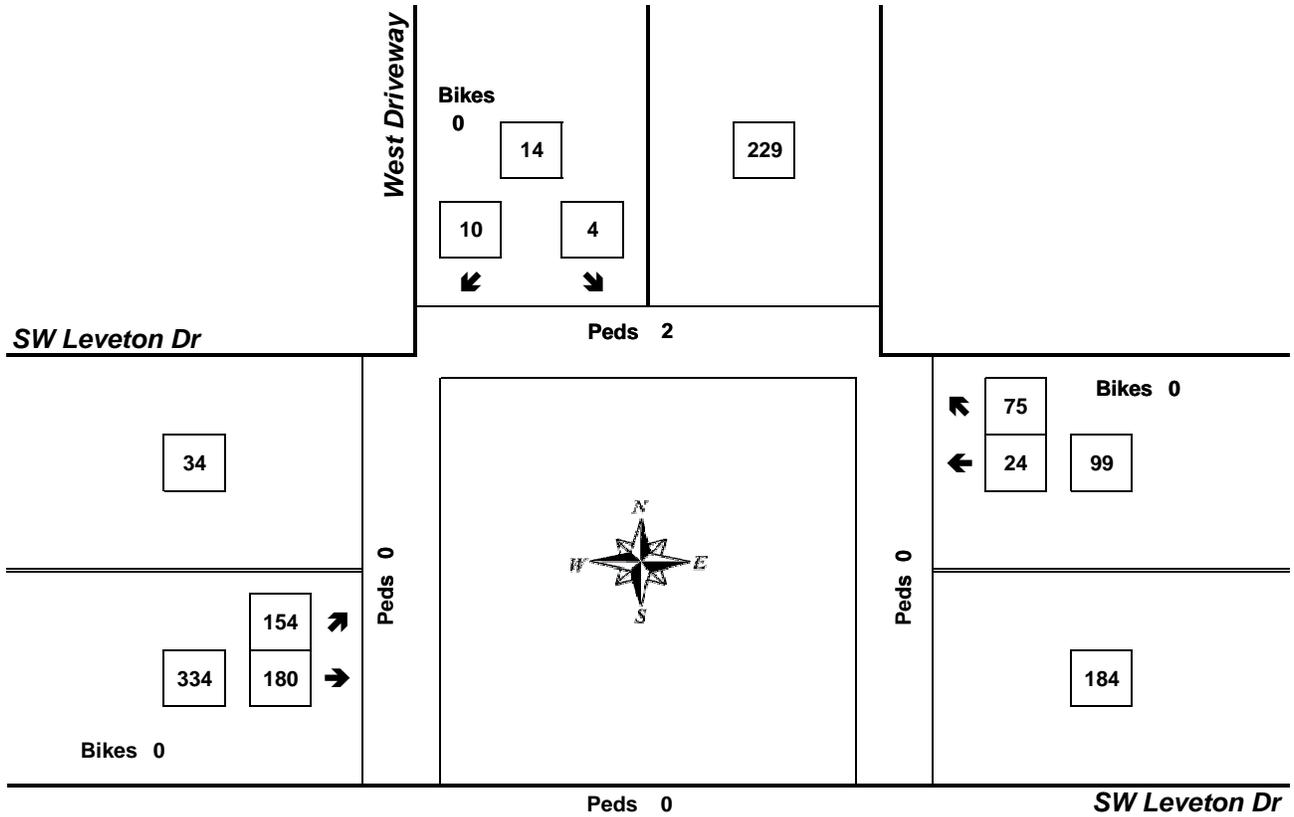
Peak Hour Summary



Clay Carney
(503) 833-2740

West Driveway & SW Leveton Dr

7:45 AM to 8:45 AM
Wednesday, June 06, 2018



Bikes
0

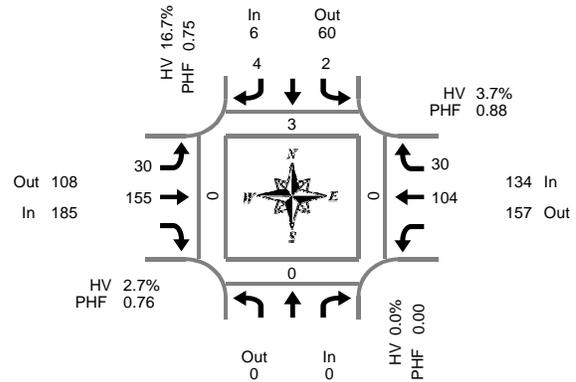
Approach	PHF	HV%	Volume
EB	0.90	1.8%	334
WB	0.83	7.1%	99
NB	0.00	0.0%	0
SB	0.58	28.6%	14
Intersection	0.91	3.8%	447

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Center Driveway & SW Leveton Dr

Wednesday, June 06, 2018
7:00 AM to 9:00 AM

Peak Hour Summary
7:30 AM to 8:30 AM

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	L	T	Bikes	T	R	Bikes	North	South	East		West			
7:00 AM	0	2	1	0	5	19	0	9	8	1	44	2	0	0	0						
7:15 AM	0	0	4	0	3	25	0	27	11	1	70	1	0	0	0						
7:30 AM	0	0	1	0	7	31	0	22	8	0	69	0	0	0	0						
7:45 AM	0	1	1	0	6	37	0	25	5	0	75	0	0	0	0						
8:00 AM	0	0	2	0	7	54	0	27	9	0	99	2	0	0	0						
8:15 AM	0	1	0	0	10	33	1	30	8	0	82	1	0	0	0						
8:30 AM	0	0	1	0	5	27	2	15	7	0	55	0	0	0	0						
8:45 AM	0	2	1	0	4	18	0	24	11	0	60	3	0	0	0						
Total Survey	0	6	11	0	47	244	3	179	67	2	554	9	0	0	0						

Peak Hour Summary

7:30 AM to 8:30 AM

By Approach	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	6	60	66	0	185	108	293	1	134	157	291	0	325	3	0	0	0
%HV	0.0%				16.7%				2.7%				3.7%				3.4%				
PHF	0.00				0.75				0.76				0.88				0.82				

By Movement	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	Total	L	R	Bikes	Total	L	T	Bikes	Total	L	T	Bikes	Total	T	R	Bikes	
Volume	0	2	4	6	30	155	185	NA	104	30	134	325	NA	104	30	134	
%HV	NA	0.0%	0.0%	NA	25.0%	16.7%	0.0%	3.2%	NA	2.7%	4.8%	0.0%	3.7%	4.8%	0.0%	3.4%	
PHF	0.00	0.50	0.50	0.75	0.75	0.72	0.76	NA	0.87	0.83	0.88	0.82	NA	0.87	0.83	0.88	

Rolling Hour Summary

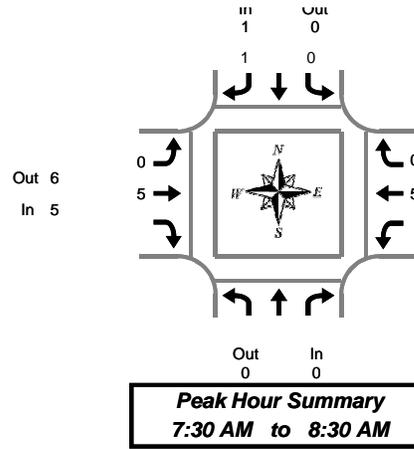
7:00 AM to 9:00 AM

Interval Start Time	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	L	T	Bikes	T	R	Bikes	North	South	East		West			
7:00 AM	0	3	7	0	21	112	0	83	32	2	258	3	0	0	0						
7:15 AM	0	1	8	0	23	147	0	101	33	1	313	3	0	0	0						
7:30 AM	0	2	4	0	30	155	1	104	30	0	325	3	0	0	0						
7:45 AM	0	2	4	0	28	151	3	97	29	0	311	3	0	0	0						
8:00 AM	0	3	4	0	26	132	3	96	35	0	296	6	0	0	0						

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Center Driveway & SW Leveton Dr

Wednesday, June 06, 2018
7:00 AM to 9:00 AM

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
7:00 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	1	1	0	1	1	2
7:30 AM	0	0	0	0	0	0	0	0	1	1	1	0	1	2
7:45 AM	0	0	0	0	0	0	0	0	1	1	3	0	3	4
8:00 AM	0	0	0	1	1	0	2	2	0	2	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	1	1	1	1	0	1	2
8:30 AM	0	0	0	0	0	1	3	4	1	3	1	0	1	5
8:45 AM	0	0	0	0	0	0	1	1	1	1	1	0	1	2
Total Survey	0	0	0	1	1	1	13	14	7	1	8	1	8	23

Heavy Vehicle Peak Hour Summary 7:30 AM to 8:30 AM

By Approach	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	1	0	1	5	6	11	5	5	10	11
PHF	0.00			0.25			0.18			0.25			0.28

By Movement	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
Volume	0	0	0	1	1	0	5	5	0	5	5	0	5	11
PHF	0.00	0.00		0.25	0.25	0.00	0.21	0.18		0.31	0.00	0.25	0.28	

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	Total	L	R	Total	L	R	Total	L	T	Total	T	R	
7:00 AM	0	0	0	0	0	0	0	6	6	4	1	5	11
7:15 AM	0	0	0	1	1	0	5	5	4	1	5	5	11
7:30 AM	0	0	0	1	1	0	5	5	5	0	5	5	11
7:45 AM	0	0	0	1	1	1	7	8	5	0	5	5	14
8:00 AM	0	0	0	1	1	1	7	8	3	0	3	3	12

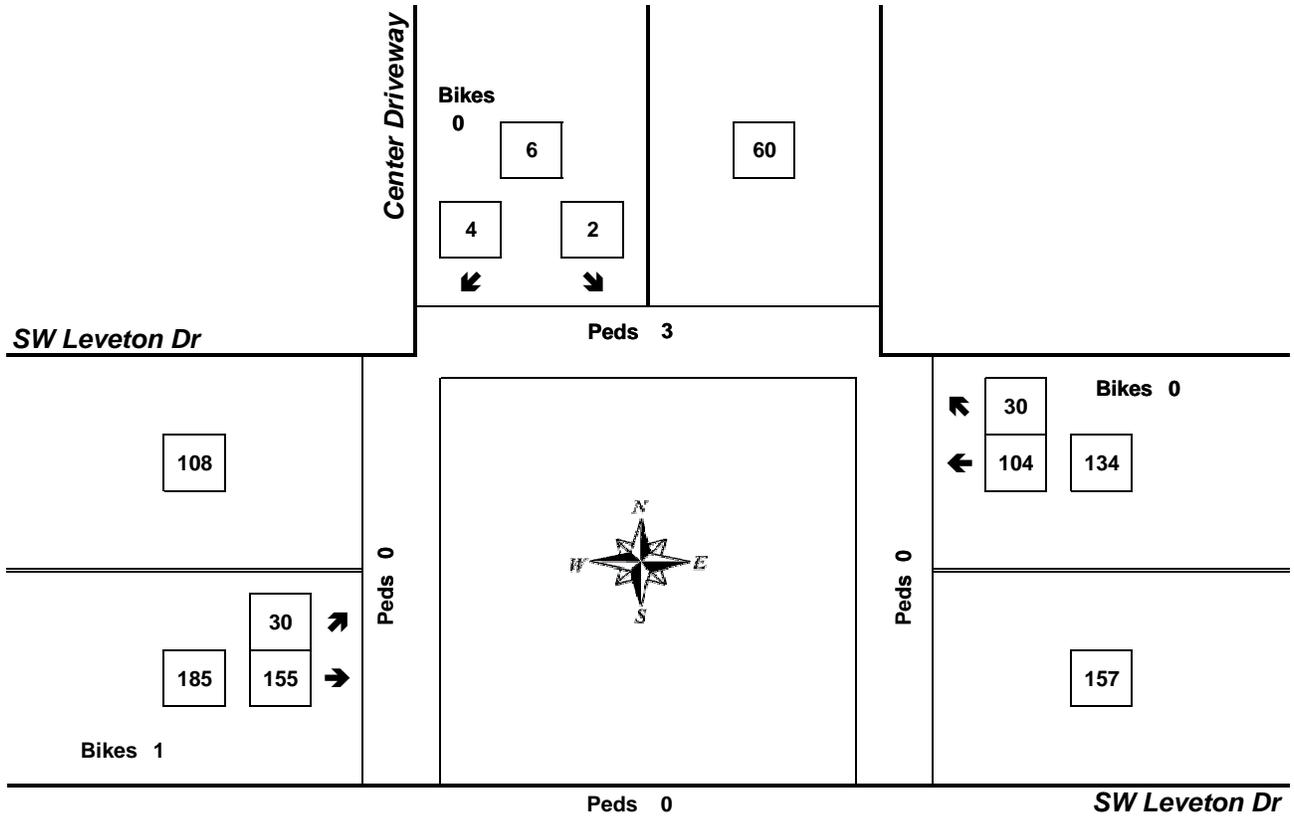
Peak Hour Summary



Clay Carney
(503) 833-2740

Center Driveway & SW Leveton Dr

7:30 AM to 8:30 AM
Wednesday, June 06, 2018



Bikes
0

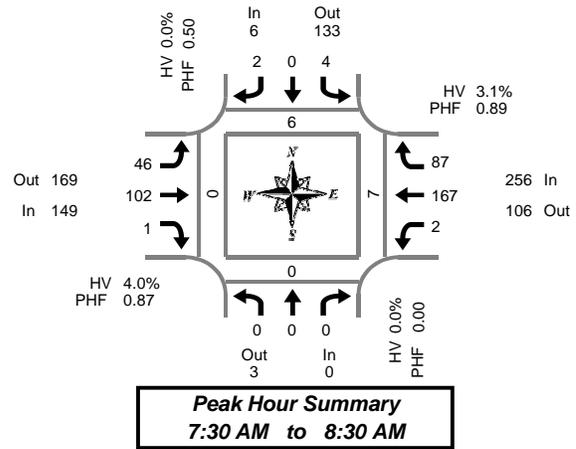
Approach	PHF	HV%	Volume
EB	0.76	2.7%	185
WB	0.88	3.7%	134
NB	0.00	0.0%	0
SB	0.75	16.7%	6
Intersection	0.82	3.4%	325

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740



East Access & SW Leveton Dr

Thursday, June 07, 2018
7:00 AM to 9:00 AM

15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	0	0	0	2	0	0	0	3	20	0	0	1	21	3	0	50	2	1	1	0
7:15 AM	0	0	0	0	3	0	1	0	3	19	0	0	1	44	11	0	82	1	0	4	0
7:30 AM	0	0	0	0	1	0	0	0	2	24	0	0	0	42	16	0	85	2	0	1	0
7:45 AM	0	0	0	0	3	0	0	0	7	36	0	1	0	46	13	0	105	1	0	0	0
8:00 AM	0	0	0	0	0	0	2	0	16	26	1	2	2	38	27	1	112	2	0	2	0
8:15 AM	0	0	0	0	0	0	0	0	21	16	0	3	0	41	31	0	109	1	0	4	0
8:30 AM	0	0	0	0	0	0	3	0	15	11	0	2	0	27	14	0	70	3	2	1	1
8:45 AM	0	0	0	0	0	0	0	0	11	7	0	0	0	28	28	1	74	9	3	5	0
Total Survey	0	0	0	0	9	0	6	0	78	159	1	8	4	287	143	2	687	21	6	18	1

Peak Hour Summary 7:30 AM to 8:30 AM

By Approach	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	3	3	0	6	133	139	0	149	169	318	6	256	106	362	1	411	6	0	7	0
%HV	0.0%				0.0%				4.0%				3.1%				3.4%				
PHF	0.00				0.50				0.87				0.89				0.92				

By Movement	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	4	0	2	6	46	102	1	149	2	167	87	256	411
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	#####	4.0%	0.0%	4.2%	1.1%	3.1%	3.4%
PHF	0.00	0.00	0.00	0.00	0.33	0.00	0.25	0.50	0.55	0.71	0.25	0.87	0.25	0.91	0.70	0.89	0.92

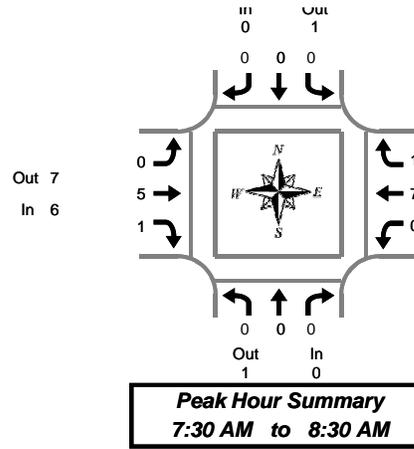
Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	0	0	0	9	0	1	0	15	99	0	1	2	153	43	0	322	6	1	6	0
7:15 AM	0	0	0	0	7	0	3	0	28	105	1	3	3	170	67	1	384	6	0	7	0
7:30 AM	0	0	0	0	4	0	2	0	46	102	1	6	2	167	87	1	411	6	0	7	0
7:45 AM	0	0	0	0	3	0	5	0	59	89	1	8	2	152	85	1	396	7	2	7	1
8:00 AM	0	0	0	0	0	0	5	0	63	60	1	7	2	134	100	2	365	15	5	12	1

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



East Access & SW Leveton Dr

Thursday, June 07, 2018
7:00 AM to 9:00 AM

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	1	3	0	5	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	0	0	0	7	1	8	0	8	1	9

Heavy Vehicle Peak Hour Summary 7:30 AM to 8:30 AM

By Approach	Northbound East Access			Southbound East Access			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	1	1	0	1	1	6	7	13	8	5	13	14
PHF	0.00			0.00			0.30			0.29			0.29

By Movement	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	0	0	0	0	5	1	6	0	7	1	8
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.25	0.30	0.00	0.25	0.25	0.29

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	0	2	1	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	5	1	6	0	6	1	7
7:30 AM	0	0	0	0	0	0	0	0	0	0	5	1	6	0	7	1	8
7:45 AM	0	0	0	0	0	0	0	0	0	0	5	1	6	0	7	0	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	4	1	5	0	6	0	6

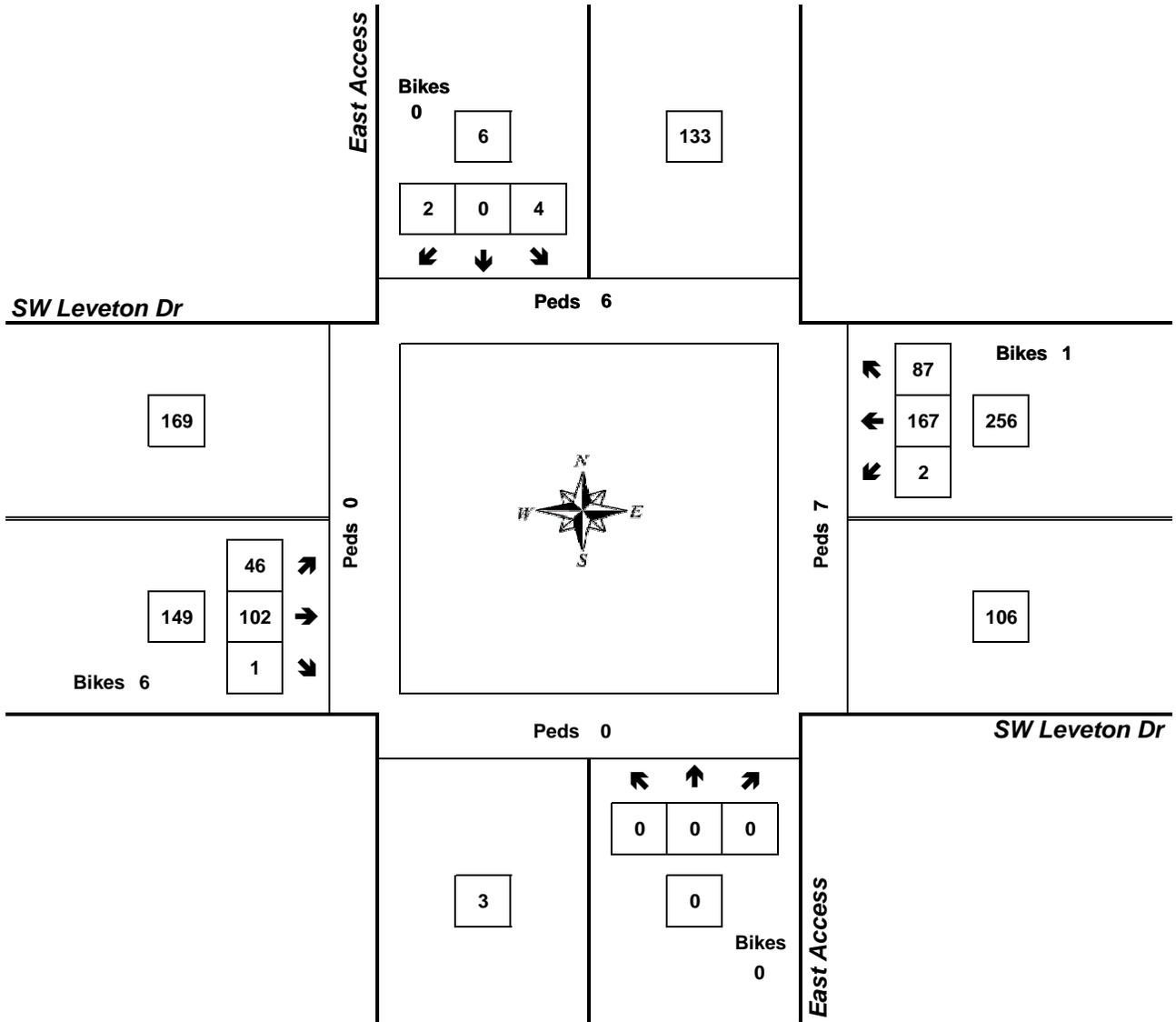
Peak Hour Summary



Clay Carney
(503) 833-2740

East Access & SW Leveton Dr

7:30 AM to 8:30 AM
Thursday, June 07, 2018



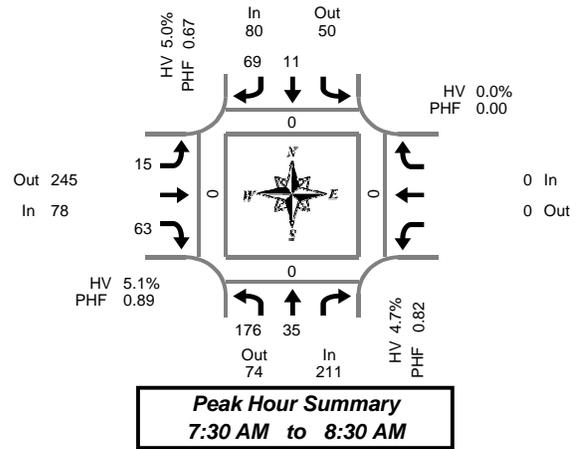
Approach	PHF	HV%	Volume
EB	0.87	4.0%	149
WB	0.89	3.1%	256
NB	0.00	0.0%	0
SB	0.50	0.0%	6
Intersection	0.92	3.4%	411

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740



SW 108th Ave & SW Leveton Dr

Wednesday, June 06, 2018
7:00 AM to 9:00 AM

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
7:00 AM	21	9	1	3	5	0	6	12	0			0	56	0	0	0	0
7:15 AM	34	4	0	5	11	1	3	16	0			0	73	1	0	0	0
7:30 AM	33	8	0	1	8	0	3	19	0			0	72	0	0	0	0
7:45 AM	40	11	0	3	21	0	3	18	0			0	96	0	0	0	0
8:00 AM	54	10	0	2	15	0	7	10	0			0	98	0	0	0	0
8:15 AM	49	6	0	5	25	2	2	16	1			0	103	0	0	0	0
8:30 AM	27	6	0	5	11	0	3	9	1			0	61	0	0	0	0
8:45 AM	53	6	0	3	16	0	3	10	0			0	91	0	0	0	0
Total Survey	311	60	1	27	112	3	30	110	2			0	650	1	0	0	0

Peak Hour Summary

7:30 AM to 8:30 AM

By Approach	Northbound SW 108th Ave				Southbound SW 108th Ave				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes		North	South	East	West												
Volume	211	74	285	0	80	50	130	2	78	245	323	1	0	0	0	0	369	0	0	0	0
%HV	4.7%				5.0%				5.1%				0.0%				4.9%				
PHF	0.82				0.67				0.89				0.00				0.90				

By Movement	Northbound SW 108th Ave			Total	Southbound SW 108th Ave			Total	Eastbound SW Leveton Dr			Total	Westbound SW Leveton Dr			Total	
	L	T			T	R			L		R						
Volume	176	35		211	11	69	80	15	63	78	0	369	0	0	0	369	
%HV	3.4%	11.4%	NA	4.7%	NA	27.3%	1.4%	5.0%	13.3%	NA	3.2%	5.1%	NA	NA	NA	0.0%	4.9%
PHF	0.81	0.80		0.82	0.55	0.69	0.67	0.54	0.83	0.89		0.00	0.00	0.00	0.90		

Rolling Hour Summary

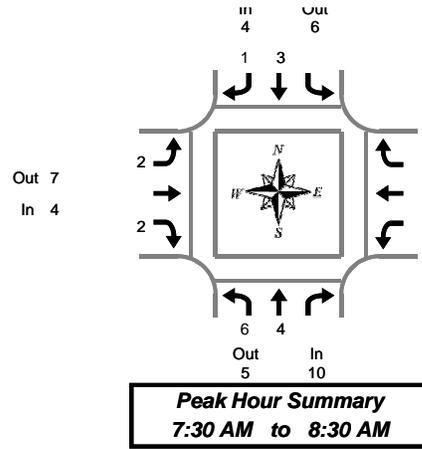
7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
7:00 AM	128	32	1	12	45	1	15	65	0			0	297	1	0	0	0
7:15 AM	161	33	0	11	55	1	16	63	0			0	339	1	0	0	0
7:30 AM	176	35	0	11	69	2	15	63	1			0	369	0	0	0	0
7:45 AM	170	33	0	15	72	2	15	53	2			0	358	0	0	0	0
8:00 AM	183	28	0	15	67	2	15	45	2			0	353	0	0	0	0

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



SW 108th Ave & SW Leveton Dr

Wednesday, June 06, 2018
7:00 AM to 9:00 AM

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
7:00 AM	0	0	0	2	0	2	1	3	4			0	6
7:15 AM	2	0	2	1	0	1	0	1	1			0	4
7:30 AM	1	0	1	0	0	0	1	0	1			0	2
7:45 AM	4	1	5	2	1	3	0	1	1			0	9
8:00 AM	0	1	1	0	0	0	1	0	1			0	2
8:15 AM	1	2	3	1	0	1	0	1	1			0	5
8:30 AM	0	0	0	1	0	1	0	2	2			0	3
8:45 AM	2	0	2	2	0	2	1	2	3			0	7
Total Survey	10	4	14	9	1	10	4	10	14			0	38

Heavy Vehicle Peak Hour Summary 7:30 AM to 8:30 AM

By Approach	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total										
Volume	10	5	15	4	6	10	4	7	11	0	0	0	18
PHF	0.28			0.25			0.17			0.00			0.28

By Movement	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	L	T	Total	T	R	Total	L	R	Total			Total	
Volume	6	4	10	3	1	4	2	2	4			0	18
PHF	0.21	0.25	0.28	0.19	0.25	0.25	0.25	0.10	0.17			0.00	0.28

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
7:00 AM	7	1	8	5	1	6	2	5	7			0	21
7:15 AM	7	2	9	3	1	4	2	2	4			0	17
7:30 AM	6	4	10	3	1	4	2	2	4			0	18
7:45 AM	5	4	9	4	1	5	1	4	5			0	19
8:00 AM	3	3	6	4	0	4	2	5	7			0	17

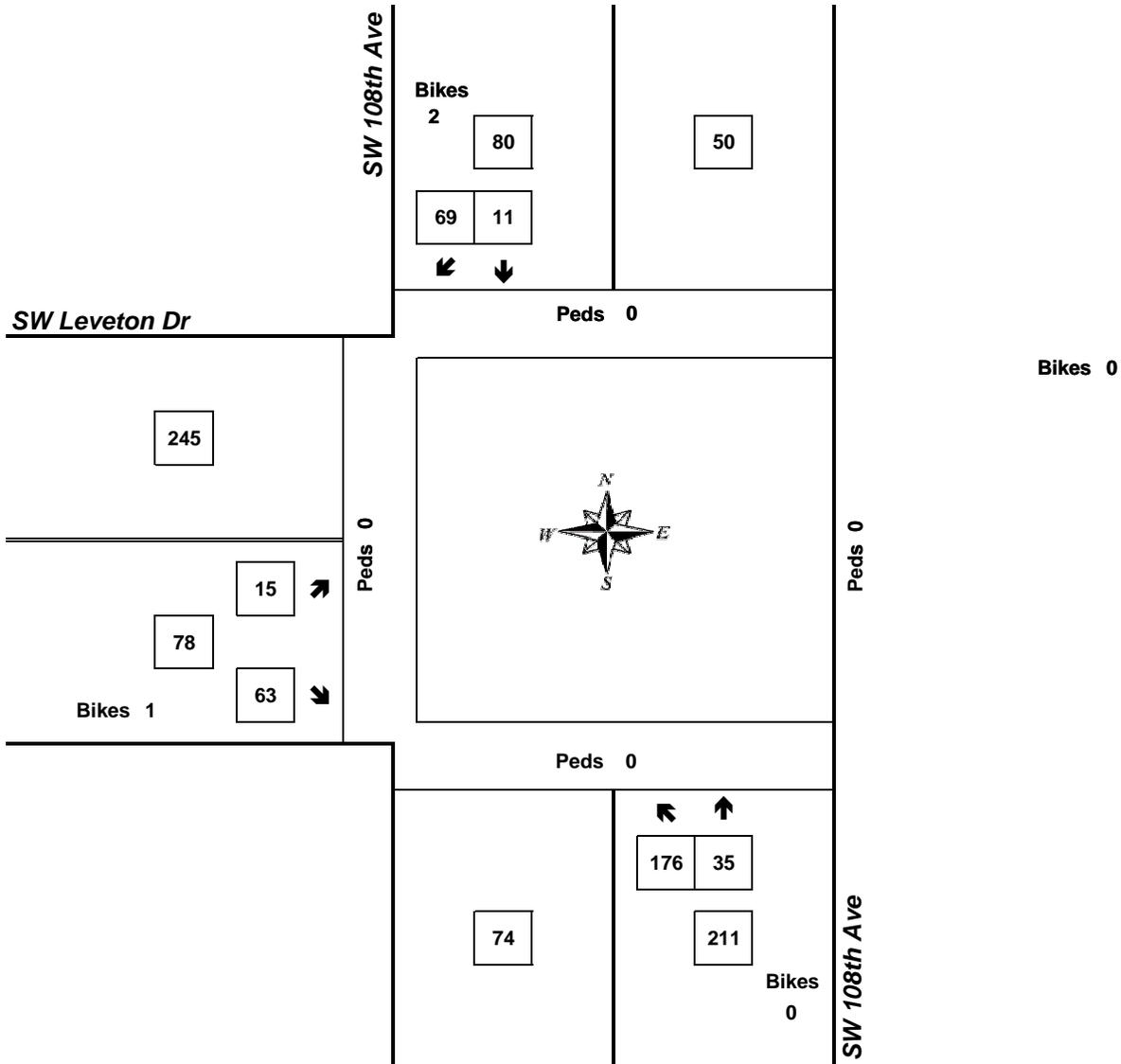
Peak Hour Summary



Clay Carney
(503) 833-2740

SW 108th Ave & SW Leveton Dr

7:30 AM to 8:30 AM
Wednesday, June 06, 2018



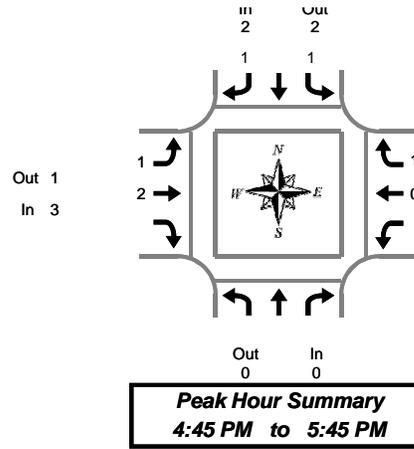
Approach	PHF	HV%	Volume
EB	0.89	5.1%	78
WB	0.00	0.0%	0
NB	0.82	4.7%	211
SB	0.67	5.0%	80
Intersection	0.90	4.9%	369

Count Period: 7:00 AM to 9:00 AM

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



West Driveway & SW Leveton Dr

Tuesday, June 05, 2018
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	Total	L	R	Total	L	R	Total	T	Total	T	R	Total	
4:00 PM	0	0	1	1	0	0	0	0	0	2	0	2	3
4:15 PM	0	0	0	0	0	0	0	1	1	2	0	2	3
4:30 PM	0	1	0	1	0	1	0	0	0	1	0	1	2
4:45 PM	0	0	0	0	0	1	1	0	1	0	1	1	2
5:00 PM	0	1	1	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	1	1	0	0	0	1
5:30 PM	0	0	0	0	1	0	1	0	1	0	0	0	1
5:45 PM	0	0	0	0	0	1	1	0	1	0	0	0	1
Total Survey	0	2	2	4	2	3	5			5	1	6	15

Heavy Vehicle Peak Hour Summary 4:45 PM to 5:45 PM

By Approach	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	2	2	4	3	1	4	1	3	4	6
PHF	0.00			0.17			0.25			0.05			0.19

By Movement	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	Total	L	R	Total	L	R	Total	T	Total	T	R	Total	
Volume	0	1	1	2	1	2	3	2	3	0	1	1	6
PHF	0.00	0.13	0.25	0.17	0.13	0.25	0.25	0.00	0.25	0.05			0.19

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound West Driveway			Southbound West Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	Total	L	R	Total	L	R	Total	T	Total	T	R	Total	
4:00 PM	0	1	1	2	0	2	2			5	1	6	10
4:15 PM	0	2	1	3	0	2	2			3	1	4	9
4:30 PM	0	2	1	3	0	2	2			1	1	2	7
4:45 PM	0	1	1	2	1	2	3			0	1	1	6
5:00 PM	0	1	1	2	2	1	3			0	0	0	5

Peak Hour Summary

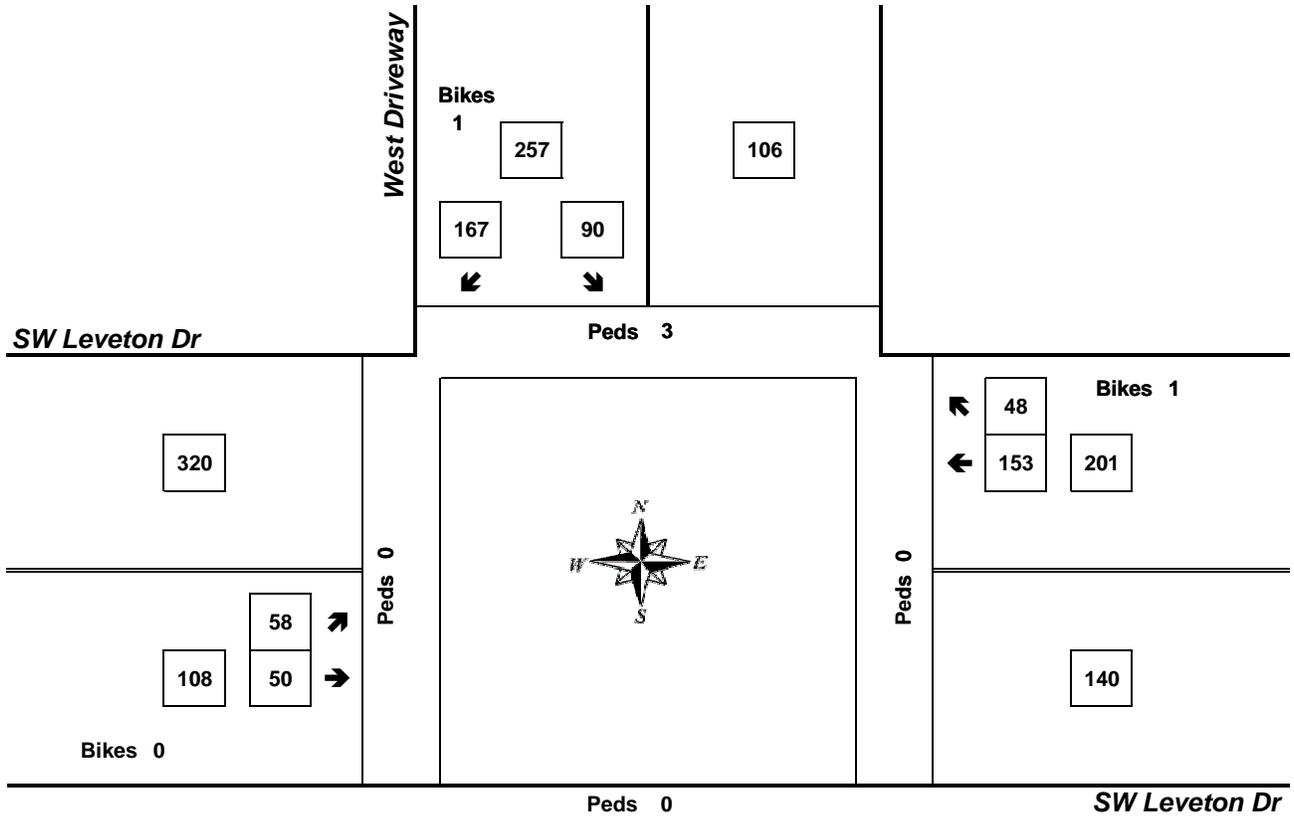


Clay Carney
(503) 833-2740

West Driveway & SW Leveton Dr

4:45 PM to 5:45 PM

Tuesday, June 05, 2018



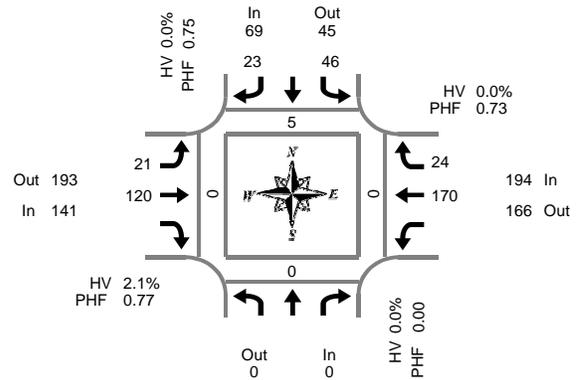
Approach	PHF	HV%	Volume
EB	0.66	2.8%	108
WB	0.73	0.5%	201
NB	0.00	0.0%	0
SB	0.68	0.8%	257
Intersection	0.86	1.1%	566

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Center Driveway & SW Leveton Dr

Tuesday, June 05, 2018
4:00 PM to 6:00 PM

Peak Hour Summary
4:45 PM to 5:45 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	L	T	Bikes	T	R	Bikes	North	South	East		West			
4:00 PM	0	12	5	0	2	22	0	26	3	1	70	5	0	0	0						
4:15 PM	0	4	5	0	3	22	1	28	4	0	66	2	0	1	0						
4:30 PM	0	10	2	0	5	23	0	29	9	0	78	1	0	1	0						
4:45 PM	0	7	1	0	8	15	0	36	9	0	76	4	0	0	0						
5:00 PM	0	15	8	0	2	32	0	59	7	0	123	1	0	0	0						
5:15 PM	0	14	9	0	2	44	0	40	2	0	111	0	0	0	0						
5:30 PM	0	10	5	0	9	29	0	35	6	0	94	0	0	0	0						
5:45 PM	0	11	5	0	8	23	0	20	5	0	72	4	0	0	0						
Total Survey	0	83	40	0	39	210	1	273	45	1	690	17	0	2	0						

Peak Hour Summary

4:45 PM to 5:45 PM

By Approach	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	69	45	114	0	141	193	334	0	194	166	360	0	404	5	0	0	0
%HV	0.0%				0.0%				2.1%				0.0%				0.7%				
PHF	0.00				0.75				0.77				0.73				0.82				

By Movement	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	Total	L	R	Bikes	Total	L	T	Bikes	Total	L	T	Bikes	Total	T	R	Total	
Volume	0	46	23	69	21	120	141	141	170	24	194	404	NA	NA	NA	NA	
%HV	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	0.0%	2.5%	NA	2.1%	NA	0.0%	0.0%	0.0%	0.7%
PHF	0.00	0.77	0.64	0.75	0.58	0.68	0.77	0.77	0.72	0.67	0.73	0.82					

Rolling Hour Summary

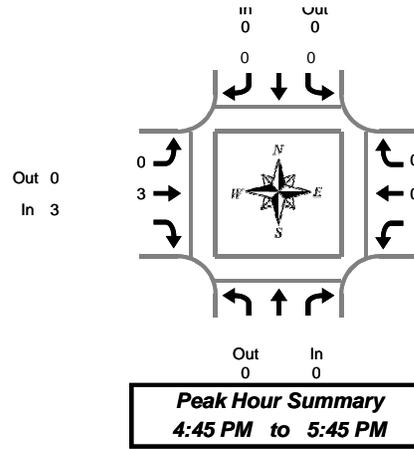
4:00 PM to 6:00 PM

Interval Start Time	Northbound Center Driveway				Southbound Center Driveway				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	L	T	Bikes	T	R	Bikes	North	South	East		West			
4:00 PM	0	33	13	0	18	82	1	119	25	1	290	12	0	2	0						
4:15 PM	0	36	16	0	18	92	1	152	29	0	343	8	0	2	0						
4:30 PM	0	46	20	0	17	114	0	164	27	0	388	6	0	1	0						
4:45 PM	0	46	23	0	21	120	0	170	24	0	404	5	0	0	0						
5:00 PM	0	50	27	0	21	128	0	154	20	0	400	5	0	0	0						

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Center Driveway & SW Leveton Dr

Tuesday, June 05, 2018
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
4:00 PM	0	1	0	1	0	0	1	0	0	0	2	1	3	4
4:15 PM	0	0	0	0	0	0	0	0	1	1	2	0	2	3
4:30 PM	0	0	0	0	0	0	0	0	1	1	1	0	1	2
4:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	1	0	1	0	1	0	5	5	5	5	1	6	12

Heavy Vehicle Peak Hour Summary 4:45 PM to 5:45 PM

By Approach	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	0	0	0	3	0	3	0	3	3	3
PHF	0.00			0.00			0.25			0.00			0.08

By Movement	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
Volume	0	0	0	0	0	0	0	0	3	3	0	0	0	3
PHF	0.00	0.00		0.00	0.00		0.00	0.25	0.25		0.00	0.00	0.00	0.08

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Center Driveway			Southbound Center Driveway			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
4:00 PM	0	1	0	1	0	0	1	0	3	3	5	1	6	10
4:15 PM	0	0	0	0	0	0	0	0	4	4	3	0	3	7
4:30 PM	0	0	0	0	0	0	0	0	4	4	1	0	1	5
4:45 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	2

Peak Hour Summary

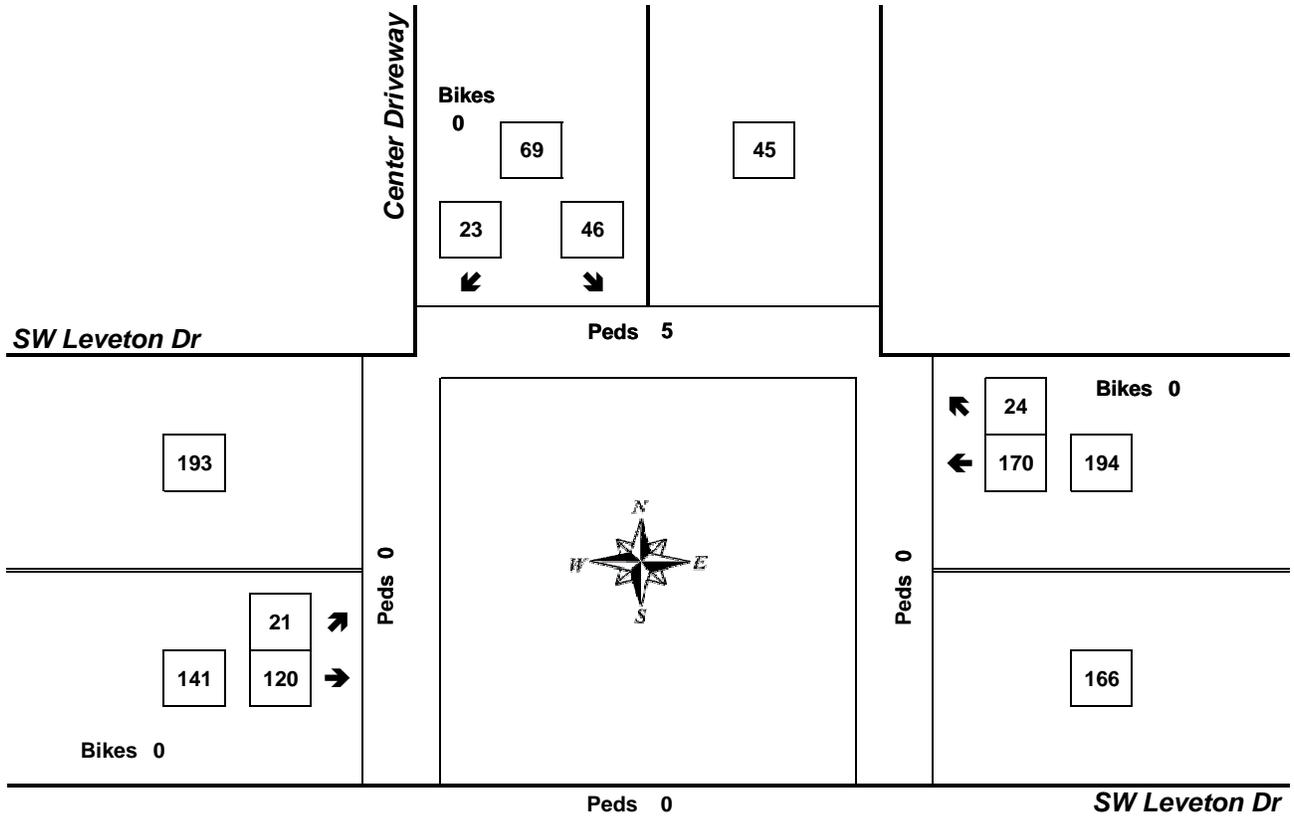


Clay Carney
(503) 833-2740

Center Driveway & SW Leveton Dr

4:45 PM to 5:45 PM

Tuesday, June 05, 2018



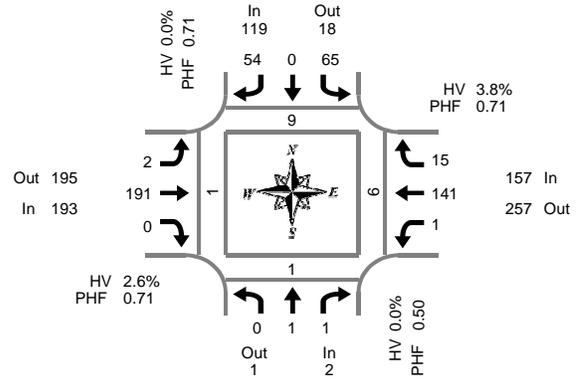
Approach	PHF	HV%	Volume
EB	0.77	2.1%	141
WB	0.73	0.0%	194
NB	0.00	0.0%	0
SB	0.75	0.0%	69
Intersection	0.82	0.7%	404

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



East Access & SW Leveton Dr

Wednesday, June 06, 2018

4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	1	0	7	0	3	0	1	33	0	0	0	20	4	0	69	2	1	1	0
4:15 PM	0	0	0	0	6	0	6	0	0	28	0	0	1	28	1	0	70	0	2	2	0
4:30 PM	0	0	1	0	5	0	13	0	1	41	0	0	0	48	7	0	116	3	0	2	0
4:45 PM	0	0	0	0	15	0	11	0	1	30	0	0	0	47	4	0	108	2	0	1	0
5:00 PM	0	0	0	0	25	0	17	0	0	52	0	0	0	32	2	0	128	4	1	2	1
5:15 PM	0	1	0	0	20	0	13	0	0	68	0	1	1	14	2	0	119	0	0	1	0
5:30 PM	0	0	0	0	13	0	6	1	0	60	0	0	0	12	1	0	92	1	1	3	0
5:45 PM	0	0	0	0	13	0	12	0	2	30	0	0	0	23	2	0	82	2	2	1	0
Total Survey	0	1	2	0	104	0	81	1	5	342	0	1	2	224	23	0	784	14	7	13	1

Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	2	1	3	0	119	18	137	0	193	195	388	1	157	257	414	0	471	9	1	6	1
%HV	0.0%				0.0%				2.6%				3.8%				2.3%				
PHF	0.50				0.71				0.71				0.71				0.92				

By Movement	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	1	2	65	0	54	119	2	191	0	193	1	141	15	157	471
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	2.6%	0.0%	4.3%	0.0%	3.8%	2.3%
PHF	0.00	0.25	0.25	0.50	0.65	0.00	0.79	0.71	0.50	0.70	0.00	0.71	0.25	0.73	0.54	0.71	0.92

Rolling Hour Summary

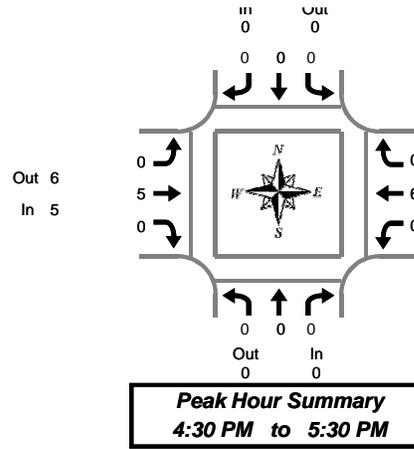
4:00 PM to 6:00 PM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	2	0	33	0	33	0	3	132	0	0	1	143	16	0	363	7	3	6	0
4:15 PM	0	0	1	0	51	0	47	0	2	151	0	0	1	155	14	0	422	9	3	7	1
4:30 PM	0	1	1	0	65	0	54	0	2	191	0	1	1	141	15	0	471	9	1	6	1
4:45 PM	0	1	0	0	73	0	47	1	1	210	0	1	1	105	9	0	447	7	2	7	1
5:00 PM	0	1	0	0	71	0	48	1	2	210	0	1	1	81	7	0	421	7	4	7	1

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



East Access & SW Leveton Dr

Wednesday, June 06, 2018
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	4
Total Survey	0	0	0	0	0	0	0	0	0	0	11	0	11	0	9	0	20

Heavy Vehicle Peak Hour Summary 4:30 PM to 5:30 PM

By Approach	Northbound East Access			Southbound East Access			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	0	0	0	5	6	11	6	5	11	11
PHF	0.00			0.00			0.25			0.30			0.31

By Movement	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	0	0	0	5	0	5	0	6	0	6	11
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.00	0.30	0.00	0.30	0.31

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound East Access				Southbound East Access				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	4	0	4	0	7	0	7	11
4:15 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	6	0	6	11
4:30 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	6	0	6	11
4:45 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	4	0	4	9
5:00 PM	0	0	0	0	0	0	0	0	0	7	0	7	0	2	0	2	9

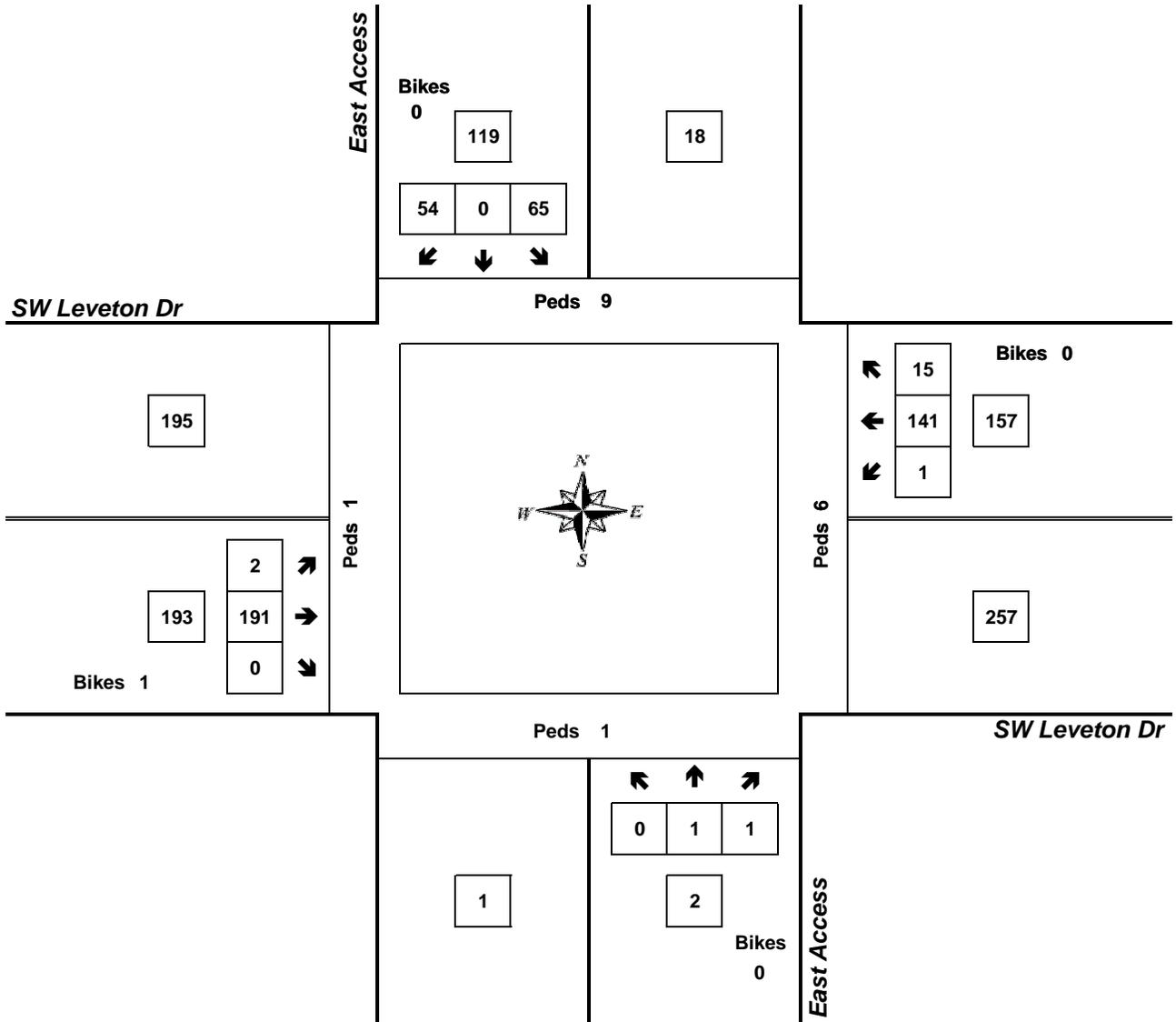
Peak Hour Summary



Clay Carney
(503) 833-2740

East Access & SW Leveton Dr

4:30 PM to 5:30 PM
Wednesday, June 06, 2018



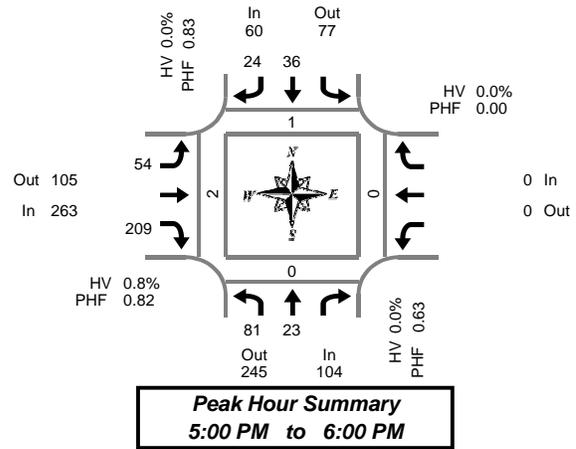
Approach	PHF	HV%	Volume
EB	0.71	2.6%	193
WB	0.71	3.8%	157
NB	0.50	0.0%	2
SB	0.71	0.0%	119
Intersection	0.92	2.3%	471

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



SW 108th Ave & SW Leveton Dr

Tuesday, June 05, 2018
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total	Pedestrians Crosswalk				
	L	T	Bikes	T	R	Bikes	L		R	Bikes				Bikes	North	South	East	West
4:00 PM	15	6	0	6	4	1	5		40	0			0	76	0	0	0	0
4:15 PM	19	8	0	8	1	0	6		27	1			0	69	0	0	0	1
4:30 PM	28	5	0	7	4	0	12		34	0			0	90	0	0	0	0
4:45 PM	31	4	0	15	5	0	10		23	0			0	88	0	0	0	0
5:00 PM	30	11	0	11	7	0	11		51	1			0	121	1	0	0	1
5:15 PM	14	6	0	7	3	0	20		60	0			0	110	0	0	0	0
5:30 PM	21	3	0	8	9	1	14		48	0			0	103	0	0	0	0
5:45 PM	16	3	0	10	5	1	9		50	0			0	93	0	0	0	1
Total Survey	174	46	0	72	38	3	87		333	2			0	750	1	0	0	3

Peak Hour Summary

5:00 PM to 6:00 PM

By Approach	Northbound SW 108th Ave				Southbound SW 108th Ave				Eastbound SW Leveton Dr				Westbound SW Leveton Dr				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes		North	South	East	West												
Volume	104	245	349	0	60	77	137	2	263	105	368	1	0	0	0	0	427	1	0	0	2
%HV	0.0%				0.0%				0.8%				0.0%				0.5%				
PHF	0.63				0.83				0.82				0.00				0.88				

By Movement	Northbound SW 108th Ave			Total	Southbound SW 108th Ave			Total	Eastbound SW Leveton Dr			Total	Westbound SW Leveton Dr			Total
	L	T			T	R			L		R					
Volume	81	23		104	36	24	60	54	209	263	0	0	0	0	427	
%HV	0.0%	0.0%	NA	0.0%	0.0%	0.0%	0.0%	1.9%	0.5%	0.8%	0.0%	0.0%	0.0%	0.5%		
PHF	0.68	0.52		0.63	0.82	0.67	0.83	0.68	0.87	0.82	0.00	0.00	0.00	0.88		

Rolling Hour Summary

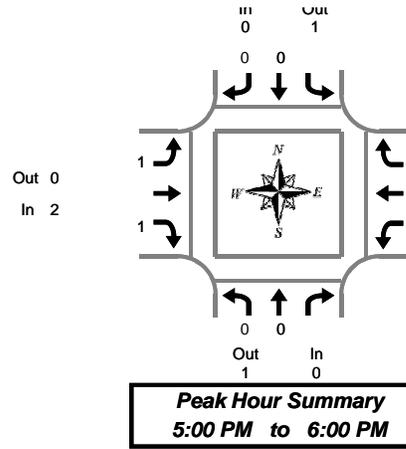
4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 108th Ave			Bikes	Southbound SW 108th Ave			Bikes	Eastbound SW Leveton Dr			Bikes	Interval Total	Pedestrians Crosswalk				
	L	T			T	R			L		R				North	South	East	West
4:00 PM	93	23		0	36	14	1	33	124	1			0	323	0	0	0	1
4:15 PM	108	28		0	41	17	0	39	135	2			0	368	1	0	0	2
4:30 PM	103	26		0	40	19	0	53	168	1			0	409	1	0	0	1
4:45 PM	96	24		0	41	24	1	55	182	1			0	422	1	0	0	1
5:00 PM	81	23		0	36	24	2	54	209	1			0	427	1	0	0	2

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



SW 108th Ave & SW Leveton Dr

Tuesday, June 05, 2018
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
4:00 PM	2	0	2	0	1	1	1	0	1			0	4
4:15 PM	2	0	2	1	0	1	1	0	1			0	4
4:30 PM	1	0	1	0	0	0	0	1	1			0	2
4:45 PM	1	0	1	0	0	0	1	0	1			0	2
5:00 PM	0	0	0	0	0	0	0	1	1			0	1
5:15 PM	0	0	0	0	0	0	1	0	1			0	1
5:30 PM	0	0	0	0	0	0	0	0	0			0	0
5:45 PM	0	0	0	0	0	0	0	0	0			0	0
Total Survey	6	0	6	1	1	2	4	2	6			0	14

Heavy Vehicle Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	In	Out	Total										
Volume	0	1	1	0	1	1	2	0	2	0	0	0	2
PHF	0.00			0.00			0.17			0.00			0.05

By Movement	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Total
	L	T	Total	T	R	Total	L	R	Total			Total	
Volume	0	0	0	0	0	0	1	1	2			0	2
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.17			0.00	0.05

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 108th Ave			Southbound SW 108th Ave			Eastbound SW Leveton Dr			Westbound SW Leveton Dr			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
4:00 PM	6	0	6	1	1	2	3	1	4			0	12
4:15 PM	4	0	4	1	0	1	2	2	4			0	9
4:30 PM	2	0	2	0	0	0	2	2	4			0	6
4:45 PM	1	0	1	0	0	0	2	1	3			0	4
5:00 PM	0	0	0	0	0	0	1	1	2			0	2

Peak Hour Summary

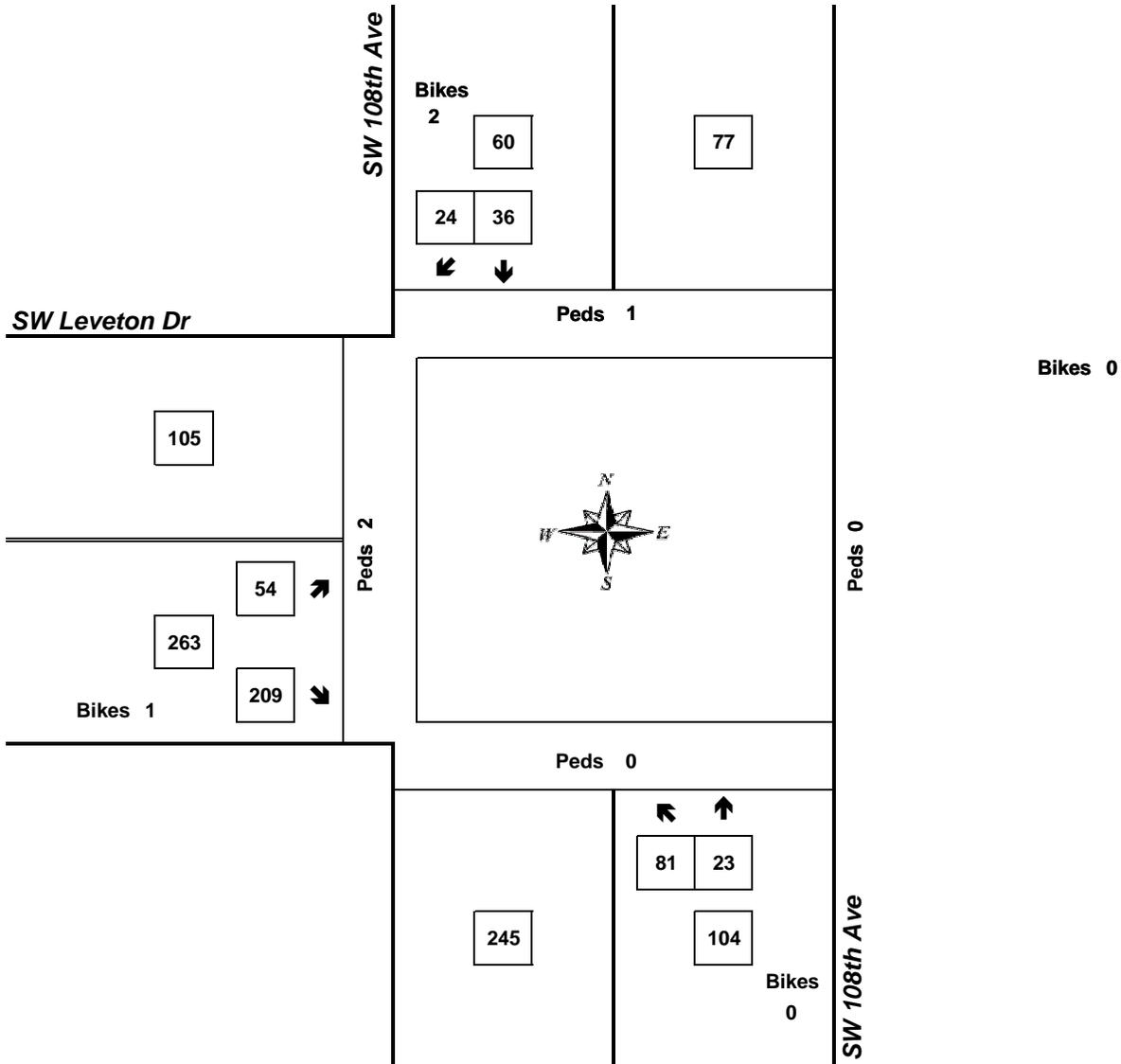


Clay Carney
(503) 833-2740

SW 108th Ave & SW Leveton Dr

5:00 PM to 6:00 PM

Tuesday, June 05, 2018



Approach	PHF	HV%	Volume
EB	0.82	0.8%	263
WB	0.00	0.0%	0
NB	0.63	0.0%	104
SB	0.83	0.0%	60
Intersection	0.88	0.5%	427

Count Period: 4:00 PM to 6:00 PM

APPENDIX E.
**TRAFFIC COUNT
ADJUSTMENT**

APPENDIX F.
CRASH DATA

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

091: PACIFIC HIGHWAY WEST

Highway 091 ALL ROAD TYPES, MP 12.4 to 12.8 01/01/2016 to 12/31/2020, Both Add and Non-Add mileage

9 - 13 of 29 Crash records shown.

SER#	P	R	J	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR	QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE						
INVEST	E	A	U	I	C	O	CITY	COMPNT	FIRST	STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	MOVE	FROM	P	S	LOC	ERROR	ACT	EVENT	CAUSE						
RD DPT	E	L	G	N	H	R	URBAN AREA	MLG	TYP	SECOND	STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	P	S	LOC	ERROR	ACT	EVENT	CAUSE							
UNLOC?	D	C	S	V	L	K	LONG	MILEPNT	LR	LR		(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE			
07753	N	N	N	N	N	12/05/2017	WASHINGTON	1	14		STRGHT	Y		N	CLR	S-1STOP	01 NONE	9	STRGHT								29,40						
COUNTY	TU						TUALATIN	MN	0	SW	PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	DRY	REAR	N/A	NE-SW								000	00	Failed to avoid, view obscured				
N	✓					3P	PORTLAND UA	12.63		SW	124TH AVE	03		N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00				
N						45 23 22.42	-122 48 18.52				009100100S00		(04)																				
04789	N	N	N	N	N	12/28/2020	WASHINGTON	1	14		STRGHT	Y		N	CLR	S-1STOP	01 NONE	0	STRGHT								013	29,27					
CITY	MO						TUALATIN	MN	0	SW	PACIFIC HY 99W	NE	(DIVMD)	UNKNOWN	N	DRY	REAR	PRVTE	NE-SW								000	00					
N	✓					3P	PORTLAND UA	12.63		SW	124TH AVE	04		N	DAY	INJ	PSNGR	CAR		01	DRVR	INJB	72	F	OR-Y		016,026	038	29,27				
N						45 23 22.41	-122 48 18.54				009100100S00		(04)																		Failed to avoid, inattention		
08340	N	N	N	N	N	12/26/2017	WASHINGTON	1	14		INTER	3-LEG	N	N	CLR	S-OTHER	01 NONE	9	TURN-L									08					
NONE	TU						TUALATIN	MN	0	SW	PACIFIC HY 99W	SE	TRF SIGNAL	N	WET	TURN	N/A	NE-SE										000	00	Improper turn			
N	✓					10A	PORTLAND UA	12.66		SW	124TH AVE	05	1	N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00				
N						45 23 21.44	-122 48 20.25				009100100S00																						
03031	Y	N	N	N	N	08/17/2020	WASHINGTON	1	14		INTER	3-LEG	N	Y	CLR	FIX OBJ	01 NONE	9	TURN-L									058	01				
CITY	MO						TUALATIN	MN	0	SW	PACIFIC HY 99W	SW	TRF SIGNAL	N	DRY	FIX	N/A	SE-SW										000	00	Too fast			
N	✓					4P	PORTLAND UA	12.66		SW	124TH AVE	05	0	N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00				
N						45 23 21.43	-122 48 20.24				009100100S00																						
04216	N	N	N	N	N	08/15/2018	WASHINGTON	1	14		INTER	3-LEG	N	N	CLR	ANGL-OTH	01 NONE	0	STRGHT									04					
CITY	WE						TUALATIN	MN	0	SW	PACIFIC HY 99W	CN	TRF SIGNAL	N	DRY	TURN	PRVTE	SW-NE										000	00	Disregard signal			
N	✓					5P	PORTLAND UA	12.66		SW	124TH AVE	02	1	N	DAY	INJ	PSNGR	CAR		01	DRVR	NONE	82	M	OR-Y		020	000	00	04			
N						45 23 21.44	-122 48 20.25				009100100S00																						

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

091: PACIFIC HIGHWAY WEST

Highway 091 ALL ROAD TYPES, MP 12.4 to 12.8 01/01/2016 to 12/31/2020, Both Add and Non-Add mileage

14 - 17 of 29 Crash records shown.

SER#	P	R	J	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE										
INVEST	E	A	U	I	C	O	CITY	COMPNT	FIRST	STREET	DIRECT	(MEDIAN)	INT-REL	RNDBT	SURF	COLL	TRLR	QTY	FROM	G	E	LICNS	LOC	ERROR	ACT	EVENT	CAUSE							
RD DPT	E	L	G	N	H	R	URBAN AREA	MLG	TYP	SECOND	STREET	LOCTN	LEGS	TRAF-	CONTL	DRVBY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LONG	MILEPNT	LRS			(#LANES)	CONTL	DRVBY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE				
05817	N	N	N	N	N	11/06/2019	WASHINGTON	1	14		ALLEY	N	N	CLR	S-OTHER	01	NONE	9	TURN-L						000			08			Improper turn			
	NONE					WE	TUALATIN	MN	0	SW	PACIFIC HY 99W	SW	(DIVMD)	STOP	SIGN	N	N/A										00							
N	✓					3P	PORTLAND UA	12.77	SW	124TH AVE	03			DAY	PDO		PSNGR	CAR								000	000							
N						45 23 17.89	-122 48 26.63			009100100S00		(04)					02	NONE	9	STOP	SE-NW						000	000						
																	02	NONE	9	STOP	SE-NW						012	00						
																	PSNGR	CAR								000	000	00						
00592	N	N	N	N	N	02/01/2017	WASHINGTON	2	14		INTER	3-LEG	N	CLD	S-1STOP	01	NONE	0	STRGHT								17,29							
COUNTY						WE	TUALATIN	MN	0	SW	PACIFIC HY 99W	SW	TRF SIGNAL	DRY	REAR	01	NONE	0	STRGHT								000	00						
N	✓					10A	PORTLAND UA	12.66	SW	124TH AVE	06	1		DAY	INJ		PSNGR	CAR								026	028	17,29						
N						45 23 20.82	-122 48 19.67			009100200S00							02	NONE	0	STOP	SW-NE						011	00				Physical illness, Failed to avoid		
																	PSNGR	CAR								000	000	00						
																	02	NONE	0	STOP	SW-NE						011	00						
																	PSNGR	CAR								000	000	00						
00847	N	N	N	N	N	02/17/2018	WASHINGTON	2	14		INTER	3-LEG	N	CLD	S-1STOP	01	NONE	0	STRGHT								27,07							
CITY						SA	TUALATIN	MN	0	SW	PACIFIC HY 99W	SW	TRF SIGNAL	DRY	REAR	01	NONE	0	STRGHT								000	00						
N	✓					5P	PORTLAND UA	12.66	SW	124TH AVE	06	1		DAY	INJ		PSNGR	CAR								016,043	038	27,07					Inattention, Following	
N						45 23 20.82	-122 48 19.67			009100200S00							02	NONE	0	STOP	SW-NE						011	00						
																	PSNGR	CAR								000	000	00						
																	02	NONE	0	STOP	SW-NE						011	00						
																	PSNGR	CAR								000	000	00						
																	02	NONE	0	STOP	SW-NE						011	013	00					
																	PSNGR	CAR								000	000	00						
																	03	NONE	0	STOP	SW-NE						022	00						
																	PSNGR	CAR								000	000	00						
																	01	DRVR	NONE	26	F	OR-Y	OR<25			000	000	00						

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

091: PACIFIC HIGHWAY WEST

Highway 091 ALL ROAD TYPES, MP 12.4 to 12.8 01/01/2016 to 12/31/2020, Both Add and Non-Add mileage

18 - 22 of 29 Crash records shown.

SER#	P	R	J	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE					
INVEST	E	A	U	I	C	DAY	CITY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	RNDBT	SURF	COLL	TRLR QTY	FROM	G	E	LICNS	LOC	ERROR	ACT	EVENT	CAUSE				
RD DPT	E	L	G	N	H	R TIME	URBAN AREA	MLG TYP	SECOND STREET	LOCTN	LEGS	TRAF-CONTL	RNDBT	SURF	COLL	OWNER	TO	EX	RES	LOC	ERROR	ACT	EVENT	CAUSE					
UNLOC?	D	C	S	V	L	K LAT	LONG	MILEPNT	LRN		(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
02288	N	N	N	N	N	05/08/2019	WASHINGTON	2	14		INTER	3-LEG	N	CLR	S-1STOP	01 NONE	9	STRGHT							29				
NONE						WE	TUALATIN	MN	0 SW	PACIFIC HY 99W	SW		N	DRY	REAR	N/A	STRGHT							00	00			Failed to avoid	
N	✓					5P	PORTLAND UA	12.66	SW	124TH AVE	06	1	N	DAY	PDO	PSNGR	CAR	01	DRVR	NONE	00	Unk	UNK	000	000	00			
N						45 23 20.82	-122 48 19.67			009100200S00																			
																02 NONE	9	STOP											
																N/A	PSNGR	CAR	01	DRVR	NONE	00	Unk	UNK	000	000	00		
02885	N	N	N	N	N	05/03/2016	WASHINGTON	2	14		INTER	CROSS	N	CLR	ANGL-OTH	01 NONE	0	STRGHT							04				
CITY						TU	TUALATIN	MN	0 SW	PACIFIC HY 99W	CN		N	DRY	TURN	PRVTE	NE-SW							00	00			Disregard signal	
N						2P	PORTLAND UA	12.66	SW	124TH AVE	03	1	N	DAY	INJ	PSNGR	CAR	01	DRVR	INJC	78	M	OTH-Y	020	000	04			
N	✓					45 23 20.82	-122 48 19.67			009100200S00																			
																02 NONE	0	TURN-L											
																PRVTE	SE-SW	01	DRVR	NONE	69	M	OR-Y	000	000	00			
																PSNGR	CAR	01	DRVR	NONE	69	M	OR-Y	000	000	00			
07122	N	N	N	N	N	12/23/2018	WASHINGTON	2	14		INTER	3-LEG	N	RAIN	O-1 L-TURN	01 NONE	0	STRGHT							04				
CITY						SU	TUALATIN	MN	0 SW	PACIFIC HY 99W	CN		N	WET	TURN	PRVTE	SW-NE							00	00			Disregard signal	
N						6A	PORTLAND UA	12.66	SW	124TH AVE	03	1	N	DAWN	INJ	PSNGR	CAR	01	DRVR	NONE	18	M	OR-Y	020	000	04			
N	✓					45 23 20.82	-122 48 19.67			009100200S00																			
																02 NONE	0	TURN-L											
																PRVTE	NE-SE	01	DRVR	INJC	69	F	OR-Y	000	000	00			
																PSNGR	CAR	01	DRVR	INJC	69	F	OR-Y	000	000	00			
02114	N	N	N	N	N	03/30/2017	WASHINGTON	2	14		STRGHT		N	CLD	S-1STOP	01 NONE	9	STRGHT							07				
CITY						TH	TUALATIN	MN	0 SW	PACIFIC HY 99W	SW	(DIVMD)	UNKNOWN	N	DRY	REAR	N/A	STRGHT						00	00			Following	
N						12P	PORTLAND UA	12.68	SW	124TH AVE	03		N	DAY	PDO	PSNGR	CAR	01	DRVR	NONE	00	Unk	UNK	000	000	00			
N	✓					45 23 20.22	-122 48 20.74			009100200S00		(04)																	
																02 NONE	9	STOP											
																N/A	PSNGR	CAR	01	DRVR	NONE	00	Unk	UNK	000	000	00		
05391	N	N	N	N	N	08/12/2016	WASHINGTON	2	14		STRGHT		N	CLR	S-1STOP	01 NONE	9	STRGHT							29				
NONE						FR	TUALATIN	MN	0 SW	PACIFIC HY 99W	SW	(DIVMD)	UNKNOWN	N	DRY	REAR	N/A	STRGHT						00	00			Failed to avoid	
N						6P	PORTLAND UA	12.68	SW	124TH AVE	04		N	DAY	PDO	PSNGR	CAR	01	DRVR	NONE	00	Unk	UNK	000	000	00			
N	✓					45 23 20.22	-122 48 20.74			009100200S00		(04)																	
																02 NONE	9	STOP											
																N/A	PSNGR	CAR	01	DRVR	NONE	00	Unk	UNK	000	000	00		

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

091: PACIFIC HIGHWAY WEST

Highway 091 ALL ROAD TYPES, MP 12.4 to 12.8 01/01/2016 to 12/31/2020, Both Add and Non-Add mileage

23 - 26 of 29 Crash records shown.

SER#	S	D	M	P	R	J	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE							
INVEST	E	A	U	I	C	O	DAY			CITY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	RNDBT	SURF	COLL	TRLR QTY	FROM	G	E	LICNS											
RD DPT	E	L	G	N	H	R	TIME			URBAN AREA	MLG TYP	SECOND STREET	LOCTN	LEGS	TRAF-CONTL	DRVBY	LIGHT	SVRTY	V#	OWNER	TO	PRTC	INJ	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LAT			LONG	MILEPNT	LRN		(#LANES)						TYPE		#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
02345	N	N	N	N	N		05/10/2018			WASHINGTON	2	14		STRGHT	Y	N	CLR	S-1STOP	01 NONE	0	STRGHT										29		Failed to avoid	
NONE							TH			TUALATIN	MN	0	SW PACIFIC HY 99W	SW	(DIVMD)	N	DRY	REAR	PRVTE	SW-NE										000	00			
N							8A			PORTLAND UA	12.68	SW 124TH AVE	05			N	DAY	INJ	PSNGR CAR										026	000	29			
N	✓						45 23 20.22			-122 48 20.74			009100200S00		(05)					02 NONE	0	STOP												
																				PRVTE	SW-NE										011	00		
																				PSNGR CAR		01	DRVR	INJC	35	F	OR-Y		000	000	00	00		
01397	N	N	N	N	N		03/19/2018			WASHINGTON	2	14		STRGHT	N	N	CLR	S-1STOP	01 NONE	9	STRGHT										29		Failed to avoid	
NO RPT							MO			TUALATIN	MN	0	SW PACIFIC HY 99W	SW	(DIVMD)	N	DRY	REAR	N/A	SW-NE										000	00			
N							5P			PORTLAND UA	12.69	SW 124TH AVE	04			N	DAY	PDO	PSNGR CAR										000	000	00	00		
N	✓						45 23 19.91			-122 48 21.27			009100200S00		(04)					02 NONE	9	STOP												
																				N/A	SW-NE										011	00		
																				PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00	00		
07277	N	N	Y	N	N	N	10/25/2016			WASHINGTON	2	14		STRGHT	Y	N	CLD	S-1STOP	01 NONE	0	STRGHT										29		Failed to avoid	
CITY							TU			TUALATIN	MN	0	SW PACIFIC HY 99W	SW	(DIVMD)	N	WET	REAR	PRVTE	SW-NE										000	00			
N							6A			PORTLAND UA	12.70	SW 124TH AVE	03			N	DARK	INJ	PSNGR CAR										026	000	29			
N	✓						45 23 19.62			-122 48 21.81			009100200S00		(04)					02 NONE	0	STOP												
																				UNK	SW-NE										011	00		
																				PSNGR CAR		01	DRVR	INJC	37	M	OTH-Y		000	000	00	00		
03438	N	N	N	N	N		06/21/2019			WASHINGTON	2	14		STRGHT	Y	N	CLR	S-1STOP	01 NONE	0	STRGHT										013	29		Failed to avoid
NO RPT							FR			TUALATIN	MN	0	SW PACIFIC HY 99W	SW	(DIVMD)	N	DRY	REAR	PRVTE	SW-NE										000	00			
N							6P			PORTLAND UA	12.71	SW 124TH AVE	04			N	DAY	INJ	PSNGR CAR										026	000	00	29		
N	✓						45 23 19.3			-122 48 22.34			009100200S00		(04)					02 NONE	0	STOP												
																				PRVTE	SW-NE										011	013	00	
																				PSNGR CAR		01	DRVR	INJC	26	F	OR-Y		000	000	00	00		
																				03 NONE	0	STOP												
																				PRVTE	SW-NE										022	00	00	
																				PSNGR CAR		01	DRVR	INJC	53	M	OR-Y		000	000	00	00		
03346	N	N	N	N	N	N	06/29/2018			WASHINGTON	2	14		STRGHT	N	N	CLR	S-STRGHT	01 NONE	9	STRGHT										29, 32			
CITY							FR			TUALATIN	MN	0	SW PACIFIC HY 99W	SW	(DIVMD)	N	DRY	REAR	N/A	SW-NE										000	00			
N							10A			PORTLAND UA	12.77	SW 124TH AVE	04			N	DAY	PDO	PSNGR CAR										000	000	00	00		
N	✓						45 23 17.5			-122 48 25.57			009100200S00		(04)																			

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

091: PACIFIC HIGHWAY WEST

Highway 091 ALL ROAD TYPES, MP 12.4 to 12.8 01/01/2016 to 12/31/2020, Both Add and Non-Add mileage

27 - 29 of 29 Crash records shown.

SER#	P	R	J	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE			
INVEST	E	A	U	I	C	O	CITY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE					
RD DPT	E	L	G	N	H	R	URBAN AREA	MLG TYP	SECOND STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LONG	MILEPNT	LRS	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
																	02	NONE	9	STRGHT									
																	N/A	SW-NE								000	000	00	
																	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK	000	000	00	
02017	N	N	N	N	N	04/23/2018	WASHINGTON	2	14		ALLEY	N		N	CLR	S-1STOP	01	NONE	9	STRGHT							29		
NONE						MO	TUALATIN	MN	0	SW	PACIFIC HY 99W	SW	(NONE)	UNKNOWN	N	DRY	REAR	N/A	SW-NE							000	000	00	
N	✓					7A	PORTLAND UA	12.78	SW	124TH AVE	04			N	DAY	PDO	PSNGR	CAR								000	000	00	
N						45 23 17.19	-122 48 26.1				009100200S00	(04)																	
																	02	NONE	9	STOP									
																	N/A	SW-NE								011	000	00	
																	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK	000	000	00	
03506	N	N	N	N	N	07/09/2019	WASHINGTON	2	14		ALLEY	N		Y	CLD	ANGL-STP	01	NONE	0	STRGHT							10		
CITY						TU	TUALATIN	MN	0	SW	PACIFIC HY 99W	SW	(DIVMD)	NONE	N	DRY	ANGL	PRVTE	SW-NE							000	000	00	
Y	✓					2P	PORTLAND UA	12.78	SW	124TH AVE	05			N	DAY	INJ	PSNGR	CAR								080	000	10	
N						45 23 17.18	-122 48 26.09				009100200S00	(04)																	
																	02	NONE	0	STOP									
																	PRVTE	SE-NW								011	000	00	
																	PSNGR	CAR		01	DRVR	INJC	60	M	OR-Y	000	000	00	

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

CITY OF TUALATIN, WASHINGTON COUNTY

124TH AVE at TUALATIN RD, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

1 - 7 of 22 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	ACT	EVENT	CAUSE																		
INVEST	E	A	U	I	C	O	D	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFERD	WTHR	CRASH	TRLR QTY	MOVE	A	S												
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED								
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
03294	N	N	N			06/04/2017	16	SW TUALATIN RD	INTER	3-LEG	N		N	CLR	S-1STOP	01	NONE	0	STRGHT											29	
NONE						SU	0	SW 124TH AVE	N			TRF SIGNAL	N	DRY	REAR	PRVTE	N -S												000	00	
N						6P			06	0			N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	16	F	OR-Y		026		000	00	29	
N						45 23 16.36	-122 48	15.23																							
																02	NONE	0	STOP										012	00	
																PRVTE	N -S												000	00	
																PSNGR CAR			01	DRVR	INJC	58	F	OR-Y		000		000	00	00	
00365	Y	N	N			01/06/2011	17	SW TUALATIN RD	INTER	3-LEG	N		Y	UNK	FIX OBJ	01	NONE	0	TURN-L										062,124	01	
NONE						SA	0	SW 124TH AVE	E			TRF SIGNAL	N	ICE	FIX	PRVTE	N -E											088	062,124	00	
N						6A			05	0			N	DLIT	PDO	PSNGR CAR			01	DRVR	NONE	38	M	OR-Y		047,080,081	017		01		
N						45 23 16.3986408	-122 48	15.242514																							
03194	Y	N	N	N		06/18/2011	17	SW TUALATIN RD	INTER	3-LEG	N		Y	CLD	FIX OBJ	01	NONE	0	TURN-L									050,062	32,01		
CITY						SA	0	SW 124TH AVE	E			TRF SIGNAL	N	WET	FIX	PRVTE	N -E											000	050,062	00	
N						2P			05	0			N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	19	M	OR-Y		083,047,081	017		32,01		
N						45 23 16.3986408	-122 48	15.242514																							
04706	N	N	N	N		09/01/2011	17	SW TUALATIN RD	INTER	3-LEG	N		N	CLR	S-1STOP	01	NONE	0	STRGHT										07		
COUNTY						TH	0	SW 124TH AVE	E			TRF SIGNAL	N	DRY	REAR	PRVTE	E -W											000	00		
N						5P			06	0			N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	36	F	OTH-Y		026	000	00	07		
N						45 23 16.3986408	-122 48	15.242514																							
																02	NONE	0	STOP										011	00	
																PRVTE	E -W												000	00	
																PSNGR CAR			01	DRVR	NONE	69	F	OR-Y		000		000	00	00	
05973	Y	N	N	N		10/31/2012	17	SW TUALATIN RD	INTER	3-LEG	N		Y	RAIN	FIX OBJ	01	NONE	0	TURN-L									044,062,040	08,01		
CITY						WE	0	SW 124TH AVE	E			TRF SIGNAL	N	WET	FIX	PRVTE	N -E										000	044,062,040	00		
N						3P			05	0			N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	25	M	SUSP		002,047,081	088		08,01		
N						45 23 16.3623155	-122 48	15.2345731																							
01534	Y	N	N	N		03/23/2015	16	SW TUALATIN RD	INTER	3-LEG	N		Y	CLD	FIX OBJ	01	NONE	0	TURN-L									079	01,08		
CITY						MO	0	SW 124TH AVE	E			TRF SIGNAL	N	DRY	FIX	PRVTE	N -E										000	079	00		
N						12P			06	0			N	DAY	INJ	PSNGR CAR			01	DRVR	INJC	39	F	SUSP		047,001,081	000		01,08		
N						45 23 16.36	-122 48	15.23																							
06122	N	N	N			10/29/2018	16	SW TUALATIN RD	INTER	3-LEG	N		Y	RAIN	FIX OBJ	01	NONE	9	TURN-L								040,062	25			
NONE						MO	0	SW 124TH AVE	E			TRF SIGNAL	N	WET	FIX	N/A	N -E										000	00			
N						UNK			05	0			N	UNK	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	00		
N						45 23 16.36	-122 48	15.23																							

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 ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

124TH AVE at TUALATIN RD, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

8 - 12 of 22 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR	QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE				
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR	QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE				
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	TO	P#	TYPE	INJ	G	E	LICNS	LOC	ERROR	ACT	EVENT	CAUSE	
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	INJ	G	E	LICNS	LOC	ERROR	ACT	EVENT	CAUSE	
01730	N	N	N			02/01/2019	16	SW TUALATIN RD	INTER		3-LEG	N	N	RAIN	S-1STOP	01 NONE	0	STRGHT									29			
NONE						FR	0	SW 124TH AVE	E			TRF SIGNAL	N	WET	REAR	PRVTE		E -W								000	00			
N						UNK			06	0			N	UNK	INJ	PSNGR CAR				01	DRVR	INJC	34	M	OR-Y	026	000	29		
N						45 23 16.36	-122 48	15.23																						
																02 NONE	0	STOP									011	00		
																UNKN		E -W								000	000	00		
																PSNGR CAR				01	DRVR	NONE	00	Unk	UNK		000	000	00	
02835	N	N	N			08/07/2020	16	SW TUALATIN RD	INTER		3-LEG	N	N	CLR	S-1STOP	01 NONE	0	STRGHT									29			
NONE						FR	0	SW 124TH AVE	E			TRF SIGNAL	N	DRY	REAR	PRVTE		E -W								000	00			
N						3P			06	0			N	DAY	INJ	PSNGR CAR				01	DRVR	NONE	18	F	OR-Y	026	000	29		
N						45 23 16.36	-122 48	15.23																						
																02 NONE	0	STOP									012	00		
																PRVTE		E -W								000	000	00		
																PSNGR CAR				01	DRVR	INJC	53	M	OR-Y	000	000	00		
01317	N	N	N			03/07/2017	16	SW TUALATIN RD	INTER		3-LEG	N	N	CLR	ANIMAL	01 NONE	9	STRGHT									035	12		
NONE						TU	0	SW 124TH AVE	S			UNKNOWN	N	DRY	OTH	N/A		S -N								000	00			
N						12A			06	0			N	DLIT	PDO	PSNGR CAR				01	DRVR	NONE	00	Unk	UNK	000	000	00		
N						45 23 16.36	-122 48	15.23																						
																02 NONE	0	STOP									000	000	00	
																PRVTE		E -W								012	00			
																PSNGR CAR				01	DRVR	INJC	53	M	OR-Y	000	000	00		
00739	N	N	N	N	N	02/09/2011	16	SW TUALATIN RD	INTER		3-LEG	N	N	CLR	O-1 L-TURN	01 NONE	0	TURN-L									02			
CITY						WE	0	SW 124TH AVE	CN			TRF SIGNAL	N	DRY	TURN	PRVTE		N -E								000	00			
N						4P			04	0			N	DAY	INJ	PSNGR CAR				01	DRVR	INJC	52	F	OR-Y	004,028	000	02		
N						45 23 16.3693398	-122 48 15.2361085																							
																02 NONE	0	STRGHT									000	000	00	
																PRVTE		S -N								000	000	00		
																PSNGR CAR				01	DRVR	INJC	63	M	OR-Y	000	000	00		
																														
01155	N	N	N	N	N	02/28/2011	16	SW TUALATIN RD	INTER		3-LEG	N	N	RAIN	O-1 L-TURN	01 NONE	0	STRGHT									02			
CITY						MO	0	SW 124TH AVE	CN			TRF SIGNAL	N	WET	TURN	PRVTE		S -N								000	00			
N						3P			04	0			N	DAY	INJ	PSNGR CAR				01	DRVR	INJC	34	M	OR-Y	000	000	00		
N						45 23 16.3986408	-122 48 15.242514																							
																02 NONE	0	TURN-L									000	000	00	
																PRVTE		N -E								000	000	00		
																PSNGR CAR				01	DRVR	NONE	46	M	OR-Y	004,028	000	02		
																														

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

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN RD at 108TH AVE, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

1 - 3 of 6 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	ACT	EVENT	CAUSE										
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	ACT	EVENT	CAUSE										
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED										
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE				
02490	N	N	N	N	N	05/16/2013	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	CLD	ANGL-OTH	01 NONE	0	TURN-L					083	02									
CITY								WE	0	SW 108TH AVE	CN	STOP SIGN	N	WET	TURN	PRVTE		S -W					015	00									
N								3P		02	0		N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	56	M	OR-Y	028	000	083	02					
N								45 23 23.110044	-122 47 15.8194319																								
																02 NONE	0	STRGHT															
																PRVTE		E -W															
																PSNGR CAR			01	DRVR	INJA	47	F	OR-Y	000	000	000	000					
02911	N	N	N	N	N	05/23/2014	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	CLD	ANGL-OTH	01 NONE	0	STRGHT						02									
CITY								FR	0	SW 108TH AVE	CN	STOP SIGN	N	DRY	TURN	PRVTE		W -E					000	00									
N								3P		04	0		N	DAY	INJ	PSNGR CAR			01	DRVR	INJC	30	F	OR-Y	000	000	000	000					
N								45 23 23.11	-122 47 15.82																								
																01 NONE	0	STRGHT															
																PRVTE		W -E															
																PSNGR CAR			02	PSNG	NO<5	04	F	000	000	000	000						
																01 NONE	0	STRGHT															
																PRVTE		W -E															
																PSNGR CAR			03	PSNG	INJC	07	F	000	000	000	000						
																02 NONE	0	TURN-L															
																PRVTE		S -W															
																PSNGR CAR			01	DRVR	NONE	27	M	OR-Y	028	000	000	000					
01117	N	N	N	N	N	03/02/2015	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	CLR	S-STRGHT	01 NONE	0	STRGHT						07									
CITY								MO	0	SW 108TH AVE	CN	UNKNOWN	N	DRY	REAR	PRVTE		E -W					000	00									
N								4P		02	0		N	DAY	INJ	PSNGR CAR			01	DRVR	INJC	30	F	OR-Y	043	000	000	000					
N								45 23 23.11	-122 47 15.82																								
																02 NONE	0	STRGHT															
																PRVTE		E -W															
																PSNGR CAR			01	DRVR	INJC	42	F	OR-Y	000	000	000	000					
																02 NONE	0	STRGHT															
																PRVTE		E -W															
																PSNGR CAR			02	PSNG	INJC	08	M	000	000	000	000						
01086	N	N	N	N	N	02/17/2016	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	RAIN	ANGL-OTH	01 NONE	9	TURN-L						02									
NONE								WE	0	SW 108TH AVE	CN	STOP SIGN	N	WET	TURN	N/A		S -W					000	00									
N								6P		04	0		N	DUSK	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK	000	000	000	000					
N								45 23 23.11	-122 47 15.82																								

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

CITY OF TUALATIN, WASHINGTON COUNTY

108TH AVE and Intersectional Crashes at 108TH AVE, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

6 - 11 of 23 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	ACT	EVENT	CAUSE																
INVEST	E	A	U	I	C	O	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFERD	WTHR	CRASH	TRLR	QTY	MOVE	A	S										
RD DPT	E	L	G	N	H	R	TIME	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED							
UNLOC?	D	C	S	V	L	K	LAT	LONG	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
00823	Y	N	N			02/07/2014	17	SW BLAKE ST	INTER	2-LEG	N	Y	SNOW	FIX OBJ	01	NONE	0	STRGHT									058,128,124	01	
NONE						FR	0	SW 108TH AVE	S		UNKNOWN	N	SNO	FIX		PRVTE	N-S									000	058,128,124	00	
N						5P			05	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	68	M	OR-Y		047,081	000		01	
N						45 21 51.676056	-122 47 15.276588																						
02698	Y	N	N	N	N	04/24/2016	18	SW BLAKE ST	INTER	2-LEG	N	Y	RAIN	FIX OBJ	01	NONE	9	STRGHT									058,121	01	
CITY						SU	0	SW 108TH AVE	CN		CURVE	N	WET	FIX		N/A	N-S									000		00	
N						12P			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00	
N						45 21 51.68 15.28	-122 47 15.28																						
04116	Y	N	N	N	N	06/23/2016	18	SW BLAKE ST	INTER	2-LEG	N	Y	CLD	FIX OBJ	01	NONE	9	TURN-L									040	01	
CITY						TH	0	SW 108TH AVE	CN		UNKNOWN	N	WET	FIX		N/A	E-S									000		00	
N						8P			01	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00	
N						45 21 51.68 15.28	-122 47 15.28																						
94645	Y	Y	N	N	N	07/30/2017	18	SW BLAKE ST	INTER	2-LEG	N	Y	CLR	FIX OBJ	01	NONE	0	UNK									121	01	
CITY						SU	0	SW 108TH AVE	CN		UNKNOWN	N	DRY	FIX		PRVTE	UN-UN									000	121	00	
N						1A			04	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	27	M	OR-Y		047,081	000		01	
N						45 21 51.68 15.28	-122 47 15.28																						
04604	N	N	N			09/09/2019	18	SW BLAKE ST	INTER	2-LEG	N	N	CLD	O-STRGHT	01	NONE	9	STRGHT										05	
CITY						MO	0	SW 108TH AVE	CN		UNKNOWN	N	WET	HEAD		N/A	S-N									000		00	
N						8A			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00	
N						45 21 51.68 15.28	-122 47 15.28																						
																02	NONE	9	STRGHT								000	000	00
																N/A	N-S		01	DRVR	NONE	00	Unk	UNK		000	000	00	
																SCHL	BUS												
08384	N	N	N			12/29/2017	18	SW DOGWOOD ST	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE	0	TURN-L										02	
CITY						FR	0	SW 108TH AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	E-S									015		00	
N						10P			02	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	16	F	OR-Y		028	000		02	
N						45 21 20.74 15.29	-122 47 15.29																						
																02	NONE	0	STRGHT								000	000	00
																PRVTE	S-N		01	DRVR	INJC	17	M	OR-Y		000	000	00	
																PSNGR CAR													
81019	N	N	N			01/16/2014	17	SW HERMAN RD	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE	0	STRGHT										07	
NONE						TH	0	SW 108TH AVE	N		TRE SIGNAL	N	DRY	REAR		PRVTE	S-N									000		00	
N						3P			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	31	M	OR-Y		026	000		07	
N						45 23 1.115232	-122 47 15.5239439																						

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

CITY OF TUALATIN, WASHINGTON COUNTY

108TH AVE and Intersectional Crashes at 108TH AVE, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

18 - 20 of 23 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE					
INVEST	E	A	U	I	C	O	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE						
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE			
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
02490	N	N	N	N	N	05/15/2013	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	CLD	ANGL-OTH	01 NONE	0	TURN-L							083	02				
CITY						WE	0	SW 108TH AVE	CN		STOP SIGN	N	WET	TURN	PRVTE		S -W								015	00				
N						3P			02	0			N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	56	M	OR-Y	028	000	083	02		
N						45 23	-122 47																							
						23.110044	15.8194319																							
																02 NONE	0	STRGHT								000	00			
																PRVTE		E -W								000	00			
																PSNGR CAR			01	DRVR	INJA	47	F	OR-Y	000	000	00			
02911	N	N	N	N	N	05/23/2014	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	CLD	ANGL-OTH	01 NONE	0	STRGHT							02					
CITY						FR	0	SW 108TH AVE	CN		STOP SIGN	N	DRY	TURN	PRVTE		W -E								000	00				
N						3P			04	0			N	DAY	INJ	PSNGR CAR			01	DRVR	INJC	30	F	OR-Y	000	000	00			
N						45 23 23.11	-122 47																							
						15.82																								
																01 NONE	0	STRGHT								000	00			
																PRVTE		W -E								000	00			
																PSNGR CAR			02	PSNG	NO<5	04	F		000	000	00			
																01 NONE	0	STRGHT								000	00			
																PRVTE		W -E								000	00			
																PSNGR CAR			03	PSNG	INJC	07	F		000	000	00			
																02 NONE	0	TURN-L								015	00			
																PRVTE		S -W								000	00			
																PSNGR CAR			01	DRVR	NONE	27	M	OR-Y	028	000	02			
01117	N	N	N	N	N	03/02/2015	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	CLR	S-STRGHT	01 NONE	0	STRGHT							07					
CITY						MO	0	SW 108TH AVE	CN		UNKNOWN	N	DRY	REAR	PRVTE		E -W								000	00				
N						4P			02	0			N	DAY	INJ	PSNGR CAR			01	DRVR	INJC	30	F	OR-Y	043	000	07			
N						45 23 23.11	-122 47																							
						15.82																								
																02 NONE	0	STRGHT								006	00			
																PRVTE		E -W								000	00			
																PSNGR CAR			01	DRVR	INJC	42	F	OR-Y	000	000	00			
																02 NONE	0	STRGHT								006	00			
																PRVTE		E -W								000	00			
																PSNGR CAR			02	PSNG	INJC	08	M		000	000	00			
01086	N	N	N	N	N	02/17/2016	17	SW TUALATIN RD	INTER	3-LEG	N	N	N	RAIN	ANGL-OTH	01 NONE	9	TURN-L							02					
NONE						WE	0	SW 108TH AVE	CN		STOP SIGN	N	WET	TURN	N/A		S -W								000	00				
N						6P			04	0			N	DUSK	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK	000	000	00			
N						45 23 23.11	-122 47																							
						15.82																								

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

CITY OF TUALATIN, WASHINGTON COUNTY

LEVETON DR and Intersectional Crashes at LEVETON DR, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

1 - 5 of 23 Crash records shown.

SER#	S	D	M	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE	
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE				
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	LOC	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
04694	N	N	N				08/01/2017	17	SW LEVETON DR	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE	9	STRGHT									29		
NONE							TU	0	SW 108TH AVE	W		STOP SIGN	N	DRY	REAR	N/A	W -E									000	00		
N							5P			06	0		N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							45 23 9.64	-122 47 15.67																					
																02 NONE	9	STOP									011	00	
																N/A	W -E			01	DRVR	NONE	00	Unk	UNK		000	000	00
																PSNGR CAR													
07964	N	N	N				11/21/2016	17	SW LEVETON DR	INTER	3-LEG	N	N	CLR	ANGL-OTH	01 NONE	9	TURN-L									02		
NONE							MO	0	SW 108TH AVE	CN		STOP SIGN	N	DRY	TURN	N/A	W -N									000	00		
N							12P			04	0		N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							45 23 9.64	-122 47 15.67																					
																02 NONE	9	TURN-L									000	000	00
																N/A	S -W			01	DRVR	NONE	00	Unk	UNK		000	000	00
																PSNGR CAR													
07143	N	N	N				11/11/2017	17	SW LEVETON DR	ALLEY		N	N	CLD	S-1TURN	01 NONE	9	STRGHT									06,32		
CITY							SA	300	SW 108TH AVE	W	(NONE)	UNKNOWN	N	WET	TURN	N/A	E -W									000	00		
N							6A			08			N	DLIT	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							45 23 9.65	-122 47 20.16			(02)																		
																02 NONE	9	TURN-L									019	00	
																N/A	E -S			01	DRVR	NONE	00	Unk	UNK		000	000	00
																PSNGR CAR													
01382	I	N	N	N	N	N	03/14/2015	17	SW LEVETON DR	INTER	3-LEG	N	Y	RAIN	FIX OBJ	01 NONE	0	TURN-L									040,062	01	
CITY							SA	0	SW 118TH AVE	W		STOP SIGN	N	WET	FIX	PRVTE	S -W									015	040,062	00	
N							4P			05	0		N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	19	M	OR-Y	047,080,081	000	01		
N							45 23 6.18	-122 47 56.73																					
06642	N	N	N				11/03/2015	17	SW LEVETON DR	INTER	3-LEG	N	N	RAIN	S-STRGHT	01 NONE	0	STRGHT									07		
NONE							TU	0	SW 118TH AVE	W		STOP SIGN	N	WET	REAR	PRVTE	W -E									000	00		
N							6A			06	0		N	DARK	PDO	PSNGR CAR			01	DRVR	NONE	26	M	OR-Y	042	000	000	07	
N							45 23 6.18	-122 47 56.73																					
																02 NONE	0	STRGHT								000	000	00	
																PRVTE	W -E			01	DRVR	NONE	00	M	OR-Y	000	000	00	
																PSNGR CAR													

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

CITY OF TUALATIN, WASHINGTON COUNTY

LEVETON DR and Intersectional Crashes at LEVETON DR, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

12 - 16 of 23 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	ACT	EVENT	CAUSE																
INVEST	E	A	U	I	C	O	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	MOVE	A	S										
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED						
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
01479	Y	N	N	N	N	03/22/2012	17	SW LEVETON DR	CURVE		N	Y	SNOW	FIX OBJ	01	NONE	0	STRGHT									059,054	01	
CITY						TH	255	SW 118TH AVE	W	(NONE)	UNKNOWN	N	SNO	FIX		PRVTE	W -E									088	059,054,124	00	
Y						11P			08			N	DLIT	PDO		PSNGR CAR			01	DRVR	NONE	25	M	OR-Y		047,080,081	017	01	
N						45 23	-122 48				(02)																		
						5.5072383	.589545																						
00094	N	N	N	N	N	01/07/2011	16	LEVETON DR	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE	0	STRGHT										27	
NONE						FR	0	124TH AVE	N		TRF SIGNAL	N	WET	REAR		PRVTE	N -S										000	00	
N						10A			06	0		N	DAY	PDO		PSNGR CAR			01	DRVR	NONE	52	M	OR-Y		016,026	038	27	
N						45 23	-122 48																						
						5.680052	14.943782																						
																02 UNKN	0	STOP											
																PRVTE	N -S											011	00
																PSNGR CAR			01	DRVR	NONE	54	F	OR-Y		000	000	00	
02441	N	N	N	N	N	04/27/2017	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0	STRGHT										29	
NONE						TH	0	124TH AVE	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N -S										000	00	
N						8A			06	0		N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	69	M	OR-Y		026	000	29	
N						45 23 5.63	-122 48	14.95																					
																02 NONE	0	STOP											
																PRVTE	N -S											012	00
																PSNGR CAR			01	DRVR	INJC	35	F	OR-Y		000	000	00	
04377	N	N	N	N	N	07/19/2017	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0	STRGHT										07	
CITY						WE	0	124TH AVE	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N -S										000	00	
N						7A			06	0		N	DAY	INJ		PSNGR CAR			01	DRVR	NONE	24	M	OR-Y		043	000	07	
N						45 23 5.63	-122 48	14.95																					
																02 NONE	0	STOP											
																PRVTE	N -S											011	00
																PSNGR CAR			01	DRVR	INJC	51	F	OR-Y		000	000	00	
																02 NONE	0	STOP											
																PRVTE	N -S											011	00
																PSNGR CAR			02	PSNG	INJB	19	F			000	000	00	
05935	N	N	N	N	N	11/12/2019	16	SW LEVETON DR	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE	9	STRGHT										29	
NONE						TU	0	124TH AVE	N		TRF SIGNAL	N	WET	REAR		N/A	N -S										000	00	
N						8A			06	0		N	DAY	PDO		PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	
N						45 23 5.63	-122 48	14.95																					
																02 NONE	9	STOP										011	00
																N/A	N -S											011	00
																PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	

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

CITY OF TUALATIN, WASHINGTON COUNTY

LEVETON DR and Intersectional Crashes at LEVETON DR, City of Tualatin, Washington County, 01/01/2011 to 12/31/2020

22 - 23 of 23 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE				
INVEST	E	A	U	I	C	O	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	TRLR QTY	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE					
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
01884	N	N	N				04/15/2019	16	SW LEVETON DR	INTER	CROSS	N	N	CLR	O-1 L-TURN	01 NONE	9	TURN-L									02		
NO RPT							MO	0	124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	N/A	N	-E								000	00		
N							2P			04	0		N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							45 23 5.63	-122 48 14.95																					
																02 NONE	9	STRGHT									000	000	00
																N/A	S -N												
																PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00	
06169	Y	N	N				N N 10/20/2015	17	SW LEVETON DR	STRGHT	(NONE)	UNKNOWN	Y	CLD	FIX OBJ	01 NONE	0	STRGHT								040,062	01		
CITY							TU	150	124TH AVE	E	(NONE)	UNKNOWN	N	DRY	FIX	PRVTE	E	-W								000	040,062	00	
Y							3P			08			N	DAY	INJ	SEMI TRK			01	DRVR	INJC	28	M	OR-Y		047,080,081	000	01	
N							45 23 5.57	-122 48 12.24			(02)																		

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URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD at 108TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

1 - 2 of 2 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE	ACT	EVENT	CAUSE																	
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	MOVE	A	S	LOC	ERROR	ACT	EVENT	CAUSE					
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	LOC	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
00130	N	N	N			01/07/2020	17	SW HERMAN RD	INTER	3-LEG	N		N	RAIN	S-1STOP	01	NONE	9	STRGHT									29		
NONE						TU	0	SW 108TH AVE	NE			TRF SIGNAL	N	WET	REAR	N/A		NE-SW									000	00		
N						4P			06	0			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00		
N						45 23 1.12	-122 47 15.52										02	NONE	9	STOP								011	00	
																	N/A		NE-SW								000	000	00	
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00		
06105	N	N	N			09/11/2016	17	SW HERMAN RD	INTER	3-LEG	N		N	CLR	S-1STOP	01	NONE	0	STRGHT									27,07		
CITY						SU	0	SW 108TH AVE	SW			TRF SIGNAL	N	DRY	REAR		PRVTE		SW-NE									000	00	
N						11A			06	0			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		016,043	038	27,07		
N						45 23 1.12	-122 47 15.52										02	NONE	0	STOP								011	00	
																	PRVTE		SW-NE									000	000	00
																	PSNGR CAR		01	DRVR	INJC	46	F	OR-Y		000	000	000	00	

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APPENDIX G.
IN-PROCESS



lancaster
moblely

Tualatin Logistics Park

Transportation Impact Analysis

Tualatin, Oregon

Date:

December 15, 2021

Prepared for:

Peter Skei, Specht Development, Inc.

Prepared by:

Nick Mesler, EIT

Jennifer Danziger, PE

Site Trips

Trip Generation

To estimate trips that will be generated by the redevelopment, trip rates from the *Trip Generation Manual*¹ were used based on the number of existing driving range tees, number of golf holes, and the proposed square footage.

Existing Site Development

The site is currently occupied by Tualatin Island Greens Golf Center and Grill. The golf facilities include a driving range and an 18-hole miniature golf course. The driving range includes 43 tees with synthetic mats for year-round use and additional grass tees available in the spring and summer. These facilities are open from 9:00 AM to 8:00 PM, September through March, and from 9:00 AM to 9:00 PM, April through August. The site also includes a restaurant with hours from 10:30 to 6:30 PM, September through March, and 10:30 AM to 7:30 PM, April 9:00 AM to 8:00 PM from September to March through August.

Trip generation was estimated based on the golf facilities; the restaurant is assumed to be used primarily by the golfing customers. Trip data for both types of golf facilities are limited; therefore, the following assumptions were made to estimate trips for the site:

- The trip data for the miniature golf land use code (ITE LUC 431) is limited to a single survey during the weekday PM peak period. No activity is assumed during the morning peak hour. The weekday PM peak hour trip rate is very low and may vary over the year with more activity during summer months and less during winter months. However, we suggest that credit for the facility should be included in the trip generation for the site. No daily data is available; therefore, the weekday rate was assumed to be 10 times the daily rate.
- The trip data for a driving range (ITE LUC 432) is limited to a single survey for the morning and weekday periods but has seven surveys for the weekday PM peak period. While the driving range does not open until 9:00 AM, retail and maintenance staff need to be on site before 9:00 AM. Two of the ITE survey sites also had staff data available with counts of 14 and 15 employees. Additionally, food service deliveries also typically occur in the morning. Therefore, the morning peak hour trips were included in the trip generation estimates. Trip estimates were prepared based on the 43 year-round tees.

One of the concerns that was raised about prior trip generation estimates is that the golf site peaks may occur later than the peaks of the street traffic or the peaks of industrial development. To acknowledge this may be the case for the traffic study, a 20 percent discount in peak hour trips is proposed.

The resulting trip generation is presented in Table 3.

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

Table 3: Trip Generation Summary – Existing Land Uses

Land Use	ITE Code	Size	AM Peak Hour			PM Peak Hour			Weekday Total
			In	Out	Total	In	Out	Total	
Driving Range	432	43 Tees	10	7	17	24	30	54	586
Miniature Golf	431	18 Holes	0	0	0	2	4	6	60
<i>20% Discount for Offset Peak Hour</i>			-2	-1	-3	-5	-7	-12	-130
Total			8	6	14	21	27	48	516

Proposed Site Development

Specht Properties, Inc. proposes to redevelop the site with a single industrial building enclosing 452,795 SF of gross floor area with 115 dock doors and 4 grade doors. As proposed, the site includes 197 parking spaces and 133 trailer parking spaces. Some accessory office space is included in the building layout.

The proposed development is speculative with flexible space that could accommodate a single tenant or multiple tenants. Specht has developed similar properties in the Portland metropolitan area. The locations, sizes, and tenant descriptions are attached to this memorandum, each with a recent photo of the site. The sites range from a single 290,000-SF building to three buildings totaling more than 733,000 SF. Only two of the sites have any manufacturing tenants and a portion of those operations are warehousing and distribution. Of the total 1.87 million SF of space, approximately 18 percent is leased to tenants whose operations include manufacturing.

A range of potential industrial land use assumptions was considered to estimate the trip generation for the site. Trip estimates were lowest for ITE LUC 154, High-Cube Transload and Short-Term Storage Warehouse, and highest for LUC 110, General Light Industrial, and LUC 156, High-Cube Parcel Hub Warehouse. Table 4 summarizes the total and truck trip generation for the range of industrial uses.

While the original traffic scoping suggested a mix of 85 percent warehouse and 15 percent manufacturing based on the available site parking, a much more conservative assumption of general light industrial is assumed for this TIA. A parcel hub warehouse would generate the same number of trips but with a substantially different directional distribution from other industrial uses. The truck trip generation of general light industrial is slightly lower than other uses; however, the variation in the number of trucks generated during the peak hours for the industrial uses is small and the percentage of overall site-generated traffic is very low. Truck percentages for the trip generation were compared with those on the existing roadway and were found to be very similar to the truck percentages on the adjacent roadways.



Table 4: Trip Generation Summary – Potential Industrial Land Uses

Land Use	ITE Code	AM Peak Hour			PM Peak Hour			Weekday Total	Employee Equivalent*
		In	Out	Total	In	Out	Total		
Total Vehicle Trips based on 452,795 SF Industrial Building									
General Light Industrial	110	295	40	335	41	253	294	2,206	636
Manufacturing	140	234	74	308	104	231	335	2,150	1,022
Warehousing	150	59	18	77	23	59	82	774	125
High-Cube Transload and Short-Term Storage Warehouse	154	28	8	36	13	32	45	634	NA
High-Cube Fulfillment Center Warehouse - Non-Sort	155	55	13	68	28	44	72	820	487
High-Cube Parcel Hub Warehouse	156	159	158	317	197	93	290	2,096	NA
Truck Trips based on 452,795 SF Industrial Building									
General Light Industrial	110	3	2	5	3	3	5	114	-
Manufacturing	140	8	6	14	6	8	14	204	-
Warehousing	150	5	4	9	7	7	14	272	-
High-Cube Transload and Short-Term Storage Warehouse	154	4	5	9	2	3	5	100	-
High-Cube Fulfillment Center Warehouse - Non-Sort	155	5	5	9	2	3	5	104	-
High-Cube Parcel Hub Warehouse	156	NA	NA	41	NA	NA	27	262	-

* Estimated as average number of employees needed to generate the equivalent number of vehicle trips based on KSF

Total Site Trip Generation

Table 5 summarizes the estimated net trip generation of the site with the assumptions discussed above.

Table 5: Trip Generation Summary (Warehousing)

Land Use	AM Peak Hour			PM Peak Hour			Weekday Total
	In	Out	Total	In	Out	Total	
Existing Land Use	-8	-6	-14	-21	-27	-48	-516
Proposed Land Use	295	40	335	41	253	294	2,206
Net Increase	287	34	321	20	227	246	1,690

The trip generation calculations show that the Tualatin Logistics site assuming general light industrial for the site is projected to generate an additional 321 net trips during the morning peak hour, 246 net trips during the evening peak hour, and 1,690 net trips during the average weekday.



Trip Distribution and Assignment

The directional distribution of site trips to/from the project site is necessary to identify intersections to be included in the study area of the TIA. The following trip distribution was estimated based on the locations of likely trip destinations and locations of major transportation facilities in the site vicinity:

- Approximately 30 percent of site trips will travel to/from the south along SW 124th Avenue
- Approximately 20 percent of site trips will travel to/from the west along SW Tualatin-Sherwood Road
- Approximately 30 percent of site trips will travel to/from the east along SW Tualatin-Sherwood Road
- Approximately 5 percent of site trips will travel to/from the north along SW Cipole Road
- Approximately 15 percent of site trips will travel to/from the north along SW 124th Avenue

Trip distribution at the site accesses will depend on the location and configuration of the accesses.

Access Scenario 1

With the first scenario assuming an access on SW 124th Avenue at the southeast corner of the site and an access on SW Cipole Road, the split of traffic between the two accesses is assumed to be 50 percent at each access. A detailed illustration of the distribution for this scenario was presented in the scoping memorandum, which has been included in Appendix A.

The resulting trip assignment is shown in Figure 2.

Access Scenario 2

With the second scenario assuming a limited access on SW 124th Avenue at the northeast corner of the site, the split of traffic is assumed to be 65 to 70 percent using the SW Cipole Road access while 30 to 35 percent using the limited access at SW 124th Avenue. A detailed illustration of the distribution for this scenario was presented in the scoping memorandum, which has been included in Appendix A.

The resulting trip assignment is shown in Figure 3.

Access Scenario 3

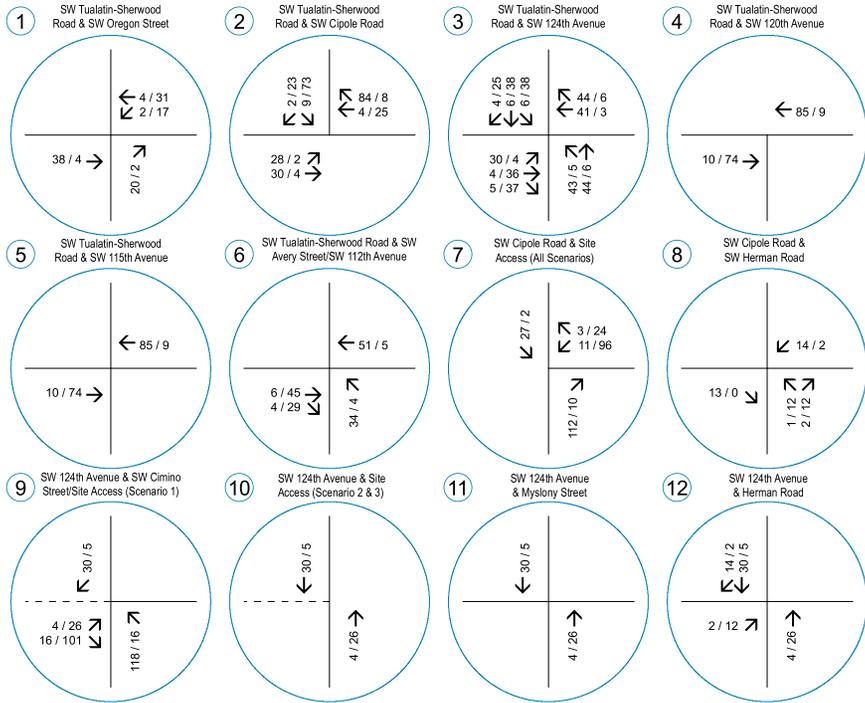
With the third scenario assuming a full access on SW 124th Avenue at the northeast corner of the site, the split of traffic is assumed to be approximately 65 percent using the SW Cipole Road access and 35 percent using the access on SW 124th Avenue.

The resulting trip assignment is shown in Figure 4.

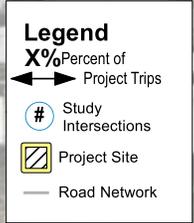
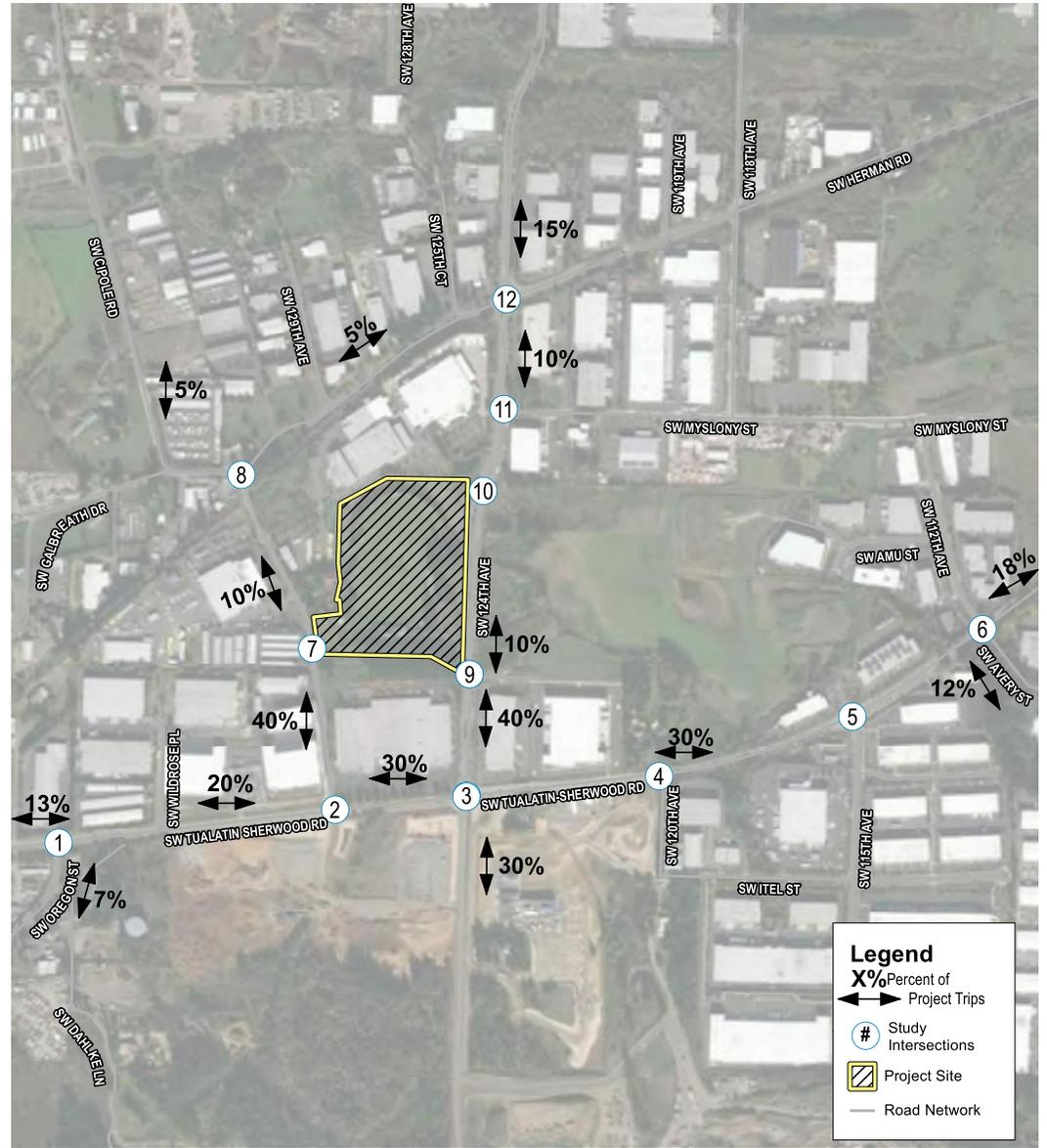
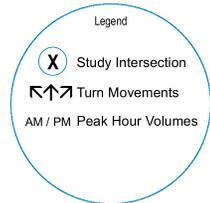
Access Scenario 4

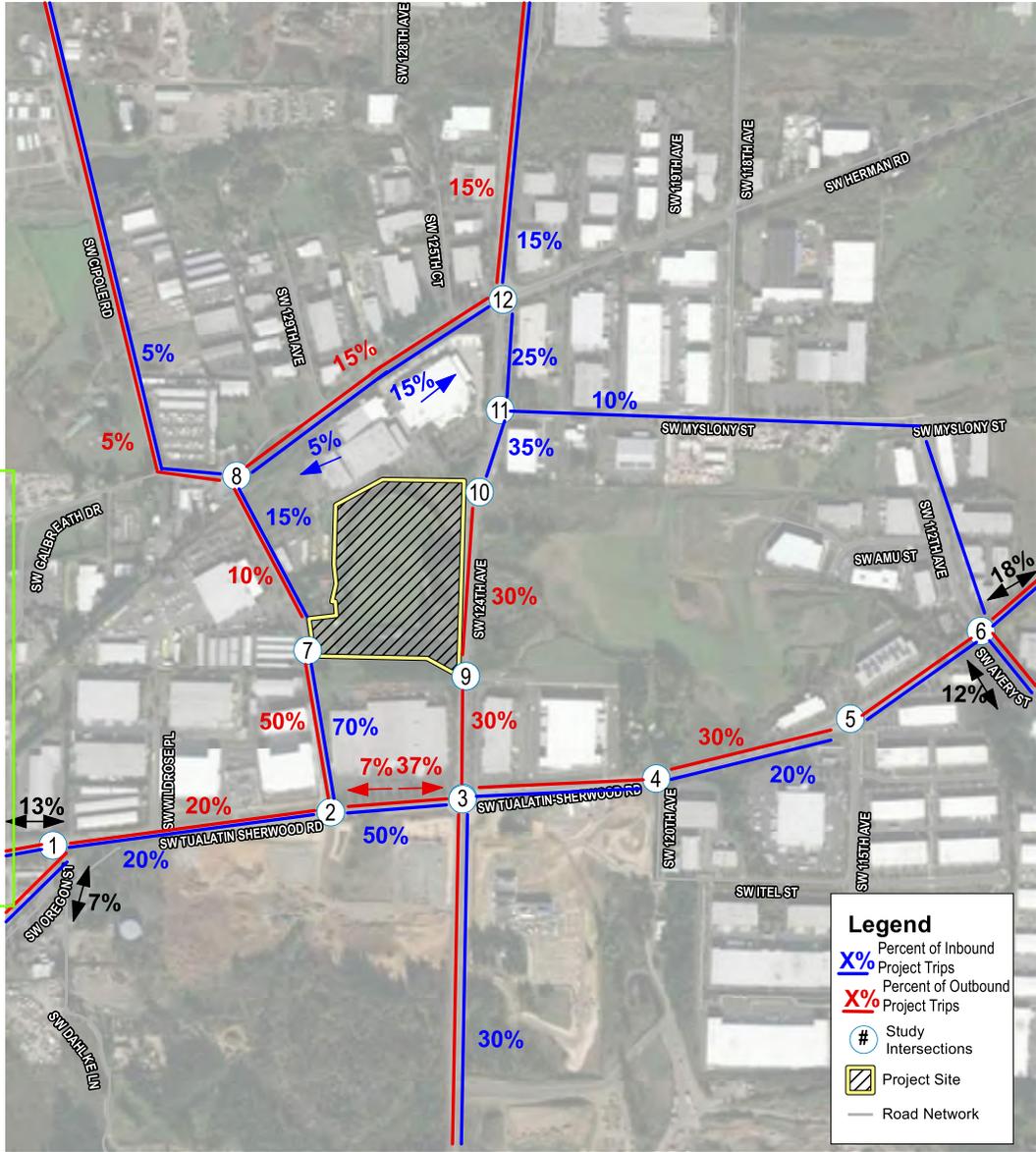
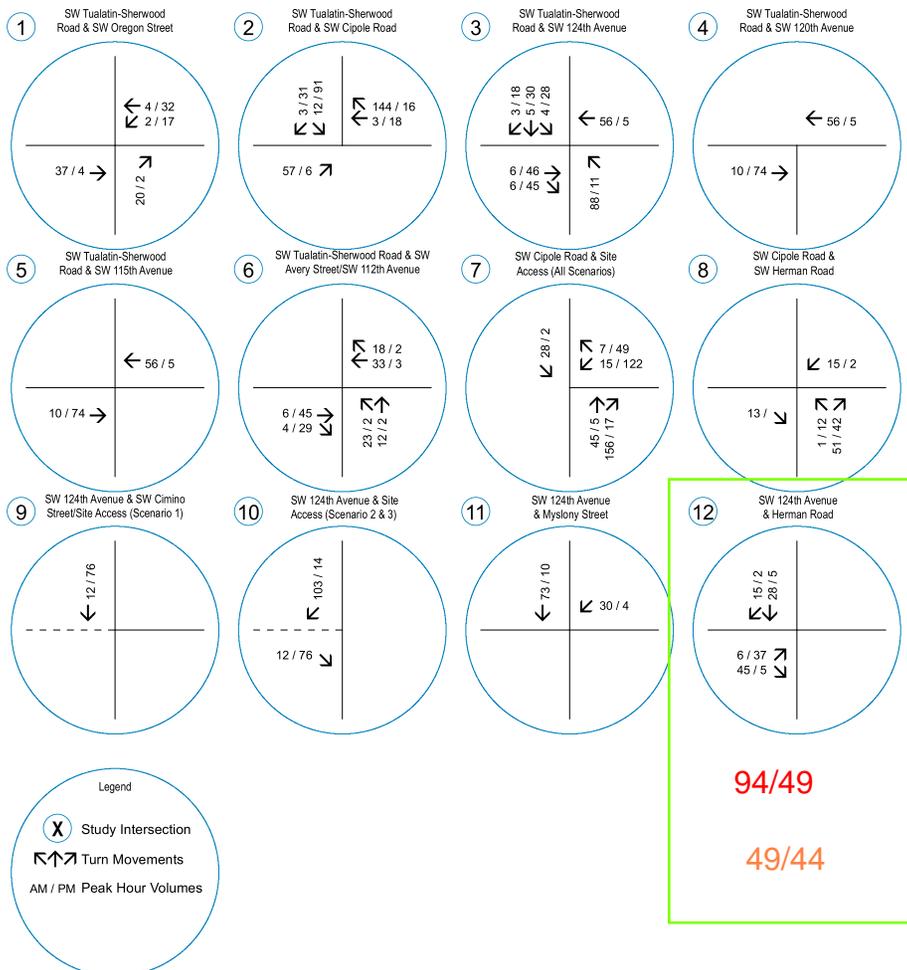
The fourth scenario assumes a full access on SW 124th Avenue at the southeast corner of the site and a limited access on SW 124th Avenue at the northeast corner of the site. The split of traffic is assumed to be approximately 35 percent using the SW Cipole Road access, 35 percent using the access on SW 124th Avenue opposite SW Cimino Street, and 30 percent using the limited access at the northeast corner of the site.

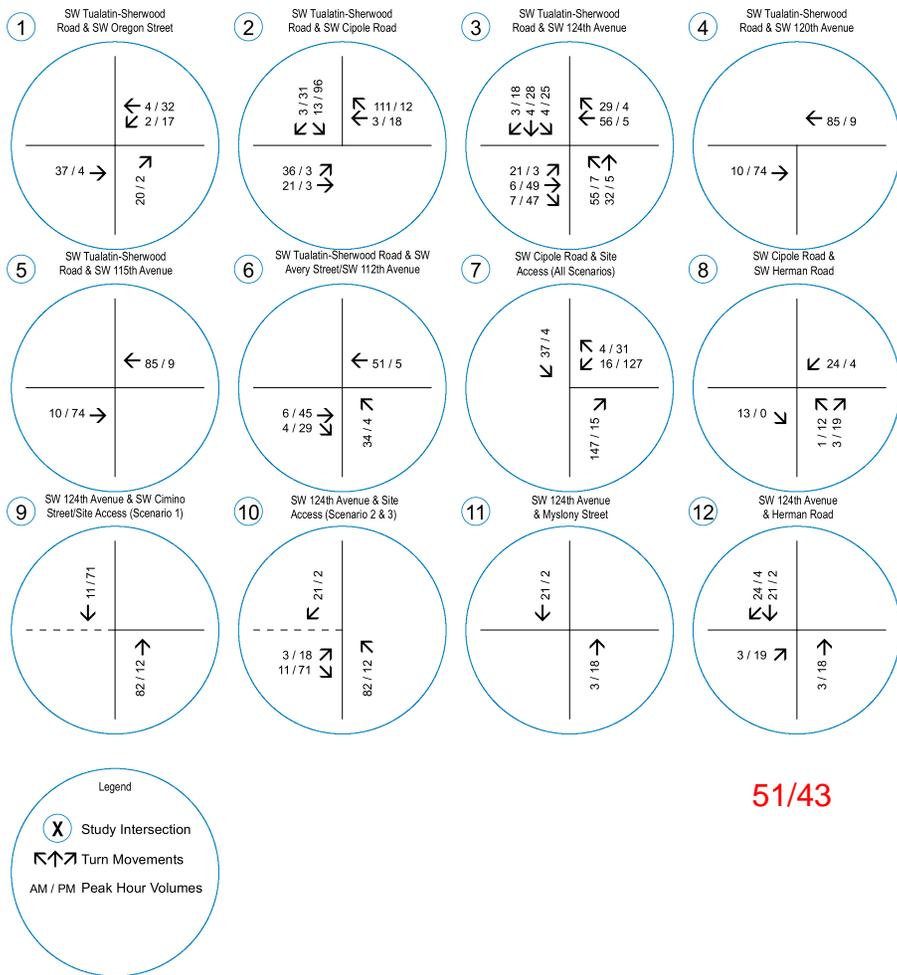
The resulting trip assignment is shown in Figure 5.



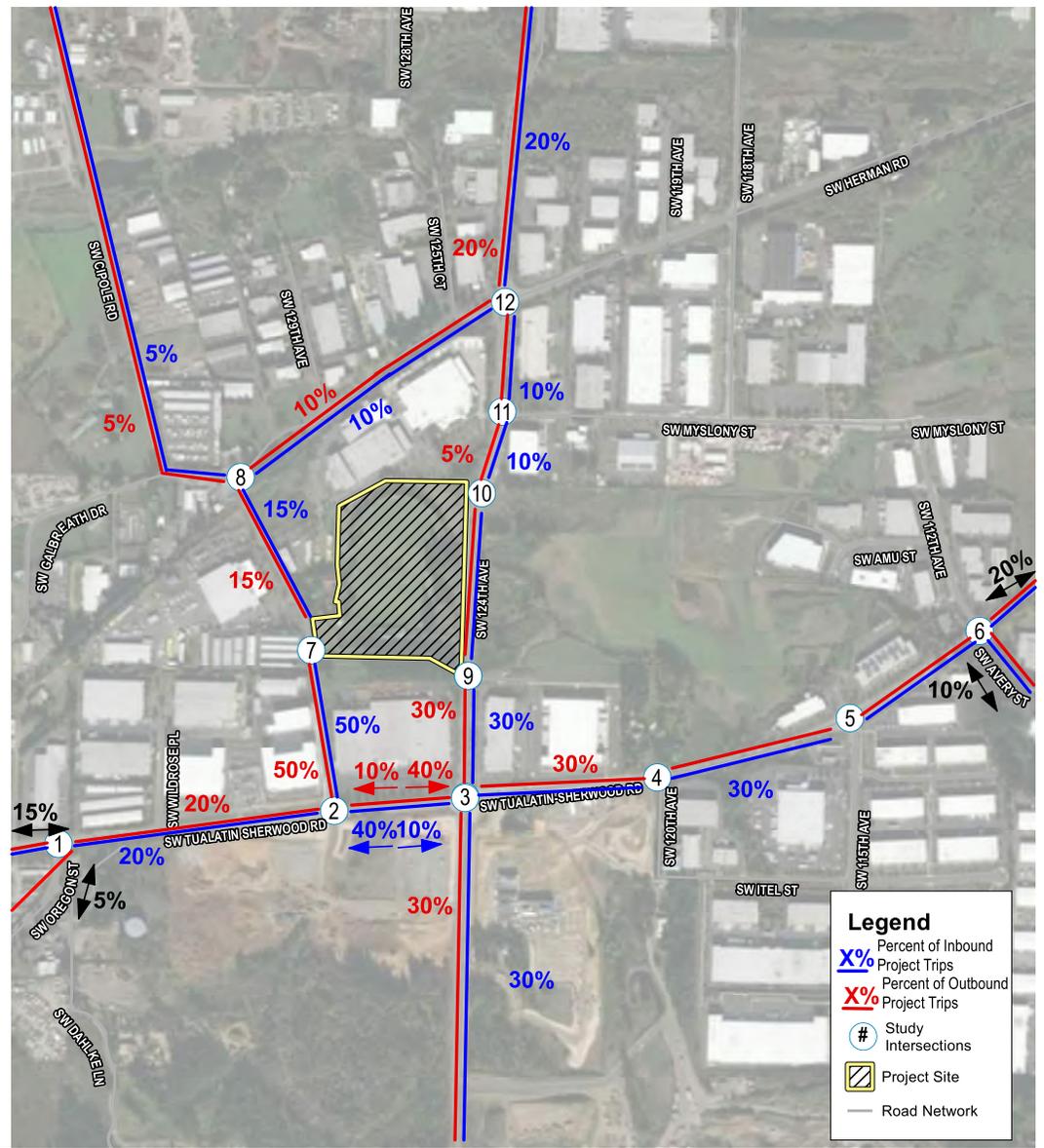
50/45

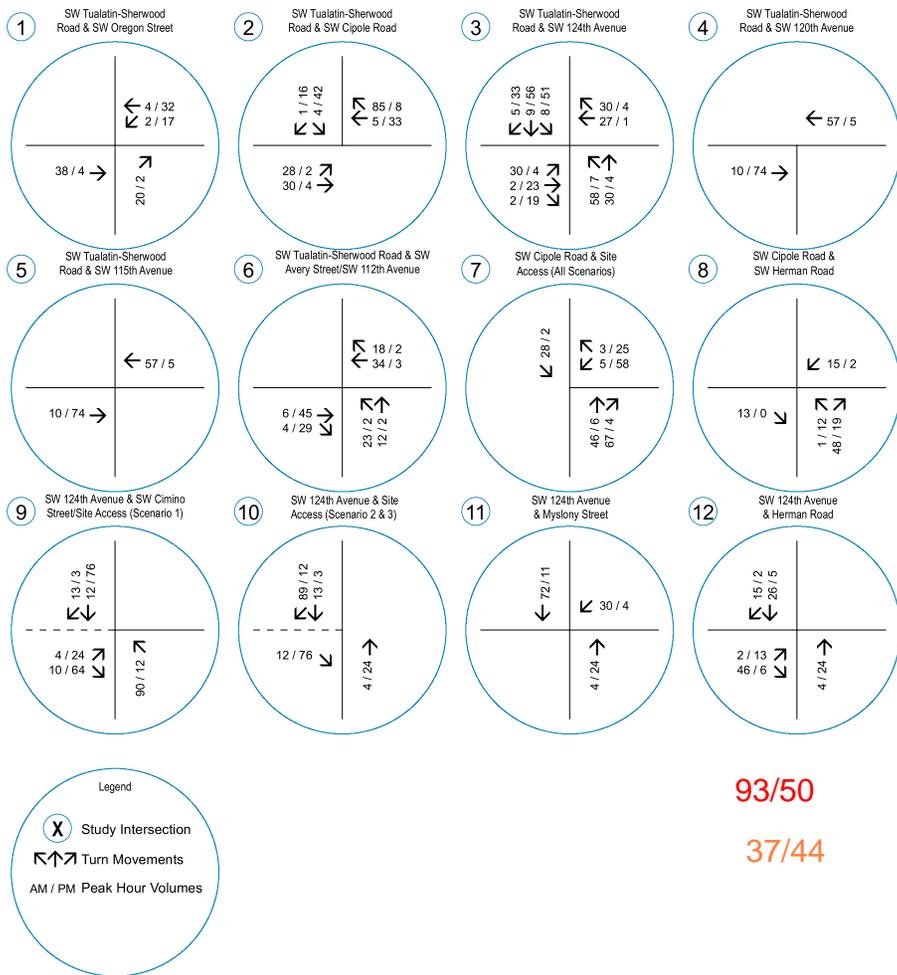




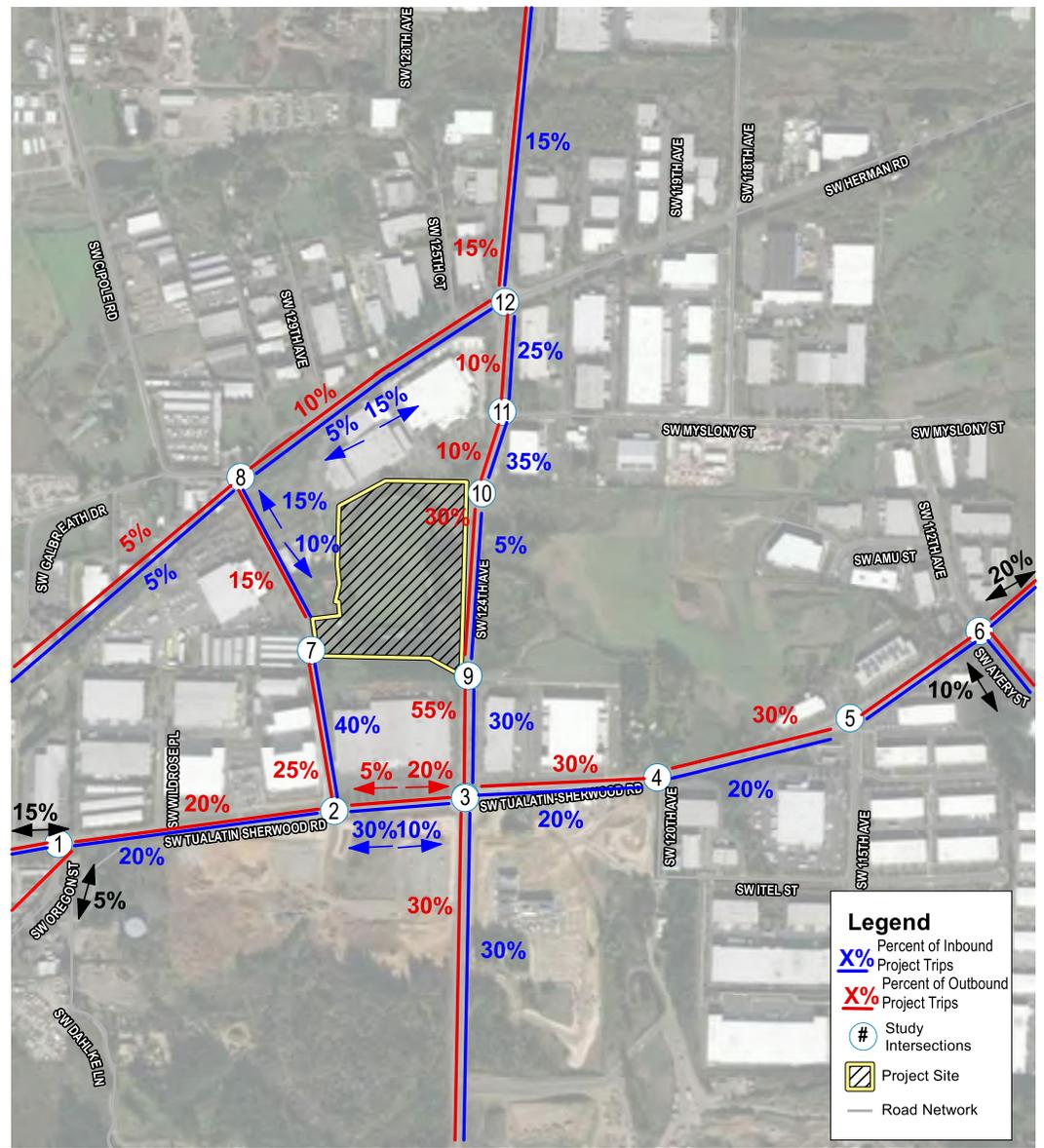


51/43





93/50
37/44





Lu Pacific Development
Transportation Impact Study
Tualatin, Oregon



Date:
August 31, 2020

Prepared for:
Angela Qi
Lu Pacific Properties, LLC

Prepared by:
Daniel Stumpf, PE
Terrington Smith, EIT

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:

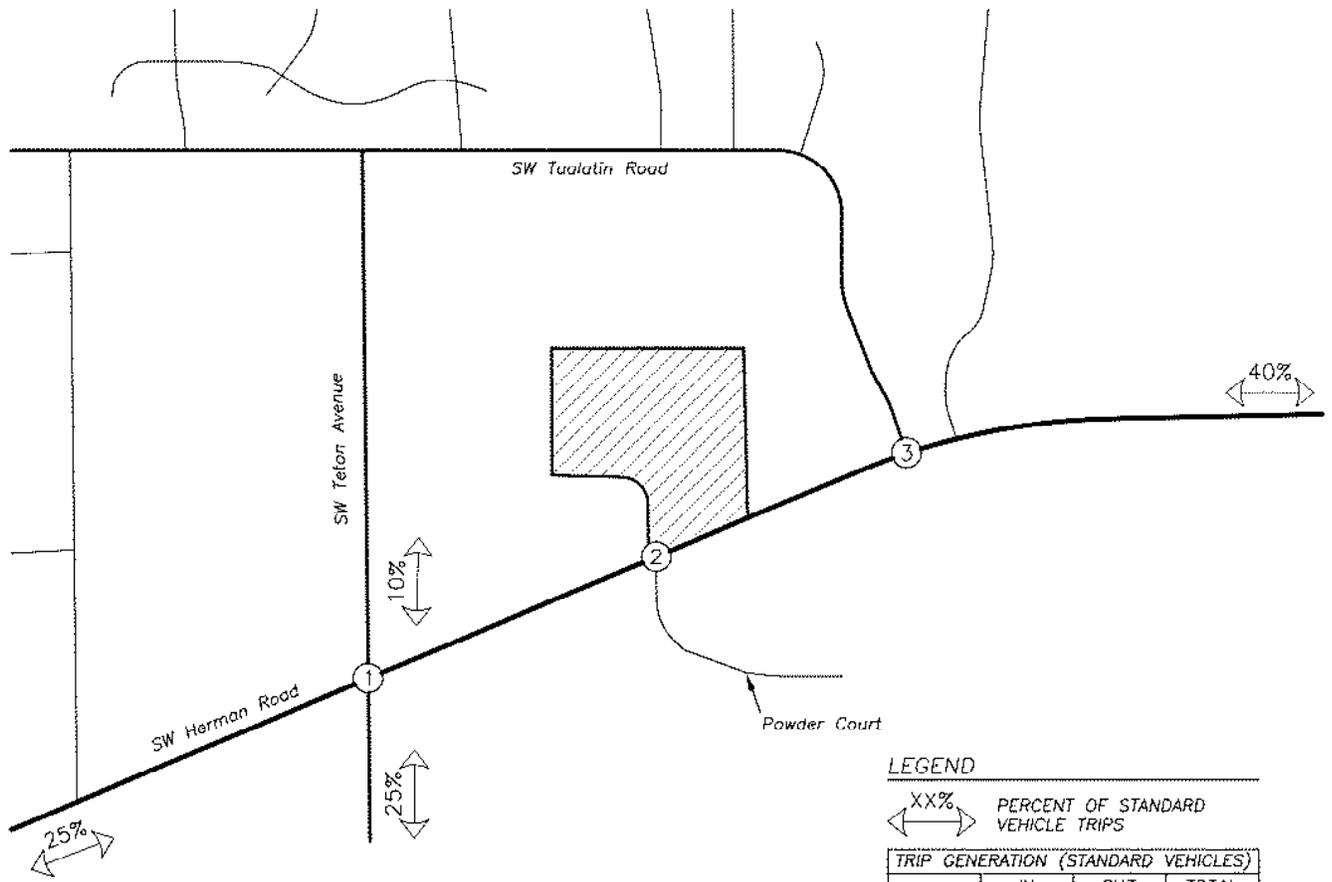
Standards Vehicle Trips

- 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.

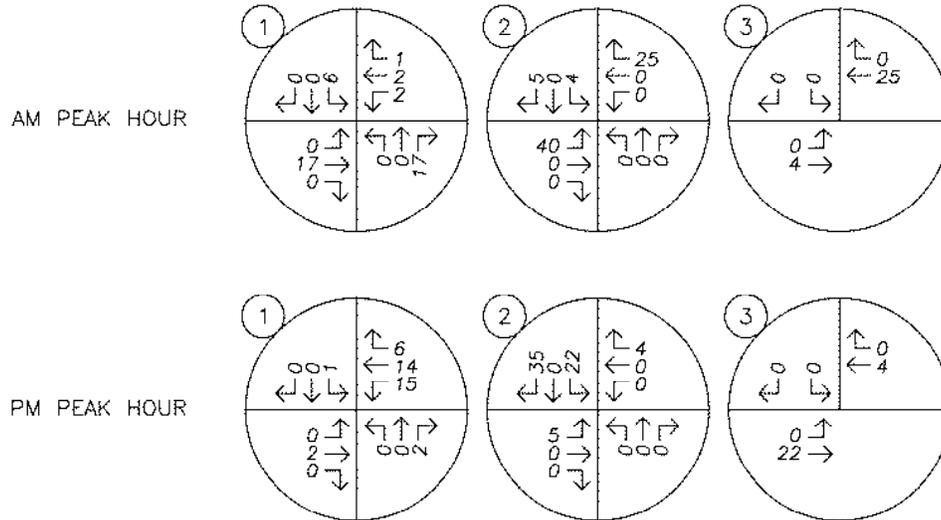
The trip distribution and assignment for the site trips generated by the proposed development during the morning and evening peak hours is shown in Figure 2 through Figure 4. Figure 2 presents site trip assignment for standard vehicles, Figure 3 presents site trip assignment for trucks, and Figure 4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

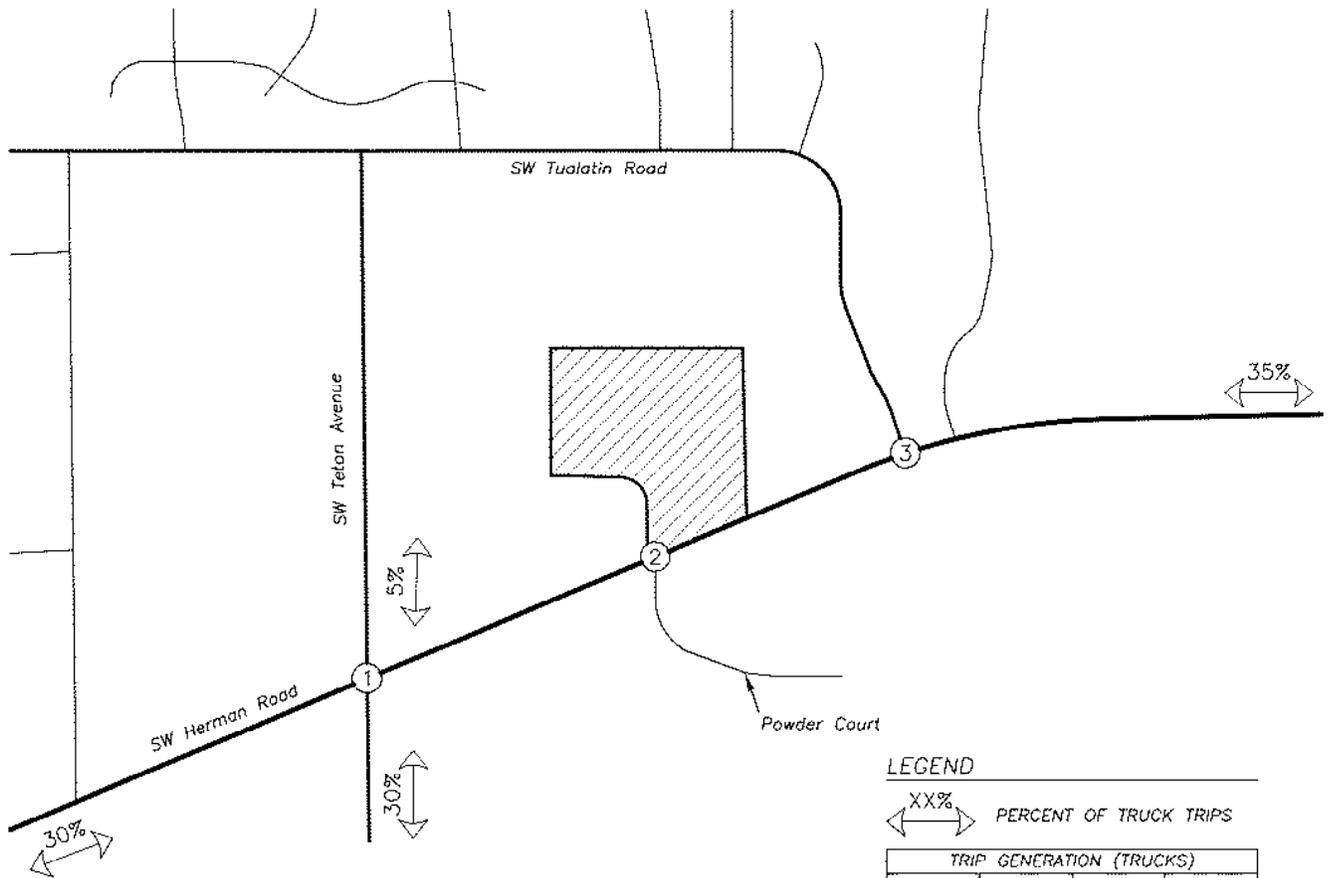


LEGEND

XX% PERCENT OF STANDARD VEHICLE TRIPS

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

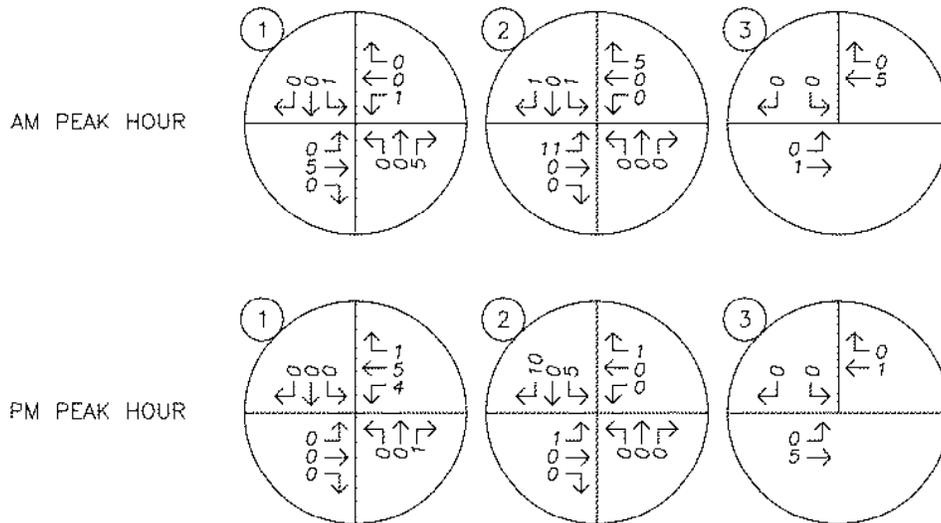


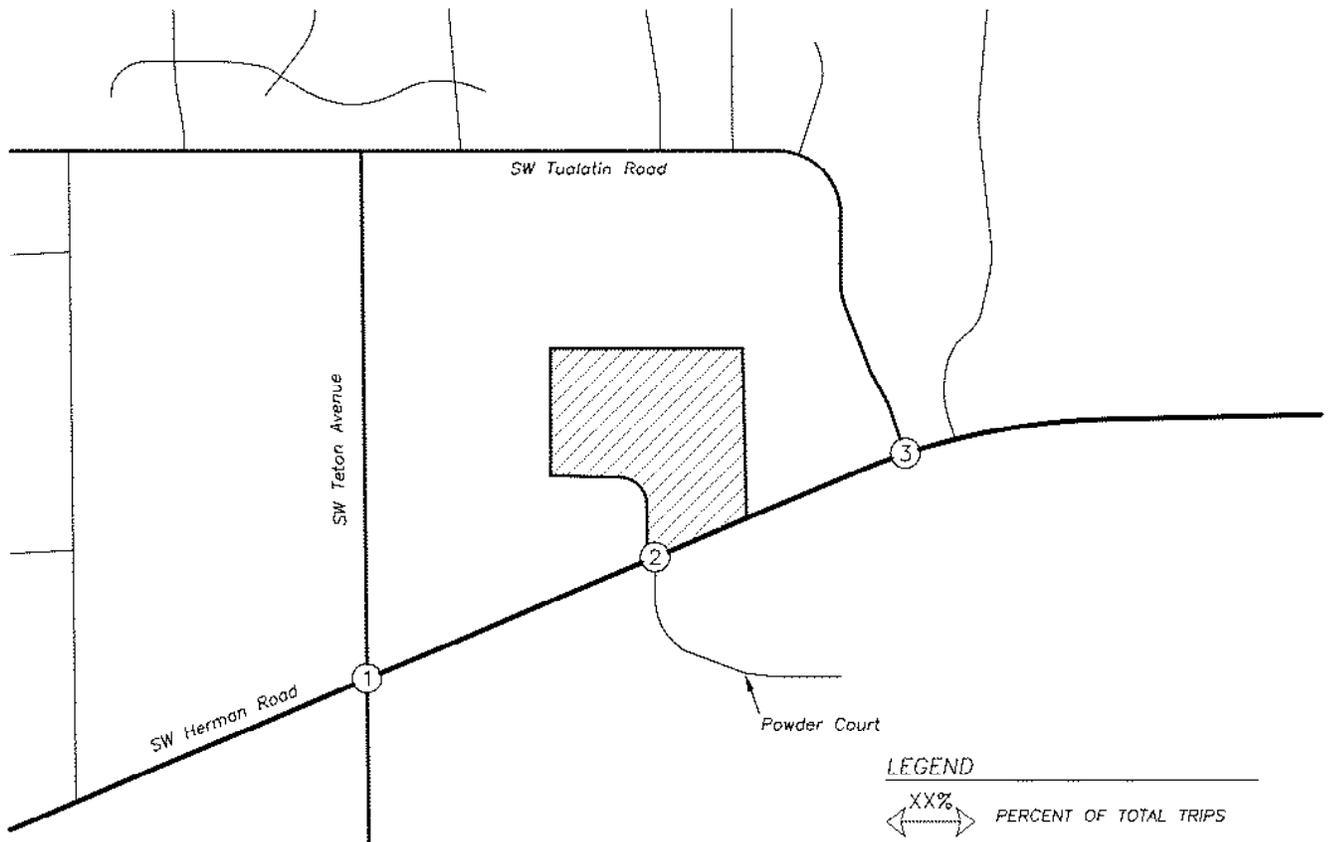


LEGEND

XX% PERCENT OF TRUCK TRIPS

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

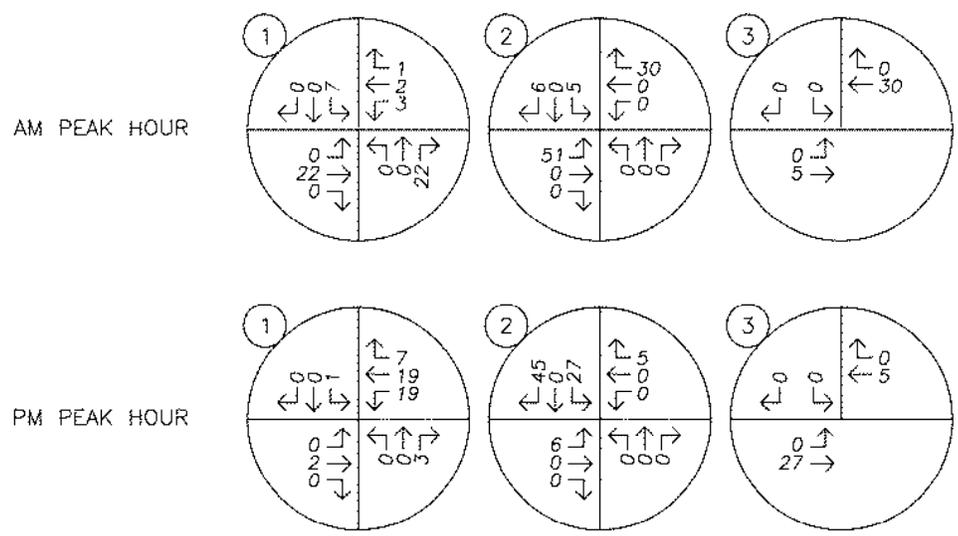




LEGEND

XX% PERCENT OF TOTAL TRIPS

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





lancaster
moble

Hedges Creek Industrial Transportation Impact Study Tualatin, Oregon

Date:
January 6, 2022

Prepared for:
Sarah Every
Phelan Development

Prepared by:
Daniel Stumpf, PE



RENEWS: 6/30/2022

Site Trips

Trip Generation

The proposed Hedges Creek Industrial development will include the construction of three industrial buildings, totaling approximately 442,035 square feet, where approximately 40 percent of the development will consist of manufacturing land uses while the remaining 60 percent will consist of warehousing space. To estimate the number of trips that will be generated by the proposed use, 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 use is projected to generate a total of 165 morning peak hour trips, 179 evening peak hour trips, and 1,294 average weekday trips. Of these trips, the proposed use is projected to generate 10 morning peak hour truck trips, 13 evening peak hour truck trips, and 240 average weekday truck trips. The trip generation estimates associated with the proposed development are summarized in Table 3 and detailed trip generation calculations are included in the appendix.

Table 3: Trip Generation Summary

	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Total Trip Generation									
Manufacturing	140	176,814 SF	91	29	120	41	90	131	840
Warehousing	150	265,221 SF	35	10	45	13	35	48	454
Total Trips		442,035 SF	126	39	165	54	125	179	1,294
Truck Trip Generation									
Manufacturing	140	176,814 SF	3	2	5	2	3	5	80
Warehousing	150	265,221 SF	3	2	5	4	4	8	160
Total Trips		442,035 SF	6	4	10	6	7	13	240
Passenger Vehicle Trip Generation									
Manufacturing	140	176,814 SF	88	27	115	39	87	126	760
Warehousing	150	265,221 SF	32	8	40	9	31	40	294
Total Trips		442,035 SF	120	35	155	48	118	166	1,054

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

Trip Distribution

The directional distribution of site trips to/from the project site was estimated based on the locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at the study intersections. Based on correspondence with City of Tualatin staff and their consulting transportation engineer, the following trip distribution was confirmed and utilized:

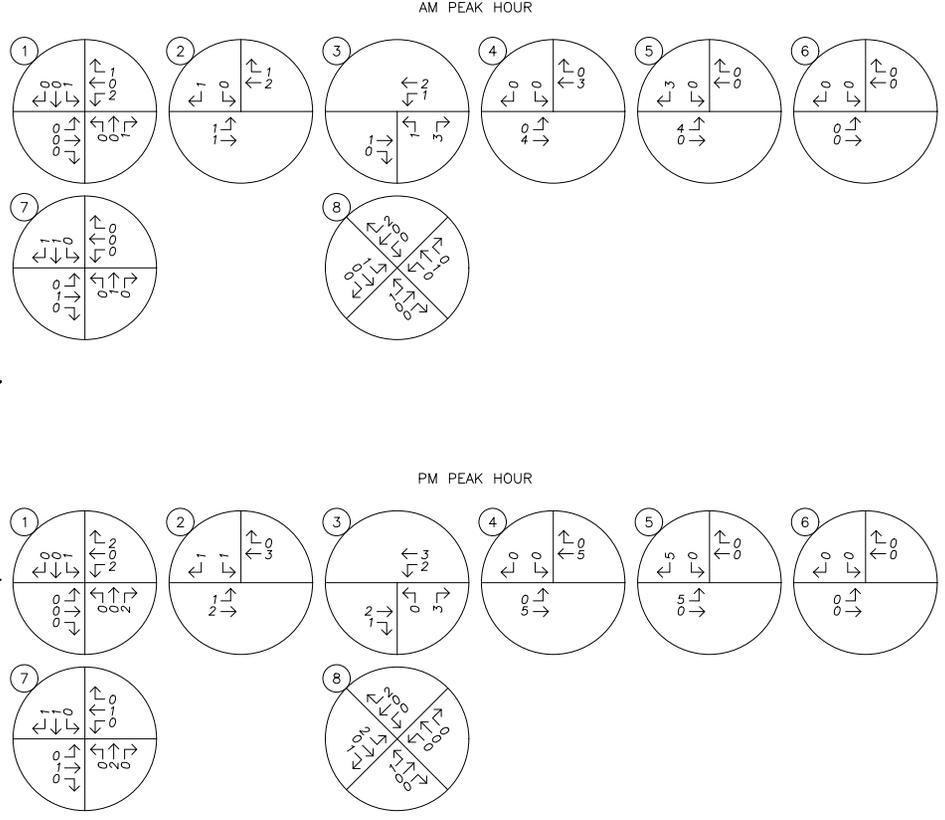
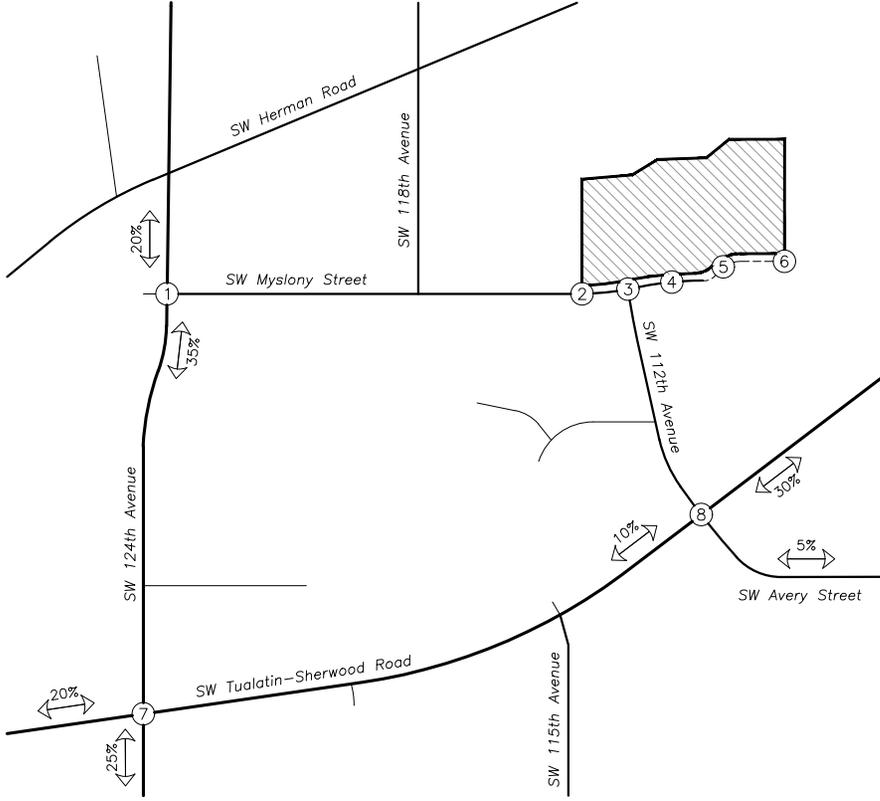
- Approximately 30 percent of site trips will travel to/from the east along SW Tualatin-Sherwood Road;
- Approximately 25 percent of site trips will travel to/from the south along SW 124th Avenue (via SW Myslony Street);
- Approximately 20 percent of site trips will travel to/from the west along SW Tualatin-Sherwood Road (split distribution between SW 124th Avenue/SW Myslony Street and SW 112th Avenue);
- Approximately 20 percent of site trips will travel to/from the north along SW 124th Avenue (via Myslony); and
- Approximately 5 percent of site trips will travel to/from the east along SW Avery Street.

Based on the site plan layout, site trip as assumed to utilize the site access driveways as follows:

2. West Truck Access at SW Myslony Street:
 - Approximately 25 percent of truck trips will utilize this access.
 - Approximately 10 percent of passenger vehicle trips will utilize this access.
4. West General Access at SW Myslony Street:
 - Approximately 50 percent of passenger vehicle trips will utilize this access.
5. East Truck Access at SW Myslony Street:
 - Approximately 75 percent of truck trips will utilize this access.
 - Approximately 10 percent of passenger vehicle trips will utilize this access.
6. East General Access at SW Myslony Street:
 - Approximately 30 percent of passenger vehicle trips will utilize this access.

The trip distribution and assignment for the site trips generated during the morning and evening peak hours is shown in the following figures:

- Figure 3 – Passenger Vehicle Trips
- Figure 4 – Truck Trips
- Figure 5 – Total Trips



LEGEND

XX% PERCENT OF PROJECT TRIPS

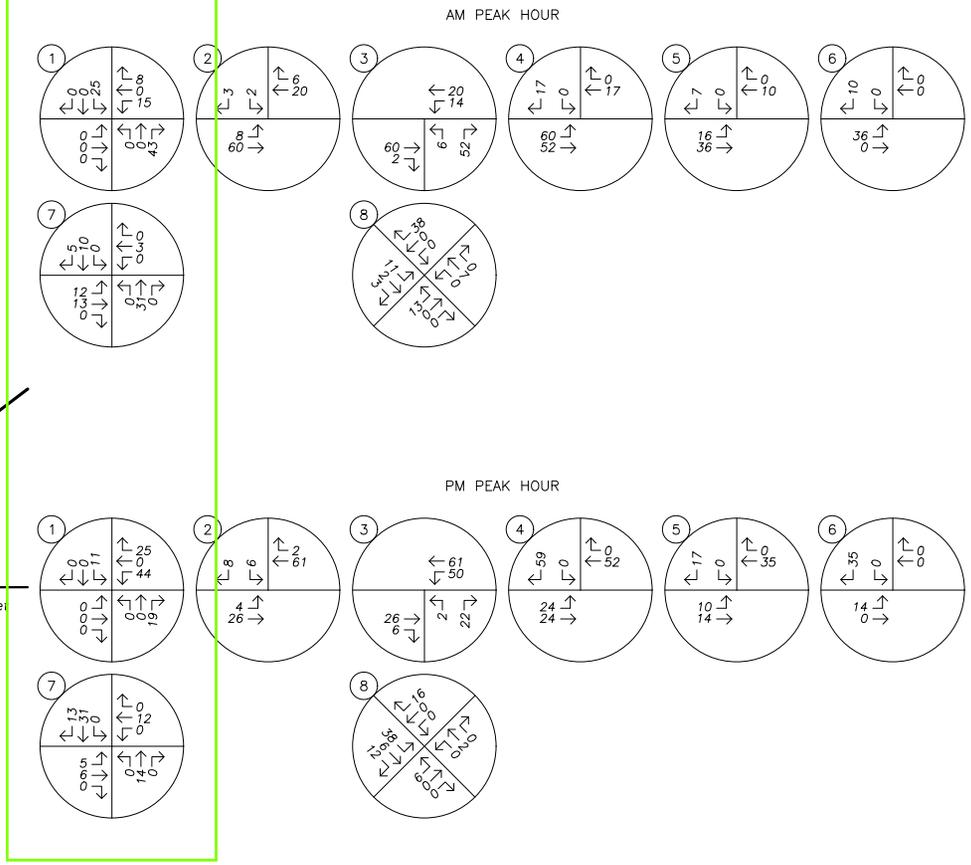
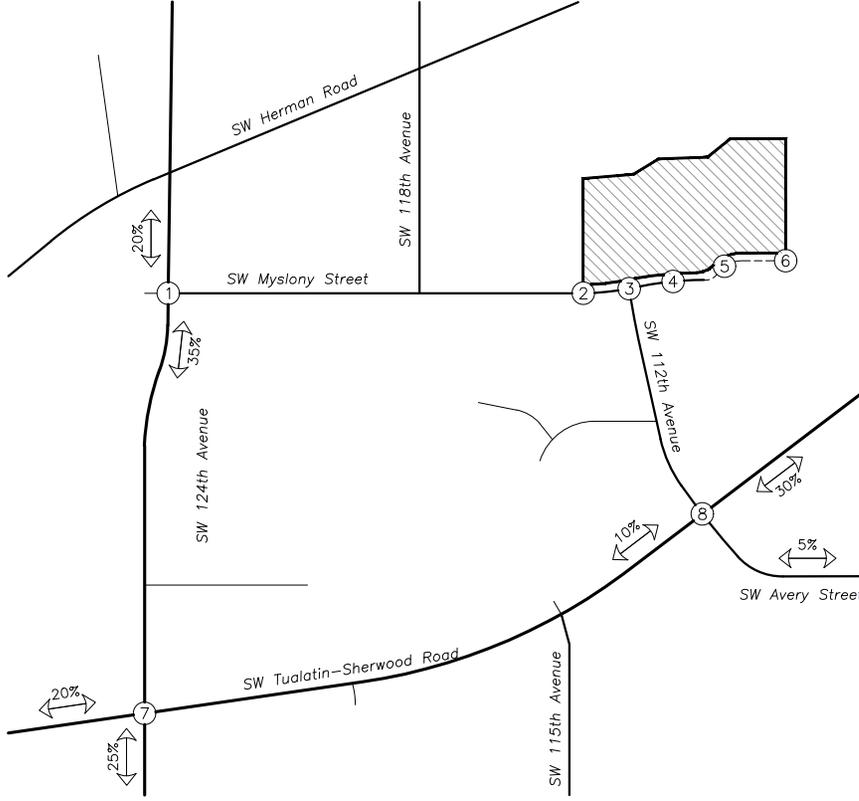
TRUCK TRIP GENERATION			
	IN	OUT	TOTAL
AM	6	4	10
PM	6	7	13



SITE TRIP DISTRIBUTION & ASSIGNMENT

Proposed Development Plan - Truck Trips
AM & PM Peak Hours





LEGEND

XX% PERCENT OF PROJECT TRIPS

TOTAL TRIP GENERATION			
	IN	OUT	TOTAL
AM	126	39	165
PM	54	125	179



SITE TRIP DISTRIBUTION & ASSIGNMENT

Proposed Development Plan - Total Trips
AM & PM Peak Hours



APPENDIX H.
**SIGNAL
INFORMATION**

LEGEND

CONTROLLERS

Retain and protect existing 332 cabinet

POLES

Retain and protect existing traffic signal mast arm pole

Retain and protect existing traffic signal mast arm pole with luminaire arm extension

Retain and protect existing traffic signal mast arm

Retain and protect existing luminaire arm

Remove and relocate existing pedestrian signal pedestal with frangible base

Remove and relocate existing pedestrian signal pedestal with frangible base

SIGNALS

Retain and protect existing phase (Ph-phase) vehicle signal

Retain and protect existing pedestrian signal, pushbutton and instructions

Install phase (Ph-phase) vehicle signal

Remove and relocate existing phase (Ph-phase) vehicle signal

Remove and relocate existing pedestrian signal, pushbutton and instructions

Reinstall existing phase (Ph-phase) vehicle signal

Reinstall existing pedestrian signal, pushbutton and instructions

SIGNS

Retain and protect existing aluminum sign

Retain and protect existing street name sign

LEGEND CONTINUED

CABINETS

Retain and protect existing remote power source

Retain and protect existing service cabinet

Retain and protect existing meter base

Retain and protect existing terminal cabinet

JUNCTION BOXES

Retain and protect existing junction box

Remove existing junction box

Install 22"x12"x12" (min. dimension) precast concrete junction box

Install 30"x17"x12" (min. dimension) precast concrete junction box with concrete apron

VIDEO DETECTION

Video detection zone for phase (PH).

Retain and protect existing video detection camera

WIRES

Retain and protect existing wiring

Remove existing wiring

Reinstall existing wiring

Install (N-number) No. 12 type THWN (Pedestrian signal system common)

Install (N-number) No. 10-16 AWG wire size type THWN wires

LEGEND CONTINUED

CONDUITS

Retain and protect existing electrical conduit

Abandon existing electrical conduit

Install (S+size) inch electrical conduit

Interconnect conduit (See Interconnect Plan)

Splice new electrical conduit to existing electrical conduit

FIRE PREEMPTION

Retain and protect existing fire preemption detector

MISCELLANEOUS

Retain and protect existing high pressure sodium luminaire

Retain and protect existing photoelectric control

Install crosswalk closure barricades with signs (both sides of barricade)

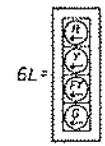
SIGNAL MOUNTING OPTIONS

B = Adjustable bracket assembly w/rain cap(s) (Install 1" metallic chase nipple in lieu of tenon when required for wiring)

SIGNAL HEAD TYPES

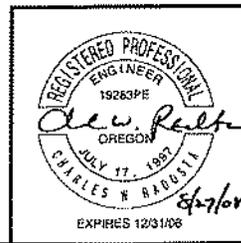
Z = 12" R, 12" Y, 12" G

GL = 12" GLTA, 12" YLTA, 12" FYLTA, 12" GLTA



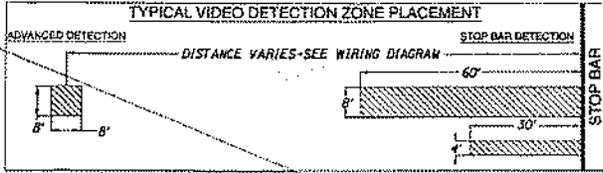
CONSTRUCTION NOTES:

- 1 Remove existing wiring for existing pedestrian post. Retain all other existing wiring.
- 2 Install 4-#14 wires to operate the Eastbound left-turn signal.
- 3 Intercept existing conduit and install junction box. Relocate existing wiring into new conduit as shown. Abandon existing unused conduit.
- 4 Replace existing controller unit with a new 2070L unit.
- 5 Terminate phase 5 flashing yellow indication to phase 6 pedestrian yellow switchpack output. Terminate Conflict Monitor channel 11 (pin 5) wire to Output File terminal 120.
- 6 Re-establish telephone connection with local company after completion of utility pole relocation.



TUALATIN DEVELOPMENT COMMISSION	
S.W. HERMAN RD. - S.W. 124TH AVE. TO S.W. TETON AVE.	
WASHINGTON COUNTY	
Reviewed By - C. Rodato Designed By - C. Thibler Drafted By - J. Hanrahan	
SW HERMAN RD/SW 108TH AVE LEGEND SHEET	SHEET NO. TS-11

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION PLANNING/TRAFFIC ENGINEERING

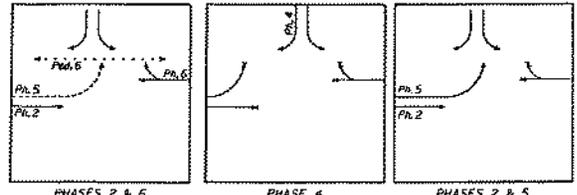
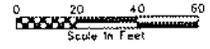
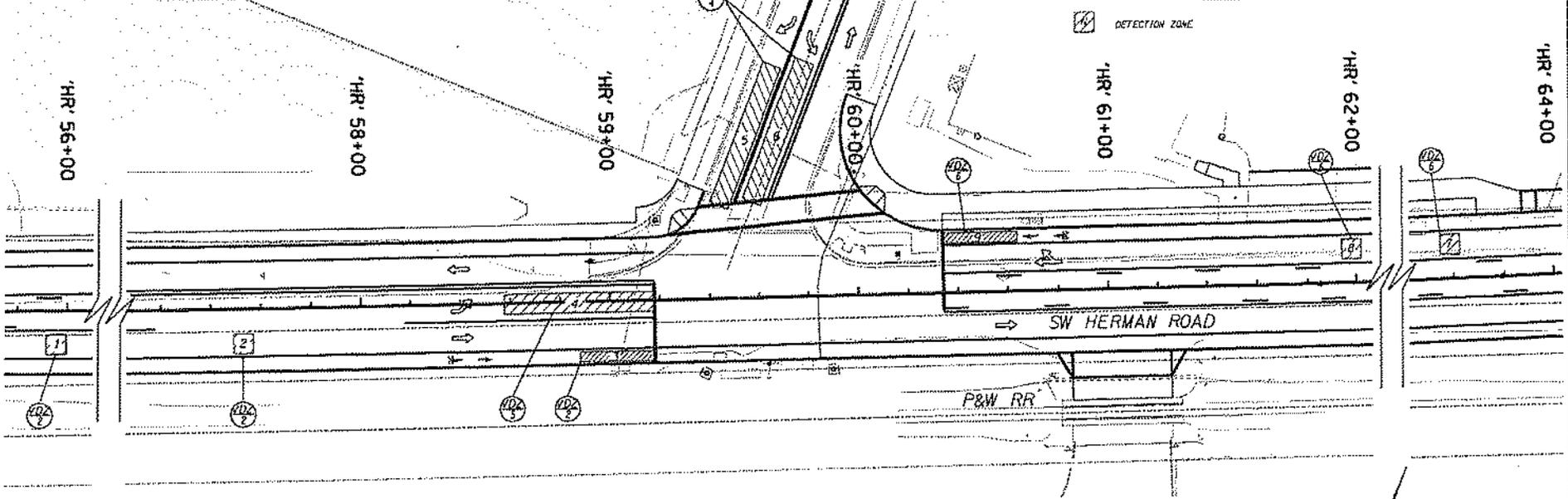


VIDEO DETECTION WIRING DIAGRAM

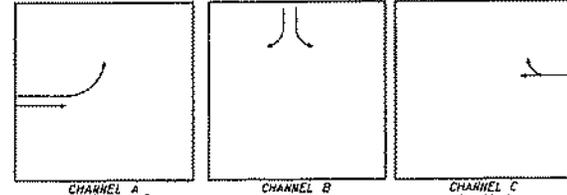
CAMERA	DETECTION EDGE	DISTANCE (FEET)	PHASE	SLOT
1	1	370	2	CU
2	2	160	2	CU
2	3	160	2	SU
2	4	160	6	JL
3	0	0	4	BU
3	0	0	4	SL
4	7	300	6	CU
4	8	180	6	CU
6	8	180	6	SU

DESIGN APPROACH SPEEDS

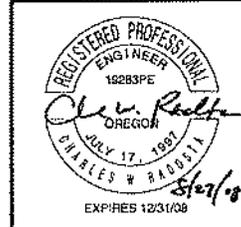
PHASE	APPROACH	OPERATING SPEED
HERMAN RD	EASTBOUND	45 MPH
	WESTBOUND	45 MPH
124TH AVE	SOUTHBOUND	35 MPH
	NORTHBOUND	35 MPH



NORMAL PHASE ROTATION



FIRE PREEMPTION DIAGRAM



TUALATIN DEVELOPMENT COMMISSION

S.W. HERMAN RD. - S.W. 124TH AVE. TO S.W. TETON AVE.
WASHINGTON COUNTY

Reviewed By - C. Radostka
Designed By - C. Treoler
Drafted By - J. Hernandez

SW HERMAN RD/SW 108TH AVE
DETECTOR PLAN

SHEET NO. TS-13

(9+KEY)

FUNCTIONS	KEY	VALUE
Short Power Down	0	0
Long Power Down	1	0
EVA Delay Type	2	1
EVB Delay Type	3	1
EVC Delay Type	4	1
EVD Delay Type	5	0
RR Delay Type	6	0
Ped Inhibit	7	0
OLA Green	8	0.0
OLA Yellow	9	0.0
OLB Green	A	0.0
OLB Yellow	B	0.0
OLC Green	C	0.0
OLC Yellow	D	0.0
OLD Green	E	0.0
OLD Yellow	F	0.0

(C+F+KEY)

FUNCTIONS	KEY	VALUE
Page ID	0	0
Future	1	0
Future	2	0
Future	3	0
OLA Red	4	0.0
OLB Red	5	0.0
OLC Red	6	0.0
OLD Red	7	0.0
Overlap E	8	_____
Overlap F	9	_____
Red Rest	A	_____
Max Recall	B	_____
Flash Green	C	_____
Flash Walk	D	_____
Advance Walk	E	_____
Restrictive Phase	F	_____

(D+C+9+KEY)

FUNCTIONS	KEY	VALUE
Short Power Down	0	0
Long Power Down	1	0
EVA Delay Type	2	0
EVB Delay Type	3	0
EVC Delay Type	4	0
EVD Delay Type	5	0
RR Delay Type	6	0
Ped Inhibit	7	0
OLA Green	8	0.0
OLA Yellow	9	0.0
OLB Green	A	0.0
OLB Yellow	B	0.0
OLC Green	C	0.0
OLC Yellow	D	0.0
OLD Green	E	0.0
OLD Yellow	F	0.0

(D+C+B+KEY)

FUNCTIONS	KEY	VALUE
Page ID	0	1
Future	1	0
Future	2	0
Future	3	0
OLA Red	4	0.0
OLB Red	5	0.0
OLC Red	6	0.0
OLD Red	7	0.0
Overlap E	8	_____
Overlap F	9	_____
Red Rest	A	_____
Max Recall	B	_____
Flash Green	C	_____
Flash Walk	D	_____
Advance Walk	E	_____
Restrictive Phase	F	_____

(D+D+9+KEY)

FUNCTIONS	KEY	VALUE
Short Power Down	0	0
Long Power Down	1	0
EVA Delay Type	2	0
EVB Delay Type	3	0
EVC Delay Type	4	0
EVD Delay Type	5	0
RR Delay Type	6	0
Ped Inhibit	7	0
OLA Green	8	0.0
OLA Yellow	9	0.0
OLB Green	A	0.0
OLB Yellow	B	0.0
OLC Green	C	0.0
OLC Yellow	D	0.0
OLD Green	E	0.0
OLD Yellow	F	0.0

(D+D+B+KEY)

FUNCTIONS	KEY	VALUE
Page ID	0	2
Future	1	0
Future	2	0
Future	3	0
OLA Red	4	0.0
OLB Red	5	0.0
OLC Red	6	0.0
OLD Red	7	0.0
Overlap E	8	_____
Overlap F	9	_____
Red Rest	A	_____
Max Recall	B	_____
Flash Green	C	_____
Flash Walk	D	_____
Advance Walk	E	_____
Restrictive Phase	F	_____

W4IKS Table 3

Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(C+KEY)

FUNCTIONS	KEY	VALUE
Year	0	12
Month	1	7
Day of Month	2	24
Day of Week	3	4
Hour	4	9
Minute	5	47
Second	6	13
Reserved	7	4
Trigs On In Flash	8	0
Startup Yellow	9	
EVA Phases	A	2 5
EVB Phases	B	4 7
EVC Phases	C	1 6
EVD Phases	D	3 8
Handicap Ped	E	

(E+KEY)

FUNCTIONS	KEY	VALUE
EVA Delay	0	0
EVA Min	1	1
EVB Delay	2	0
EVB Min	3	1
EVC Delay	4	0
EVC Min	5	1
EVD Delay	6	0
EVD Min	7	1
OL Red Revert	8	5.0
RR Delay	9	0
RR Clear	A	0
RR Clear Phases	B	
RR Permit	C	
RR OL Permit	D	
NEMA Rold Phases	E	

W4IKS Table 4 Part 1

Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+COL+KEY)

DETECTOR TYPE	DELAY				CARRYOVER			
	2	3	4	5	2	3	4	5
FUNCTIONSKEY	PH	TIME	PH	TIME	PH	TIME	PH	TIME
----- (1)0	1	0.0	5	10.0	1	0.0	5	0.0
Upper (9)1	1	0.0	5	5.0	1	0.0	5	0.0
Upper (2)2	2	0.0	6	0.0	2	2.0	6	2.0
Lower (2)3	2	0.0	6	0.0	2	0.0	6	0.0
Upper (3)4	2	0.0	6	0.0	2	0.0	6	0.0
Lower (3)5	2	0.0	6	0.0	2	0.0	6	0.0
----- (4)6	2	0.0	6	0.0	2*	0.0	6*	0.0
----- (5)7	3	0.0	7	0.0	3	0.0	7	0.0
Lower (9)8	3	0.0	7	0.0	3	0.0	7	0.0
Upper (6)9	4	0.0	8	0.0	4	1.6	8	0.0
Lower (6)A	4	0.0	8	0.0	4	0.0	8	0.0
Upper (7)B	4	0.0	8	0.0	4	0.0	8	0.0
Lower (7)C	4	0.0	8	0.0	4	0.0	8	0.0
----- (8)D	4	0.0	8	0.0	4*	0.0	8*	0.0
CABINET FILE	I		J		I		J	

Note: () = Slot Number * = Set Type 3 Detector

W4IKS Table 4 Part 2

Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+9+4+KEY)

FUNCTIONS	KEY	VALUE
Detector Fail On	0	0
Detector Fail Off	1	0
Fail Det Backup	2	0
Max II In Delay	3	0
Max II In Carryover	4	0
Plan 9 In Delay	5	0
Plan 9 In Carryover	6	0
Plan 16 In Delay	7	0
Plan 16 In Carryover	8	0
TT Page 1 Delay	9	0
TT Page 1 Carryover	A	0
TT Page 2 Delay	B	0
TT Page 2 Carryover	C	0
NOVRAM	D	0
Computran	E	217
Release	F	0

(D+9+5+KEY)

FUNCTIONS	KEY	VALUE
DF 01 Min	0	0
DF 02 Min	1	0
DF 03 Min	2	0
DF 04 Min	3	0
DF 05 Min	4	0
DF 06 Min	5	0
DF 07 Min	6	0
DF 08 Min	7	0
DF 01 Max	8	0
DF 02 Max	9	0
DF 03 Max	A	0
DF 04 Max	B	0
DF 05 Max	C	0
DF 06 Max	D	0
DF 07 Max	E	0
DF 08 Max	F	0

W4IKS Table 5 Sheet 1
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(A+CODE)

EVENT	1234567	HR	MIN	FUNC	CODE	EVENT	1234567	HR	MIN	FUNC	CODE
1	_____	0	0	0	80-83	17	_____	0	0	0	CC-C3
2	_____	0	0	0	84-87	18	_____	0	0	0	C4-C7
3	_____	0	0	0	88-8B	19	_____	0	0	0	C8-CB
4	_____	0	0	0	8C-8F	20	_____	0	0	0	CC-CF
5	_____	0	0	0	90-93	21	_____	0	0	0	D0-D3
6	_____	0	0	0	94-97	22	_____	0	0	0	D4-D7
7	_____	0	0	0	98-9B	23	_____	0	0	0	D8-DB
8	_____	0	0	0	9C-9F	24	_____	0	0	0	DC-DF
9	_____	0	0	0	A0-A3	25	_____	0	0	0	E0-E3
10	_____	0	0	0	A4-A7	26	_____	0	0	0	E4-E7
11	_____	0	0	0	A8-AB	27	_____	0	0	0	E8-EB
12	_____	0	0	0	AC-AF	28	_____	0	0	0	EC-EF
13	_____	0	0	0	B0-B3	29	_____	0	0	0	F0-F3
14	_____	0	0	0	B4-B7	30	_____	0	0	0	F4-F7
15	_____	0	0	0	B8-BB	31	_____	0	0	0	F8-FB
16	_____	0	0	0	BC-BF	32	_____	0	0	0	FC-FF

W4IKS Table 5 Sheet 2
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+8+CODE)

EVENT	1234567	HR	MIN	FUNC	CODE	EVENT	1234567	HR	MIN	FUNC	CODE
33	_____	0	0	0	80-83	49	_____	0	0	0	CC-C3
34	_____	0	0	0	84-87	50	_____	0	0	0	C4-C7
35	_____	0	0	0	88-8B	51	_____	0	0	0	C8-CB
36	_____	0	0	0	8C-8F	52	_____	0	0	0	CC-CF
37	_____	0	0	0	90-93	53	_____	0	0	0	D0-D3
38	_____	0	0	0	94-97	54	_____	0	0	0	D4-D7
39	_____	0	0	0	98-9B	55	_____	0	0	0	D8-DB
40	_____	0	0	0	9C-9F	56	_____	0	0	0	DC-DF
41	_____	0	0	0	A0-A3	57	_____	0	0	0	E0-E3
42	_____	0	0	0	A4-A7	58	_____	0	0	0	E4-E7
43	_____	0	0	0	A8-AB	59	_____	0	0	0	E8-EB
44	_____	0	0	0	AC-AF	60	_____	0	0	0	EC-EF
45	_____	0	0	0	B0-B3	61	_____	0	0	0	F0-F3
46	_____	0	0	0	B4-B7	62	_____	0	0	0	F4-F7
47	_____	0	0	0	B8-BB	63	_____	0	0	0	F8-FB
48	_____	0	0	0	BC-BF	64	_____	0	0	0	FC-FF

W4IKS Table 6
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(B+0+KEY)

FUNCTIONS	KEY	VALUE
Present Plan	0	0
TOD/DOW Plan	1	0
Hardware Plan	2	0
Modem Plan	3	0
Mode (0-4)	4	0
Master (0-OFF)	5	0
Master Clock	6	0
Local Clock	7	0
Dwell Clock	8	0
Future	9	0
Future	A	0
Future	B	0
Future	C	_____
NEMA CNA Phases	D	_____
Adv Warning Phases	E	_____
MRI Phases	F	<u>2_4_6</u>

(D+KEY1+KEY2)

FUNCTIONS	KEY	VALUE
Floating Ped	2E	0
ID Number	2F	125
No Coord Ped Recall	3E	0
Rest In Walk	3F	0
Adv Warning EOG	4E	0
Adv Warning SOG	4F	0
RR Red Clear	5E	0
RR Clear Color	5F	0
Bus Delay	6D	0.0
Bus Free T1	6E	0
Bus Free T3	6F	0
EV Mir Aft Clear	7E	0
EV Indicators	7F	0
NEMA Inputs	66	0.0

W4IKS Table 7 Sheet 1
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(B+PLAN+KEY)

FUNCTION	KEY	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6	Plan 7	Plan 8	Plan 9
Cycle Length	0	0	0	0	0	0	0	0	0	0
Forceoff 01	1	0	0	0	0	0	0	0	0	0
Forceoff 02	2	0	0	0	0	0	0	0	0	0
Forceoff 03	3	0	0	0	0	0	0	0	0	0
Forceoff 04	4	0	0	0	0	0	0	0	0	0
Forceoff 05	5	0	0	0	0	0	0	0	0	0
Forceoff 06	6	0	0	0	0	0	0	0	0	0
Forceoff 07	7	0	0	0	0	0	0	0	0	0
Forceoff 08	8	0	0	0	0	0	0	0	0	0
Offset	9	0	0	0	0	0	0	0	0	0
Perm Length	A	0	0	0	0	0	0	0	0	0
Max Dwell	B	0	0	0	0	0	0	0	0	0
Lead Phases	C									
Coord Phases	D									
Perm 2 Phases	E									
Min Recall	F									

W4IKS Table 7 Sheet 2
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(B+D+KEY1+KEY2)

FUNCTION	KEY1	7	8	9	A	B	C	D	E	F
Cycle Length	0	0	0	0	0	0	0	0	0	0
Forceoff 01	1	0	0	0	0	0	0	0	0	0
Forceoff 02	2	0	0	0	0	0	0	0	0	0
Forceoff 03	3	0	0	0	0	0	0	0	0	0
Forceoff 04	4	0	0	0	0	0	0	0	0	0
Forceoff 05	5	0	0	0	0	0	0	0	0	0
Forceoff 06	6	0	0	0	0	0	0	0	0	0
Forceoff 07	7	0	0	0	0	0	0	0	0	0
Forceoff 08	8	0	0	0	0	0	0	0	0	0
Offset	9	0	0	0	0	0	0	0	0	0
Perm Length	A	0	0	0	0	0	0	0	0	0
Max Dwell	B	0	0	0	0	0	0	0	0	0
Lead Phases	C									
Coord Phases	D									
Perm 2 Phases	E									
Min Recall	F									

W4IKS Table 8
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(B+A+KEY)

(B+B+KEY)

(B+C+KEY)

FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE
Bus P1 T1	0	0	Bus P4 T1	0	0	Bus P7 T1	0	0
Bus P1 T2	1	0	Bus P4 T2	1	0	Bus P7 T2	1	0
Bus P1 T3	2	0	Bus P4 T3	2	0	Bus P7 T3	2	0
Bus P2 T1	3	0	Bus P5 T1	3	0	Bus P8 T1	3	0
Bus P2 T2	4	0	Bus P5 T2	4	0	Bus P8 T2	4	0
Bus P2 T3	5	0	Bus P5 T3	5	0	Bus P8 T3	5	0
Bus P3 T1	6	0	Bus P6 T1	6	0	Bus P9 T1	6	0
Bus P3 T2	7	0	Bus P6 T2	7	0	Bus P9 T2	7	0
Bus P3 T3	8	0	Bus P6 T3	8	0	Bus P9 T3	8	0
Perm 2 P1	9	0	Perm 2 P4	9	0	Perm 2 P7	9	0
Perm 2 P2	A	0	Perm 2 P5	A	0	Perm 2 P8	A	0
Perm 2 P3	B	0	Perm 2 P6	B	0	Perm 2 P9	B	0
Flash Yellow	C		OL Flash Yellow	C		Coord Max	C	
Flash Circuit	D		OL Flash Clear	D		TOD Red Rest	D	
TOD/DOW Max	E		TOD/DOW Ped	E		OLA Switchpack	E	
OLB Switchpack	F		OLC Switchpack	F		OLD Switchpack	F	

(A+4+KEY)

C1	PIN	KEY	CODE
39	0	0	0
40	1	0	0
41	2	0	0
42	3	0	0
43	4	0	0
44	5	0	0
45	6	0	0
46	7	0	0
47	8	0	0
48	9	0	0
49	A	0	0
50	B	0	0
51	C	0	0
52	D	0	0
53	E	0	0
54	F	0	0

(A+5+KEY)

C1	PIN	KEY	CODE
55	0	0	0
56	1	0	0
57	2	0	0
58	3	0	0
59	4	0	0
60	5	0	0
61	6	0	0
62	7	0	0
63	8	0	0
64	9	0	0
65	A	0	0
66	B	0	0
67	C	0	0
68	D	0	0
69	E	0	0
70	F	0	0

(A+6+KEY)

C1	PIN	KEY	CODE
67	0	0	0
68	1	0	0
69	2	0	0
70	3	0	0
71	4	0	0
72	5	0	0
73	6	0	0
74	7	0	0
75	8	0	0
76	9	0	0
77	A	0	0
78	B	0	0
79	C	0	0
80	D	0	0
81	E	0	0
82	F	0	0

(D+A+4+KEY)

C1	PIN	KEY	CODE
39	0	0	0
40	1	0	0
41	2	0	0
42	3	0	0
43	4	0	0
44	5	0	0
45	6	0	0
46	7	0	0
47	8	0	0
48	9	0	0
49	A	0	0
50	B	0	0
51	C	0	0
52	D	0	0
53	E	0	0
54	F	0	0

(D+A+5+KEY)

C1	PIN	KEY	CODE
55	0	0	0
56	1	0	0
57	2	0	0
58	3	0	0
59	4	0	0
60	5	0	0
61	6	0	0
62	7	0	0
63	8	0	0
64	9	0	0
65	A	0	0
66	B	0	0
67	C	0	0
68	D	0	0
69	E	0	0
70	F	0	0

(D+A+6+KEY)

C1	PIN	KEY	CODE
67	0	0	0
68	1	0	0
69	2	0	0
70	3	0	0
71	4	0	0
72	5	0	0
73	6	0	0
74	7	0	0
75	8	0	0
76	9	0	0
77	A	0	0
78	B	0	0
79	C	0	0
80	D	0	0
81	E	0	0
82	F	0	0

(D+A+B+KEY)

C1	PIN	KEY	CODE
39	0	0	0
40	1	0	0
41	2	0	0
42	3	0	0
43	4	0	0
44	5	0	0
45	6	0	0
46	7	0	0
47	8	0	0
48	9	0	0
49	A	0	0
50	B	0	0
51	C	0	0
52	D	0	0
53	E	0	0
54	F	0	0

(D+A+C+KEY)

C1	PIN	KEY	CODE
55	0	0	0
56	1	0	0
57	2	0	0
58	3	0	0
59	4	0	0
60	5	0	0
61	6	0	0
62	7	0	0
63	8	0	0
64	9	0	0
65	A	0	0
66	B	0	0
67	C	0	0
68	D	0	0
69	E	0	0
70	F	0	0

(D+A+D+KEY)

C1	PIN	KEY	CODE
67	0	0	0
68	1	0	0
69	2	0	0
70	3	0	0
71	4	0	0
72	5	0	0
73	6	0	0
74	7	0	0
75	8	0	0
76	9	0	0
77	A	0	0
78	B	0	0
79	C	0	0
80	D	0	0
81	E	0	0
82	F	0	0

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 Intersection #125 HERMAN RD @ 108TH

(A+0+KEY)			(A+1+KEY)			(A+2+KEY)			(A+3+KEY)		
FUNCTION	KEY	CODE	FUNCTION	KEY	CODE	FUNCTION	KEY	CODE	FUNCTION	KEY	CODE
04 D/W	0	0	08 D/W	0	0	02 Ped Y	0	0	01 D/W	0	0
04 Walk	1	0	08 Walk	1	0	06 Ped Y	1	99	01 Walk	1	0
04 Red	2	0	08 Red	2	0	04 Ped Y	2	0	0LB Red	2	0
04 Yellow	3	0	08 Yellow	3	0	06 Ped Y	3	0	0LB Yellow	3	0
04 Green	4	0	08 Green	4	0	03 Ped Y	4	0	0LB Green	4	0
03 Red	5	0	07 Red	5	0	01 Ped Y	5	0	0LA Red	5	0
03 Yellow	6	0	07 Yellow	6	0	Flash	6	0	0LA Yellow	6	0
03 Green	7	0	07 Green	7	0	Watchdog	7	0	0LA Green	7	0
02 D/W	8	0	06 D/W	8	0	03 D/W	8	0		8	0
02 Walk	9	0	06 Walk	9	0	03 Walk	9	0	SD	9	0
02 Red	A	0	06 Red	A	0	0LD Red	A	0	LTT	A	0
02 Yellow	B	0	06 Yellow	B	0	0LD Yellow	B	0			
02 Green	C	0	06 Green	C	0	0LD Green	C	0	High Byte IDC		0
01 Red	D	0	05 Red	D	99	0LC Red	D	0			
01 Yellow	E	0	05 Yellow	E	99	0LC Yellow	E	0			
01 Green	F	0	05 Green	F	99	0LC Green	F	0			

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(D+A+0+KEY)			(D+A+1+KEY)			(D+A+2+KEY)			(D+A+3+KEY)		
FUNCTION	KEY	CODE									
04 D/W	0	0	08 D/W	0	0	02 Ped Y	0	0	01 D/W	0	0
04 Walk	1	0	08 Walk	1	0	06 Ped Y	1	0	01 Walk	1	0
04 Red	2	0	08 Red	2	0	04 Ped Y	2	0	0LB Red	2	0
04 Yellow	3	0	08 Yellow	3	0	06 Ped Y	3	0	0LB Yellow	3	0
04 Green	4	0	08 Green	4	0	03 Ped Y	4	0	0LB Green	4	0
03 Red	5	0	07 Red	5	0	01 Ped Y	5	0	0LA Red	5	0
03 Yellow	6	0	07 Yellow	6	0	Flash	6	0	0LA Yellow	6	0
03 Green	7	0	07 Green	7	0	Watchdog	7	0	0LA Green	7	0
02 D/W	8	0	06 D/W	8	0	03 D/W	8	0		8	0
02 Walk	9	0	06 Walk	9	0	03 Walk	9	0	SD	9	0
02 Red	A	0	06 Red	A	0	0LD Red	A	0	LTT	A	0
02 Yellow	B	0	06 Yellow	B	0	0LD Yellow	B	0			
02 Green	C	0	06 Green	C	0	0LD Green	C	0			
01 Red	D	0	05 Red	D	0	0LC Red	D	0			
01 Yellow	E	0	05 Yellow	E	0	0LC Yellow	E	0			
01 Green	F	0	05 Green	F	0	0LC Green	F	0			

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 Intersection #125 HERMAN RD @ 108TH

(D+A+7+KEY)			(D+A+8+KEY)			(D+A+9+KEY)			(D+A+A+KEY)		
FUNCTION	KEY	CODE									
04 D/W	0	0	06 D/W	0	0	02 Ped Y	0	0	01 D/W	0	0
04 Walk	1	0	08 Walk	1	0	06 Ped Y	1	0	01 Walk	1	0
04 Red	2	0	08 Red	2	0	04 Ped Y	2	0	0LB Red	2	0
04 Yellow	3	0	08 Yellow	3	0	08 Ped Y	3	0	0LB Yellow	3	0
04 Green	4	0	08 Green	4	0	03 Ped Y	4	0	0LB Green	4	0
03 Red	5	0	07 Red	5	0	01 Ped Y	5	0	0LA Red	5	0
03 Yellow	6	0	07 Yellow	6	0	Flash	6	0	0LA Yellow	6	0
03 Green	7	0	07 Green	7	0	Watchdog	7	0	0LA Green	7	0
02 D/W	8	0	06 D/W	8	0	03 D/W	8	0		8	0
02 Walk	9	0	06 Walk	9	0	03 Walk	9	0	SD	9	0
02 Red	A	0	06 Red	A	0	0LD Red	A	0	LTT	A	0
02 Yellow	B	0	06 Yellow	B	0	0LD Yellow	B	0			
02 Green	C	0	06 Green	C	0	0LD Green	C	0			
01 Red	D	0	05 Red	D	0	0LC Red	D	0			
01 Yellow	E	0	05 Yellow	E	0	0LC Yellow	E	0			
01 Green	F	0	05 Green	F	0	0LC Green	F	0			

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 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+B+0+KEY)			(D+B+1+KEY)			(D+B+2+KEY)		
FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE
05 D/W	0	0	OLE Green	0	0	Cycle 2	0	0
05 Walk	1	0	OLF Green	1	0	Cycle 3	1	0
OLL Red	2	0	OLE Yellow	2	0	Offset 1	2	0
OLL Yellow	3	0	OLF Yellow	3	0	Offset 2	3	0
OLL Green	4	0	Adv Warning	4	0	Offset 3	4	0
OLK Red	5	0	RR Fl Yellow	5	0	-----	5	0
OLK Yellow	6	0	Det Reset	6	0	Free	6	0
OLK Green	7	0	RR On	7	0	Flash	7	0
07 D/W	8	0	EVA On	8	0	Coord Plan 1 2 3	8	0
07 Walk	9	0	EVB On	9	0	Coord Plan 4 5 6	9	0
OLJ Red	A	0	EVC On	A	0	Coord Plan 7 8 9	A	0
OLJ Yellow	B	0	EVD On	B	0	Coord Plan 10 11 12 B	B	0
OLJ Green	C	0	Ring 1 Bit B	C	0	Coord Plan 13 14 15 C	C	0
OLH Red	D	0	Ring 1 Bit C	D	0	Coord Plan 16 17 18 D	D	0
OLH Yellow	E	0	Ring 2 Bit B	E	0	Future	E	0
OLH Green	F	0	Ring 2 Bit C	F	0	Future	F	0

W4IKS Table 11 Page 1
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+B+4+KEY)			(D+B+5+KEY)			(D+B+6+KEY)		
FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE
05 D/W	0	0	OLE Green	0	0	Cycle 2	0	0
05 Walk	1	0	OLF Green	1	0	Cycle 3	1	0
OLL Red	2	0	OLE Yellow	2	0	Offset 1	2	0
OLL Yellow	3	0	OLF Yellow	3	0	Offset 2	3	0
OLL Green	4	0	Adv Warning	4	0	Offset 3	4	0
OLK Red	5	0	RR Fl Yellow	5	0	-----	5	0
OLK Yellow	6	0	Det Reset	6	0	Free	6	0
OLK Green	7	0	RR On	7	0	Flash	7	0
07 D/W	8	0	EVA On	8	0	Coord Plan 1 2 3	8	0
07 Walk	9	0	EVB On	9	0	Coord Plan 4 5 6	9	0
OLJ Red	A	0	EVC On	A	0	Coord Plan 7 8 9	A	0
OLJ Yellow	B	0	EVD On	B	0	Coord Plan 10 11 12 B	B	0
OLJ Green	C	0	Ring 1 Bit B	C	0	Coord Plan 13 14 15 C	C	0
OLH Red	D	0	Ring 1 Bit C	D	0	Coord Plan 16 17 18 D	D	0
OLH Yellow	E	0	Ring 2 Bit B	E	0	Future	E	0
OLH Green	F	0	Ring 2 Bit C	F	0	Future	F	0

W4IKS Table 11 Page 2
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+B+8+KEY)			(D+B+9+KEY)			(D+B+A+KEY)		
FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE	FUNCTIONS	KEY	VALUE
05 D/W	0	0	OLE Green	0	0	Cycle 2	0	0
05 Walk	1	0	OLF Green	1	0	Cycle 3	1	0
OLL Red	2	0	OLE Yellow	2	0	Offset 1	2	0
OLL Yellow	3	0	OLF Yellow	3	0	Offset 2	3	0
OLL Green	4	0	Adv Warning	4	0	Offset 3	4	0
OLK Red	5	0	RR Fl Yellow	5	0	-----	5	0
OLK Yellow	6	0	Det Reset	6	0	Free	6	0
OLK Green	7	0	RR On	7	0	Flash	7	0
07 D/W	8	0	EVA On	8	0	Coord Plan 1 2 3	8	0
07 Walk	9	0	EVB On	9	0	Coord Plan 4 5 6	9	0
OLJ Red	A	0	EVC On	A	0	Coord Plan 7 8 9	A	0
OLJ Yellow	B	0	EVD On	B	0	Coord Plan 10 11 12 B	B	0
OLJ Green	C	0	Ring 1 Bit B	C	0	Coord Plan 13 14 15 C	C	0
OLH Red	D	0	Ring 1 Bit C	D	0	Coord Plan 16 17 18 D	D	0
OLH Yellow	E	0	Ring 2 Bit B	E	0	Future	E	0
OLH Green	F	0	Ring 2 Bit C	F	0	Future	F	0

W4IKS Table 12

Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+S+KEY1+KEY2)

KEY1 = 0			KEY1 = 1			KEY1 = 2			KEY1 = 3		
FUNCTION	KEY2	VALUE									
1/Month	0	0	3/Hour On	0	0	5/Hour Off	0	0	7/Plan	C	0
1/DOM	1	0	3/Min On	1	0	5/Min Off	1	0	8/Month	1	0
1/Hour On	2	0	3/Hour Off	2	0	5/Plan	2	0	8/DOM	2	0
1/Min On	3	0	3/Min Off	3	0	6/Month	3	0	8/Hour On	3	0
1/Hour Off	4	0	3/Plan	4	0	6/DOM	4	0	8/Min On	4	0
1/Min Off	5	0	4/Month	5	0	6/Hour On	5	0	8/Hour Off	5	0
1/Plan	6	0	4/DOM	6	0	6/Min On	6	0	8/Min Off	6	0
2/Month	7	0	4/Hour On	7	0	6/Hour Off	7	0	8/Plan	7	0
2/DOM	8	0	4/Min On	8	0	6/Min Off	8	0	9/Month	8	0
2/Hour On	9	0	4/Hour Off	9	0	6/Plan	9	0	9/DOM	9	0
2/Min On	A	0	4/Min Off	A	0	7/Month	A	0	9/Hour On	A	0
2/Hour Off	B	0	4/Plan	B	0	7/DOM	B	0	9/Min On	B	0
2/Min Off	C	0	5/Month	C	0	7/Hour On	C	0	9/Hour Off	C	0
2/Plan	D	0	5/DOM	D	0	7/Min On	D	0	9/Min Off	D	61
3/Month	E	0	5/Hour On	E	0	7/Hour Off	E	0	9/Plan	E	0
3/DOM	F	0	5/Min On	F	0	7/Min Off	F	0			

W4IKS Table 13

Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+9+0+KEY)

(D+9+3+KEY)

(E+F+KEY)

FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE	FUNCTION	KEY	VALUE
Overlap H	0	0.0	OLH Green	0	0.0	RR Max II	0	0
Overlap J	1	0.0	OLH Yellow	1	0.0	Ped Perm Pl 1	1	0
Overlap K	2	0.0	OLH Red	2	0.0	Ped Perm Pl 2	2	0
Overlap L	3	0.0	OLJ Green	3	0.0	Ped Perm Pl 3	3	0
OLH Switchpack	4	0.0	OLJ Yellow	4	0.0	Ped Perm Pl 4	4	0
OLJ Switchpack	5	0.0	OLJ Red	5	0.0	Ped Perm Pl 5	5	0
OLK Switchpack	6	0.0	OLK Green	6	0.0	Ped Perm Pl 6	6	0
OLL Switchpack	7	0.0	OLK Yellow	7	0.0	Ped Perm Pl 7	7	0
Reserved	8	0.0	OLK Red	8	0.0	Ped Perm Pl 8	8	0
Reserved	9	0.0	OLL Green	9	0.0	Ped Perm Pl 9	9	0
All Red Before EV	A	0.0	OLL Yellow	A	0.0	# of Lng Pwrouts	A	0
			OLL Red	B	0.0	# pf Sht Pwrouts	B	0
						Failed Det	C	0
						Max II On	D	0
						Nc Daylite Save	E	0
						Revision Level	F	17

W4IKS Table 14 Sheet 1
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+9+KEY1+KEY2)

KEY1 = 8		KEY1 = 9		KEY1 = A		KEY1 = B	
KEY2	CODE	KEY2	CODE	KEY2	CODE	KEY	CODE
0	205	0	205	0	6	0	23
1	146	1	146	1	14	1	67
2	23	2	23	2	20	2	20
3	45	3	66	3	23	3	26
4	20	4	205	4	68	4	6
5	27	5	146	5	20	5	205
6	5	6	21	6	24	6	148
7	205	7	5	7	27	7	21
8	146	8	14	8	5	8	5
9	21	9	20	9	205	9	11
A	6	A	21	A	147	A	209
B	14	B	5	B	21	B	5
C	20	C	13	C	5	C	24
D	24	D	205	D	12	D	21
E	25	E	11	E	205	E	6
F	6	F	21	F	147	F	14

W4IKS Table 14 Sheet 2
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+9+KEY1+KEY2)

KEY1 = C		KEY1 = D		KEY1 = E		KEY1 = F	
KEY2	CODE	KEY2	CODE	KEY2	CODE	KEY	CODE
0	209	0	29	0	0	0	0
1	6	1	7	1	0	1	0
2	24	2	20	2	0	2	0
3	27	3	24	3	0	3	0
4	5	4	25	4	0	4	0
5	208	5	6	5	0	5	0
6	5	6	210	6	0	6	0
7	30	7	6	7	0	7	0
8	26	8	24	8	0	8	0
9	5	9	21	9	0	9	0
A	210	A	6	A	0	A	0
B	5	B	14	B	0	B	0
C	23	C	0	C	0	C	0
D	45	D	0	D	0	D	0
E	20	E	0	E	0	E	0
F	24	F	0	F	0	F	0

W4IKS Table 14 Sheet 3
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+E+KEY1+KEY2)

KEY1 = 0		KEY1 = 1		KEY1 = 2		KEY1 = 3	
KEY2	CODE	KEY2	CODE	KEY2	CODE	KEY	CODE
0	0	0	0	0	0	0	0
1	0	1	0	1	0	1	0
2	0	2	0	2	0	2	0
3	0	3	0	3	0	3	0
4	0	4	0	4	0	4	0
5	0	5	0	5	0	5	0
6	0	6	0	6	0	6	0
7	0	7	0	7	0	7	0
8	0	8	0	8	0	8	0
9	0	9	0	9	0	9	0
A	0	A	0	A	0	A	0
B	0	B	0	B	0	B	0
C	0	C	0	C	0	C	0
D	0	D	0	D	0	D	0
E	0	E	0	E	0	E	0
F	0	F	0	F	0	F	0

W4IKS Table 14 Sheet 4
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+E+KEY1+KEY2)

KEY1 = 4		KEY1 = 5		KEY1 = 6		KEY1 = 7	
KEY2	CODE	KEY2	CODE	KEY2	CODE	KEY	CODE
0	0	0	0	0	0	0	0
1	0	1	0	1	0	1	0
2	0	2	0	2	0	2	0
3	0	3	0	3	0	3	0
4	0	4	0	4	0	4	0
5	0	5	0	5	0	5	0
6	0	6	0	6	0	6	0
7	0	7	0	7	0	7	0
8	0	8	0	8	0	8	0
9	0	9	0	9	0	9	0
A	0	A	0	A	0	A	0
B	0	B	0	B	0	B	0
C	0	C	0	C	0	C	0
D	0	D	0	D	0	D	0
E	0	E	0	E	0	E	0
F	0	F	0	F	0	F	0

W4IKS Table 14 Sheet 5
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+E+KEY1+KEY2)

KEY1 = 8		KEY1 = 9		KEY1 = A		KEY1 = B	
KEY2	CODE	KEY2	CODE	KEY2	CODE	KEY	CODE
0	0	0	0	0	0	0	0
1	0	1	0	1	0	1	0
2	0	2	0	2	0	2	0
3	0	3	0	3	0	3	0
4	0	4	0	4	0	4	0
5	0	5	0	5	0	5	0
6	0	6	0	6	0	6	0
7	0	7	0	7	0	7	0
8	0	8	0	8	0	8	0
9	0	9	0	9	0	9	0
A	0	A	0	A	0	A	0
B	0	B	0	B	0	B	0
C	0	C	0	C	0	C	0
D	0	D	0	D	0	D	0
E	0	E	0	E	0	E	0
F	0	F	0	F	0	F	0

W4IKS Table 14 Sheet 6
 Date: Wednesday, July 25, 2012 Time: 09:52 AM
 Intersection #125 HERMAN RD @ 108TH

(D+E+KEY1+KEY2)

KEY1 = C		KEY1 = D		KEY1 = E		KEY1 = F	
KEY2	CODE	KEY2	CODE	KEY2	CODE	KEY	CODE
0	0	0	0	0	0	0	0
1	0	1	0	1	0	1	0
2	0	2	0	2	0	2	0
3	0	3	0	3	0	3	0
4	0	4	0	4	0	4	0
5	0	5	0	5	0	5	0
6	0	6	0	6	0	6	0
7	0	7	0	7	0	7	0
8	0	8	0	8	0	8	0
9	0	9	0	9	0	9	0
A	0	A	0	A	0	A	0
B	0	B	0	B	0	B	0
C	0	C	0	C	0	C	0
D	0	D	0	D	0	D	0
E	0	E	0	E	0	E	0
F	0	F	0	F	0	F	0

(D+B+3+KEY)

FUNCTION	KEY	VALUE
CB Output #1	0	0
CB Output #2	1	0
CB Output #3	2	0
CB Output #4	3	0
CB Output #5	4	0
CB Output #6	5	0
CB Output #7	6	0
CB Output #8	7	0
CB Flash Out #9	8	0
CB Flash Out #10	9	0
CB Flash Out #11	A	52
CB Flash Out #12	B	0

(D+B+7+KEY)

FUNCTION	KEY	VALUE
CB Output #1	0	0
CB Output #2	1	0
CB Output #3	2	0
CB Output #4	3	0
CB Output #5	4	0
CB Output #6	5	0
CB Output #7	6	0
CB Output #8	7	0
CB Flash Out #9	8	0
CB Flash Out #10	9	0
CB Flash Out #11	A	0
CB Flash Out #12	B	0

(D+B+B+KEY)

FUNCTION	KEY	VALUE
CB Output #1	0	0
CB Output #2	1	0
CB Output #3	2	0
CB Output #4	3	0
CB Output #5	4	0
CB Output #6	5	0
CB Output #7	6	0
CB Output #8	7	0
CB Flash Out #9	8	0
CB Flash Out #10	9	0
CB Flash Out #11	A	0
CB Flash Out #12	B	0

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APPENDIX I.
**OPERATIONS
CALCULATIONS**

HCM Signalized Intersection Capacity Analysis

1: Highway 99W/Highway 99 W & SW 124th Avenue

07/25/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	141	269	1037	416	819	742
Future Volume (vph)	141	269	1037	416	819	742
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.3	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	*1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3155	2515	3406	1547	3438	3282
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3155	2515	3406	1547	3438	3282
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	160	306	1178	473	931	843
RTOR Reduction (vph)	0	0	0	147	0	0
Lane Group Flow (vph)	160	306	1178	326	931	843
Confl. Peds. (#/hr)		5		1	1	
Heavy Vehicles (%)	11%	13%	6%	3%	5%	10%
Turn Type	custom	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	1 4	2		1	6
Permitted Phases	4			2		
Actuated Green, G (s)	17.9	51.7	53.4	53.4	39.5	98.5
Effective Green, g (s)	21.9	49.3	55.4	55.4	41.1	100.5
Actuated g/C Ratio	0.16	0.37	0.42	0.42	0.31	0.75
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	2.3		5.4	5.4	2.3	5.4
Lane Grp Cap (vph)	612	929	1414	642	1059	2472
v/s Ratio Prot	c0.02	0.12	c0.35		c0.27	0.26
v/s Ratio Perm	0.03			0.21		
v/c Ratio	0.26	0.33	0.83	0.51	0.88	0.34
Uniform Delay, d1	49.1	30.2	34.9	28.9	43.8	5.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	5.0	1.5	8.3	0.2
Delay (s)	49.2	30.3	39.8	30.4	52.1	5.7
Level of Service	D	C	D	C	D	A
Approach Delay (s)	36.8		37.1			30.0
Approach LOS	D		D			C

Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	133.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

07/25/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	174	235	37	554	665
Future Volume (vph)	62	174	235	37	554	665
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1553	3059	1503	1768	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.41	1.00
Satd. Flow (perm)	1641	1553	3059	1503	769	3406
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	78	218	294	46	692	831
RTOR Reduction (vph)	0	98	0	36	0	0
Lane Group Flow (vph)	78	120	294	10	693	831
Confl. Peds. (#/hr)				2	2	
Heavy Vehicles (%)	10%	4%	18%	5%	2%	6%
Turn Type	Prot	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		6	2	
Actuated Green, G (s)	6.9	40.6	15.5	15.5	54.2	54.2
Effective Green, g (s)	7.9	42.6	16.5	16.5	55.2	55.2
Actuated g/C Ratio	0.10	0.55	0.21	0.21	0.72	0.72
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.9	3.9	3.0	3.0
Lane Grp Cap (vph)	168	858	654	321	1000	2438
v/s Ratio Prot	c0.05	0.06	0.10		c0.31	0.24
v/s Ratio Perm		0.01		0.01	c0.18	
v/c Ratio	0.46	0.14	0.45	0.03	0.69	0.34
Uniform Delay, d1	32.6	8.4	26.4	24.0	5.7	4.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1	0.7	0.1	2.1	0.1
Delay (s)	34.6	8.4	27.0	24.0	7.8	4.2
Level of Service	C	A	C	C	A	A
Approach Delay (s)	15.3		26.6			5.8
Approach LOS	B		C			A

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th TWSC

3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

07/25/2022

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	0	556	28	40	285	0	11	0	8	0	0	0
Future Vol, veh/h	0	556	28	40	285	0	11	0	8	0	0	0
Conflicting Peds, #/hr	4	0	1	1	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	20	-	-	50	-	-	-	-	-	-	-	-
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, %	0	3	7	8	6	0	9	0	38	0	0	0
Mvmt Flow	0	662	33	48	339	0	13	0	10	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	343	0	0	696
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.18
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.272
Pot Cap-1 Maneuver	1227	-	-	873
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1222	-	-	872
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.2	22.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	1222	-	-	872	-	-	-
HCM Lane V/C Ratio	0.101	-	-	-	0.055	-	-	-
HCM Control Delay (s)	22.8	0	-	-	9.4	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	-

HCM 6th TWSC
4: SW 108th Avenue & North Access

07/25/2022

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	7	0	7	15	2	44	0
Future Vol, veh/h	0	0	0	1	0	7	0	7	15	2	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	92	90	92	92	92	90	90	92	92	90	90
Heavy Vehicles, %	0	2	0	2	2	2	0	9	2	2	3	0
Mvmt Flow	0	0	0	1	0	8	0	8	16	2	49	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	73	-	49	69	-	16	49	0	0	24	0	0
Stage 1	53	-	-	16	-	-	-	-	-	-	-	-
Stage 2	20	-	-	53	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	923	0	1025	923	0	1063	1571	-	-	1591	-	-
Stage 1	965	0	-	1004	0	-	-	-	-	-	-	-
Stage 2	1004	0	-	960	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	916	-	1025	922	-	1063	1571	-	-	1591	-	-
Mov Cap-2 Maneuver	916	-	-	922	-	-	-	-	-	-	-	-
Stage 1	965	-	-	1004	-	-	-	-	-	-	-	-
Stage 2	997	-	-	959	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.5	0	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1571	-	-	-	-	922	1063	1591	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.001	0.007	0.001	-	-
HCM Control Delay (s)	0	-	-	0	0	8.9	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0	-	-

HCM 6th TWSC
5: SW 108th Avenue & South Access

07/25/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	22	44	0
Future Vol, veh/h	0	0	0	22	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	24	48	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	72	48	48	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	24	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	932	1021	1559	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	932	1021	1559	-	-	-
Mov Cap-2 Maneuver	932	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	999	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1559	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM Signalized Intersection Capacity Analysis

6: SW 124th Avenue & SW Leveton Drive

07/25/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	6	61	12	18	5	15	26	245	35	121	578	32
Future Volume (vph)	6	61	12	18	5	15	26	245	35	121	578	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.89		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1081	1801		1480	1656		1467	3064		1752	3353	
Flt Permitted	0.72	1.00		0.70	1.00		0.39	1.00		0.48	1.00	
Satd. Flow (perm)	823	1801		1097	1656		608	3064		893	3353	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	68	13	20	6	17	29	272	39	134	642	36
RTOR Reduction (vph)	0	8	0	0	15	0	0	9	0	0	3	0
Lane Group Flow (vph)	7	73	0	20	8	0	29	302	0	134	675	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	67%	2%	8%	22%	2%	2%	23%	17%	6%	3%	6%	19%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.7	7.0		7.3	6.8		25.8	23.6		36.3	29.1	
Effective Green, g (s)	9.7	8.0		9.3	7.8		27.8	24.6		37.3	30.1	
Actuated g/C Ratio	0.16	0.14		0.16	0.13		0.47	0.42		0.63	0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	245		183	219		334	1281		693	1716	
v/s Ratio Prot	0.00	c0.04		c0.00	0.00		0.00	0.10		c0.03	c0.20	
v/s Ratio Perm	0.01			0.01			0.04			0.09		
v/c Ratio	0.05	0.30		0.11	0.04		0.09	0.24		0.19	0.39	
Uniform Delay, d1	20.6	22.9		21.1	22.2		8.3	11.0		4.4	8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		0.3	0.1		0.1	0.1		0.1	0.1	
Delay (s)	20.8	23.6		21.4	22.3		8.4	11.1		4.5	8.9	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		23.3			21.9			10.9			8.2	
Approach LOS		C			C			B			A	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th AWSC
7: SW 118th Drive/JAE Access & SW Leveton Drive

07/25/2022

Intersection

Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	181	18	7	30	0	7	3	6	0	0	1
Future Vol, veh/h	12	181	18	7	30	0	7	3	6	0	0	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	11	57	7	2	14	2	33	2	2	2
Mvmt Flow	14	215	21	8	36	0	8	4	7	0	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.5	7.8	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	6%	19%	0%
Vol Thru, %	19%	86%	81%	0%
Vol Right, %	38%	9%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	211	37	1
LT Vol	7	12	7	0
Through Vol	3	181	30	0
RT Vol	6	18	0	1
Lane Flow Rate	19	251	44	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.025	0.276	0.063	0.001
Departure Headway (Hd)	4.654	3.962	5.132	4.007
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	904	694	898
Service Time	2.654	1.998	3.194	2.008
HCM Lane V/C Ratio	0.025	0.278	0.063	0.001
HCM Control Delay	7.8	8.5	8.5	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.1	0.2	0

HCM 6th TWSC
8: SW Leveton Drive & West Driveway

07/25/2022

Intersection

Int Delay, s/veh 3.1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	75	106	21	49	12	20
Future Vol, veh/h	75	106	21	49	12	20
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	2	5	6	42	25
Mvmt Flow	89	126	25	58	14	24

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	85	0	-	0	360	56
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	304	-
Critical Hdwy	4.14	-	-	-	6.82	6.45
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.236	-	-	-	3.878	3.525
Pot Cap-1 Maneuver	1499	-	-	-	566	949
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1496	-	-	-	528	947
Mov Cap-2 Maneuver	-	-	-	-	528	-
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	665	-

Approach EB WB SB

HCM Control Delay, s	3.1	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1496	-	-	-	528	947
HCM Lane V/C Ratio	0.06	-	-	-	0.027	0.025
HCM Control Delay (s)	7.6	0	-	-	12	8.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0.1

HCM 6th TWSC
9: SW Leveton Drive & Center Driveway

07/25/2022

Intersection

Int Delay, s/veh 1.6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	26	87	62	16	8	5
Future Vol, veh/h	26	87	62	16	8	5
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	6	13	2	2	2
Mvmt Flow	32	106	76	20	10	6

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	98	0	-	0	259	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	171	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1495	-	-	-	730	970
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	859	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1492	-	-	-	710	968
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	857	-

Approach EB WB SB

HCM Control Delay, s	1.7	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1492	-	-	-	710	968
HCM Lane V/C Ratio	0.021	-	-	-	0.014	0.006
HCM Control Delay (s)	7.5	0	-	-	10.1	8.7
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0	0

HCM 6th TWSC
 10: Calmax Driveway/East Driveway & SW Leveton Drive

07/25/2022

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	64	4	0	88	35	0	0	1	3	0	2
Future Vol, veh/h	20	64	4	0	88	35	0	0	1	3	0	2
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	11	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	25	79	5	0	109	43	0	0	1	4	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	153	0	0	84	0	0	264	285	82	264	266	132
Stage 1	-	-	-	-	-	-	132	132	-	132	132	-
Stage 2	-	-	-	-	-	-	132	153	-	132	134	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1428	-	-	1513	-	-	689	624	978	689	640	917
Stage 1	-	-	-	-	-	-	871	787	-	871	787	-
Stage 2	-	-	-	-	-	-	871	771	-	871	785	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1427	-	-	1513	-	-	678	612	978	678	628	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	678	612	-	678	628	-
Stage 1	-	-	-	-	-	-	855	773	-	854	786	-
Stage 2	-	-	-	-	-	-	869	770	-	854	771	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0			8.7			9.8		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	978	1427	-	-	1513	-	-	757
HCM Lane V/C Ratio	0.001	0.017	-	-	-	-	-	0.008
HCM Control Delay (s)	8.7	7.6	0	-	0	-	-	9.8
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0

HCM 6th TWSC
 11: SW 108th Avenue & SW Leveton Drive

07/25/2022

Intersection

Int Delay, s/veh 5.7

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	7	42	88	15	19	25
Future Vol, veh/h	7	42	88	15	19	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	14	10	6	20	16	12
Mvmt Flow	9	55	116	20	25	33

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	294	42	58	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Critical Hdwy	6.54	6.3	4.16	-	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.39	2.254	-	-	-
Pot Cap-1 Maneuver	672	1006	1521	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	620	1006	1521	-	-	-
Mov Cap-2 Maneuver	620	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	9.2	6.5	0
HCM LOS	A		

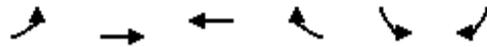
Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1521	-	924	-	-
HCM Lane V/C Ratio	0.076	-	0.07	-	-
HCM Control Delay (s)	7.6	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

HCM Signalized Intersection Capacity Analysis

12: SW Herman Road & SW 108th Avenue

07/25/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	263	212	140	52	9
Future Volume (vph)	14	263	212	140	52	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1491	1583	1596		1543	1455
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	622	1583	1596		1543	1455
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	17	321	259	171	63	11
RTOR Reduction (vph)	0	0	25	0	0	9
Lane Group Flow (vph)	17	321	405	0	63	2
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	21%	20%	16%	5%	17%	11%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	29.5	29.5	23.5		4.4	4.4
Effective Green, g (s)	30.9	30.9	24.9		6.9	6.9
Actuated g/C Ratio	0.67	0.67	0.54		0.15	0.15
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	457	1068	867		232	219
v/s Ratio Prot	0.00	c0.20	c0.25		c0.04	0.00
v/s Ratio Perm	0.02					
v/c Ratio	0.04	0.30	0.47		0.27	0.01
Uniform Delay, d1	2.9	3.0	6.4		17.2	16.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	0.4		0.5	0.0
Delay (s)	2.9	3.2	6.8		17.7	16.5
Level of Service	A	A	A		B	B
Approach Delay (s)		3.2	6.8		17.5	
Approach LOS		A	A		B	

Intersection Summary

HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th TWSC
 13: SW Teton Street & SW Tualatin Road

08/15/2022

Intersection

Int Delay, s/veh 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	415	148	52	273	73	53
Future Vol, veh/h	415	148	52	273	73	53
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	3	10	3	9	27
Mvmt Flow	466	166	58	307	82	60

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	632	0	973
Stage 1	-	-	-	-	549
Stage 2	-	-	-	-	424
Critical Hdwy	-	-	4.2	-	6.49
Critical Hdwy Stg 1	-	-	-	-	5.49
Critical Hdwy Stg 2	-	-	-	-	5.49
Follow-up Hdwy	-	-	2.29	-	3.581
Pot Cap-1 Maneuver	-	-	913	-	272
Stage 1	-	-	-	-	565
Stage 2	-	-	-	-	645
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	913	-	254
Mov Cap-2 Maneuver	-	-	-	-	254
Stage 1	-	-	-	-	565
Stage 2	-	-	-	-	603

Approach

	EB	WB	NB
HCM Control Delay, s	0	1.5	20.6
HCM LOS			C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	254	490	-	-	913	-
HCM Lane V/C Ratio	0.323	0.122	-	-	0.064	-
HCM Control Delay (s)	25.8	13.4	-	-	9.2	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	0.4	-	-	0.2	-

HCM Signalized Intersection Capacity Analysis

1: Highway 99W/Highway 99 W & SW 124th Avenue

07/25/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	572	660	882	175	696	1191
Future Volume (vph)	572	660	882	175	696	1191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.3	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	*1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	1533	3471	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	1533	3471	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	602	695	928	184	733	1254
RTOR Reduction (vph)	0	0	0	94	0	0
Lane Group Flow (vph)	602	695	928	90	733	1254
Confl. Peds. (#/hr)		11				
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	2%	2%	2%	4%	4%	2%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	1 4	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	26.3	43.2	40.0	40.0	32.1	77.7
Effective Green, g (s)	28.3	40.8	42.0	42.0	33.7	79.7
Actuated g/C Ratio	0.22	0.32	0.33	0.33	0.27	0.63
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	2.3		5.4	5.4	2.3	5.4
Lane Grp Cap (vph)	764	894	1169	506	920	2219
v/s Ratio Prot	c0.18	c0.25	c0.26		c0.21	0.35
v/s Ratio Perm				0.06		
v/c Ratio	0.79	0.78	0.79	0.18	0.80	0.57
Uniform Delay, d1	46.6	39.0	38.6	30.3	43.5	13.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	4.0	4.5	0.4	4.6	0.6
Delay (s)	51.7	43.1	43.1	30.7	48.1	14.3
Level of Service	D	D	D	C	D	B
Approach Delay (s)	47.1		41.0			26.8
Approach LOS	D		D			C

Intersection Summary

HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	127.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

07/25/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	503	748	44	366	509
Future Volume (vph)	27	503	748	44	366	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1626	1583	3539	1542	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.20	1.00
Satd. Flow (perm)	1626	1583	3539	1542	374	3406
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	529	787	46	385	536
RTOR Reduction (vph)	0	273	0	19	0	0
Lane Group Flow (vph)	28	256	787	27	385	536
Confl. Peds. (#/hr)	1			4	4	
Heavy Vehicles (%)	11%	2%	2%	2%	2%	6%
Turn Type	Prot	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		6	2	
Actuated Green, G (s)	2.4	27.3	27.2	27.2	57.1	57.1
Effective Green, g (s)	3.4	29.3	28.2	28.2	58.1	58.1
Actuated g/C Ratio	0.05	0.39	0.38	0.38	0.78	0.78
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.9	3.9	3.0	3.0
Lane Grp Cap (vph)	73	620	1334	581	773	2645
v/s Ratio Prot	0.02	c0.14	c0.22		c0.17	0.16
v/s Ratio Perm		0.02		0.02	0.21	
v/c Ratio	0.38	0.41	0.59	0.05	0.50	0.20
Uniform Delay, d1	34.7	16.5	18.7	14.8	5.8	2.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.4	0.8	0.0	0.5	0.0
Delay (s)	38.0	17.0	19.4	14.8	6.3	2.3
Level of Service	D	B	B	B	A	A
Approach Delay (s)	18.0		19.2			3.9
Approach LOS	B		B			A

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	74.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	0	359	7	6	685	0	33	0	21	0	0	0
Future Vol, veh/h	0	359	7	6	685	0	33	0	21	0	0	0
Conflicting Peds, #/hr	6	0	2	2	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	20	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	5	14	2	2	0	2	0	5	0	0	0
Mvmt Flow	0	390	8	7	745	0	36	0	23	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	751	0	0	400	0	0	1155	1161	396	1171	1165	751
Stage 1	-	-	-	-	-	-	396	396	-	765	765	-
Stage 2	-	-	-	-	-	-	759	765	-	406	400	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	868	-	-	1159	-	-	174	197	647	171	196	414
Stage 1	-	-	-	-	-	-	629	607	-	399	415	-
Stage 2	-	-	-	-	-	-	399	415	-	626	605	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	863	-	-	1157	-	-	173	194	646	163	193	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	194	-	163	193	-
Stage 1	-	-	-	-	-	-	628	606	-	397	410	-
Stage 2	-	-	-	-	-	-	397	410	-	604	604	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			24.6			0		
HCM LOS							C			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	863	-	-	1157	-	-	-
HCM Lane V/C Ratio	0.243	-	-	-	0.006	-	-	-
HCM Control Delay (s)	24.6	0	-	-	8.1	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	-

HCM 6th TWSC
4: SW 108th Avenue & North Access

07/25/2022

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	0	0	0	2	0	13	0	24	10	1	22	0
Future Vol, veh/h	0	0	0	2	0	13	0	24	10	1	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	92	90	92	92	92	90	90	92	92	90	90
Heavy Vehicles, %	0	2	0	2	2	2	0	9	2	2	3	0
Mvmt Flow	0	0	0	2	0	14	0	27	11	1	24	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	66	-	24	59	-	33	24	0	0	38	0	0
Stage 1	26	-	-	33	-	-	-	-	-	-	-	-
Stage 2	40	-	-	26	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	932	0	1058	937	0	1041	1604	-	-	1572	-	-
Stage 1	997	0	-	983	0	-	-	-	-	-	-	-
Stage 2	980	0	-	992	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	919	-	1058	936	-	1041	1604	-	-	1572	-	-
Mov Cap-2 Maneuver	919	-	-	936	-	-	-	-	-	-	-	-
Stage 1	997	-	-	983	-	-	-	-	-	-	-	-
Stage 2	967	-	-	991	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		8.6		0		0.3	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1604	-	-	-	-	936	1041	1572	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.002	0.014	0.001	-	-
HCM Control Delay (s)	0	-	-	0	0	8.9	8.5	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0	-	-

HCM 6th TWSC
5: SW 108th Avenue & South Access

07/25/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	34	22	0
Future Vol, veh/h	0	0	0	34	22	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	37	24	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	61	24	24	0	0
Stage 1	24	-	-	-	-
Stage 2	37	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	945	1052	1591	-	-
Stage 1	999	-	-	-	-
Stage 2	985	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	945	1052	1591	-	-
Mov Cap-2 Maneuver	945	-	-	-	-
Stage 1	999	-	-	-	-
Stage 2	985	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1591	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM Signalized Intersection Capacity Analysis

6: SW 124th Avenue & SW Leveton Drive

07/25/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	22	41	29	46	3	208	16	567	23	60	464	12
Future Volume (vph)	22	41	29	46	3	208	16	567	23	60	464	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1739		1626	1554		1107	3451		1769	3378	
Flt Permitted	0.59	1.00		0.64	1.00		0.47	1.00		0.29	1.00	
Satd. Flow (perm)	1100	1739		1089	1554		548	3451		546	3378	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	23	43	30	48	3	217	17	591	24	62	483	12
RTOR Reduction (vph)	0	23	0	0	161	0	0	3	0	0	2	0
Lane Group Flow (vph)	23	50	0	48	59	0	17	612	0	63	494	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	2%	2%	2%	11%	67%	2%	63%	3%	26%	2%	5%	58%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.7	12.9		16.9	14.5		22.1	21.2		28.5	24.4	
Effective Green, g (s)	15.7	13.9		18.9	15.5		24.1	22.2		30.5	25.4	
Actuated g/C Ratio	0.26	0.23		0.31	0.26		0.40	0.37		0.50	0.42	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	304	398		369	397		235	1264		377	1415	
v/s Ratio Prot	0.00	0.03		c0.01	c0.04		0.00	c0.18		c0.01	0.15	
v/s Ratio Perm	0.02			0.03			0.03			0.07		
v/c Ratio	0.08	0.13		0.13	0.15		0.07	0.48		0.17	0.35	
Uniform Delay, d1	16.9	18.5		14.8	17.4		11.2	14.8		8.3	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.2	0.2		0.1	0.3		0.2	0.2	
Delay (s)	17.0	18.7		15.0	17.6		11.3	15.1		8.5	12.1	
Level of Service	B	B		B	B		B	B		A	B	
Approach Delay (s)		18.3			17.1			15.0			11.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	98	10	19	234	2	17	3	6	2	4	13
Future Vol, veh/h	6	98	10	19	234	2	17	3	6	2	4	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	5	20	2	3	2	6	2	17	2	25	2
Mvmt Flow	7	107	11	21	254	2	18	3	7	2	4	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	9.1	8.1	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	65%	5%	7%	11%
Vol Thru, %	12%	86%	92%	21%
Vol Right, %	23%	9%	1%	68%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	26	114	255	19
LT Vol	17	6	19	2
Through Vol	3	98	234	4
RT Vol	6	10	2	13
Lane Flow Rate	28	124	277	21
Geometry Grp	1	1	1	1
Degree of Util (X)	0.038	0.148	0.317	0.026
Departure Headway (Hd)	4.893	4.29	4.122	4.453
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	841	862	807
Service Time	2.902	2.29	2.197	2.462
HCM Lane V/C Ratio	0.038	0.147	0.321	0.026
HCM Control Delay	8.1	8	9.1	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.5	1.4	0.1

HCM 6th TWSC
8: SW Leveton Drive & West Driveway

07/25/2022

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	79	29	103	35	76	152
Future Vol, veh/h	79	29	103	35	76	152
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	3	2	2	2	5
Mvmt Flow	87	32	113	38	84	167

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	153	0	-	0	340
Stage 1	-	-	-	-	134
Stage 2	-	-	-	-	206
Critical Hdwy	4.16	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.254	-	-	-	3.518
Pot Cap-1 Maneuver	1403	-	-	-	656
Stage 1	-	-	-	-	892
Stage 2	-	-	-	-	829
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1400	-	-	-	612
Mov Cap-2 Maneuver	-	-	-	-	612
Stage 1	-	-	-	-	834
Stage 2	-	-	-	-	827

Approach	EB	WB	SB
HCM Control Delay, s	5.7	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1400	-	-	-	612	905
HCM Lane V/C Ratio	0.062	-	-	-	0.136	0.185
HCM Control Delay (s)	7.7	0	-	-	11.8	9.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0.7

HCM 6th TWSC
9: SW Leveton Drive & Center Driveway

07/25/2022

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	10	97	109	20	28	28
Future Vol, veh/h	10	97	109	20	28	28
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	115	130	24	33	33

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	159	0	-	0	286
Stage 1	-	-	-	-	147
Stage 2	-	-	-	-	139
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1420	-	-	-	704
Stage 1	-	-	-	-	880
Stage 2	-	-	-	-	888
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1413	-	-	-	691
Mov Cap-2 Maneuver	-	-	-	-	691
Stage 1	-	-	-	-	868
Stage 2	-	-	-	-	884

Approach

	EB	WB	SB
HCM Control Delay, s	0.7	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1413	-	-	-	691	896
HCM Lane V/C Ratio	0.008	-	-	-	0.048	0.037
HCM Control Delay (s)	7.6	0	-	-	10.5	9.2
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

HCM 6th TWSC
 10: Calmax Driveway/East Driveway & SW Leveton Drive

07/25/2022

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	109	0	2	105	3	6	0	3	38	0	27
Future Vol, veh/h	2	109	0	2	105	3	6	0	3	38	0	27
Conflicting Peds, #/hr	6	0	2	2	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	3	2	50	1	2	2	2	33	2	2	2
Mvmt Flow	2	133	0	2	128	4	7	0	4	46	0	33

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	138	0	0	135
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.6
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.65
Pot Cap-1 Maneuver	1446	-	-	1201
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1438	-	-	1199
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.3	10.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	690	1438	-	-	1199	-	-	747
HCM Lane V/C Ratio	0.016	0.002	-	-	0.002	-	-	0.106
HCM Control Delay (s)	10.3	7.5	0	-	8	0	-	10.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4

HCM 6th TWSC
 11: SW 108th Avenue & SW Leveton Drive

07/25/2022

Intersection						
Int Delay, s/veh	7.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	23	127	80	11	13	9
Future Vol, veh/h	23	127	80	11	13	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	9	2	3	2	2	2
Mvmt Flow	27	151	95	13	15	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	224	21	26	0	0
Stage 1	21	-	-	-	-
Stage 2	203	-	-	-	-
Critical Hdwy	6.49	6.22	4.13	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.227	-	-
Pot Cap-1 Maneuver	749	1056	1582	-	-
Stage 1	984	-	-	-	-
Stage 2	815	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	704	1056	1582	-	-
Mov Cap-2 Maneuver	704	-	-	-	-
Stage 1	925	-	-	-	-
Stage 2	815	-	-	-	-

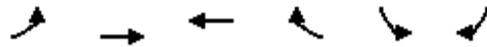
Approach	EB	NB	SB
HCM Control Delay, s	9.5	6.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1582	-	981	-	-
HCM Lane V/C Ratio	0.06	-	0.182	-	-
HCM Control Delay (s)	7.4	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-

HCM Signalized Intersection Capacity Analysis

12: SW Herman Road & SW 108th Avenue

07/25/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	243	423	83	177	18
Future Volume (vph)	6	243	423	83	177	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1543	1792	1735		1770	1524
Flt Permitted	0.27	1.00	1.00		0.95	1.00
Satd. Flow (perm)	441	1792	1735		1770	1524
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	6	245	427	84	179	18
RTOR Reduction (vph)	0	0	9	0	0	13
Lane Group Flow (vph)	6	245	502	0	179	5
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	17%	6%	7%	5%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	25.4	25.4	19.4		10.3	10.3
Effective Green, g (s)	26.8	26.8	20.8		12.8	12.8
Actuated g/C Ratio	0.56	0.56	0.44		0.27	0.27
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	294	1008	758		475	409
v/s Ratio Prot	0.00	c0.14	c0.29		c0.10	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.02	0.24	0.66		0.38	0.01
Uniform Delay, d1	5.8	5.3	10.6		14.2	12.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	2.2		0.4	0.0
Delay (s)	5.8	5.4	12.8		14.5	12.8
Level of Service	A	A	B		B	B
Approach Delay (s)		5.4	12.8		14.4	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			11.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			47.6		Sum of lost time (s)	12.0
Intersection Capacity Utilization			43.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th TWSC
 13: SW Teton Street & SW Tualatin Road

08/15/2022

Intersection

Int Delay, s/veh 14.9

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	312	72	29	584	176	64
Future Vol, veh/h	312	72	29	584	176	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	10	2	2	7	3
Mvmt Flow	359	83	33	671	202	74

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	442	0	1138	401
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	-	-	4.12	-	6.47	6.23
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	-	-	2.218	-	3.563	3.327
Pot Cap-1 Maneuver	-	-	1118	-	218	647
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	464	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1118	-	211	647
Mov Cap-2 Maneuver	-	-	-	-	211	-
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	450	-

Approach EB WB NB

HCM Control Delay, s	0	0.4	75.7
HCM LOS			F

Minor Lane/Major Mvmt NBLn1 NBLn2 EBT EBR WBL WBT

Capacity (veh/h)	211	647	-	-	1118	-
HCM Lane V/C Ratio	0.959	0.114	-	-	0.03	-
HCM Control Delay (s)	99.1	11.3	-	-	8.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	8.2	0.4	-	-	0.1	-

13: SW Teton Street & SW Tualatin Road Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	3.3	0.5	0.2	0.1	0.4
Total Delay (hr)	0.1	0.0	0.0	0.1	1.4	0.1	1.8
Total Del/Veh (s)	1.2	1.1	4.4	0.8	26.5	7.4	5.1
Stop Delay (hr)	0.0	0.0	0.0	0.0	1.2	0.1	1.2
Stop Del/Veh (s)	0.0	0.0	1.1	0.0	22.5	3.9	3.5

HCM Signalized Intersection Capacity Analysis

1: Highway 99W/Highway 99 W & SW 124th Avenue

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	149	284	1051	484	931	752
Future Volume (vph)	149	284	1051	484	931	752
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.3	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	*1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3155	2515	3406	1547	3438	3282
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3155	2515	3406	1547	3438	3282
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	169	323	1194	550	1058	855
RTOR Reduction (vph)	0	0	0	143	0	0
Lane Group Flow (vph)	169	323	1194	407	1058	855
Confl. Peds. (#/hr)		5		1	1	
Heavy Vehicles (%)	11%	13%	6%	3%	5%	10%
Turn Type	custom	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	1 4	2		1	6
Permitted Phases	4			2		
Actuated Green, G (s)	18.0	56.9	54.8	54.8	44.8	105.2
Effective Green, g (s)	22.0	54.5	56.8	56.8	46.4	107.2
Actuated g/C Ratio	0.16	0.39	0.41	0.41	0.33	0.76
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	2.3		5.4	5.4	2.3	5.4
Lane Grp Cap (vph)	585	977	1379	626	1137	2509
v/s Ratio Prot	c0.03	0.13	c0.35		c0.31	0.26
v/s Ratio Perm	0.03			0.26		
v/c Ratio	0.29	0.33	0.87	0.65	0.93	0.34
Uniform Delay, d1	52.6	30.1	38.2	33.7	45.3	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	6.6	3.4	13.2	0.2
Delay (s)	52.8	30.2	44.8	37.1	58.5	5.4
Level of Service	D	C	D	D	E	A
Approach Delay (s)	37.9		42.4			34.8
Approach LOS	D		D			C

Intersection Summary

HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	178	254	38	582	817
Future Volume (vph)	63	178	254	38	582	817
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1553	3059	1503	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.38	1.00
Satd. Flow (perm)	1641	1553	3059	1503	716	3406
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	79	222	318	48	728	1021
RTOR Reduction (vph)	0	98	0	38	0	0
Lane Group Flow (vph)	79	125	318	10	728	1021
Confl. Peds. (#/hr)				2	2	
Heavy Vehicles (%)	10%	4%	18%	5%	2%	6%
Turn Type	Prot	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		6	2	
Actuated Green, G (s)	7.0	42.6	15.6	15.6	56.2	56.2
Effective Green, g (s)	8.0	44.6	16.6	16.6	57.2	57.2
Actuated g/C Ratio	0.10	0.56	0.21	0.21	0.72	0.72
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.9	3.9	3.0	3.0
Lane Grp Cap (vph)	165	873	640	314	1002	2456
v/s Ratio Prot	c0.05	0.07	0.10		c0.34	0.30
v/s Ratio Perm		0.01		0.01	c0.19	
v/c Ratio	0.48	0.14	0.50	0.03	0.73	0.42
Uniform Delay, d1	33.7	8.3	27.7	25.0	6.3	4.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.1	0.8	0.1	2.7	0.1
Delay (s)	35.9	8.3	28.5	25.0	8.9	4.5
Level of Service	D	A	C	C	A	A
Approach Delay (s)	15.5		28.0			6.3
Approach LOS	B		C			A

Intersection Summary

HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	79.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	0	574	39	51	292	0	11	0	8	0	0	0
Future Vol, veh/h	0	574	39	51	292	0	11	0	8	0	0	0
Conflicting Peds, #/hr	4	0	1	1	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	20	-	-	50	-	-	-	-	-	-	-	-
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, %	0	3	7	8	6	0	9	0	38	0	0	0
Mvmt Flow	0	683	46	61	348	0	13	0	10	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	352	0	0	730	0	0	1177	1181	707	1185	1204	352
Stage 1	-	-	-	-	-	-	707	707	-	474	474	-
Stage 2	-	-	-	-	-	-	470	474	-	711	730	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.19	6.5	6.58	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.272	-	-	3.581	4	3.642	3.5	4	3.3
Pot Cap-1 Maneuver	1218	-	-	847	-	-	163	192	380	167	186	696
Stage 1	-	-	-	-	-	-	415	441	-	575	561	-
Stage 2	-	-	-	-	-	-	561	561	-	427	431	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1213	-	-	846	-	-	154	177	380	153	172	693
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	177	-	153	172	-
Stage 1	-	-	-	-	-	-	415	441	-	573	518	-
Stage 2	-	-	-	-	-	-	521	518	-	416	431	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	24.7	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	205	1213	-	-	846	-	-	-
HCM Lane V/C Ratio	0.11	-	-	-	0.072	-	-	-
HCM Control Delay (s)	24.7	0	-	-	9.6	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	-

HCM 6th TWSC
4: SW 108th Avenue & North Access

07/27/2022

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕		↕		↕
Traffic Vol, veh/h	0	0	0	7	0	1	0	7	15	2	65	0
Future Vol, veh/h	0	0	0	7	0	1	0	7	15	2	65	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	92	90	92	92	92	90	90	92	92	90	90
Heavy Vehicles, %	0	2	0	2	2	2	0	9	2	2	3	0
Mvmt Flow	0	0	0	8	0	1	0	8	16	2	72	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	93	-	72	92	-	16	72	0	0	24	0	0
Stage 1	76	-	-	16	-	-	-	-	-	-	-	-
Stage 2	17	-	-	76	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	895	0	996	892	0	1063	1541	-	-	1591	-	-
Stage 1	938	0	-	1004	0	-	-	-	-	-	-	-
Stage 2	1008	0	-	933	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	893	-	996	891	-	1063	1541	-	-	1591	-	-
Mov Cap-2 Maneuver	893	-	-	891	-	-	-	-	-	-	-	-
Stage 1	938	-	-	1004	-	-	-	-	-	-	-	-
Stage 2	1007	-	-	932	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		9		0		0.2	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1541	-	-	-	-	891	1063	1591	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.009	0.001	0.001	-	-
HCM Control Delay (s)	0	-	-	0	0	9.1	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0	-	-

HCM 6th TWSC
5: SW 108th Avenue & South Access

07/27/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	22	65	0
Future Vol, veh/h	0	0	0	22	65	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	24	71	0

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	95	71	71	0	0
Stage 1	71	-	-	-	-
Stage 2	24	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	905	991	1529	-	-
Stage 1	952	-	-	-	-
Stage 2	999	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	905	991	1529	-	-
Mov Cap-2 Maneuver	905	-	-	-	-
Stage 1	952	-	-	-	-
Stage 2	999	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1529	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM Signalized Intersection Capacity Analysis

6: SW 124th Avenue & SW Leveton Drive

07/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	6	62	12	18	5	15	27	264	66	194	658	33
Future Volume (vph)	6	62	12	18	5	15	27	264	66	194	658	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1081	1802		1480	1656		1467	3050		1752	3358	
Flt Permitted	0.72	1.00		0.70	1.00		0.36	1.00		0.44	1.00	
Satd. Flow (perm)	824	1802		1096	1656		557	3050		818	3358	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	69	13	20	6	17	30	293	73	216	731	37
RTOR Reduction (vph)	0	8	0	0	15	0	0	19	0	0	2	0
Lane Group Flow (vph)	7	74	0	20	8	0	30	347	0	216	766	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	67%	2%	8%	22%	2%	2%	23%	17%	6%	3%	6%	19%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.8	7.1		7.4	6.9		24.0	21.8		38.0	30.8	
Effective Green, g (s)	9.8	8.1		9.4	7.9		26.0	22.8		39.0	31.8	
Actuated g/C Ratio	0.16	0.13		0.16	0.13		0.43	0.38		0.64	0.52	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	240		179	215		287	1147		714	1762	
v/s Ratio Prot	0.00	c0.04		c0.00	0.00		0.01	0.11		c0.06	c0.23	
v/s Ratio Perm	0.01			0.01			0.04			0.13		
v/c Ratio	0.05	0.31		0.11	0.04		0.10	0.30		0.30	0.43	
Uniform Delay, d1	21.4	23.7		21.9	23.0		10.1	13.3		4.6	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		0.3	0.1		0.2	0.1		0.2	0.2	
Delay (s)	21.6	24.5		22.2	23.1		10.2	13.5		4.8	9.0	
Level of Service	C	C		C	C		B	B		A	A	
Approach Delay (s)		24.2			22.7			13.2			8.1	
Approach LOS		C			C			B			A	

Intersection Summary

HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th AWSC
7: SW 118th Drive/JAE Access & SW Leveton Drive

07/27/2022

Intersection

Intersection Delay, s/veh 9.6
Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	286	18	7	31	0	7	3	16	0	0	1
Future Vol, veh/h	12	286	18	7	31	0	7	3	16	0	0	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	11	57	7	2	14	2	33	2	2	2
Mvmt Flow	14	340	21	8	37	0	8	4	19	0	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	8.7	8	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	4%	18%	0%
Vol Thru, %	12%	91%	82%	0%
Vol Right, %	62%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	26	316	38	1
LT Vol	7	12	7	0
Through Vol	3	286	31	0
RT Vol	16	18	0	1
Lane Flow Rate	31	376	45	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.418	0.066	0.001
Departure Headway (Hd)	4.753	3.998	5.248	4.3
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	758	895	674	837
Service Time	2.753	2.046	3.348	2.302
HCM Lane V/C Ratio	0.041	0.42	0.067	0.001
HCM Control Delay	8	9.9	8.7	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	2.1	0.2	0

HCM 6th TWSC
8: SW Leveton Drive & West Driveway

07/27/2022

Intersection

Int Delay, s/veh 3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	144	150	21	94	12	20
Future Vol, veh/h	144	150	21	94	12	20
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	2	5	6	42	25
Mvmt Flow	171	179	25	112	14	24

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	139	0	0	604	83
Stage 1	-	-	-	83	-
Stage 2	-	-	-	521	-
Critical Hdwy	4.14	-	-	6.82	6.45
Critical Hdwy Stg 1	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	5.82	-
Follow-up Hdwy	2.236	-	-	3.878	3.525
Pot Cap-1 Maneuver	1432	-	-	402	916
Stage 1	-	-	-	849	-
Stage 2	-	-	-	522	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1429	-	-	347	914
Mov Cap-2 Maneuver	-	-	-	347	-
Stage 1	-	-	-	734	-
Stage 2	-	-	-	521	-

Approach

	EB	WB	SB
HCM Control Delay, s	3.9	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1429	-	-	-	347	914
HCM Lane V/C Ratio	0.12	-	-	-	0.041	0.026
HCM Control Delay (s)	7.9	0	-	-	15.8	9
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.1

HCM 6th TWSC
 9: SW Leveton Drive & Center Driveway

07/27/2022

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	50	107	108	31	8	5
Future Vol, veh/h	50	107	108	31	8	5
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	6	13	2	2	2
Mvmt Flow	61	130	132	38	10	6

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	172	0	-	0	406 153
Stage 1	-	-	-	-	153 -
Stage 2	-	-	-	-	253 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1405	-	-	-	601 893
Stage 1	-	-	-	-	875 -
Stage 2	-	-	-	-	789 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1402	-	-	-	570 891
Mov Cap-2 Maneuver	-	-	-	-	570 -
Stage 1	-	-	-	-	832 -
Stage 2	-	-	-	-	787 -

Approach

	EB	WB	SB
HCM Control Delay, s	2.4	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1402	-	-	-	570	891
HCM Lane V/C Ratio	0.043	-	-	-	0.017	0.007
HCM Control Delay (s)	7.7	0	-	-	11.4	9.1
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	65	4	0	150	67	0	0	1	3	0	2
Future Vol, veh/h	38	65	4	0	150	67	0	0	1	3	0	2
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	11	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	47	80	5	0	185	83	0	0	1	4	0	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	269	0	0	85
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1295	-	-	1512
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1294	-	-	1512
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0	8.7	10.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	976	1294	-	-	1512	-	-	622
HCM Lane V/C Ratio	0.001	0.036	-	-	-	-	-	0.01
HCM Control Delay (s)	8.7	7.9	0	-	0	-	-	10.8
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0

HCM 6th TWSC
 11: SW 108th Avenue & SW Leveton Drive

07/27/2022

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	43	162	15	19	46
Future Vol, veh/h	7	43	162	15	19	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	14	10	6	20	16	12
Mvmt Flow	9	57	213	20	25	61

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	502	56	86	0	0
Stage 1	56	-	-	-	-
Stage 2	446	-	-	-	-
Critical Hdwy	6.54	6.3	4.16	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-
Follow-up Hdwy	3.626	3.39	2.254	-	-
Pot Cap-1 Maneuver	508	988	1485	-	-
Stage 1	937	-	-	-	-
Stage 2	620	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	434	988	1485	-	-
Mov Cap-2 Maneuver	434	-	-	-	-
Stage 1	801	-	-	-	-
Stage 2	620	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	7.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1485	-	838	-	-
HCM Lane V/C Ratio	0.144	-	0.079	-	-
HCM Control Delay (s)	7.8	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	0.3	-	-

HCM Signalized Intersection Capacity Analysis

12: SW Herman Road & SW 108th Avenue

07/27/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	290	218	215	53	9
Future Volume (vph)	14	290	218	215	53	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1492	1583	1586		1543	1455
Flt Permitted	0.34	1.00	1.00		0.95	1.00
Satd. Flow (perm)	534	1583	1586		1543	1455
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	17	354	266	262	65	11
RTOR Reduction (vph)	0	0	35	0	0	9
Lane Group Flow (vph)	17	354	493	0	65	2
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	21%	20%	16%	5%	17%	11%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	32.6	32.6	26.6		4.6	4.6
Effective Green, g (s)	34.0	34.0	28.0		7.1	7.1
Actuated g/C Ratio	0.69	0.69	0.57		0.14	0.14
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	408	1096	904		223	210
v/s Ratio Prot	0.00	c0.22	c0.31		c0.04	0.00
v/s Ratio Perm	0.03					
v/c Ratio	0.04	0.32	0.55		0.29	0.01
Uniform Delay, d1	3.1	3.0	6.6		18.8	18.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	0.7		0.6	0.0
Delay (s)	3.2	3.2	7.3		19.3	18.0
Level of Service	A	A	A		B	B
Approach Delay (s)		3.2	7.3		19.1	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th TWSC
 13: SW Teton Street & SW Tualatin Road

08/15/2022

Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	430	151	53	289	74	54
Future Vol, veh/h	430	151	53	289	74	54
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	3	10	3	9	27
Mvmt Flow	483	170	60	325	83	61

Major/Minor

	Major1	Major2	Minor1		
Conflicting Flow All	0	0	653	0	1014 568
Stage 1	-	-	-	-	568 -
Stage 2	-	-	-	-	446 -
Critical Hdwy	-	-	4.2	-	6.49 6.47
Critical Hdwy Stg 1	-	-	-	-	5.49 -
Critical Hdwy Stg 2	-	-	-	-	5.49 -
Follow-up Hdwy	-	-	2.29	-	3.581 3.543
Pot Cap-1 Maneuver	-	-	897	-	257 478
Stage 1	-	-	-	-	553 -
Stage 2	-	-	-	-	631 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	897	-	240 478
Mov Cap-2 Maneuver	-	-	-	-	240 -
Stage 1	-	-	-	-	553 -
Stage 2	-	-	-	-	588 -

Approach

	EB	WB	NB
HCM Control Delay, s	0	1.4	21.8
HCM LOS			C

Minor Lane/Major Mvmt

	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	240	478	-	-	897	-
HCM Lane V/C Ratio	0.346	0.127	-	-	0.066	-
HCM Control Delay (s)	27.7	13.6	-	-	9.3	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.5	0.4	-	-	0.2	-

HCM Signalized Intersection Capacity Analysis
 1: Highway 99W/Highway 99 W & SW 124th Avenue

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	626	739	894	192	733	1207
Future Volume (vph)	626	739	894	192	733	1207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.3	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	*1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	1533	3471	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	1533	3471	3471
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	659	778	941	202	772	1271
RTOR Reduction (vph)	0	0	0	104	0	0
Lane Group Flow (vph)	659	778	941	98	772	1271
Confl. Peds. (#/hr)		11				
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	1 4	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	27.8	45.8	40.6	40.6	34.7	80.9
Effective Green, g (s)	29.8	43.4	42.6	42.6	36.3	82.9
Actuated g/C Ratio	0.23	0.33	0.32	0.32	0.28	0.63
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	2.3		5.4	5.4	2.3	5.4
Lane Grp Cap (vph)	776	917	1143	495	955	2183
v/s Ratio Prot	c0.19	c0.28	c0.27		0.22	0.37
v/s Ratio Perm				0.06		
v/c Ratio	0.85	0.85	0.82	0.20	0.81	0.58
Uniform Delay, d1	48.8	41.1	41.1	32.3	44.5	14.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.4	7.2	5.6	0.5	4.9	0.7
Delay (s)	57.3	48.3	46.7	32.7	49.4	15.0
Level of Service	E	D	D	C	D	B
Approach Delay (s)	52.4		44.3			28.0
Approach LOS	D		D			C

Intersection Summary

HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	131.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕	↵	↵	↕↕
Traffic Volume (vph)	28	525	860	45	376	553
Future Volume (vph)	28	525	860	45	376	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1626	1583	3539	1542	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.16	1.00
Satd. Flow (perm)	1626	1583	3539	1542	303	3406
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	553	905	47	396	582
RTOR Reduction (vph)	0	269	0	16	0	0
Lane Group Flow (vph)	29	284	905	31	396	582
Confl. Peds. (#/hr)				4	4	
Heavy Vehicles (%)	11%	2%	2%	2%	2%	6%
Turn Type	Prot	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		6	2	
Actuated Green, G (s)	2.5	28.8	31.0	31.0	62.3	62.3
Effective Green, g (s)	3.5	30.8	32.0	32.0	63.3	63.3
Actuated g/C Ratio	0.04	0.38	0.40	0.40	0.79	0.79
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.9	3.9	3.0	3.0
Lane Grp Cap (vph)	70	607	1410	614	737	2684
v/s Ratio Prot	0.02	c0.16	c0.26		c0.18	0.17
v/s Ratio Perm		0.02		0.02	0.24	
v/c Ratio	0.41	0.47	0.64	0.05	0.54	0.22
Uniform Delay, d1	37.4	18.6	19.5	14.8	9.6	2.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.6	1.1	0.0	0.8	0.0
Delay (s)	41.3	19.2	20.6	14.9	10.4	2.2
Level of Service	D	B	C	B	B	A
Approach Delay (s)	20.3		20.3			5.5
Approach LOS	C		C			A

Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	0	367	9	8	706	0	39	0	26	0	0	0
Future Vol, veh/h	0	367	9	8	706	0	39	0	26	0	0	0
Conflicting Peds, #/hr	6	0	2	2	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	20	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	5	14	2	2	0	2	0	5	0	0	0
Mvmt Flow	0	399	10	9	767	0	42	0	28	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	773	0	0	411	0	0	1191	1197	406	1209	1202	773
Stage 1	-	-	-	-	-	-	406	406	-	791	791	-
Stage 2	-	-	-	-	-	-	785	791	-	418	411	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	851	-	-	1148	-	-	164	187	638	161	186	402
Stage 1	-	-	-	-	-	-	622	601	-	386	404	-
Stage 2	-	-	-	-	-	-	386	404	-	616	598	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	846	-	-	1146	-	-	163	184	637	152	183	400
Mov Cap-2 Maneuver	-	-	-	-	-	-	163	184	-	152	183	-
Stage 1	-	-	-	-	-	-	621	600	-	384	398	-
Stage 2	-	-	-	-	-	-	383	398	-	589	597	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			27.2			0		
HCM LOS							D			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	232	846	-	-	1146	-	-	-
HCM Lane V/C Ratio	0.305	-	-	-	0.008	-	-	-
HCM Control Delay (s)	27.2	0	-	-	8.2	-	-	0
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	-

HCM 6th TWSC
4: SW 108th Avenue & North Access

07/27/2022

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	
Traffic Vol, veh/h	0	0	0	13	0	2	0	34	10	1	26	0
Future Vol, veh/h	0	0	0	13	0	2	0	34	10	1	26	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	92	90	92	92	92	90	90	92	92	90	90
Heavy Vehicles, %	0	2	0	2	2	2	0	9	2	2	3	0
Mvmt Flow	0	0	0	14	0	2	0	38	11	1	29	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	76	-	29	75	-	44	29	0	0	49	0	0
Stage 1	31	-	-	44	-	-	-	-	-	-	-	-
Stage 2	45	-	-	31	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	919	0	1052	915	0	1026	1597	-	-	1558	-	-
Stage 1	991	0	-	970	0	-	-	-	-	-	-	-
Stage 2	974	0	-	986	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	916	-	1052	914	-	1026	1597	-	-	1558	-	-
Mov Cap-2 Maneuver	916	-	-	914	-	-	-	-	-	-	-	-
Stage 1	991	-	-	970	-	-	-	-	-	-	-	-
Stage 2	972	-	-	985	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	0		8.9		0			0.3		
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1597	-	-	-	-	914	1026	1558	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.015	0.002	0.001	-	-
HCM Control Delay (s)	0	-	-	0	0	9	8.5	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	0	0	-	-

HCM 6th TWSC
5: SW 108th Avenue & South Access

07/27/2022

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	45	26	0
Future Vol, veh/h	0	0	0	45	26	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	49	28	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	77	28	28	0	-	0
Stage 1	28	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	926	1047	1585	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	926	1047	1585	-	-	-
Mov Cap-2 Maneuver	926	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	973	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1585	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM Signalized Intersection Capacity Analysis

6: SW 124th Avenue & SW Leveton Drive

07/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	22	42	30	62	3	247	16	640	29	77	491	12
Future Volume (vph)	22	42	30	62	3	247	16	640	29	77	491	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1738		1626	1555		1107	3445		1769	3381	
Flt Permitted	0.42	1.00		0.69	1.00		0.46	1.00		0.24	1.00	
Satd. Flow (perm)	781	1738		1177	1555		534	3445		449	3381	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	23	44	31	65	3	257	17	667	30	80	511	12
RTOR Reduction (vph)	0	24	0	0	201	0	0	3	0	0	2	0
Lane Group Flow (vph)	23	51	0	65	59	0	17	694	0	80	522	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	2%	2%	2%	11%	67%	2%	63%	3%	26%	2%	5%	58%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.6	12.5		15.4	12.9		23.4	22.5		33.9	28.0	
Effective Green, g (s)	16.6	13.5		17.4	13.9		25.4	23.5		34.9	29.0	
Actuated g/C Ratio	0.26	0.21		0.27	0.22		0.40	0.37		0.55	0.45	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	250	367		345	338		229	1266		398	1534	
v/s Ratio Prot	0.00	0.03		c0.01	0.04		0.00	c0.20		c0.02	c0.15	
v/s Ratio Perm	0.02			c0.04			0.03			0.09		
v/c Ratio	0.09	0.14		0.19	0.17		0.07	0.55		0.20	0.34	
Uniform Delay, d1	17.9	20.5		17.6	20.3		11.8	16.0		7.8	11.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.2		0.3	0.2		0.1	0.5		0.3	0.1	
Delay (s)	18.0	20.6		17.9	20.6		11.9	16.5		8.1	11.4	
Level of Service	B	C		B	C		B	B		A	B	
Approach Delay (s)		20.0			20.0			16.4			11.0	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	122	10	25	289	2	17	3	8	2	4	13
Future Vol, veh/h	6	122	10	25	289	2	17	3	8	2	4	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	5	20	2	3	2	6	2	17	2	25	2
Mvmt Flow	7	133	11	27	314	2	18	3	9	2	4	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	10	8.3	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	4%	8%	11%
Vol Thru, %	11%	88%	91%	21%
Vol Right, %	29%	7%	1%	68%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	138	316	19
LT Vol	17	6	25	2
Through Vol	3	122	289	4
RT Vol	8	10	2	13
Lane Flow Rate	30	150	343	21
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.182	0.396	0.027
Departure Headway (Hd)	5.056	4.369	4.147	4.663
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	711	825	855	771
Service Time	3.067	2.378	2.24	2.674
HCM Lane V/C Ratio	0.042	0.182	0.401	0.027
HCM Control Delay	8.3	8.3	10	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.7	1.9	0.1

HCM 6th TWSC
8: SW Leveton Drive & West Driveway

07/27/2022

Intersection

Int Delay, s/veh 7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	100	33	119	46	98	194
Future Vol, veh/h	100	33	119	46	98	194
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	3	2	2	2	5
Mvmt Flow	110	36	131	51	108	213

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	184	0	-	0	415 159
Stage 1	-	-	-	-	159 -
Stage 2	-	-	-	-	256 -
Critical Hdwy	4.16	-	-	-	6.42 6.25
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.254	-	-	-	3.518 3.345
Pot Cap-1 Maneuver	1367	-	-	-	594 878
Stage 1	-	-	-	-	870 -
Stage 2	-	-	-	-	787 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1364	-	-	-	543 876
Mov Cap-2 Maneuver	-	-	-	-	543 -
Stage 1	-	-	-	-	797 -
Stage 2	-	-	-	-	785 -

Approach	EB	WB	SB
HCM Control Delay, s	5.9	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1364	-	-	-	543	876
HCM Lane V/C Ratio	0.081	-	-	-	0.198	0.243
HCM Control Delay (s)	7.9	0	-	-	13.3	10.4
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.7	1

HCM 6th TWSC
 9: SW Leveton Drive & Center Driveway

07/27/2022

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	12	122	129	27	37	35
Future Vol, veh/h	12	122	129	27	37	35
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	145	154	32	44	42

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	191	0	0	348	175
Stage 1	-	-	-	175	-
Stage 2	-	-	-	173	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1383	-	-	649	868
Stage 1	-	-	-	855	-
Stage 2	-	-	-	857	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1376	-	-	635	864
Mov Cap-2 Maneuver	-	-	-	635	-
Stage 1	-	-	-	841	-
Stage 2	-	-	-	853	-

Approach

	EB	WB	SB
HCM Control Delay, s	0.7	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1376	-	-	-	635	864
HCM Lane V/C Ratio	0.01	-	-	-	0.069	0.048
HCM Control Delay (s)	7.6	0	-	-	11.1	9.4
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.2

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	142	0	2	125	4	6	0	3	50	0	34
Future Vol, veh/h	3	142	0	2	125	4	6	0	3	50	0	34
Conflicting Peds, #/hr	6	0	2	2	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	3	2	50	1	2	2	2	33	2	2	2
Mvmt Flow	4	173	0	2	152	5	7	0	4	61	0	41

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	163	0	0	175
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.6
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.65
Pot Cap-1 Maneuver	1416	-	-	1158
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1408	-	-	1156
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	10.9	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	623	1408	-	-	1156	-	-	688
HCM Lane V/C Ratio	0.018	0.003	-	-	0.002	-	-	0.149
HCM Control Delay (s)	10.9	7.6	0	-	8.1	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.5

HCM 6th TWSC
 11: SW 108th Avenue & SW Leveton Drive

07/27/2022

Intersection						
Int Delay, s/veh	8.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	32	164	97	11	13	13
Future Vol, veh/h	32	164	97	11	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	9	2	3	2	2	2
Mvmt Flow	38	195	115	13	15	15

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	266	23	30	0	0
Stage 1	23	-	-	-	-
Stage 2	243	-	-	-	-
Critical Hdwy	6.49	6.22	4.13	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.227	-	-
Pot Cap-1 Maneuver	708	1054	1576	-	-
Stage 1	982	-	-	-	-
Stage 2	781	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	656	1054	1576	-	-
Mov Cap-2 Maneuver	656	-	-	-	-
Stage 1	909	-	-	-	-
Stage 2	781	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	6.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1576	-	959	-	-
HCM Lane V/C Ratio	0.073	-	0.243	-	-
HCM Control Delay (s)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1	-	-

HCM Signalized Intersection Capacity Analysis

12: SW Herman Road & SW 108th Avenue

07/27/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	250	450	100	215	18
Future Volume (vph)	6	250	450	100	215	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1543	1792	1731		1770	1524
Flt Permitted	0.24	1.00	1.00		0.95	1.00
Satd. Flow (perm)	387	1792	1731		1770	1524
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	6	253	455	101	217	18
RTOR Reduction (vph)	0	0	10	0	0	13
Lane Group Flow (vph)	6	253	546	0	217	5
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	17%	6%	7%	5%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	27.0	27.0	21.1		11.9	11.9
Effective Green, g (s)	28.4	28.4	22.5		14.4	14.4
Actuated g/C Ratio	0.56	0.56	0.44		0.28	0.28
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	259	1001	766		501	432
v/s Ratio Prot	0.00	c0.14	c0.32		c0.12	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.02	0.25	0.71		0.43	0.01
Uniform Delay, d1	6.5	5.8	11.5		14.9	13.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.1	3.2		0.5	0.0
Delay (s)	6.6	5.9	14.7		15.3	13.1
Level of Service	A	A	B		B	B
Approach Delay (s)		5.9	14.7		15.2	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			12.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			50.8		Sum of lost time (s)	12.0
Intersection Capacity Utilization			48.3%		ICU Level of Service	A
Analysis Period (min)			15			

c Critical Lane Group

HCM 6th TWSC
 13: SW Teton Street & SW Tualatin Road

08/15/2022

Intersection

Int Delay, s/veh 18.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	324	73	30	605	180	65
Future Vol, veh/h	324	73	30	605	180	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	10	2	2	7	3
Mvmt Flow	372	84	34	695	207	75

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	456
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1105
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1105
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	93.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	200	636	-	-	1105	-
HCM Lane V/C Ratio	1.034	0.117	-	-	0.031	-
HCM Control Delay (s)	122.6	11.4	-	-	8.4	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	9.2	0.4	-	-	0.1	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

13: SW Teton Street & SW Tualatin Road Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	3.1	0.6	0.2	0.2	0.4
Total Delay (hr)	0.1	0.0	0.0	0.1	1.5	0.1	2.0
Total Del/Veh (s)	1.2	1.0	4.6	0.8	29.9	7.3	5.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	1.3	0.1	1.4
Stop Del/Veh (s)	0.0	0.0	1.1	0.0	26.0	3.7	3.9

HCM Signalized Intersection Capacity Analysis

1: Highway 99W/Highway 99 W & SW 124th Avenue

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	153	290	1051	510	974	752
Future Volume (vph)	153	290	1051	510	974	752
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.3	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	*1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3155	2515	3406	1547	3438	3282
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3155	2515	3406	1547	3438	3282
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	174	330	1194	580	1107	855
RTOR Reduction (vph)	0	0	0	143	0	0
Lane Group Flow (vph)	174	330	1194	437	1107	855
Confl. Peds. (#/hr)		5		1	1	
Heavy Vehicles (%)	11%	13%	6%	3%	5%	10%
Turn Type	custom	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	1 4	2		1	6
Permitted Phases	4			2		
Actuated Green, G (s)	18.0	59.0	54.9	54.9	46.9	107.4
Effective Green, g (s)	22.0	56.6	56.9	56.9	48.5	109.4
Actuated g/C Ratio	0.15	0.40	0.40	0.40	0.34	0.77
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	2.3		5.4	5.4	2.3	5.4
Lane Grp Cap (vph)	576	999	1360	618	1170	2521
v/s Ratio Prot	c0.03	0.13	c0.35		c0.32	0.26
v/s Ratio Perm	0.03			0.28		
v/c Ratio	0.30	0.33	0.88	0.71	0.95	0.34
Uniform Delay, d1	53.9	29.8	39.5	35.8	45.7	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	7.4	4.9	15.0	0.2
Delay (s)	54.0	29.9	46.9	40.7	60.7	5.4
Level of Service	D	C	D	D	E	A
Approach Delay (s)	38.2		44.9			36.6
Approach LOS	D		D			D

Intersection Summary

HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	142.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	179	262	38	591	877
Future Volume (vph)	63	179	262	38	591	877
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1641	1553	3059	1502	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.37	1.00
Satd. Flow (perm)	1641	1553	3059	1502	697	3406
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	79	224	328	48	739	1096
RTOR Reduction (vph)	0	98	0	38	0	0
Lane Group Flow (vph)	79	126	328	10	739	1096
Confl. Peds. (#/hr)				2	2	
Heavy Vehicles (%)	10%	4%	18%	5%	2%	6%
Turn Type	Prot	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		6	2	
Actuated Green, G (s)	7.1	43.3	15.8	15.8	57.0	57.0
Effective Green, g (s)	8.1	45.3	16.8	16.8	58.0	58.0
Actuated g/C Ratio	0.10	0.56	0.21	0.21	0.72	0.72
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.9	3.9	3.0	3.0
Lane Grp Cap (vph)	165	876	639	314	1000	2460
v/s Ratio Prot	c0.05	0.07	0.11		c0.34	0.32
v/s Ratio Perm		0.01		0.01	c0.19	
v/c Ratio	0.48	0.14	0.51	0.03	0.74	0.45
Uniform Delay, d1	34.1	8.3	28.1	25.3	6.9	4.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.1	0.9	0.1	2.9	0.1
Delay (s)	36.3	8.4	29.0	25.3	9.8	4.7
Level of Service	D	A	C	C	A	A
Approach Delay (s)	15.7		28.6			6.7
Approach LOS	B		C			A

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	0	574	48	60	292	0	12	0	9	0	0	0
Future Vol, veh/h	0	574	48	60	292	0	12	0	9	0	0	0
Conflicting Peds, #/hr	4	0	1	1	0	4	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	20	-	-	50	-	-	-	-	-	-	-	-
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, %	0	3	7	8	6	0	9	0	38	0	0	0
Mvmt Flow	0	683	57	71	348	0	14	0	11	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	352	0	0	741
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.18
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.272
Pot Cap-1 Maneuver	1218	-	-	839
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1213	-	-	838
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.7	25.8	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	198	1213	-	-	838	-	-	-
HCM Lane V/C Ratio	0.126	-	-	-	0.085	-	-	-
HCM Control Delay (s)	25.8	0	-	-	9.7	-	-	0
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0.3	-	-	-

HCM 6th TWSC
4: SW 108th Avenue & North Access

07/27/2022

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	
Traffic Vol, veh/h	2	0	20	7	0	1	183	7	15	2	64	19
Future Vol, veh/h	2	0	20	7	0	1	183	7	15	2	64	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	2	0	9	2	2	3	0
Mvmt Flow	2	0	22	8	0	1	199	8	16	2	70	21

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	500	-	81	510	-	16	91	0	0	24	0	0
Stage 1	85	-	-	414	-	-	-	-	-	-	-	-
Stage 2	415	-	-	96	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	484	0	985	474	0	1063	1517	-	-	1591	-	-
Stage 1	928	0	-	616	0	-	-	-	-	-	-	-
Stage 2	619	0	-	911	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	434	-	985	416	-	1063	1517	-	-	1591	-	-
Mov Cap-2 Maneuver	434	-	-	416	-	-	-	-	-	-	-	-
Stage 1	805	-	-	534	-	-	-	-	-	-	-	-
Stage 2	536	-	-	890	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		13.1		6.9		0.2	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1517	-	-	434	985	416	1063	1591	-	-
HCM Lane V/C Ratio	0.131	-	-	0.005	0.022	0.018	0.001	0.001	-	-
HCM Control Delay (s)	7.7	0	-	13.3	8.7	13.8	8.4	7.3	0	-
HCM Lane LOS	A	A	-	B	A	B	A	A	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	0.1	0.1	0	0	-	-

HCM 6th TWSC
5: SW 108th Avenue & South Access

07/27/2022

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	5	58	204	75	9
Future Vol, veh/h	1	5	58	204	75	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	63	222	82	10

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	435	87	92	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	578	971	1503	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	550	971	1503	-	-	-
Mov Cap-2 Maneuver	550	-	-	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	715	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	1.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1503	-	550	971	-	-
HCM Lane V/C Ratio	0.042	-	0.002	0.006	-	-
HCM Control Delay (s)	7.5	0	11.6	8.7	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

HCM Signalized Intersection Capacity Analysis

6: SW 124th Avenue & SW Leveton Drive

07/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	6	62	12	22	5	23	27	264	92	254	658	33
Future Volume (vph)	6	62	12	22	5	23	27	264	92	254	658	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.88		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1081	1802		1480	1636		1467	3040		1752	3358	
Flt Permitted	0.74	1.00		0.66	1.00		0.36	1.00		0.41	1.00	
Satd. Flow (perm)	838	1802		1025	1636		557	3040		760	3358	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	69	13	24	6	26	30	293	102	282	731	37
RTOR Reduction (vph)	0	8	0	0	22	0	0	31	0	0	2	0
Lane Group Flow (vph)	7	74	0	24	10	0	30	364	0	282	766	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	67%	2%	8%	22%	2%	2%	23%	17%	6%	3%	6%	19%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.4	7.7		9.6	8.3		22.5	20.5		37.8	30.8	
Effective Green, g (s)	10.4	8.7		11.6	9.3		24.5	21.5		38.8	31.8	
Actuated g/C Ratio	0.17	0.14		0.19	0.15		0.40	0.35		0.63	0.51	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	253		209	246		264	1057		690	1727	
v/s Ratio Prot	0.00	c0.04		c0.00	0.01		0.01	0.12		c0.09	c0.23	
v/s Ratio Perm	0.01			0.02			0.04			0.17		
v/c Ratio	0.05	0.29		0.11	0.04		0.11	0.34		0.41	0.44	
Uniform Delay, d1	21.5	23.8		20.7	22.4		11.5	14.9		5.4	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.2	0.1		0.2	0.2		0.4	0.2	
Delay (s)	21.6	24.4		21.0	22.5		11.7	15.1		5.8	9.6	
Level of Service	C	C		C	C		B	B		A	A	
Approach Delay (s)		24.2			21.8			14.9			8.6	
Approach LOS		C			C			B			A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th AWSC
 7: SW 118th Drive/JAE Access & SW Leveton Drive

07/27/2022

Intersection

Intersection Delay, s/veh 11.2
 Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	372	18	8	43	0	7	3	25	0	0	1
Future Vol, veh/h	12	372	18	8	43	0	7	3	25	0	0	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	11	57	7	2	14	2	33	2	2	2
Mvmt Flow	14	443	21	10	51	0	8	4	30	0	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.8	9	8.2	7.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	3%	16%	0%
Vol Thru, %	9%	93%	84%	0%
Vol Right, %	71%	4%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	402	51	1
LT Vol	7	12	8	0
Through Vol	3	372	43	0
RT Vol	25	18	0	1
Lane Flow Rate	42	479	61	1
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.536	0.092	0.002
Departure Headway (Hd)	4.943	4.033	5.473	4.583
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	885	658	784
Service Time	2.947	2.108	3.482	2.59
HCM Lane V/C Ratio	0.058	0.541	0.093	0.001
HCM Control Delay	8.2	11.8	9	7.6
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.2	3.3	0.3	0

HCM 6th TWSC
8: SW Leveton Drive & West Driveway

07/27/2022

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	144	245	34	94	12	20
Future Vol, veh/h	144	245	34	94	12	20
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	2	5	6	42	25
Mvmt Flow	171	292	40	112	14	24

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	154	0	-	0	732 98
Stage 1	-	-	-	-	98 -
Stage 2	-	-	-	-	634 -
Critical Hdwy	4.14	-	-	-	6.82 6.45
Critical Hdwy Stg 1	-	-	-	-	5.82 -
Critical Hdwy Stg 2	-	-	-	-	5.82 -
Follow-up Hdwy	2.236	-	-	-	3.878 3.525
Pot Cap-1 Maneuver	1414	-	-	-	335 899
Stage 1	-	-	-	-	835 -
Stage 2	-	-	-	-	460 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1411	-	-	-	285 897
Mov Cap-2 Maneuver	-	-	-	-	285 -
Stage 1	-	-	-	-	712 -
Stage 2	-	-	-	-	459 -

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1411	-	-	-	285	897
HCM Lane V/C Ratio	0.121	-	-	-	0.05	0.027
HCM Control Delay (s)	7.9	0	-	-	18.3	9.1
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	-	0.2	0.1

HCM 6th TWSC
 9: SW Leveton Drive & Center Driveway

07/27/2022

Intersection

Int Delay, s/veh 1.5

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	59	193	120	31	8	6
Future Vol, veh/h	59	193	120	31	8	6
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	6	13	2	2	2
Mvmt Flow	72	235	146	38	10	7

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	186	0	-	0	547	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	380	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1388	-	-	-	498	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1385	-	-	-	466	875
Mov Cap-2 Maneuver	-	-	-	-	466	-
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	690	-

Approach EB WB SB

HCM Control Delay, s	1.8	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1385	-	-	-	466	875
HCM Lane V/C Ratio	0.052	-	-	-	0.021	0.008
HCM Control Delay (s)	7.7	0	-	-	12.9	9.1
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1	0

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	189	4	0	164	0	0	0	1	0	0	0
Future Vol, veh/h	0	189	4	0	164	0	0	0	1	0	0	0
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	11	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	0	233	5	0	202	0	0	0	1	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	238	0	0	438	439	236	439	441	203
Stage 1	-	-	-	-	-	-	236	236	-	203	203	-
Stage 2	-	-	-	-	-	-	202	203	-	236	238	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1369	-	-	1329	-	-	529	512	803	528	510	838
Stage 1	-	-	-	-	-	-	767	710	-	799	733	-
Stage 2	-	-	-	-	-	-	800	733	-	767	708	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1368	-	-	1329	-	-	529	511	803	527	509	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	529	511	-	527	509	-
Stage 1	-	-	-	-	-	-	767	710	-	798	732	-
Stage 2	-	-	-	-	-	-	800	732	-	766	708	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.5			0		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	803	1368	-	-	1329	-	-	-
HCM Lane V/C Ratio	0.002	-	-	-	-	-	-	-
HCM Control Delay (s)	9.5	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

HCM 6th TWSC
 11: SW 108th Avenue & SW Leveton Drive

07/27/2022

Intersection						
Int Delay, s/veh	7.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	130	41	105	132	29	50
Future Vol, veh/h	130	41	105	132	29	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	14	10	6	20	16	12
Mvmt Flow	171	54	138	174	38	66

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	521	71	104	0	0
Stage 1	71	-	-	-	-
Stage 2	450	-	-	-	-
Critical Hdwy	6.54	6.3	4.16	-	-
Critical Hdwy Stg 1	5.54	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-
Follow-up Hdwy	3.626	3.39	2.254	-	-
Pot Cap-1 Maneuver	495	970	1463	-	-
Stage 1	922	-	-	-	-
Stage 2	618	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	444	970	1463	-	-
Mov Cap-2 Maneuver	444	-	-	-	-
Stage 1	826	-	-	-	-
Stage 2	618	-	-	-	-

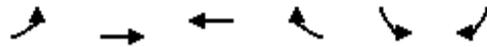
Approach	EB	NB	SB
HCM Control Delay, s	17.5	3.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	510	-	-
HCM Lane V/C Ratio	0.094	-	0.441	-	-
HCM Control Delay (s)	7.7	0	17.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.2	-	-

HCM Signalized Intersection Capacity Analysis

12: SW Herman Road & SW 108th Avenue

07/27/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	290	218	275	61	9
Future Volume (vph)	14	290	218	275	61	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1492	1583	1579		1543	1455
Flt Permitted	0.30	1.00	1.00		0.95	1.00
Satd. Flow (perm)	474	1583	1579		1543	1455
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	17	354	266	335	74	11
RTOR Reduction (vph)	0	0	42	0	0	9
Lane Group Flow (vph)	17	354	559	0	74	2
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	21%	20%	16%	5%	17%	11%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	35.2	35.2	29.2		4.9	4.9
Effective Green, g (s)	36.6	36.6	30.6		7.4	7.4
Actuated g/C Ratio	0.70	0.70	0.59		0.14	0.14
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	372	1114	929		219	207
v/s Ratio Prot	0.00	c0.22	c0.35		c0.05	0.00
v/s Ratio Perm	0.03					
v/c Ratio	0.05	0.32	0.60		0.34	0.01
Uniform Delay, d1	3.4	2.9	6.8		20.1	19.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	1.1		0.7	0.0
Delay (s)	3.5	3.1	7.9		20.8	19.2
Level of Service	A	A	A		C	B
Approach Delay (s)		3.1	7.9		20.6	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			7.3		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			52.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			39.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th TWSC
 13: SW Teton Street & SW Tualatin Road

08/15/2022

Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	431	151	53	298	74	54
Future Vol, veh/h	431	151	53	298	74	54
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	3	10	3	9	27
Mvmt Flow	484	170	60	335	83	61

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	654
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.29
Pot Cap-1 Maneuver	-	-	896
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	896
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	22.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	236	477	-	-	896	-
HCM Lane V/C Ratio	0.352	0.127	-	-	0.066	-
HCM Control Delay (s)	28.3	13.6	-	-	9.3	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.5	0.4	-	-	0.2	-

HCM Signalized Intersection Capacity Analysis
 1: Highway 99W/Highway 99 W & SW 124th Avenue

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	650	779	894	197	741	1207
Future Volume (vph)	650	779	894	197	741	1207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.3	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	*1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	1533	3471	3471
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	1533	3471	3471
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	684	820	941	207	780	1271
RTOR Reduction (vph)	0	0	0	107	0	0
Lane Group Flow (vph)	684	820	941	100	780	1271
Confl. Peds. (#/hr)		11				
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%
Turn Type	Prot	pt+ov	NA	Perm	Prot	NA
Protected Phases	8	1 4	2		1	6
Permitted Phases				2		
Actuated Green, G (s)	28.5	47.1	40.7	40.7	36.0	82.3
Effective Green, g (s)	30.5	44.7	42.7	42.7	37.6	84.3
Actuated g/C Ratio	0.23	0.33	0.32	0.32	0.28	0.63
Clearance Time (s)	6.0		6.0	6.0	5.6	6.0
Vehicle Extension (s)	2.3		5.4	5.4	2.3	5.4
Lane Grp Cap (vph)	781	930	1128	488	974	2185
v/s Ratio Prot	c0.20	c0.29	c0.27		0.22	0.37
v/s Ratio Perm				0.07		
v/c Ratio	0.88	0.88	0.83	0.21	0.80	0.58
Uniform Delay, d1	49.9	42.1	42.3	33.2	44.7	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	9.7	6.2	0.5	4.6	0.7
Delay (s)	60.5	51.8	48.5	33.7	49.3	15.2
Level of Service	E	D	D	C	D	B
Approach Delay (s)	55.8		45.8			28.1
Approach LOS	E		D			C

Intersection Summary

HCM 2000 Control Delay	41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	133.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: SW 124th Avenue & SW Tualatin Road

07/27/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	28	533	916	45	378	564
Future Volume (vph)	28	533	916	45	378	564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1626	1583	3539	1541	1769	3406
Flt Permitted	0.95	1.00	1.00	1.00	0.14	1.00
Satd. Flow (perm)	1626	1583	3539	1541	269	3406
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	561	964	47	398	594
RTOR Reduction (vph)	0	266	0	15	0	0
Lane Group Flow (vph)	29	295	964	32	398	594
Confl. Peds. (#/hr)				4	4	
Heavy Vehicles (%)	11%	2%	2%	2%	2%	6%
Turn Type	Prot	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		6	2	
Actuated Green, G (s)	4.0	30.5	33.4	33.4	64.9	64.9
Effective Green, g (s)	5.0	32.5	34.4	34.4	65.9	65.9
Actuated g/C Ratio	0.06	0.38	0.41	0.41	0.78	0.78
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.9	3.9	3.0	3.0
Lane Grp Cap (vph)	96	608	1439	626	697	2653
v/s Ratio Prot	0.02	c0.16	c0.27		c0.19	0.17
v/s Ratio Perm		0.03		0.02	0.26	
v/c Ratio	0.30	0.49	0.67	0.05	0.57	0.22
Uniform Delay, d1	38.1	19.7	20.5	15.2	12.3	2.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.6	1.3	0.0	1.1	0.0
Delay (s)	39.9	20.3	21.8	15.3	13.4	2.5
Level of Service	D	C	C	B	B	A
Approach Delay (s)	21.3		21.5			6.9
Approach LOS	C		C			A

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	0	367	11	10	706	0	47	0	34	0	0	0
Future Vol, veh/h	0	367	11	10	706	0	47	0	34	0	0	0
Conflicting Peds, #/hr	6	0	2	2	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	20	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	5	14	2	2	0	2	0	5	0	0	0
Mvmt Flow	0	399	12	11	767	0	51	0	37	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	773	0	0	413
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.218
Pot Cap-1 Maneuver	851	-	-	1146
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	846	-	-	1144
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	29.1	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	236	846	-	-	1144	-	-	-
HCM Lane V/C Ratio	0.373	-	-	-	0.01	-	-	-
HCM Control Delay (s)	29.1	0	-	-	8.2	-	-	0
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	1.6	0	-	-	0	-	-	-

HCM 6th TWSC
4: SW 108th Avenue & North Access

07/27/2022

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗	↖		↗		↕			↕	
Traffic Vol, veh/h	14	0	159	13	0	2	25	36	10	1	26	4
Future Vol, veh/h	14	0	159	13	0	2	25	36	10	1	26	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	0	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	92	90	92	92	92	90	90	92	92	90	90
Heavy Vehicles, %	0	2	0	2	2	2	0	9	2	2	3	0
Mvmt Flow	16	0	177	14	0	2	28	40	11	1	29	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	136	-	31	224	-	46	33	0	0	51	0	0
Stage 1	33	-	-	102	-	-	-	-	-	-	-	-
Stage 2	103	-	-	122	-	-	-	-	-	-	-	-
Critical Hdwy	7.1	-	6.2	7.12	-	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	6.12	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.3	3.518	-	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	840	0	1049	732	0	1023	1592	-	-	1555	-	-
Stage 1	988	0	-	904	0	-	-	-	-	-	-	-
Stage 2	908	0	-	882	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	826	-	1049	600	-	1023	1592	-	-	1555	-	-
Mov Cap-2 Maneuver	826	-	-	600	-	-	-	-	-	-	-	-
Stage 1	970	-	-	888	-	-	-	-	-	-	-	-
Stage 2	890	-	-	733	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		10.8		2.6		0.2	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1592	-	-	826	1049	600	1023	1555	-	-
HCM Lane V/C Ratio	0.017	-	-	0.019	0.168	0.024	0.002	0.001	-	-
HCM Control Delay (s)	7.3	0	-	9.4	9.1	11.1	8.5	7.3	0	-
HCM Lane LOS	A	A	-	A	A	B	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.6	0.1	0	0	-	-

HCM 6th TWSC
5: SW 108th Avenue & South Access

07/27/2022

Intersection

Int Delay, s/veh 2.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	14	49	8	58	183	2
Future Vol, veh/h	14	49	8	58	183	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	53	9	63	199	2

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	281	200	201	0	-	0
Stage 1	200	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	709	841	1371	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	704	841	1371	-	-	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	9.7	0.9	0
HCM LOS	A		

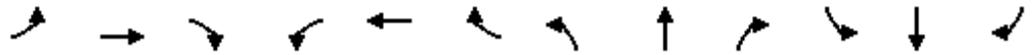
Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h)	1371	-	704	841	-	-
HCM Lane V/C Ratio	0.006	-	0.022	0.063	-	-
HCM Control Delay (s)	7.6	0	10.2	9.6	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.2	-	-

HCM Signalized Intersection Capacity Analysis

6: SW 124th Avenue & SW Leveton Drive

07/27/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Traffic Volume (vph)	22	42	30	86	3	303	16	640	34	88	491	12
Future Volume (vph)	22	42	30	86	3	303	16	640	34	88	491	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1738		1626	1557		1107	3436		1769	3381	
Flt Permitted	0.37	1.00		0.64	1.00		0.46	1.00		0.23	1.00	
Satd. Flow (perm)	686	1738		1093	1557		534	3436		429	3381	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	23	44	31	90	3	316	17	667	35	92	511	12
RTOR Reduction (vph)	0	24	0	0	238	0	0	3	0	0	2	0
Lane Group Flow (vph)	23	51	0	90	81	0	17	699	0	92	522	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	2%	2%	2%	11%	67%	2%	63%	3%	26%	2%	5%	58%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.8	13.7		19.0	15.3		23.5	22.5		33.8	27.8	
Effective Green, g (s)	17.8	14.7		21.0	16.3		25.5	23.5		34.8	28.8	
Actuated g/C Ratio	0.27	0.22		0.32	0.25		0.39	0.35		0.53	0.44	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	385		384	383		223	1219		373	1470	
v/s Ratio Prot	0.00	0.03		c0.02	0.05		0.00	c0.20		c0.03	0.15	
v/s Ratio Perm	0.02			c0.06			0.03			0.10		
v/c Ratio	0.10	0.13		0.23	0.21		0.08	0.57		0.25	0.36	
Uniform Delay, d1	18.1	20.6		16.4	19.8		12.7	17.3		8.9	12.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.2		0.3	0.3		0.1	0.7		0.3	0.1	
Delay (s)	18.3	20.8		16.7	20.1		12.9	17.9		9.3	12.6	
Level of Service	B	C		B	C		B	B		A	B	
Approach Delay (s)		20.2			19.4			17.8			12.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Intersection Delay, s/veh 10.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	138	10	33	369	2	17	3	10	2	4	13
Future Vol, veh/h	6	138	10	33	369	2	17	3	10	2	4	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	5	20	2	3	2	6	2	17	2	25	2
Mvmt Flow	7	150	11	36	401	2	18	3	11	2	4	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	11.8	8.6	8.1
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	4%	8%	11%
Vol Thru, %	10%	90%	91%	21%
Vol Right, %	33%	6%	0%	68%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	154	404	19
LT Vol	17	6	33	2
Through Vol	3	138	369	4
RT Vol	10	10	2	13
Lane Flow Rate	33	167	439	21
Geometry Grp	1	1	1	1
Degree of Util (X)	0.048	0.208	0.522	0.028
Departure Headway (Hd)	5.267	4.48	4.276	4.915
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	679	802	848	727
Service Time	3.307	2.503	2.276	2.956
HCM Lane V/C Ratio	0.049	0.208	0.518	0.029
HCM Control Delay	8.6	8.7	11.8	8.1
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	0.8	3.1	0.1

HCM 6th TWSC
8: SW Leveton Drive & West Driveway

07/27/2022

Intersection

Int Delay, s/veh 6.5

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	100	51	207	46	98	194
Future Vol, veh/h	100	51	207	46	98	194
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	3	2	2	2	5
Mvmt Flow	110	56	227	51	108	213

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	280	0	-	0	531	255
Stage 1	-	-	-	-	255	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	4.16	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.254	-	-	-	3.518	3.345
Pot Cap-1 Maneuver	1260	-	-	-	509	776
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1258	-	-	-	461	775
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	769	-

Approach EB WB SB

HCM Control Delay, s	5.4	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2

Capacity (veh/h)	1258	-	-	-	461	775
HCM Lane V/C Ratio	0.087	-	-	-	0.234	0.275
HCM Control Delay (s)	8.1	0	-	-	15.2	11.4
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.9	1.1

HCM 6th TWSC
 9: SW Leveton Drive & Center Driveway

07/27/2022

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	14	138	209	27	37	43
Future Vol, veh/h	14	138	209	27	37	43
Conflicting Peds, #/hr	5	0	0	5	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	164	249	32	44	51

Major/Minor

	Major1	Major2	Minor2		
Conflicting Flow All	286	0	0	468	270
Stage 1	-	-	-	270	-
Stage 2	-	-	-	198	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1276	-	-	553	769
Stage 1	-	-	-	775	-
Stage 2	-	-	-	835	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1270	-	-	539	765
Mov Cap-2 Maneuver	-	-	-	539	-
Stage 1	-	-	-	760	-
Stage 2	-	-	-	831	-

Approach

	EB	WB	SB
HCM Control Delay, s	0.7	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1270	-	-	-	539	765
HCM Lane V/C Ratio	0.013	-	-	-	0.082	0.067
HCM Control Delay (s)	7.9	0	-	-	12.3	10
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0.2

HCM 6th TWSC
 10: Calmax Driveway/East Driveway & SW Leveton Drive

07/27/2022

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	161	0	2	239	0	6	0	3	0	0	0
Future Vol, veh/h	0	161	0	2	239	0	6	0	3	0	0	0
Conflicting Peds, #/hr	6	0	2	2	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	3	2	50	1	2	2	2	33	2	2	2
Mvmt Flow	0	196	0	2	291	0	7	0	4	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	297	0	0	198	0	0	493	499	198	499	499	297
Stage 1	-	-	-	-	-	-	198	198	-	301	301	-
Stage 2	-	-	-	-	-	-	295	301	-	198	198	-
Critical Hdwy	4.12	-	-	4.6	-	-	7.12	6.52	6.53	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.65	-	-	3.518	4.018	3.597	3.518	4.018	3.318
Pot Cap-1 Maneuver	1264	-	-	1134	-	-	486	473	770	482	473	742
Stage 1	-	-	-	-	-	-	804	737	-	708	665	-
Stage 2	-	-	-	-	-	-	713	665	-	804	737	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1257	-	-	1132	-	-	485	468	769	476	468	738
Mov Cap-2 Maneuver	-	-	-	-	-	-	485	468	-	476	468	-
Stage 1	-	-	-	-	-	-	802	736	-	704	660	-
Stage 2	-	-	-	-	-	-	712	660	-	800	736	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			11.6			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	553	1257	-	-	1132	-	-	-
HCM Lane V/C Ratio	0.02	-	-	-	0.002	-	-	-
HCM Control Delay (s)	11.6	0	-	-	8.2	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

HCM 6th TWSC
 11: SW 108th Avenue & SW Leveton Drive

07/27/2022

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	39	126	95	25	107	125
Future Vol, veh/h	39	126	95	25	107	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	9	2	3	2	2	2
Mvmt Flow	46	150	113	30	127	149

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	458	202	276	0	0
Stage 1	202	-	-	-	-
Stage 2	256	-	-	-	-
Critical Hdwy	6.49	6.22	4.13	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-
Follow-up Hdwy	3.581	3.318	2.227	-	-
Pot Cap-1 Maneuver	548	839	1281	-	-
Stage 1	815	-	-	-	-
Stage 2	771	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	499	839	1281	-	-
Mov Cap-2 Maneuver	499	-	-	-	-
Stage 1	742	-	-	-	-
Stage 2	771	-	-	-	-

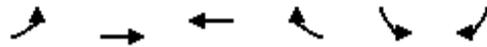
Approach	EB	NB	SB
HCM Control Delay, s	11.8	6.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1281	-	723	-	-
HCM Lane V/C Ratio	0.088	-	0.272	-	-
HCM Control Delay (s)	8.1	0	11.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.1	-	-

HCM Signalized Intersection Capacity Analysis

12: SW Herman Road & SW 108th Avenue

07/27/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	250	450	112	271	18
Future Volume (vph)	6	250	450	112	271	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1543	1792	1727		1770	1524
Flt Permitted	0.21	1.00	1.00		0.95	1.00
Satd. Flow (perm)	335	1792	1727		1770	1524
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	6	253	455	113	274	18
RTOR Reduction (vph)	0	0	12	0	0	12
Lane Group Flow (vph)	6	253	556	0	274	6
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	17%	6%	7%	5%	2%	6%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	5	2	6		4	4
Permitted Phases	2					
Actuated Green, G (s)	26.1	26.1	20.2		13.7	13.7
Effective Green, g (s)	27.5	27.5	21.6		16.2	16.2
Actuated g/C Ratio	0.53	0.53	0.42		0.31	0.31
Clearance Time (s)	5.4	5.4	5.4		6.5	6.5
Vehicle Extension (s)	2.0	3.1	3.1		2.6	2.6
Lane Grp Cap (vph)	222	953	721		554	477
v/s Ratio Prot	0.00	c0.14	c0.32		c0.15	0.00
v/s Ratio Perm	0.01					
v/c Ratio	0.03	0.27	0.77		0.49	0.01
Uniform Delay, d1	7.6	6.6	12.9		14.4	12.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2	5.2		0.5	0.0
Delay (s)	7.6	6.8	18.1		15.0	12.2
Level of Service	A	A	B		B	B
Approach Delay (s)		6.8	18.1		14.8	
Approach LOS		A	B		B	
Intersection Summary						
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			51.7		Sum of lost time (s)	12.0
Intersection Capacity Utilization			52.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th TWSC
 13: SW Teton Street & SW Tualatin Road

08/15/2022

Intersection

Int Delay, s/veh 18.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	332	73	30	607	180	65
Future Vol, veh/h	332	73	30	607	180	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	10	2	2	7	3
Mvmt Flow	382	84	34	698	207	75

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	466
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1095
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1095
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	97.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	197	628	-	-	1095	-
HCM Lane V/C Ratio	1.05	0.119	-	-	0.031	-
HCM Control Delay (s)	128.2	11.5	-	-	8.4	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	9.4	0.4	-	-	0.1	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

13: SW Teton Street & SW Tualatin Road Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	3.0	0.6	0.2	0.2	0.4
Total Delay (hr)	0.2	0.0	0.0	0.1	1.9	0.1	2.4
Total Del/Veh (s)	1.7	1.0	4.2	0.8	38.5	4.8	6.5
Stop Delay (hr)	0.0	0.0	0.0	0.0	1.8	0.1	1.9
Stop Del/Veh (s)	0.0	0.1	2.0	0.0	36.2	4.3	5.2

APPENDIX J.
QUEUING ANALYSIS

Queuing and Blocking Report
2022 Existing

07/26/2022

Intersection: 1: Highway 99W/Highway 99 W & SW 124th Avenue

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	127	136	168	159	497	520	425	582	478	180	198
Average Queue (ft)	53	59	70	71	299	281	174	340	266	68	77
95th Queue (ft)	110	113	139	135	451	443	344	538	421	147	155
Link Distance (ft)	499	499			1713	1713				1724	1724
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	300			225	700	700		
Storage Blk Time (%)						15	5	0			
Queuing Penalty (veh)						65	26	0			

Intersection: 2: SW 124th Avenue & SW Tualatin Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	130	118	100	193	52	371	384	228
Average Queue (ft)	42	35	38	78	18	139	49	49
95th Queue (ft)	91	73	86	146	46	302	213	143
Link Distance (ft)		2433	1020	1020			499	499
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							1	
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				2		4	0	
Queuing Penalty (veh)				1		15	2	

Intersection: 3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

Movement	EB	WB	NB
Directions Served	TR	L	LTR
Maximum Queue (ft)	4	56	75
Average Queue (ft)	0	12	19
95th Queue (ft)	3	40	54
Link Distance (ft)	1483		615
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	0	1	

Queuing and Blocking Report
2022 Existing

07/26/2022

Intersection: 4: SW 108th Avenue & North Access

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	6	31
Average Queue (ft)	0	7
95th Queue (ft)	6	28
Link Distance (ft)	308	308
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SW 108th Avenue & South Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: SW 124th Avenue & SW Leveton Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	64	87	63	39	79	92	182	96	182	192
Average Queue (ft)	7	39	15	12	19	27	57	37	51	69
95th Queue (ft)	36	74	47	36	53	66	125	74	128	149
Link Distance (ft)		1012		1222		626	626		1020	1020
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0							0	
Queuing Penalty (veh)		0							0	

Intersection: 7: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	77	71	43	17
Average Queue (ft)	44	26	11	1
95th Queue (ft)	67	59	33	9
Link Distance (ft)	1222	997	1700	258
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: SW Leveton Drive & West Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	47	10	64	73
Average Queue (ft)	7	1	13	20
95th Queue (ft)	31	6	47	58
Link Distance (ft)	997	840	632	632
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: SW Leveton Drive & Center Driveway

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	30	31	31
Average Queue (ft)	3	6	6
95th Queue (ft)	16	25	27
Link Distance (ft)	840	642	642
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2022 Existing

07/26/2022

Intersection: 10: Calmax Driveway/East Driveway & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	38	24	31
Average Queue (ft)	3	1	5
95th Queue (ft)	19	10	23
Link Distance (ft)	377	195	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	67	31
Average Queue (ft)	27	3
95th Queue (ft)	56	17
Link Distance (ft)	535	766
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	52	143	120	62	33
Average Queue (ft)	7	41	49	23	6
95th Queue (ft)	32	104	101	51	23
Link Distance (ft)		1535	2089		766
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1			
Queuing Penalty (veh)		0			

Zone Summary

Zone wide Queuing Penalty: 111

Queuing and Blocking Report
2022 Existing

08/08/2022

Intersection: 13: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	6	61	102	84
Average Queue (ft)	0	18	41	38
95th Queue (ft)	4	46	79	74
Link Distance (ft)	929	570	645	645
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 112

Queuing and Blocking Report
2022 Existing

07/26/2022

Intersection: 1: Highway 99W/Highway 99 W & SW 124th Avenue

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	363	372	338	296	452	414	260	395	348	312	319
Average Queue (ft)	218	226	191	176	288	258	65	254	220	173	185
95th Queue (ft)	339	348	289	261	407	372	148	353	318	272	279
Link Distance (ft)	498	498			1283	1283				1425	1425
Upstream Blk Time (%)		0									
Queuing Penalty (veh)		1									
Storage Bay Dist (ft)			300	300			225	700	700		
Storage Blk Time (%)		3	0	0		14					
Queuing Penalty (veh)		22	1	1		24					

Intersection: 2: SW 124th Avenue & SW Tualatin Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	68	298	236	327	220	355	143	152
Average Queue (ft)	23	142	112	160	20	132	16	25
95th Queue (ft)	58	241	198	267	86	291	77	92
Link Distance (ft)		2433	1020	1020			498	498
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		0		13		5		
Queuing Penalty (veh)		0		6		14		

Intersection: 3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	29	76
Average Queue (ft)	1	31
95th Queue (ft)	11	55
Link Distance (ft)		610
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2022 Existing

07/26/2022

Intersection: 4: SW 108th Avenue & North Access

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	19	31
Average Queue (ft)	1	12
95th Queue (ft)	8	36
Link Distance (ft)	299	299
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SW 108th Avenue & South Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: SW 124th Avenue & SW Leveton Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	47	72	70	116	72	161	234	68	148	207
Average Queue (ft)	14	34	27	55	16	57	86	26	47	67
95th Queue (ft)	39	63	60	99	53	117	170	55	117	146
Link Distance (ft)		1012		1222		626	626		1020	1020
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0		0		0			0	
Queuing Penalty (veh)		0		0		0			0	

Intersection: 7: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	70	72	38	37
Average Queue (ft)	37	43	13	11
95th Queue (ft)	61	66	33	35
Link Distance (ft)	1222	997	1700	258
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: SW Leveton Drive & West Driveway

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	40	64	108
Average Queue (ft)	12	33	49
95th Queue (ft)	38	56	83
Link Distance (ft)	997	632	632
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SW Leveton Drive & Center Driveway

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	24	44	51
Average Queue (ft)	1	20	19
95th Queue (ft)	11	46	47
Link Distance (ft)	840	642	642
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2022 Existing

07/26/2022

Intersection: 10: Calmax Driveway/East Driveway & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	6	10	61	62
Average Queue (ft)	0	0	12	31
95th Queue (ft)	4	7	43	55
Link Distance (ft)	377	535	195	312
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	72	24
Average Queue (ft)	36	2
95th Queue (ft)	56	13
Link Distance (ft)	535	766
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	46	133	211	113	31
Average Queue (ft)	5	56	95	53	5
95th Queue (ft)	26	106	174	96	18
Link Distance (ft)		1535	2089		766
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		0		0	

Zone Summary

Zone wide Queuing Penalty: 67

Queuing and Blocking Report
2022 Existing

08/08/2022

Intersection: 13: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	10	40	193	62
Average Queue (ft)	0	8	82	32
95th Queue (ft)	5	32	167	58
Link Distance (ft)	924		481	481
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		1		

Intersection: 1: Highway 99W/Highway 99 W & SW 124th Avenue

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	143	130	218	186	616	651	422	742	698	391	255
Average Queue (ft)	60	61	71	71	352	346	231	425	348	77	84
95th Queue (ft)	117	117	161	147	571	601	433	698	629	259	201
Link Distance (ft)	499	499			1713	1713				1724	1724
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	300			225	700	700		
Storage Blk Time (%)							22	9	3	1	
Queuing Penalty (veh)							108	47	13	5	

Intersection: 2: SW 124th Avenue & SW Tualatin Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	110	99	143	238	67	362	214	231
Average Queue (ft)	41	36	44	89	21	145	43	57
95th Queue (ft)	85	74	99	187	54	290	135	157
Link Distance (ft)		2433	1020	1020			499	499
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				3		4	0	
Queuing Penalty (veh)				1		17	1	

Intersection: 3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (ft)	4	71	21	61
Average Queue (ft)	0	21	1	19
95th Queue (ft)	3	51	16	52
Link Distance (ft)	1483		952	615
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	2		

Intersection: 4: SW 108th Avenue & North Access

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	31	31
Average Queue (ft)	5	2
95th Queue (ft)	24	13
Link Distance (ft)	308	308
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SW 108th Avenue & South Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: SW 124th Avenue & SW Leveton Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	72	96	62	43	63	97	186	134	188	243
Average Queue (ft)	7	43	15	15	19	30	73	57	59	78
95th Queue (ft)	37	77	48	40	53	74	146	107	147	173
Link Distance (ft)		1012		1222		626	626		1020	1020
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)	0	1				0		0	0	
Queuing Penalty (veh)	0	0				0		0	1	

Intersection: 7: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	90	66	58	22
Average Queue (ft)	52	29	17	1
95th Queue (ft)	79	59	45	11
Link Distance (ft)	1222	997	1700	258
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: SW Leveton Drive & West Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	64	24	70	66
Average Queue (ft)	18	1	13	22
95th Queue (ft)	50	12	47	57
Link Distance (ft)	997	840	632	632
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: SW Leveton Drive & Center Driveway

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	44	31	31
Average Queue (ft)	6	6	5
95th Queue (ft)	27	26	24
Link Distance (ft)	840	642	642
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Calmax Driveway/East Driveway & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	43	6	31
Average Queue (ft)	7	0	5
95th Queue (ft)	31	7	22
Link Distance (ft)	377	195	312
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	74	48
Average Queue (ft)	31	13
95th Queue (ft)	64	43
Link Distance (ft)	535	766
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	59	161	221	81	59
Average Queue (ft)	8	42	61	27	7
95th Queue (ft)	35	110	147	62	30
Link Distance (ft)		1535	2089		766
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1			
Queuing Penalty (veh)		0			

Zone Summary

Zone wide Queuing Penalty: 195

Intersection: 13: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	35	57	97	83
Average Queue (ft)	1	19	42	38
95th Queue (ft)	16	48	79	74
Link Distance (ft)	929	570	645	645
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 168

Intersection: 1: Highway 99W/Highway 99 W & SW 124th Avenue

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	472	502	398	328	500	464	366	424	414	298	320
Average Queue (ft)	300	312	256	208	320	292	74	280	246	183	201
95th Queue (ft)	456	477	410	315	448	414	183	393	374	271	293
Link Distance (ft)	498	498			1283	1283				1425	1425
Upstream Blk Time (%)	1	2									
Queuing Penalty (veh)	8	12									
Storage Bay Dist (ft)			300	300			225	700	700		
Storage Blk Time (%)		15	1	1		19					
Queuing Penalty (veh)		112	4	3		37					

Intersection: 2: SW 124th Avenue & SW Tualatin Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	197	442	314	477	266	330	120	128
Average Queue (ft)	33	201	140	212	34	159	15	23
95th Queue (ft)	141	408	259	380	145	315	70	82
Link Distance (ft)		2433	1020	1020			498	498
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		6		22		8	0	
Queuing Penalty (veh)		2		10		21	0	

Intersection: 3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	34	88
Average Queue (ft)	3	34
95th Queue (ft)	19	65
Link Distance (ft)		610
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: SW 108th Avenue & North Access

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	36	31
Average Queue (ft)	10	4
95th Queue (ft)	35	21
Link Distance (ft)	298	298
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SW 108th Avenue & South Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: SW 124th Avenue & SW Leveton Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	55	96	84	140	70	149	244	89	196	201
Average Queue (ft)	16	37	35	68	17	67	112	33	57	79
95th Queue (ft)	43	72	71	119	57	126	208	71	149	164
Link Distance (ft)		1012		1222		626	626		1020	1020
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0		0		0			1	
Queuing Penalty (veh)		0		0		0			0	

Intersection: 7: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	74	80	57	49
Average Queue (ft)	40	47	16	13
95th Queue (ft)	62	70	39	38
Link Distance (ft)	1222	997	1700	258
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: SW Leveton Drive & West Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	57	13	71	96
Average Queue (ft)	19	1	35	53
95th Queue (ft)	51	7	60	84
Link Distance (ft)	997	840	632	632
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: SW Leveton Drive & Center Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	24	11	57	49
Average Queue (ft)	2	0	23	21
95th Queue (ft)	16	6	50	48
Link Distance (ft)	840	377	642	642
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Calmax Driveway/East Driveway & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	17	15	57	82
Average Queue (ft)	1	1	10	37
95th Queue (ft)	8	8	38	64
Link Distance (ft)	377	535	195	312
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	78	24
Average Queue (ft)	39	2
95th Queue (ft)	62	16
Link Distance (ft)	535	766
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	39	139	227	126	44
Average Queue (ft)	5	56	114	57	6
95th Queue (ft)	25	105	197	102	25
Link Distance (ft)		1535	2089		766
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		0		0	

Zone Summary

Zone wide Queuing Penalty: 209

Intersection: 13: SW Teton Street & SW Tualatin Road

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	38	210	72
Average Queue (ft)	9	88	32
95th Queue (ft)	32	178	57
Link Distance (ft)		481	481
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	1		

Intersection: 1: Highway 99W/Highway 99 W & SW 124th Avenue

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	128	140	188	192	629	648	425	792	802	699	706
Average Queue (ft)	56	63	74	73	351	347	254	523	426	137	124
95th Queue (ft)	109	118	145	144	549	570	439	830	801	602	493
Link Distance (ft)	499	499			1713	1713				1724	1724
Upstream Blk Time (%)										0	0
Queuing Penalty (veh)										0	0
Storage Bay Dist (ft)			300	300			225	700	700		
Storage Blk Time (%)						22	12	9	2	0	
Queuing Penalty (veh)						112	66	35	8	0	

Intersection: 2: SW 124th Avenue & SW Tualatin Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	121	110	138	242	70	360	251	219
Average Queue (ft)	44	37	39	89	20	147	46	57
95th Queue (ft)	90	76	95	179	52	294	150	143
Link Distance (ft)		2433	1020	1020			499	499
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)				3		4	0	
Queuing Penalty (veh)				1		16	2	

Intersection: 3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	56	71
Average Queue (ft)	23	16
95th Queue (ft)	50	46
Link Distance (ft)		615
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	1	
Queuing Penalty (veh)	3	

Queuing and Blocking Report
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07/27/2022

Intersection: 4: SW 108th Avenue & North Access

Movement	EB	EB	WB	WB	NB
Directions Served	L	R	L	R	LTR
Maximum Queue (ft)	12	31	31	24	62
Average Queue (ft)	1	15	5	2	13
95th Queue (ft)	8	40	24	13	44
Link Distance (ft)	450	450	308	308	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SW 108th Avenue & South Access

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	12	31	34	22
Average Queue (ft)	0	5	3	1
95th Queue (ft)	4	23	19	12
Link Distance (ft)	464	464	170	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: SW 124th Avenue & SW Leveton Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	61	96	67	46	58	98	204	183	171	190
Average Queue (ft)	6	42	18	15	17	33	85	69	52	74
95th Queue (ft)	32	79	50	41	47	74	162	129	124	152
Link Distance (ft)		1012		1222		626	626		1020	1020
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0				0		0	0	
Queuing Penalty (veh)		0				0		1	1	

Intersection: 7: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	145	83	59	11
Average Queue (ft)	63	30	20	0
95th Queue (ft)	104	62	51	6
Link Distance (ft)	1222	997	1700	258
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: SW Leveton Drive & West Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	83	13	59	76
Average Queue (ft)	22	1	10	20
95th Queue (ft)	65	7	42	57
Link Distance (ft)	997	840	632	632
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: SW Leveton Drive & Center Driveway

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	62	36	31
Average Queue (ft)	10	6	6
95th Queue (ft)	39	28	27
Link Distance (ft)	840	642	642
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2024 Post-Development

07/27/2022

Intersection: 10: Calmax Driveway/East Driveway & SW Leveton Drive

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	195
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	121	64
Average Queue (ft)	56	9
95th Queue (ft)	96	40
Link Distance (ft)	535	766
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 12: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	42	161	230	80	33
Average Queue (ft)	7	42	72	26	4
95th Queue (ft)	29	112	161	56	19
Link Distance (ft)		1535	2089		766
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1			
Queuing Penalty (veh)		0			

Zone Summary

Zone wide Queuing Penalty: 244

Queuing and Blocking Report
2024 Post-Development

08/08/2022

Intersection: 13: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	50	64	107	74
Average Queue (ft)	3	20	45	38
95th Queue (ft)	17	52	80	75
Link Distance (ft)	929	570	645	645
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 311

Queuing and Blocking Report
2024 Post-Development

07/27/2022

Intersection: 1: Highway 99W/Highway 99 W & SW 124th Avenue

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	L	T	T
Maximum Queue (ft)	457	499	399	339	452	430	279	437	402	303	338
Average Queue (ft)	289	309	276	222	298	271	75	273	238	185	196
95th Queue (ft)	459	487	423	339	413	390	167	393	361	282	295
Link Distance (ft)	498	498			1283	1283				1425	1425
Upstream Blk Time (%)	1	1									
Queuing Penalty (veh)	4	11									
Storage Bay Dist (ft)			300	300			225	700	700		
Storage Blk Time (%)		14	2	1		15					
Queuing Penalty (veh)		110	8	4		29					

Intersection: 2: SW 124th Avenue & SW Tualatin Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	130	383	316	542	225	360	160	178
Average Queue (ft)	24	189	137	237	36	160	17	25
95th Queue (ft)	84	317	242	454	155	313	88	101
Link Distance (ft)		2433	1020	1020			498	498
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300				140	200		
Storage Blk Time (%)		2		24		8	0	
Queuing Penalty (veh)		0		11		22	1	

Intersection: 3: SW 108th Avenue/Residential Driveway & SW Tualatin Road

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	30	102
Average Queue (ft)	3	44
95th Queue (ft)	16	85
Link Distance (ft)		610
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	50	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Queuing and Blocking Report
2024 Post-Development

07/27/2022

Intersection: 4: SW 108th Avenue & North Access

Movement	EB	EB	WB	WB	NB
Directions Served	L	R	L	R	LTR
Maximum Queue (ft)	40	77	31	24	29
Average Queue (ft)	12	42	13	1	1
95th Queue (ft)	38	66	37	11	11
Link Distance (ft)	450	450	298	298	184
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SW 108th Avenue & South Access

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	31	58	18	6
Average Queue (ft)	10	27	0	0
95th Queue (ft)	33	51	6	4
Link Distance (ft)	464	464	166	139
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: SW 124th Avenue & SW Leveton Drive

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	64	87	101	165	66	175	248	112	164	204
Average Queue (ft)	16	38	47	82	19	75	125	42	56	82
95th Queue (ft)	45	74	88	135	59	137	214	83	137	168
Link Distance (ft)		1012		1222		626	626		1020	1020
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	100		145		155			165		
Storage Blk Time (%)		0		1		0		0	0	
Queuing Penalty (veh)		0		1		0		0	0	

Intersection: 7: SW 118th Drive/JAE Access & SW Leveton Drive

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	85	95	50	39
Average Queue (ft)	43	56	17	14
95th Queue (ft)	68	81	39	38
Link Distance (ft)	1222	997	1700	258
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: SW Leveton Drive & West Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	81	8	80	98
Average Queue (ft)	21	0	39	53
95th Queue (ft)	57	4	66	88
Link Distance (ft)	997	840	632	632
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: SW Leveton Drive & Center Driveway

Movement	EB	WB	SB	SB
Directions Served	LT	TR	L	R
Maximum Queue (ft)	47	11	60	63
Average Queue (ft)	5	0	25	28
95th Queue (ft)	28	4	54	56
Link Distance (ft)	840	377	642	642
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2024 Post-Development

07/27/2022

Intersection: 10: Calmax Driveway/East Driveway & SW Leveton Drive

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	60
Average Queue (ft)	11
95th Queue (ft)	39
Link Distance (ft)	195
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 11: SW 108th Avenue & SW Leveton Drive

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	81	52	18
Average Queue (ft)	40	21	1
95th Queue (ft)	63	49	7
Link Distance (ft)	535	766	166
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: SW Herman Road & SW 108th Avenue

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	39	150	269	141	32
Average Queue (ft)	5	64	134	74	5
95th Queue (ft)	24	117	234	124	21
Link Distance (ft)		1535	2089		766
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	100			130	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		0		0	

Zone Summary

Zone wide Queuing Penalty: 201

Queuing and Blocking Report
2024 Post-Development

08/08/2022

Intersection: 13: SW Teton Street & SW Tualatin Road

Movement	EB	WB	NB	NB
Directions Served	TR	L	L	R
Maximum Queue (ft)	24	56	279	57
Average Queue (ft)	1	11	100	31
95th Queue (ft)	11	39	217	51
Link Distance (ft)	924		481	481
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		1		

Zone Summary

Zone wide Queuing Penalty: 261

APPENDIX K.
WARRANTS

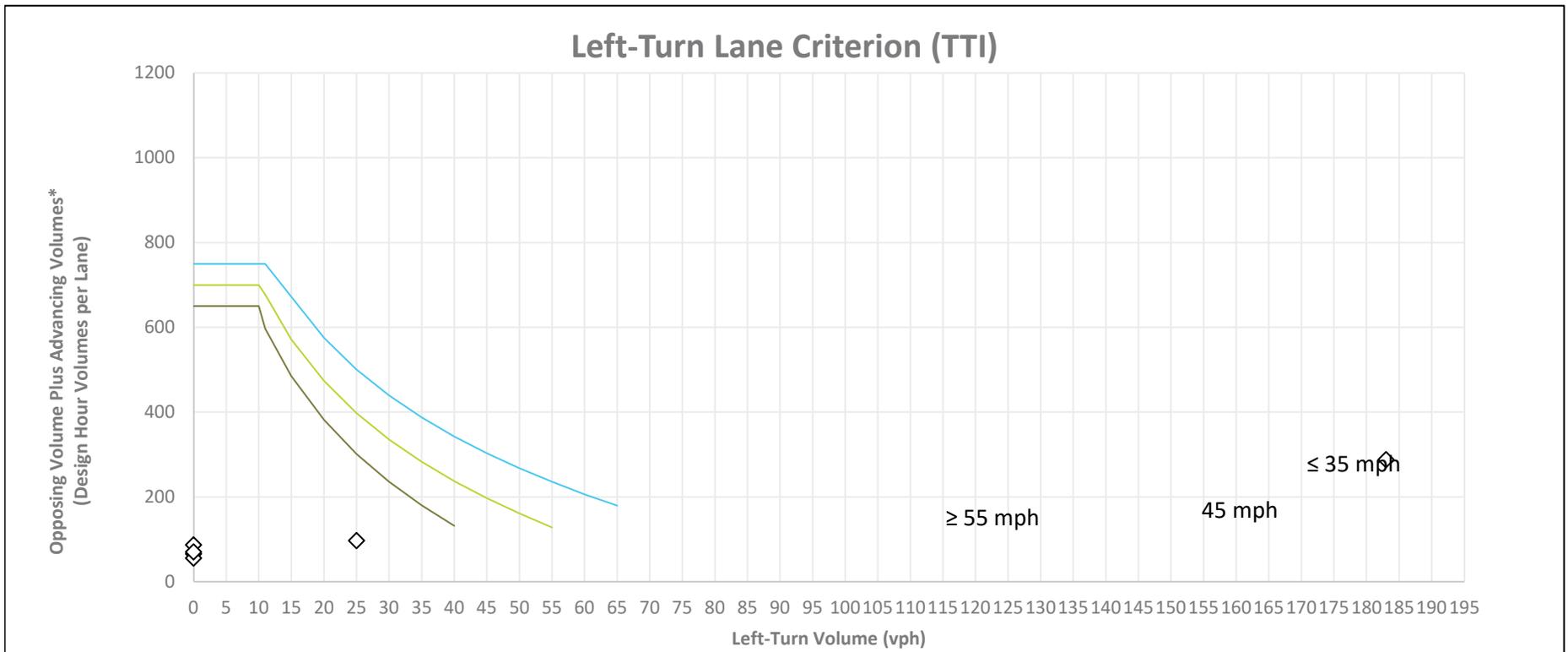
Project: Lam Research New Building

Job #: 2220087.00

Date: 8/15/2022

Subject: Left-Turn Lane Evaluation - 108th at North Site Access

Condition	Posted Speed	AM Peak Hour						PM Peak Hour					
		Approaching		Opposing		Left	Result	Approaching		Opposing		Left	Result
		Vol	Lanes	Vol	Lanes			Vol	Lanes	Vol	Lanes		
Existing	40	22	1	44	1	0	None	34	1	22	1	0	None
Pre-Dev	40	22	1	65	1	0	None	44	1	26	1	0	None
Post-Dev	40	205	1	83	1	183	Possible Lane	71	1	26	1	25	None



Source: Texas Transportation Institute

* ((Advancing volume/number of advancing through lanes) + (opposing volume/number of opposing through lanes))



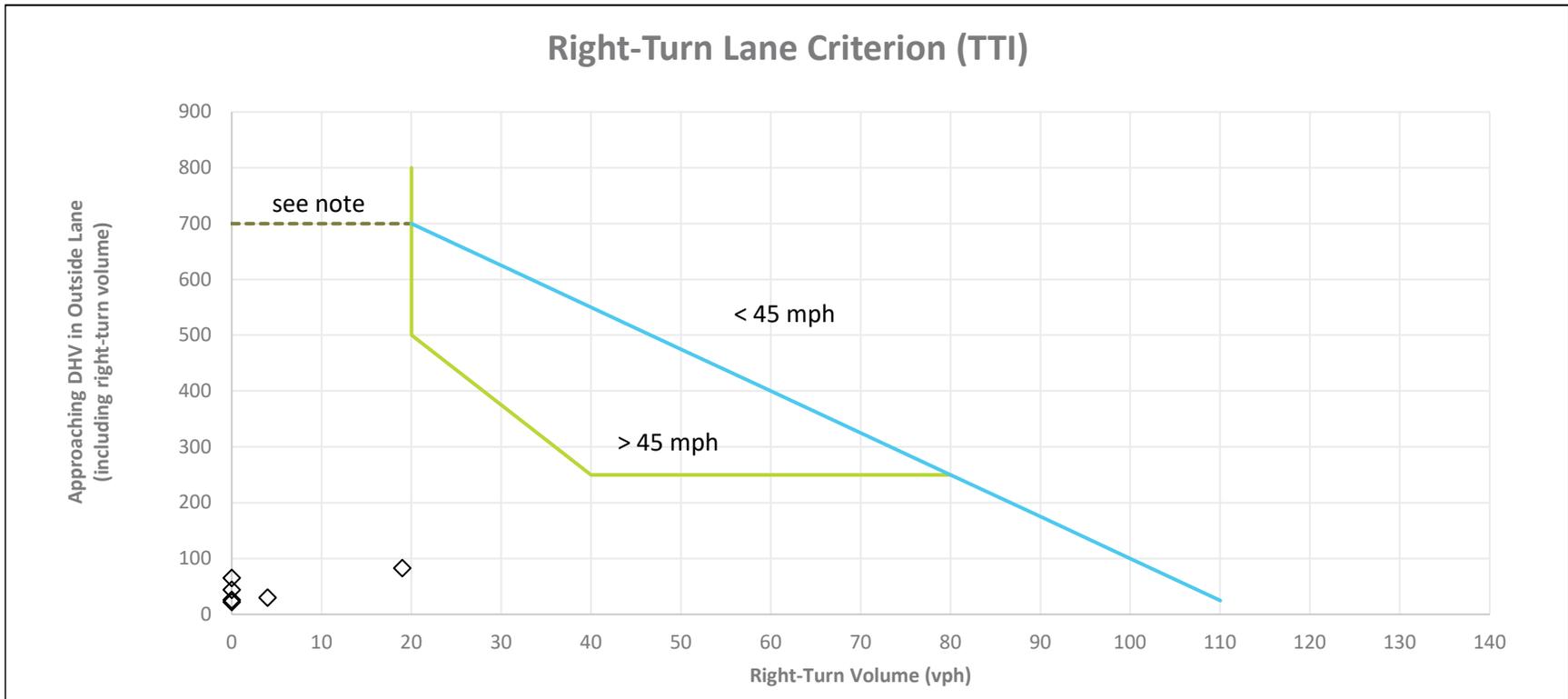
Project: Lam Research New Building

Job #: 2220087.00

Date: 8/15/2022

Subject: Right-Turn Lane Evaluation - 108th at North Site Access

Condition	Posted Speed	AM Peak Hour			PM Peak Hour		
		Volume		Result	Volume		Result
		Approaching	Right		Approaching	Right	
Existing	40	44	0	None	22	0	None
2024 Pre	40	65	0	None	26	0	None
2024 Post	40	83	19	None	30	4	None



Source: Texas Transportation Institute

Note: If there is no right-turn lane, a shoulder needs to be provided.



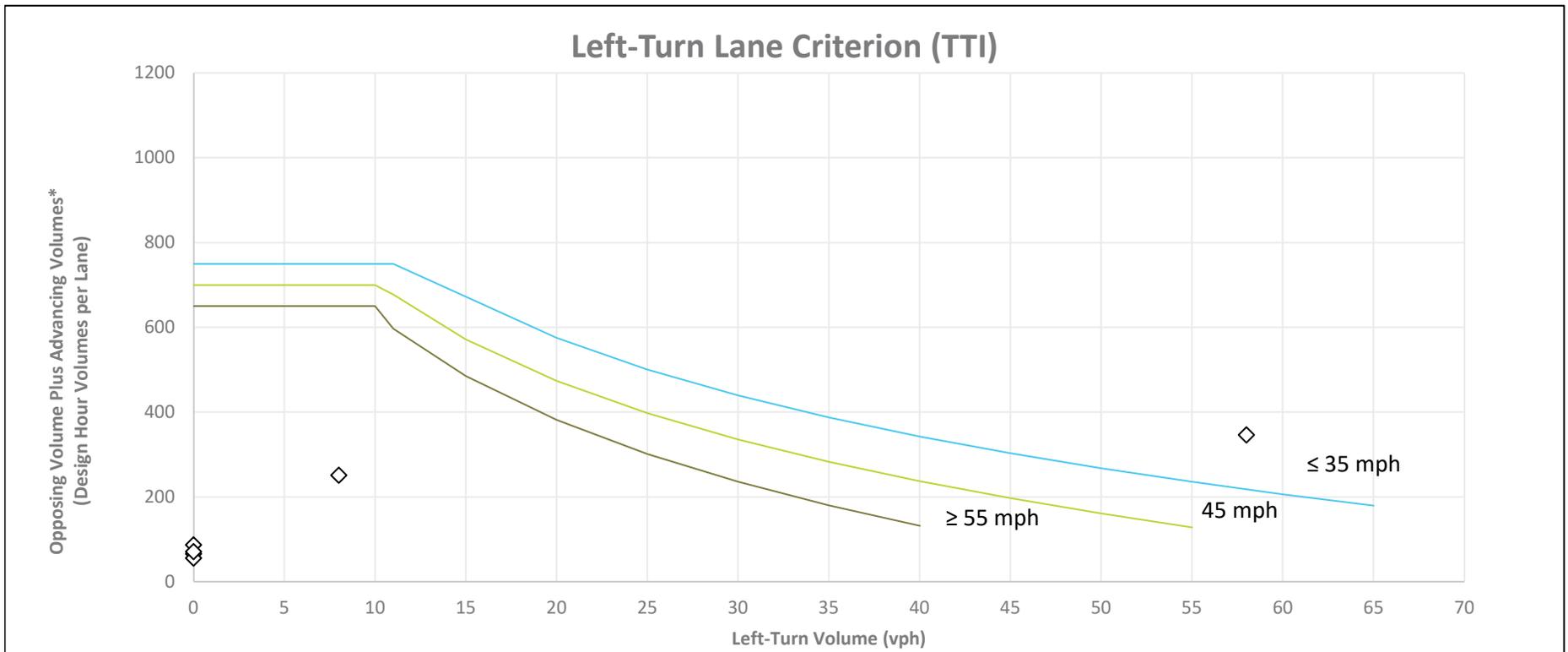
Project: Lam Research New Building

Job #: 2220087.00

Date: 8/15/2022

Subject: Left-Turn Lane Evaluation - 108th at South Site Access

Condition	Posted Speed	AM Peak Hour						PM Peak Hour					
		Approaching		Opposing		Left	Result	Approaching		Opposing		Left	Result
		Vol	Lanes	Vol	Lanes			Vol	Lanes	Vol	Lanes		
Existing	40	22	1	44	1	0	None	34	1	22	1	0	None
Pre-Dev	40	22	1	65	1	0	None	45	1	26	1	0	None
Post-Dev	40	262	1	84	1	58	Possible Lane	66	1	185	1	8	None



Source: Texas Transportation Institute

* ((Advancing volume/number of advancing through lanes) + (opposing volume/number of opposing through lanes))



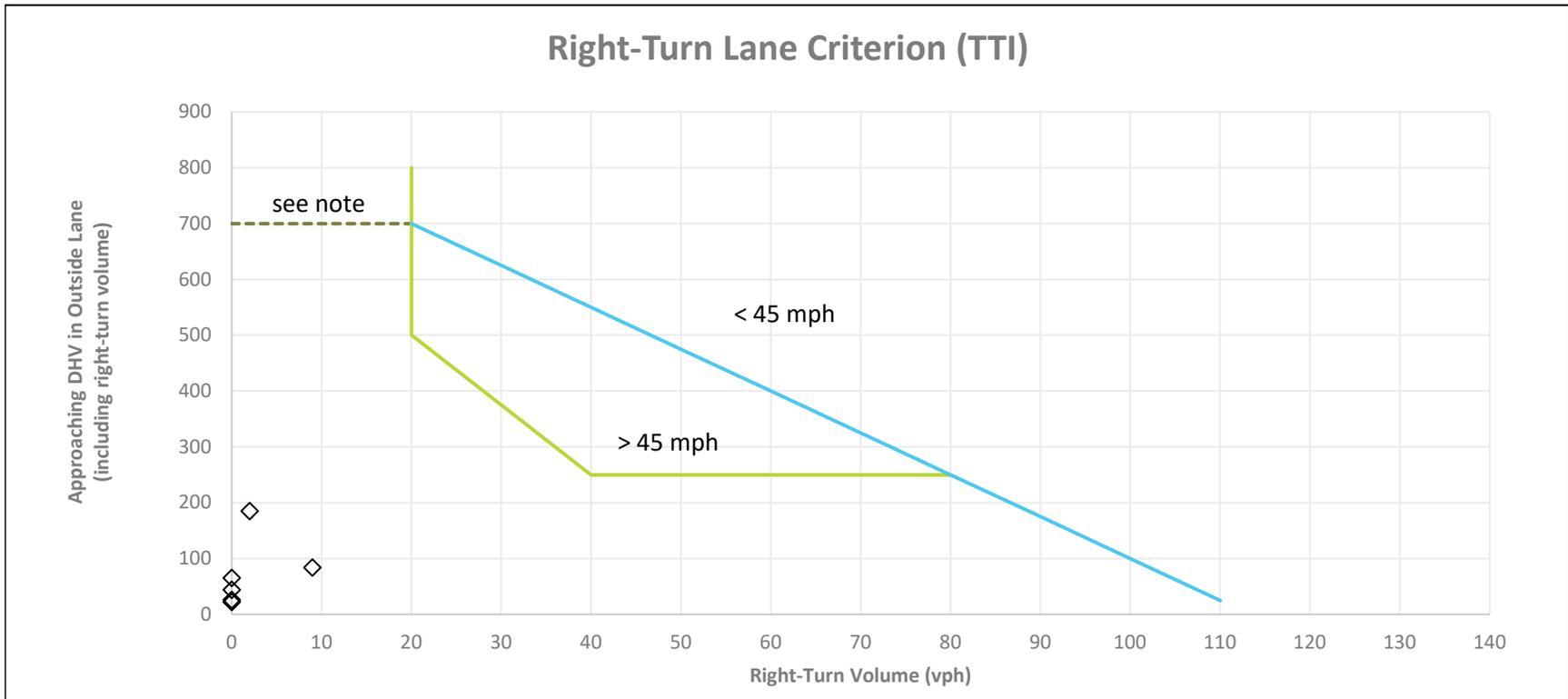
Project: Lam Research New Building

Job #: 2220087.00

Date: 8/15/2022

Subject: Right-Turn Lane Evaluation - 108th at South Site Access

Condition	Posted Speed	AM Peak Hour			PM Peak Hour		
		Volume		Result	Volume		Result
		Approaching	Right		Approaching	Right	
Existing	40	44	0	None	22	0	None
2024 Pre	40	65	0	None	26	0	None
2024 Post	40	84	9	None	185	2	None



Source: Texas Transportation Institute

Note: If there is no right-turn lane, a shoulder needs to be provided.



INTERSECTION INFORMATION						
City:	Tualatin		Condition:	Future 2024 with New Lam Office		
Population:	27,000					
Intersection Location: (Rural/Urban)	Urban					
Major Street Name:	SW 108th Avenue		Minor Street Name:	SW Leveton Drive		
Number of Moving Lanes for Each Approach:	1		Number of Moving Lanes for Each Approach:	1		
Speed:	40 mph		Speed:	40 mph		
Street Width:	36 ft		Street Width:	36 ft		
Direction:	NB	SB	Direction:	EB	WB	Total
Hour Beginning:			Hour Beginning:			
12:00 AM			12:00 AM			0
1:00 AM			1:00 AM			0
2:00 AM			2:00 AM			0
3:00 AM			3:00 AM			0
4:00 AM			4:00 AM			0
5:00 AM			5:00 AM			0
6:00 AM			6:00 AM			0
7:00 AM	237	79	7:00 AM	171		487
8:00 AM			8:00 AM			0
9:00 AM			9:00 AM			0
10:00 AM			10:00 AM			0
11:00 AM			11:00 AM			0
12:00 PM			12:00 PM			0
1:00 PM			1:00 PM			0
2:00 PM			2:00 PM			0
3:00 PM			3:00 PM			0
4:00 PM	120	232	4:00 PM	165		517
5:00 PM			5:00 PM			0
6:00 PM			6:00 PM			0
7:00 PM			7:00 PM			0
8:00 PM			8:00 PM			0
9:00 PM			9:00 PM			0
10:00 PM			10:00 PM			0
11:00 PM			11:00 PM			0
24-hour Total	357	311	24-hour Total	336	0	1,004

Warrants Evaluated:

- Warrant 1, 8-Hour Vehicular Volume - Evaluated for Conditions A & B
- Warrant 2, 4-Hour Vehicular Volume - Evaluated
- Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
- Warrant 4, Pedestrian Volume - Not Analyzed
- Warrant 5, School Crossing - Not Analyzed
- Warrant 6, Coordinated Signal System - Not Analyzed
- Warrant 7, Accident Experience - Not Analyzed
- Warrant 8, Roadway Network - Not Analyzed
- Warrant 9, Intersection Near a Grade Crossing - Not Analyzed



WARRANT 3, PEAK HOUR VEHICULAR VOLUME									
	MAJOR			MINOR			Calculated Threshold (B)	A-2&3	B
	NB	SB	Total	EB	WB	Max			
4:00 PM	120	232	352	165	0	165	522	N	N
7:00 AM	237	79	316	171	0	171	551	N	N
12:00 AM	0	0	0	0	0	0	885	N	N
1:00 PM	0	0	0	0	0	0	885	N	N

Warrant Requirements:
 Major Street Lanes: 1
 Minor Street Lanes: 1

CONDITION A-1 - Stopped Delay
 Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled by STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach.

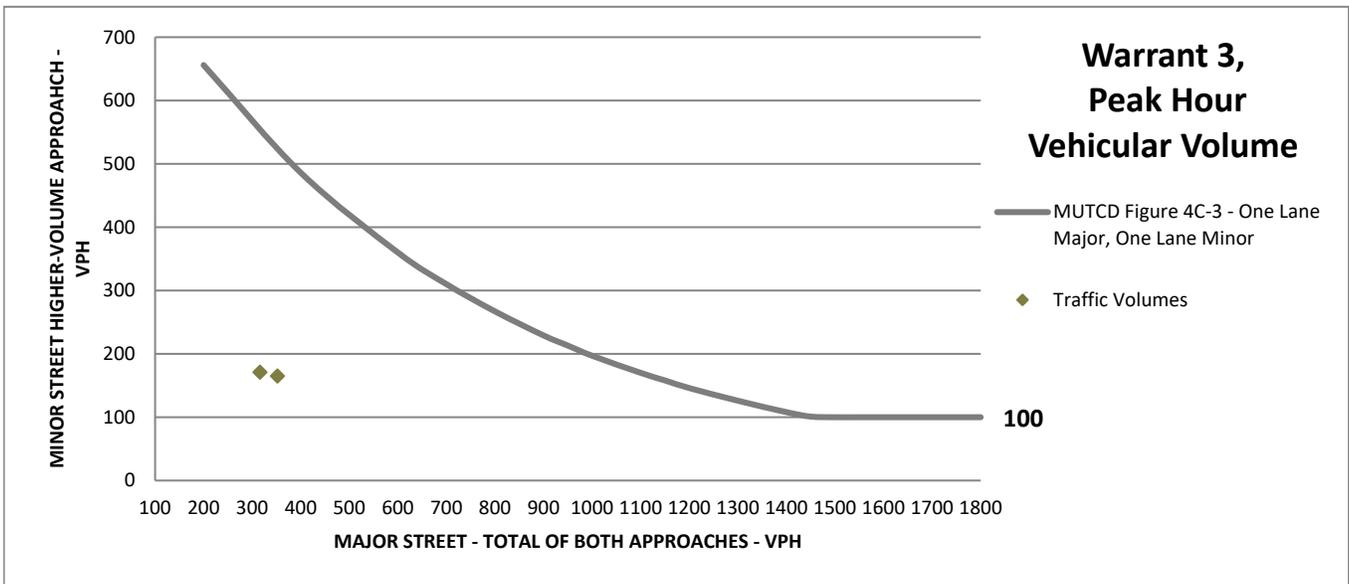
CONDITION A-2 - Minor Street Volume
 Minimum Volume on Higher Minor Street Approach: 100

CONDITION A-3 - Total Approach Volume
 Minimum Volume of Total Approaches: 650

CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)

ARE CONDITIONS A-2 AND A-3 OF SIGNAL WARRANT 3 MET? NO
 Note: All 3 subsections of Condition A must be met to warrant signal.

IS CONDITION B OF SIGNAL WARRANT 3 MET? NO
 Note: Signal Warrant 3 is met if either Condition A or Condition B is met.



INTERSECTION INFORMATION						
City:	Tualatin		Condition:	2024 Post-Development		
Population:	27,000					
Intersection Location: (Rural/Urban)	Urban					
Major Street Name:	SW Tualatin Road		Minor Street Name:	SW Teton Avenue		
Number of Moving Lanes for Each Approach:	1		Number of Moving Lanes for Each Approach:	2		
Speed:	35 mph		Speed:	35 mph		
Street Width:	36 ft		Street Width:	36 ft		
Direction:	EB	WB	Direction:	NB	SB	Total
Hour Beginning:			Hour Beginning:			
12:00 AM			12:00 AM			0
1:00 AM			1:00 AM			0
2:00 AM			2:00 AM			0
3:00 AM			3:00 AM			0
4:00 AM			4:00 AM			0
5:00 AM			5:00 AM			0
6:00 AM	353	205	6:00 AM	41		599
7:00 AM	576	282	7:00 AM	69		927
8:00 AM	538	328	8:00 AM	128		994
9:00 AM	334	268	9:00 AM	105		707
10:00 AM	311	305	10:00 AM	90		706
11:00 AM	396	333	11:00 AM	115		844
12:00 PM	413	414	12:00 PM	119		946
1:00 PM	400	396	1:00 PM	84		880
2:00 PM	333	419	2:00 PM	148		900
3:00 PM	420	494	3:00 PM	176		1,090
4:00 PM	406	608	4:00 PM	239		1,253
5:00 PM	361	576	5:00 PM	169		1,106
6:00 PM	223	302	6:00 PM	107		632
7:00 PM	154	234	7:00 PM	79		467
8:00 PM	85	172	8:00 PM	33		290
9:00 PM	83	98	9:00 PM	38		219
10:00 PM			10:00 PM			0
11:00 PM			11:00 PM			0
24-hour Total	5,386	5,434	24-hour Total	1,740	0	12,560

Warrants Evaluated:

- Warrant 1, 8-Hour Vehicular Volume - Evaluated for Conditions A & B
- Warrant 2, 4-Hour Vehicular Volume - Evaluated
- Warrant 3, Peak Hour - Evaluated for Conditions A-2, A-3 (A-1 needs to be evaluated separately), and Condition B
- Warrant 4, Pedestrian Volume - Not Analyzed
- Warrant 5, School Crossing - Not Analyzed
- Warrant 6, Coordinated Signal System - Not Analyzed
- Warrant 7, Accident Experience - Not Analyzed
- Warrant 8, Roadway Network - Not Analyzed
- Warrant 9, Intersection Near a Grade Crossing - Not Analyzed



WARRANT 1, 8-HOUR VEHICULAR VOLUME

	MAJOR			MINOR			<u>A</u>	<u>B</u>
	EB	WB	Total	NB	SB	Max		
4:00 PM	406	608	1014	239	0	239	Y	Y
5:00 PM	361	576	937	169	0	169	N	Y
3:00 PM	420	494	914	176	0	176	N	Y
8:00 AM	538	328	866	128	0	128	N	Y
12:00 PM	413	414	827	119	0	119	N	Y
7:00 AM	576	282	858	69	0	69	N	N
2:00 PM	333	419	752	148	0	148	N	Y
1:00 PM	400	396	796	84	0	84	N	N
11:00 AM	396	333	729	115	0	115	N	N
9:00 AM	334	268	602	105	0	105	N	N
10:00 AM	311	305	616	90	0	90	N	N
6:00 PM	223	302	525	107	0	107	N	N

Warrant Requirements:

Major Street Lanes: 1
 Minor Street Lanes: 2

CONDITION A - Minimum Vehicular Volume

Minimum Volume on Combined Major Street Approaches: 500
 Minimum Volume on Higher Minor Street Approach: 200

CONDITION B - Interruption of Continuous Traffic

Minimum Volume on Combined Major Street Approaches: 750
 Minimum Volume on Higher Minor Street Approach: 100

IS CONDITION A OF SIGNAL WARRANT 1 MET? NO

IS CONDITION B OF SIGNAL WARRANT 1 MET? NO

IS COMBINED CONDITIONS A & B MET AT 80% LEVEL? NO

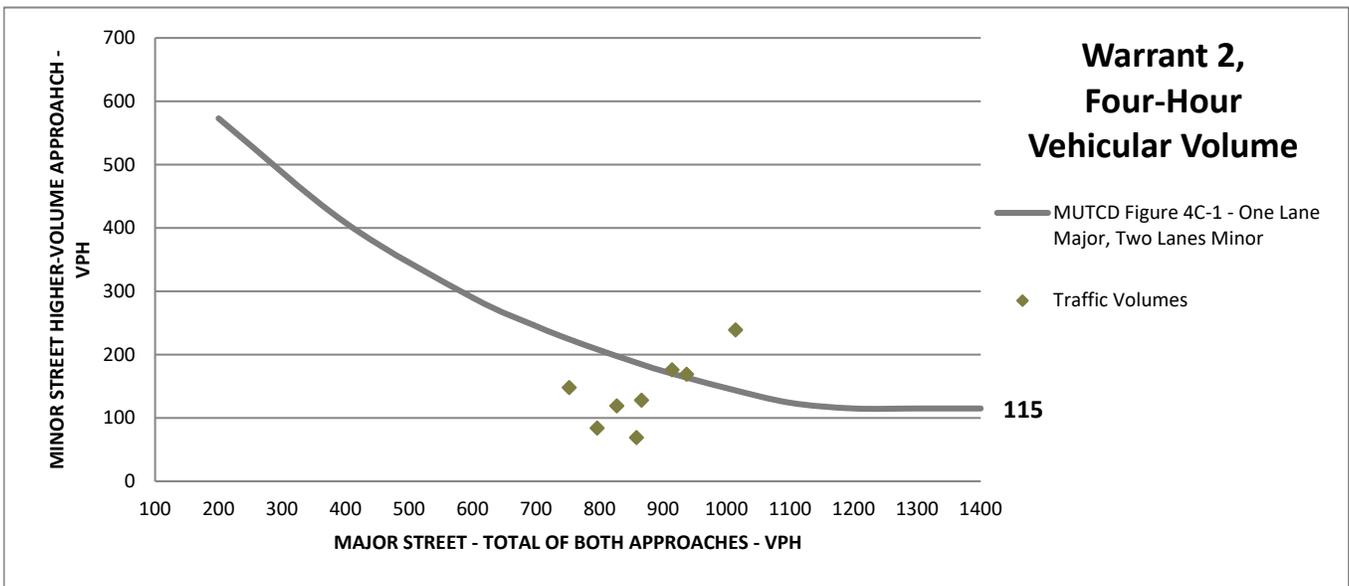
Note: Signal Warrant 1 is met if either Condition A or Condition B is met.



WARRANT 2, FOUR HOUR VEHICULAR VOLUME								
	MAJOR			MINOR			Calculated	
	EB	WB	Total	NB	SB	Max	Threshold	
4:00 PM	406	608	1,014	239	0	239	144	Y
5:00 PM	361	576	937	169	0	169	164	Y
3:00 PM	420	494	914	176	0	176	170	Y
8:00 AM	538	328	866	128	0	128	185	N
12:00 PM	413	414	827	119	0	119	197	N
7:00 AM	576	282	858	69	0	69	187	N
2:00 PM	333	419	752	148	0	148	224	N
1:00 PM	400	396	796	84	0	84	208	N

Warrant Requirements:
 Major Street Lanes: 1
 Minor Street Lanes: 2

IS SIGNAL WARRANT 2 MET? NO



WARRANT 3, PEAK HOUR VEHICULAR VOLUME									
	MAJOR			MINOR			Calculated Threshold (B)	A-2&3	B
	EB	WB	Total	NB	SB	Max			
4:00 PM	406	608	1,014	239	0	239	280	Y	N
5:00 PM	361	576	937	169	0	169	309	Y	N
3:00 PM	420	494	914	176	0	176	318	Y	N
8:00 AM	538	328	866	128	0	128	339	N	N

Warrant Requirements:
 Major Street Lanes: 1
 Minor Street Lanes: 2

CONDITION A-1 - Stopped Delay
 Cannot be evaluated based on volumes alone. Condition met if traffic on one minor-street approach (one direction only) controlled by STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach.

CONDITION A-2 - Minor Street Volume
 Minimum Volume on Higher Minor Street Approach: 150

CONDITION A-3 - Total Approach Volume
 Minimum Volume of Total Approaches: 650

CONDITION B - Plot of Minor Street Volume (high vol approach) vs. Major Street Volume (Both approaches)

ARE CONDITIONS A-2 AND A-3 OF SIGNAL WARRANT 3 MET? YES *Stopped Delay Needs to be Checked*
 Note: All 3 subsections of Condition A must be met to warrant signal.

IS CONDITION B OF SIGNAL WARRANT 3 MET? NO

Note: Signal Warrant 3 is met if either Condition A or Condition B is met.

